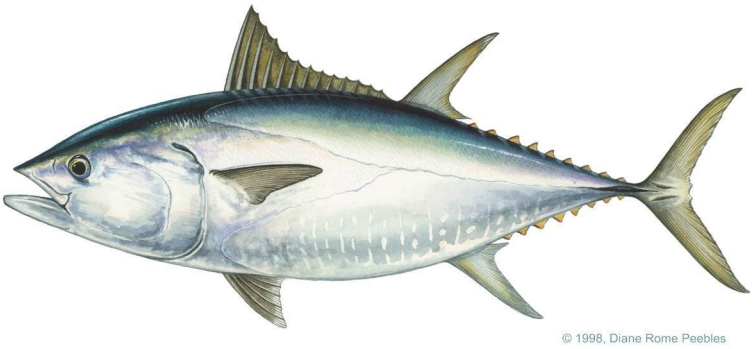
FINAL AMENDMENT 13
TO THE
2006 CONSOLIDATED ATLANTIC HIGHLY MIGRATORY SPECIES FISHERY MANAGEMENT PLAN

Including:
A Final Environmental Impact Statement,
A Regulatory Impact Review,
A Final Regulatory Flexibility Analysis,
A Social Impact Analysis



May 2022

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COVER SHEET

RESPONSIBLE FEDERAL AGENCY: U.S. Department of Commerce (DOC); National Marine Fisheries Service (NMFS or NOAA Fisheries)

TITLE: Final Amendment 13 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan

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This document is available on the NOAA Fisheries website https://www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species, for viewing and downloading.

ABSTRACT:
NOAA Fisheries is amending the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) ("the 2006 Consolidated HMS FMP") to address bluefin tuna (bluefin) management to respond to recent trends and characteristics of the bluefin fishery. This action is necessary to meet domestic management objectives of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) consistent with obligations under binding recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT) that are implemented pursuant to the Atlantic Tunas Convention Act (ATCA) and/or Magnuson-Stevens Act. The objectives of this Amendment are: (1) Evaluate and optimize the allocation of U.S. bluefin quota among bluefin quota categories, considering historical allocations and use, and recent fishery characteristics and trends, and provide U.S. fishing vessels with a reasonable opportunity to catch the U.S. quota established by ICCAT; facilitate the ability for active HMS directed permit categories to catch their full bluefin quota allocations, and facilitate directed fishing for species other than bluefin in the pelagic longline fishery while accounting for incidental bluefin catch; (2) Maintain flexibility of the regulations to account for the highly variable nature of the bluefin fisheries, and maintain fairness among permit/quota categories; (3) Continue to manage the Atlantic pelagic longline fishery consistent with the individual bluefin quota (IBQ) Program objectives in Amendment 7 and consistent with the conservation and management objectives of the 2006 Consolidated HMS FMP and its amendments, and consistent with all applicable laws; and (4) Modify the management of the pelagic longline fishery in response to the Three-Year Review of the IBQ Program, and in response to important relevant prevailing trends (e.g., declining fishing effort and revenue for target species).

Executive Summary

The National Marine Fisheries Service (NMFS or NOAA Fisheries) is conducting rulemaking to modify current regulations for the bluefin tuna (bluefin) fisheries to achieve conservation and management objectives.

Atlantic highly migratory species (HMS) fisheries are managed under the dual authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act (ATCA). Under the Magnuson-Stevens Act, NOAA Fisheries must, consistent with ten National Standards, manage fisheries to prevent overfishing while achieving optimum yield on a continuing basis. ATCA authorizes the Secretary of Commerce (Secretary) to promulgate regulations, as may be necessary and appropriate to carry out binding recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT). The authority to issue regulations under the Magnuson-Stevens Act and ATCA has been delegated from the Secretary to the Assistant Administrator for Fisheries. The measures in this amendment are taken under the authority of the Magnuson-Stevens Act, consistent with obligations under ICCAT recommendations and ATCA. Atlantic sharks, tunas, swordfish, and billfish are managed under the 2006 Consolidated Atlantic HMS Fishery Management Plan (2006 Consolidated HMS FMP) and its amendments.

Since 2015, the pelagic longline fishery has undergone substantial changes, including successful implementation of the Individual Bluefin Quota (IBQ) Program for bluefin (Amendment 7 to the 2006 Consolidated HMS FMP), declining effort, continued underharvest of swordfish, and substantial reductions in bluefin dead discards. In addition to the pelagic longline fishery that incidentally catches bluefin, the directed bluefin fisheries have evolved over time. The purse seine fishery has been largely inactive for many years (the past decade), with no landing of bluefin since 2015. NOAA Fisheries has not issued a vessel permit to any of the five historical purse seine fishery participants since 2015. Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the commercial and recreational handgear fisheries that began prior to 2015 have continued. With such increases there has been renewed public interest in the optimal and equitable allocation of bluefin quota among fisheries, seasons, and geographic areas. In conjunction with possible changes in allocations, it is important to consider changes that might best utilize U.S. Atlantic bluefin quota, consistent with management objectives. In 2019, a formal review of the IBQ Program was conducted through the Three-Year Review of the IBQ Program (Three-Year Review). The principal reasons for this Amendment are the findings of the Three-Year Review, recent changes in the bluefin fisheries, and advice and input from the HMS Advisory Panel and the public.

On May 21, 2019, NOAA Fisheries published a Notice of Intent to prepare an environmental impact analysis and Notice of Availability of an Issues and Options document (84 Federal

Register (FR) 23020). The notice announced the start of a public scoping process for determining the significant issues related to the management of bluefin and addressing issues identified by considering modification of bluefin regulations. NOAA Fisheries requested comments on the Notice of Intent and the management options described in the Issues and Options document and other potential regulatory provisions regarding the bluefin directed fisheries and incidental catch in the pelagic longline fishery, and held 11 public scoping meetings. The public comment period for scoping ended on July 31, 2019. NOAA Fisheries received approximately 100 comments during the public scoping period. Comments were received that were both in support of and opposed to changes in the regulations.

On May 21, 2021, NOAA Fisheries released a Draft Environmental Impact Statement (DEIS) and the Environmental Protection Agency published a Notice of Availability (86 FR 27593). Also on May 21, 2021, NOAA Fisheries published a proposed rule to implement the preferred alternatives (86 FR 27686). The proposed rule notified the public of the opportunity to comment on the DEIS and proposed rule, which began on May 21, 2021, and ended July 20, 2021. The public comment period for the proposed rule was extended until September 20, 2021, based upon public requests for an extension of the comment period in order to provide additional time for the public to understand the proposed measures and supporting analyses and provide comment (86 FR 38262, July 20, 2021). In the DEIS and in this FEIS, NOAA Fisheries considered a reasonable range of alternative management measures to evaluate potential adjustments to conservation and management measures that could meet objectives for the directed and incidental bluefin fisheries, consistent with domestic and international conservation and management objectives. NOAA Fisheries analyzed alternatives organized according to management topics. The range of alternatives is commensurate with the purpose and need for this action, and the amount of data and analyses are commensurate with the context and intensity of the impacts.

A full description and analysis of the different alternatives can be found in Chapters 2 and 4 (respectively) of this document. The list of preferred alternatives can be found below (Table 0.1); the full list of alternatives considered can be found in Chapter 2.

Consistent with the regulations published by the Council on Environmental Quality, 40 CFR 1501-1508 (CEQ regulations)[1], in this FEIS NOAA Fisheries has identified the preferred alternatives to meet the conservation and management objectives. After considering all public comments and feedback from the HMS Advisory Panel during the public comment period, and conducting additional analyses, NOAA Fisheries determined that changes to the

[1] This EIS is being prepared using the 1978 CEQ NEPA Regulations. NEPA reviews initiated prior to the effective date of the 2020 CEQ regulations may be conducted using the 1978 version of the regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020. This review began on May 21, 2019 and the agency has decided to proceed under the 1978 regulations.

preferred alternatives from those analyzed in the DEIS were warranted. Therefore, some of the preferred alternatives in this FEIS are different from those in the DEIS. A list of the final preferred alternatives can be found below in Table 0.1. A full description and analysis of the alternatives can be found in chapters 2 and 4 of this document.

The CEQ regulations direct Federal agencies to the fullest extent possible to integrate the requirements of the National Environmental Policy Act (NEPA) with other planning and environmental review procedures required by law or by agency guidance so that all procedures run concurrently rather than consecutively. To that end, this document integrates the FEIS required by NEPA with the fisheries planning and management requirements associated with a proposed amendment to an FMP under the Magnuson-Stevens Act; the Initial Regulatory Flexibility Analysis required under the Regulatory Flexibility Act, 5 U.S.C. §§ 601-603; and the Regulatory Impact Review prepared in accordance with Executive Order 12866, "Regulatory Planning and Review."

Table 0.1 Comparison of Preferred Alternatives in the DEIS and FEIS

Fishery Category and Topic	DEIS	FEIS
Pelagic longline fishery Modifications to IBQ Share Eligibility, Distribution, and Allocation Methods.	Sub-Alternative A2c: Dynamic determination of IBQ shares based upon designated species landings as the measure of fishing effort.	Sub-Alternative A2b: Dynamic determination of IBQ shares based upon pelagic longline sets as the measure of fishing effort. No use of tiers and no special treatment for very small shares. Authorization for a potential, future *de minimis* IBQ set aside for new entrants.
Reason for Change: Based on public comment, NOAA Fisheries reconsidered whether to use landings or sets as the measure of fishing effort to assist in the dynamic determination of IBQ shares. Because there are a variety of factors that determine which species are fished for and what is landed, while the number of sets only indicates fishing effort and is readily determined using vessel monitoring system (VMS) data, NOAA Fisheries decided to use sets as a measure of fishing effort. NOAA Fisheries also adds to the framework provisions of the 2006 Consolidated HMS FMP the ability to authorize a *de minimis* set aside in conjunction with dynamic allocation in order to support the objectives of the IBQ Program and the Magnuson-Stevens Act requirement to include measures, when necessary and appropriate, to assist new entrants, small vessel owner-operators and others. NOAA Fisheries would consider a potential set aside program, if needed, through a future rulemaking.		
Pelagic longline fishery Modifications to Rules Closely Linked to Allocations	Alternative B3: Modify Regional Gulf of Mexico (GOM) and Atlantic (ATL) Designations for a Dynamic Allocation System and Cap Bluefin Catch from the Gulf of Mexico (note, the abbreviations *GOM* and *ATL* are only	Alternative B3: Same measure, but modified: Add a triggered measure whereby a low threshold percent of GOM IBQ shares (5% of total IBQ) causes

Fishery Category and Topic	DEIS	FEIS
	used in the context of the regional designations of IBQ allocation).	a temporary relaxation in the regional accounting rules.
Reason for Change: Based on public comment, NOAA Fisheries considered different options to ensure that a decline in fishing effort in the Gulf of Mexico would not result in such a low percentage of GOM IBQ allocation available for use in the Gulf of Mexico that the fishery is unreasonably constrained. Under the final action, NOAA Fisheries would temporarily relax the regional accounting rules if the amount of GOM designated IBQ shares represents five percent or less of the total IBQ shares.		
Pelagic longline fishery Sale of IBQ Shares	**DEIS = FEIS**: Alternative C1: No Sale of IBQ Shares - No Action	
Pelagic longline fishery Cap IBQ Share Percentage	**DEIS = FEIS**: - Sub-Alternative D1c: Cap amount of IBQ shares held by an entity at 25 percent of total shares. - Sub-Alternative D2a: No Cap on Amount of IBQ Allocation Leased or Used - No Action	
Pelagic longline fishery Adjustments to other aspects of the IBQ Program	**DEIS = FEIS** - Sub-Alternative E1b: Modify Dealer Reporting Requirements for IBQ Program - Sub-Alternative E2b: Modify Requirement for Mailing Electronic Monitoring (EM) Hard Drives - Sub-Alternative E4b: Specify Additional Fish Handling Protocols for Electronic Monitoring - Sub-Alternative E5b: Implement a Cost Recovery Program - Sub-Alternative F1b: Modify codified quota allocation percentage to reflect the annual 68-mt allocation to the Longline category - Sub-Alternative I5c: Allow Longline category permitted vessels to retain bluefin caught on green-stick gear, regardless of whether pelagic longline gear is onboard	
	Sub-Alternative E3b: Clarify and expand regulations for installation of cameras: NOAA Fisheries to pay for installation of booms (customized camera mounts)	Sub-Alternative E3b: same measure but modified: *Vessel owners* to pay for installation of booms (customized camera mounts) since funds are not available from agency.
Reason for Change: NOAA Fisheries' budget contraints and national policy regarding cost allocation in EM programs are considerations in the determination that vessels owners must pay the associated costs.		
Directed bluefin categories	- Sub-Alternative F2b: Discontinue Purse Seine category and	- Sub-Alternative F2b: Same.

Fishery Category and Topic	DEIS	FEIS
Modifications to Purse Seine category management measures and other category quota allocations	reallocate quota without a time delay - Alternative F4: Reallocate Purse Seine category quota proportionally to directed bluefin categories, including Reserve (not Longline or Trap).	- Sub-Alternative F3a: Reallocate Purse Seine category quota proportionally to all bluefin categories, including Reserve, Longline, and Trap.
Reason for Change: Public comment indicated that the Longline category, an incidental category, is more reliant upon leased Purse Seine category quota than analyses in the DEIS indicated. A refined analysis revealed the extent of this reliance. Because adequate IBQ allocation is important to achieve a balance between incentives to reduce bluefin interactions and the ability to fish for target species to maintain profitability and supply the seafood market, NOAA Fisheries decided to reallocate the Purse Seine category quota proportionally to all bluefin categories, rather than only to directed categories.		
General category Modifications to General category subquota periods and/or allocations	**DEIS = FEIS**: Alternative G1: No Modifications to General category subquota periods and/or allocations - No Action	
General category and Charter/Headboat category Modifications to other handgear fishery regulations.	**DEIS = FEIS**: Sub-Alternative I1a: Maintain the Current Authorized Gears - No Action.	
Angling category Modifications to the Angling category trophy fishery	**DEIS = FEIS**: Alternative H2: Modify Angling category trophy areas and allocations (percentages)	
Harpoon category Modifications to the daily retention limit and season	**DEIS = FEIS**: Sub-Alternative I1a: Maintain the current authorized gears Sub-Alternative I3a: Maintain current start and closure dates	
	- Sub-Alternative I2b: Maintain current Harpoon category retention limit (range) of large medium bluefin, but set a limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin)	- Sub-Alternative I2c: Set a default limit on the total number of bluefin at 10 fish (combined large medium (73 ≤ 81”) and giant bluefin (81"). Allow inseason adjustment of the combined retention limit to between 5 and 10 fish

Fishery Category and Topic	DEIS	FEIS
Reason for Change: Based on public comment, in this FEIS, this alternative provides NOAA Fisheries the flexibility to adjust the number of combined bluefin to between 5 and 10 fish during the fishing season. This additional flexibility provides parity with bluefin trip limits applicable to other permit categories, which are already adjustable via inseason action. A modification to the range of large medium fish is not warranted, because the fishery targets the giant bluefin.		
Open access permit categories Permitting requirements	**DEIS = FEIS**: Sub-Alternative I4b: Amend open access Atlantic tunas or HMS permit category change regulations within a fishing year	

Summary of Ecological and Socioeconomic Impacts

Overall, the preferred alternatives would have minor beneficial ecological impacts and neutral to minor beneficial socioeconomic impacts. There is a range of the magnitude of the beneficial socioeconomic impacts for the individual fishermen due to the diversity of the bluefin fishery. Some vessel operators may experience moderate benefits and others neutral benefits because of their size, gear type, level of fishing effect, or other aspect of their fishing operation. The impacts are principally direct impacts, unless otherwise stated. The text below summarizes the ecological and socioeconomic impacts of the preferred alternatives. The ecological impacts focus particularly on impacts to bluefin given the focus of the Amendment 13 measures on management of that stock.

Summary of Impacts by Preferred Alternative

Sub-Alternative A2b: Dynamic determination of IBQ shares based upon pelagic longline sets as the measure of fishing effort.

- Ecological: This alternative would have neutral impacts on bluefin. While the alternative would affect the distribution of IBQ shares among pelagic longline vessels, the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. The total amount of IBQ allocation resulting from the available IBQ shares would remain equal to the Longline category quota and, although additional quota could be distributed to the category through transfers from the Reserve category, bluefin catch overall would remain within already-established limits. Other ecological impacts, including impacts on HMS target species and non-bluefin incidental catch, also would be neutral.
- Socioeconomic: The socioeconomic impacts of this alternative would be minor and beneficial because more permit holders would benefit from this alternative than would be disadvantaged. Authorization of a *de minimis* set-aside would be minor and beneficial, if a set-aside program were implemented in the future.

Alternative B3: Modify Regional GOM and ATL Designations for a Dynamic Allocation System and Cap Bluefin Catch from the Gulf of Mexico.

- Ecological: This alternative would have neutral impacts on bluefin. While the alternative would affect the regional designations for use of IBQ share and allocation among pelagic longline vessels, the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. This alternative also would continue limits on the portion of allowable bluefin catch from the Gulf of Mexico and provide a regulatory mechanism to strengthen such limits, if necessary. Other ecological impacts, including impacts on HMS target species and non-bluefin incidental catch, would also be neutral.
- Socioeconomic: The socioeconomic impacts are expected to be short-term and minor beneficial, as a result of the increased flexibility for vessels currently without GOM designated IBQ allocation, and a threshold for a low overall amount of GOM designated IBQ (that would cause a temporary relaxation of the accounting rules).

Alternative C1: No Permanent Sale of IBQ Shares - No Action.

- Ecological: This alternative would have neutral ecological impacts on bluefin because there would be no change from the current approach. Allowing or not allowing sale of IBQ shares would not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. Other ecological impacts, including impacts on HMS target species and bycatch, would be neutral.
- Socioeconomic: This alternative would have neutral socioeconomic impacts because there would be no change to the current regulations.

Sub-Alternative D1c: Cap amount of IBQ shares held at 25 percent of total shares.

- Ecological: This alternative would have neutral ecological impacts on bluefin because determining the level of a cap on the amount of IBQ shares held by a single entity, or not implementing a cap, does not affect the total amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. Other ecological impacts, including impacts on HMS target species and bycatch, would be neutral.
- Socioeconomic: This alternative would have neutral socioeconomic impacts due to the likelihood of a strong leasing market for IBQ allocation. A cap of 25 percent on the amount of shares that may be held is a level well above the maximum amount of shares held by an entity in the fishery to date, given share distribution through the tiers in Amendment 7. The 25 percent cap would balance the need to address consolidation with the need to provide flexibility for the fishery participants to

account for bluefin incidental catch using various business models, including cooperatives and limited consolidation that enable efficiencies in order to remain profitable and competitive in the international seafood market.
It is not likely that an entity would reach a 25-percent cap through the annual IBQ shares they would receive under the preferred IBQ share allocation alternative.

Sub-Alternative D2a: No Cap on Amount of IBQ Allocation Leased or Used - No Action.

- Ecological: This alternative would have neutral ecological impacts on bluefin because determining the level of a cap, or not implementing a cap, on the amount of IBQ allocation a single entity could lease or use during a year does not affect the amount of IBQ allocation distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. Other ecological impacts, including impacts on HMS target species and bycatch, would be neutral.
- Socioeconomic: This alternative would have neutral socioeconomic impacts. The IBQ Program has been functioning under these regulations since 2015, and over the years there have been no consistently reported or observed issues relating to excessive accumulation of IBQ allocation. Chapter 2 (Section 2.4.2.1) provides a full discussion of related topics.

Sub-Alternative E1b: Modify Dealer Reporting Requirements for IBQ Program.

- Ecological: This alternative would have neutral ecological impacts because this alternative is administrative in nature.
- Socioeconomic: This alternative would have minor beneficial impacts on dealers since they would be relieved of a redundant reporting requirement.

Sub-Alternative E2b: Modify Requirement for Mailing Electronic Monitoring (EM) Hard Drives.

- Ecological: This alternative would have neutral ecological impacts because this alternative is administrative in nature.
- Socioeconomic: This alternative would have minor beneficial socioeconomic impacts by reducing the costs and time associated with mailing EM hard drives.

Sub-Alternative E3b: Clarify and expand regulations for installation of cameras.

- Ecological: This alternative would have indirect, minor beneficial ecological impacts because it may improve accuracy of the discard data derived from the EM program.
- Socioeconomic: This alternative would have minor adverse socioeconomic impacts as a result of costs to vessel owners for installation of booms to support cameras and of additional logistics that may be required in the operation of EM systems.

Sub-Alternative E4b: Specify Additional Fish Handling Protocols for EM.

- Ecological: This alternative would have minor indirect, beneficial impacts to bluefin as a result of potential improvements to bluefin data.
- Socioeconomic: This alternative would have minor adverse socioeconomic impacts because vessel owners would be required to pay for installation of a measuring grid, and crews may need to modify their fish handling procedures to place all fish on the measuring grid.

Sub-Alternative E5b: Implement a Cost Recovery Program.

- Ecological: The ecological impacts of this alternative would be neutral because this alternative is administrative in nature.
- Socioeconomic: This alternative may have minor adverse impacts on pelagic longline vessel owners, as a result of the collection of cost recovery fees by NOAA Fisheries.

Sub-Alternative F1b: Modify codified quota category allocation percentages to reflect the annual 68-mt allocation to the Longline category.

- Ecological: This alternative would have neutral ecological impacts because the overall U.S. quota and amount of quota in metric tons (mt) currently distributed to each quota category would not change from the status quo.
- Socioeconomic: This alternative would have neutral economic impacts because the overall U.S. quota and amount of quota (in metric tons) distributed to each quota category would not change from the status quo.

Sub-Alternative F2b: Discontinue Purse Seine category and reallocate quota upon implementation of Amendment 13.

- Ecological: This alternative would have neutral ecological impacts because the overall U.S. quota and amount of quota in mt distributed would not change from the status quo.
- Socioeconomic: This alternative would have moderate adverse impacts on the Purse Seine participants in the IBQ Program because of elimination of IBQ allocation leasing revenue.

Sub-Alternative F3a: Discontinue Purse Seine category and reallocate quota upon implementation of Amendment 13, proportionally to all bluefin quota categories.

- Ecological: This alternative would have neutral ecological impacts because the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. Other ecological impacts, including impacts on HMS target species and bycatch, would be neutral.

- Socioeconomic: This alternative would have moderate, beneficial effects on all the other bluefin fishing categories, which would receive redistributed bluefin quota. Under this alternative, the Purse Seine category would be eliminated, ending quota distributions to Purse Seine category participants and leasing of that quota under the IBQ Program after the effective date of Amendment 13.

Alternative G1: No Modifications to General category subquota periods and/or allocations - No Action.

- Ecological: This alternative would have neutral ecological impact because the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota.
- Socioeconomic: This alternative would have a neutral socioeconomic impact because there would be no change to the system of quota distribution seasonally.

Alternative H2: Modify Angling category trophy areas and allocations (percentages).

- Ecological: Ecological impacts on bluefin would be expected to be neutral, as the effect of this measure would be to convert a very small number of potential discards of large medium and giant bluefin to potential landings. While the alternative would result in slightly fewer landings of large school/small medium bluefin and slightly more of large medium/giant bluefin, no effect on the stock is anticipated as a result. Other ecological impacts, including impacts on bycatch, would be neutral.
- Socioeconomic: The socioeconomic impacts of this alternative would be minor and beneficial as a result of new fishing opportunities for vessels fishing in the new trophy area.

Sub-Alternative I1a: Maintain the Current Authorized Gears - No Action.

- Ecological: The ecological impact would be neutral because this alternative would not modify authorized gear for the Atlantic Tunas General or HMS Charter/Headboat categories. Other ecological impacts, including impacts on bycatch, would be neutral.
- Socioeconomic: The socioeconomic impacts of this alternative would be neutral for HMS Charter/Headboat vessels, which could continue to fish under the Atlantic Tunas General and Angling category regulations, and neutral for General category permitted vessels (the vessels affected by this alternative).

Sub-Alternative I2c: Set a Harpoon category default limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and allow inseason adjustment of the combined retention limit to between 5 and 10 bluefin.

- Ecological: This alternative would have a neutral ecological impact, although it may result in the catch of a lower number of bluefin than the status quo within the

Harpoon category. Other ecological impacts, including impacts on bycatch, would be neutral.

- Socioeconomic: This alternative would have minor beneficial impacts as a result of few trips being constrained by a 10-fish limit, and a potentially longer Harpoon category season.

Sub-Alternative I3a: Maintain current start and closure dates of Harpoon category season - No Action.

- Ecological: The ecological impacts of this alternative would be neutral because there would be no change in the regulations.
- Socioeconomic: The socioeconomic impacts of this alternative would be minor and beneficial by remaining consistent with the season for prior years.

Sub-Alternative I4b: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed a bluefin.

- Ecological: This alternative would have a neutral ecological impact because it is administrative in nature.
- Socioeconomic: The socioeconomic impacts of this alternative are minor and beneficial, as a result of vessels having flexibility to change permit types and fish in the manner desired.

Sub-Alternative I5c: Allow Longline category permitted vessels to retain bluefin caught on green-stick gear, regardless of whether pelagic longline gear is onboard.

- Ecological: This alternative would have neutral ecological impacts because any bluefin catch by green-stick gear would be accounted for with IBQ allocation and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. Other ecological impacts, including impacts on non-bluefin bycatch, would be neutral.
- Socioeconomic: This alternative would have minor beneficial economic impacts because a vessel would be able to retain some legal-sized bluefin that may otherwise be discarded dead.

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1 Introduction

Atlantic highly migratory species[2] (HMS) are managed under the dual authority of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act (ATCA). Under the Magnuson-Stevens Act, NOAA Fisheries must, consistent with ten National Standards, manage fisheries to preventi overfishing, while achieving optimum yield on a continuing basis. Under ATCA, the Secretary of Commerce promulgates regulations as may be necessary and appropriate to carry out recommendations by the International Commission for the Conservation of Atlantic Tunas (ICCAT). ICCAT is an international regional fisheries management organization comprised of 52 Contracting Parties including the United States, and Cooperating non-Contracting Parties, Entities, and/or Fishing Entities (CPCs). ICCAT manages tuna and tuna-like species in the Atlantic Ocean and its adjacent seas and also conducts research. ICCAT meets annually and adopts "recommendations" (binding on CPCs) and "resolutions" (non-binding measures) that are intended to achieve ICCAT Convention management goals and objectives[3]. The authority to issue regulations under the Magnuson-Stevens Act and ATCA has been delegated from the Secretary of Commerce to the Assistant Administrator for Fisheries.

The conservation and management measures proposed for this fishery management plan (FMP) amendment and associated rulemaking are taken under the authority of the Magnuson-Stevens Act, consistent with obligations under ICCAT Recommendations and ATCA. Management measures must also be consistent with other applicable laws including, but not limited to, the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the Coastal Zone Management Act (CZMA).

Amendment 7 to the 2006 Consolidated HMS FMP (NOAA Fisheries (NMFS) 2014, Amendment 7) (79 FR 71510, December 2, 2014), which became effective in 2015, implemented substantial changes to the regulation of bluefin fisheries. Amendment 7 focused on the pelagic longline fishery and implemented the Individual Bluefin Quota (IBQ) Program, but also made regulatory changes affecting the directed bluefin fisheries. Amendment 7 measures were wide in scope and included:

- The IBQ Program;
- Modification of bluefin allocations across all quota categories;

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[2] The Magnuson-Stevens Act, at 16 U.S.C. 1802(14), defines the term "highly migratory species" as tuna species, marlin (*Tetrapturus* spp. and *Makaira* spp.), oceanic sharks, sailfishes (*Istiophorus* spp.), and swordfish (*Xiphias gladius*)."

[3] All ICCAT recommendations and resolutions are available on the ICCAT website: https://www.iccat.int/en/

- Gear restricted areas in the Atlantic and Gulf of Mexico*; and
- Reporting and monitoring requirements for both the incidental and directed fisheries.

*subsequently modified through a 2020 rule (85 FR 18812, April 2, 2020).
Since 2015 and the implementation of Amendment 7, there have been new data that documented changing conditions in the directed bluefin fisheries and suggestions from the public and HMS Advisory Panel regarding management of the bluefin fisheries. As part of Amendment 7, NOAA Fisheries committed to conducting a formal evaluation of the first three years of the IBQ Program, which was completed in 2019 (Three-Year Review of the Individual Bluefin Quota Program, NMFS 2019b, referred to hereafter as the "Three-Year Review"). The Three-Year Review found that the IBQ Program was successful in limiting bluefin incidental catch in the pelagic longline fishery and in providing flexibility, through IBQ allocation leasing, for vessels to abide by the restrictions of the program and fish for target species. However, the Three-Year Review also found that it is likely that the IBQ Program contributed to reduced revenue and effort by pelagic longline fishermen from 2015 to 2017. Further, the Three-Year Review noted that a different method of IBQ share and allocation distribution may warrant consideration.

The principal changes in the directed bluefin fisheries have been the continued inactivity (or extremely low activity) of the purse seine fishery over the past 15 years and the continuing evolution of the handgear fisheries, which are extremely dynamic. Between 2005 and 2012 there was no purse seine fishing activity. From 2013 to 2015, only one Purse Seine category participant fished, making only a few sets, and accounting for only a small percentage of total annual bluefin landings each year (six, five, and four percent in 2013, 2014, and 2015, respectively). The last year a set was made in the purse seine fishery was in 2015. NOAA Fisheries has not issued a vessel permit to any of the five historical purse seine fishery participants for the 2016 through 2022 fishing years. In other directed fisheries, the total catch from the handgear fisheries has been increasing, there have been periods of very high bluefin availability, and there has been public concern about perceived changes in the socioeconomics of the fishery. The socioeconomic changes in the fishery, perceived and/or actual, include increased fishery participation and availability of bluefin and curtailed fishing opportunities in other fisheries.

Because of the changes in the fishery, new information on the directed and incidental fisheries noted above (during the five-year period from 2015 through 2019), and the result of the analyses in the Three-Year Review, NOAA Fisheries began formal consideration of changes to the management of the bluefin fishery.

In 2019, NOAA Fisheries developed an Issues and Options document for Amendment 13 to the 2006 Consolidated HMS FMP (Amendment 13). In the Issues and Options document, NOAA Fisheries considered a range of issues and objectives, as well as possible options for future bluefin management. The management options presented were not intended to be comprehensive with respect to potential modifications to the regulations, but were a basis

for further discussion and refinement of the potential objectives and measures (NMFS 2019a).

On May 21, 2019, regarding possible options for future bluefin management, NOAA Fisheries published a Notice of Intent in the Federal Register that provided formal notice to the public that NOAA Fisheries intended to prepare an environmental impact analysis; notified the availability of the Issues and Options Paper; announced the start of the public scoping process (with a comment period of May 21 through July 31, 2019); and solicited public comments (84 FR 23020). On May 22, 2019, NOAA Fisheries published a notice of scoping meetings that provided the dates and locations of 10 scoping meetings, including a webinar, pertaining to development of Amendment 13 (84 FR 23519). In addition, scoping was conducted at the May 22, 2019 meeting of the HMS Advisory Panel. A summary of the public comments and feedback received on the management options in the Issues and Options Paper during the Scoping Meetings can be found in the Appendix of the Draft Environmental Impact Statement (DEIS) (Appendix A, Section 11.1). All written comments can also be found at: https://www.regulations.gov/docket/NOAA-NMFS-2019-0042/comments.

On May 21, 2021, NOAA Fisheries released a DEIS and EPA published a Notice of Availability (86 FR 27593). Also on May 21, 2021, NOAA Fisheries published a proposed rule to implement the preferred alternatives identified in the DEIS (86 FR 27686). The proposed rule notified the public of the opportunity to comment on the DEIS and proposed rule, which began on May 21, 2021, and ended July 20, 2021. The public comment period for the proposed rule was extended until September 20, 2021 based upon public requests for an extension of the comment period in order to provide additional time for the public to understand the proposed measures and supporting analyses and provide comment (86 FR 38262, July 20, 2021). A summary of the public comments received during the public comment period and NOAA Fisheries' response to those comments can be found in Appendix A of this FEIS (Section 11.1).

NOAA Fisheries developed this FEIS based, in part, on consideration of public and HMS Advisory Panel comments received on the scoping document, the DEIS, and the proposed rule.

Some of the preferred alternatives of the FEIS are different from those in the DEIS, based on public comment and the input of the HMS Advisory Panel. A brief summary of the differences between the alternatives in the DEIS and FEIS is below and in Table 0.1, with additional information provided in Chapter 2.

- For the IBQ Program:
    - The Preferred Alternative in this FEIS would base quota shares on pelagic longline sets with customized percentages (in the proposed rule, base quota shares would have been based on landings with tiered percentages)
    - There would be a triggered measure whereby a low threshold percent of GOM IBQ shares (5% or less of total IBQ shares) in a particular year causes a relaxation in the regional accounting rules;

  - NOAA Fisheries would have the authority to consider, through a future rulemaking, a potential set aside of a *de minimis* percent of IBQ shares and allocation to use for new entrants to the fishery; and
  - The cost associated with the installation of video camera booms would be paid for by vessel owners (DEIS specified that cost would be paid for by NMFS if funds were available. NMFS subsequently determined funds are not available);
- Regarding other measures:
  - The Purse Seine category bluefin quota would be reallocated proportionally among all bluefin quota categories, including the incidental categories (Longline and Trap); and
  - The Harpoon category retention limit would allow inseason adjustment of the combined retention limit of large medium (73-<81") and giant (81"+) bluefin to between 5 and 10 fish.

The alternatives would affect the commercial and recreational HMS fisheries and are broadly organized in this document according to the type of quota categories primarily affected (e.g., Longline category (pelagic longline vessels), Purse Seine category, General category, Angling category, etc.) for ease of understanding. NOAA Fisheries considers a range of alternatives that would meet the purpose, need and objectives of this amendment, described in Sections 1.3 and 1.4). Amendment 13, among other things, ensures continued adherence to the U.S. bluefin quota and other measures adopted by ICCAT, consistent with the best scientific information available and conservation objectives for the stock; facilitates the ability for active directed HMS permit categories to catch their full bluefin quota allocations; facilitates directed fishing operations in the pelagic longline fishery while accounting for incidental bluefin catch; and provides U.S. fishing vessels with a reasonable opportunity to catch the U.S. quota-recommended quota. The alternatives are all described in detail in Chapter 2.

1.1 Brief Management History

The following is a brief overview of HMS management, focusing on management relevant to the alternatives under consideration. More information on the bluefin fishery and its management can be found in Chapter 3.

1.1.1 Atlantic Bluefin Tuna Quota Management

The bluefin fishery is a quota-managed fishery, and the annual U.S. bluefin quota is established by binding recommendations of ICCAT. The U.S. bluefin quota established through that process is implemented domestically through rulemaking and allocated currently among seven quota categories. Four of the quota categories are associated with fisheries that target bluefin (directed fisheries): General, Angling, Harpoon, and Purse Seine categories. Two of the quota categories are associated with fisheries that target other HMS species such as swordfish, but catch bluefin incidentally (incidental fisheries): Longline and Trap categories. The Trap category is provided a very small amount of quota that allows for landing bluefin incidentally caught in pound nets or fish weirs that are fishing primarily for

Atlantic herring. Lastly, there is the Reserve category, in which quota is held in reserve for inseason or annual adjustments and research, and which may be augmented as allowable with quota underharvest from the previous year, or currently, through the annual reallocation of Purse Seine category quota. The overall quota is adopted by recommendation at ICCAT and implemented domestically consistent with the Magnuson-Stevens Act and ATCA, and a suite of management measures ensure that catch is kept to the required level. The amount of quota allocated to each category is expressed as a percentage of the U.S. quota, as first established in the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks based on landings from 1983 through 1991 and continued unchanged* in the 2006 Consolidated HMS FMP (*with minor modifications in Amendment 7). The ICCAT recommendations have provided, in addition to the annual U.S. quota, 25 metric tons (mt) annually for incidental catch of bluefin related to longline fisheries in the vicinity of the management area boundary, which NOAA Fisheries uses to account for bycatch related to pelagic longline fisheries in the Northeast Distant gear restricted area (NED). As described below and in Chapter 2, reallocation of quota that could affect all bluefin categories is being considered in this final EIS.

1.1.2 Incidental Bluefin Tuna Pelagic Longline Fishery Management Overview

The pelagic longline fishery for Atlantic HMS primarily targets swordfish, yellowfin tuna, and bigeye tuna in various areas and seasons. Secondary target species include dolphin, skipjack and albacore tuna. Although this gear can be modified (e.g., depth of set, hook type, hook size, bait) to target swordfish or tunas, it is generally a multi-species fishery. Pelagic longline vessel operators are opportunistic, switching gear style and making subtle changes to target the best available economic opportunity on each individual trip.

The pelagic longline fishery is a highly regulated fishery, with a diverse suite of applicable rules including permitting requirements (limited access permits), gear restrictions, time/area closures, fish size limits, retention limits, and reporting and monitoring requirements. These restrictions are summarized in the HMS regulations at 50 CFR 635 and in the Atlantic HMS Commercial Compliance Guide. Pelagic longline vessels catch bluefin incidentally, but cannot target bluefin.

The management structure of the pelagic longline fishery was fundamentally changed in 2015 with the implementation of Amendment 7. Prior to Amendment 7, incidental catch of bluefin was disincentivized primarily through bluefin retention limits associated with specific target catch requirements. Permitted longline vessels were allowed to keep one bluefin if 2,000 pounds (lb) of targeted catch (e.g., swordfish) was onboard, two bluefin if 6,000 lb of targeted catch was onboard, and three bluefin if 30,000 lb of targeted catch was onboard. These rules, in part, resulted in large amounts of bluefin discards, and exceedances of the portion of the overall quota designated to account for the Longline category bluefin landings and discards. Because of this, among other drivers, the management structure of the pelagic longline fishery was modified under Amendment 7. Through Amendment 7, target catch requirements were removed in favor of a limited access privilege program that focused on individual vessel accountability for bluefin

incidental catch. As discussed in greater detail below, the IBQ Program distributes IBQ allocation (the weight of bluefin that must be used to account for landings and dead discards) to eligible participants based on the IBQ share tier (a designated percentage of the annual Longline category quota) associated with their Atlantic Tunas Longline category permit.

Also in Amendment 7, NOAA Fisheries altered the annual U.S. bluefin quota allocation process to help account for the Longline category incidental catch of bluefin, recognizing that historically an amount of quota had been set aside for bluefin discards in the pelagic longline fishery. Through this step, each bluefin quota category effectively "contributed" to the Longline category proportionally to contribute 68 mt total to the category. The IBQ Program distributes IBQ allocation among shareholders, facilitates the trade and use of IBQ allocation through the Catch Shares Online System, and accounts for bluefin catch in whole weight units (not dressed weight).

The IBQ Program

The implementation of Amendment 7 shifted the focus from limiting incidental bluefin catch in the HMS pelagic longline fishery using fleet-wide management measures to limiting incidental bluefin catch using individual vessel accountability through the implementation of the IBQ Program. The IBQ Program was one of many components of Amendment 7 that affected the Atlantic pelagic longline fishery with respect to limiting incidental bluefin catch in the pelagic longline fishery. The other components were two pelagic longline gear restricted areas; mandatory electronic monitoring (EM; video cameras) of pelagic longline gear at haulback;catch reporting of each pelagic longline set using vessel monitoring systems (VMS); and an annual process for redistribution of Purse Seine category quota and allowance for leasing of Purse Seine category quota by pelagic longline vessels.

The IBQ Program established IBQ shares (percentages), with resulting IBQ allocations (pounds) distributed annually to IBQ shareholders. It also required accounting for landings and dead discards of bluefin, and required mandatory retention of legal-sized dead bluefin. *See* Section 2.1 for a further explanation of IBQ shares and IBQ allocations. IBQ allocation must be used to account for landings and dead discards on a quarterly basis. The allocations are based on the IBQ share percentage associated with an Atlantic Tunas Longline category permit. NOAA Fisheries assigned IBQ shares to eligible vessels based on low, medium and high tiers, after considering each pelagic longline fishery vessel's fishing activity from 2006 through 2012 and the ratio of bluefin catch to target "designated species" landings). NMFS considered these metrics, understanding that greater levels of fishing activity were likely to be correlated with a greater number of bluefin interactions and that landings of designated species were an indicator of both the level of fishing effort as well as vessel success at targeting those species and minimizing bluefin bycatch interactions. Past fishing that resulted in fewer bluefin interactions resulted in larger IBQ shares. This approach considered vessels' level of fishing effort, acknowledged past bluefin avoidance, ensured an equitable initial allocation, and considered the diversity in vessel fishing patterns and catch characteristics of the fleet. Each of the IBQ share tiers

corresponds to a percentage that is applied to the total annual Longline category quota to annually calculate IBQ allocations. Total IBQ allocations distributed in a given year can also be influenced by any inseason quota transfers from the Reserve category to the Longline category, although additional quota may be distributed either to active vessels or to shareholders. Fishery participants that did not receive IBQ shares and subsequent allocations can lease IBQ allocations through the Catch Shares Online System.

Under the approach adopted in Amendment 7, if fishing results in more landings and dead discards than can be covered by a permit holder's available IBQ allocation (creating "quota debt"), then that individual must obtain more IBQ allocation to account for the excess bluefin catch. Initially, accounting for quota debt was on an annual basis (for the first year of the IBQ Program) to account for the uncertainty associated with implementation of the program and then moved to a trip level basis as designed. Subsequently, starting on January 27, 2018, accounting for quota debt changed from a trip-level basis (whereby a participant with a permit in quota debt must reconcile the debt and meet the minimum regional IBQ requirement before the start of the next trip) to a quarterly basis (whereby a participant must reconcile quota debt and meet the minimum regional IBQ requirement with IBQ allocation prior to departing on the first trip of a subsequent quarter) to provide additional flexibility for active vessels (82 FR 61489, December 28, 2017). Expanded VMS reporting requirements and EM were implemented in Amendment 7 to support the new IBQ Program and the inseason monitoring of the pelagic longline and purse seine fisheries.

Since implementation of Amendment 7, there has been a substantial decrease in the number of bluefin dead discards by pelagic longline vessels due to changes in fishing behavior, turning dead discards into landings, and reduced fishing effort. The IBQ Program and individual vessel accountability resulted in levels of pelagic longline catch of bluefin well below the available baseline category quota, even during years in which the Longline category quota was supplemented by inseason quota transfers and other adjustments.

Three-Year Review of IBQ Program

NOAA Fisheries conducted a formal review of the IBQ Program to analyze and evaluate the Program's effectiveness in meeting the goals and objectives specified in Amendment 7. The results of this review, named the Three-Year Review (NMFS 2019b), is available at: https://www.fisheries.noaa.gov/resource/document/three-year-review-individual-bluefin-quota-program. Analyses in the Three-Year Review indicate that the IBQ Program met expectations for objectives 1 - 3 in Amendment 7 (limit the amount of bluefin dead discards and landings in the pelagic longline fishery; provide strong incentives for the vessel owner and operator to avoid bluefin interactions; and provide flexibility in the quota system to enable full accounting of bluefin mortality while minimizing constraints on target species fishing activity). The Three-Year Review also noted that the IBQ Program achieved objective 4: balancing limiting bluefin catch with optimizing fishing opportunities and maintaining profitability. However, it was difficult to separate out the influence of the IBQ Program from other factors, including the effect of swordfish imports on the market for U.S. products, other regulations such as closed and gear restricted areas, as well as target species availability and price. Although it is likely that the IBQ Program contributed to

reduced total revenue and effort in the pelagic longline fishery, average annual operating income per vessel increased since implementation, supporting the contention that the economic situation has stabilized for many of the vessels that fished during the IBQ period (2015 to 2017). Through Amendment 7, NOAA Fisheries was able to successfully balance achieving the IBQ Program objectives with impacts on the permit categories that target bluefin and on HMS dealers, as well as the broader objectives of the 2006 Consolidated HMS FMP and the Magnuson-Stevens Act (objective 5). Prior to the implementation of Amendment 7, pelagic longline vessels had large amounts of dead discards, and the Longline category consistently exceeded its quota by very large amounts (primarily due to dead discards). In contrast, after implementation of Amendment 7, the Longline category no longer overharvested its quota.

The Three-Year Review also evaluated standard Limited Access Privilege Program (LAPP) components, including allocations and accountability rules; eligibility; catch and sustainability; accumulation caps; data collection, reporting, monitoring, and enforcement; duration; new entrants; and cost recovery. While the IBQ Program may be considered successful with respect to many of these evaluative aspects, NOAA Fisheries determined in the Three-Year Review that some updates to the program might be appropriate or warrant consideration, including but not limited to: (a) new distribution method for IBQ shares or IBQ allocations to ensure that use of quota is optimized, as well as to address new entrants to the fishery, and (b) whether accumulation caps are needed to reduce potential excessive control of IBQ shares or allocation.

Regarding optimizing directed fishing opportunity, the ability of pelagic longline vessels to account for bluefin catch with IBQ allocations (distributed per IBQ share or leased) at an affordable price is key to the success of the IBQ Program and thus to optimizing fishing opportunities for target catch while accounting for incidental bluefin catch. Since the implementation of Amendment 7, pelagic longline fishery participants, early in the Program in particular, have expressed frustrations about the cost and availability of IBQ allocation via leasing. Specifically, potential lessees (recipients of IBQ allocation through leasing) have communicated that there were instances where the cost at which lessors were willing to lease their IBQ allocation was prohibitive and the transaction did not occur as a result. Early in the Program, some potential lessors communicated that they were hesitant to lease IBQ allocation to other permitholders because of the need to retain an adequate balance of IBQ allocation to account for their own catch of bluefin later in the year, if needed. Longline fishery participants requested that NOAA Fisheries take steps to provide more access to IBQ allocation for those vessels with recent fishing activity to reduce the dependence on leasing from IBQ share recipients, some of whom were not participating in the fishery or engaging in leasing.

From 2015 through 2018, NOAA Fisheries transferred bluefin quota from the Reserve to the Longline category during the season and then distributed IBQ allocations among pelagic longline vessels (first to shareholders and later, after additional rulemaking as discussed below, only to active vessels). These types of inseason transfers of quota to the Longline category facilitate accounting for bluefin landings and dead discards, foster conditions in which permit holders become more willing to lease IBQ allocation throughout

the year, and reduce uncertainty in the fishery as a whole. The primary source of uncertainty was whether a vessel would be able to account for bluefin caught, or whether fishing opportunity for target species would be constrained by the unavailability of IBQ allocation (*e.g.*, because of bluefin quota debt or a low IBQ balance) or by not finding affordable quota (or sufficient quota) for lease. HMS Advisory Panel members and fishery participants made various suggestions on how to optimize the distribution of IBQ allocations, including allocating only to currently active vessels as a way to provide more quota to vessels that need it.

During 2016, NOAA Fisheries proposed and then finalized a rule modifying the IBQ Program regulations regarding the distribution of quota transferred to the category inseason. The final rule became effective on February 10, 2017 (81 FR 95903, December 29, 2016). The rule enabled bluefin quota distributed inseason to be allocated to either all qualified IBQ share recipients (i.e., share recipients who have associated their permit with a vessel) or only to permitted Atlantic Tunas Longline vessels with recent fishing activity, whether or not they are associated with IBQ shares. Under the rule provisions, NOAA Fisheries determines if a vessel has any recent fishing activity based upon the best available information for the subject and previous year, such as logbook, VMS, or EM data. This approach was taken in order to provide flexibility with respect to which vessels receive IBQ allocation inseason, whether IBQ share recipients or not, and to achieve the objectives of the IBQ Program, such as accounting for bluefin during longline operations and optimizing fishing opportunity for target species. The final rule also clarified that inseason distributions of IBQ allocation to vessels, whether distributed to shareholders or to active vessels, would be made in equal amounts and not based on the IBQ share recipient's quota tier (percentage).

The Three-Year Review verified that a portion of the shareholders that received annual IBQ allocation neither fished nor leased out their available IBQ allocation. As a result of the trends noted in the Three-Year Review, input from fishery participants and the public, and NOAA's *Fisheries Allocation Review Policy* (NMFSPD 01-119, July 27, 2016), this Amendment considers modifications to the IBQ Program.

1.1.3 Directed Bluefin Tuna Fisheries Management Overview

The directed bluefin fisheries are the purse seine fishery and the commercial and recreational handgear fisheries, as described briefly below. A more in-depth description of the fisheries is in Chapter 3.

Purse Seine Bluefin Fishery

Since 1982, the Purse Seine category has been managed with non-transferrable limited entry permits, and limited to five participants who historically were financially dependent on the fishery. Limited entry was initiated due to the large harvesting capacity of this gear type and its ability to exceed U.S. quotas in very short periods of time. Limited entry was also pursued in this fishery, as it was practical given the small pool of ownership in this

sector of the fishery. The intent of the system was to ensure that only those persons who had depended on this fishery for all or part of their livelihood were allowed access. Under this limited entry system, the use of purse seine gear was authorized, and equal baseline quotas of bluefin were assigned to five individual vessel owners. This enabled owners to replace older vessels they owned with newer ones. Although new entrants are prohibited, an owner of a vessel with an Atlantic Tunas Purse Seine category permit may transfer the permit to another purse seine vessel that he or she owns. Regulations establish that NOAA Fisheries may start the bluefin purse seine season between June 1 and August 15 and the fishery closes on December 31 of each year it is open or when the Purse Seine category quota is filled or projected to be filled per § 635.28(a).

From 1983 through 2000, the annual landings of bluefin by the purse seine vessels was between 245 and 398 mt, representing a substantial portion of the U.S. annual bluefin catch. The last year during which purse seine landings approached that level was in 2005 (178 mt). From 2005 through 2012, there was no purse seine fishing activity. From 2013 to 2015, only one Purse Seine category participant fished, making only a few sets, and accounting for only a small percentage of total annual bluefin landings each year (six, five, and four percent in 2013, 2014, and 2015, respectively).

Under the current regulations, the Purse Seine category gets 18.6 percent of the annual U.S. bluefin quota (after subtraction of the 68 mt dead discard allowance from the baseline quota). Given the lack of fishing activity among the historic Purse Seine category participants, Amendment 7 also implemented a process through which Purse Seine category quota may be reallocated annually to the Reserve category, with the amount based on a formula that considers the Purse Seine category participants' previous year's catch. Amendment 7 provided the opportunity for the historic Purse Seine category participants to re-enter the fishery, with the ability to scale up the annual quota distribution available for their use. NOAA Fisheries has not issued a vessel permit to any of the five historical purse seine fishery participants for the 2016 through 2021 fishing years.

NOAA Fisheries has continued to allocate some Purse Seine category quota to the historical participants based on the previous year's fishing activity in accordance with the Amendment 7 procedures, and the individual annual quota distributions currently can be leased to Atlantic tunas Longline category permit holders through the IBQ system. Although much of the Purse Seine category quota has been reallocated to the Reserve category, some of the bluefin quota allocated to Purse Seine category participants has been leased to pelagic longline vessels. However, a meaningful amount of bluefin quota allocated to the Purse Seine category is neither used nor leased. This current situation with the purse seine fishery, which is allocated a large percentage of the quota but does not use it and is limited to the five historic fishery participants, causes uncertainty in the rest of the bluefin fisheries as a result of the impact on bluefin quota management. There is uncertainty regarding how much of the Purse Seine category will be transferred to the Reserve category and the timing of the transfer. There is the related uncertainty about the amount of quota that will be in the Reserve category and the amount of quota that NOAA Fisheries may transfer from the Reserve category to other quota categories inseason (and the timing of such potential transfers). Further, there is uncertainty regarding the amount of quota

that the Purse Seine category is willing to lease to pelagic longline vessels, and the price. Quota that is allocated to Purse Seine category participants and then repeatedly unused is a source of concern to participants of both the directed and incidental bluefin fisheries, who, as a result, may forego potential fishing opportunities.

Due to the inactive status of the purse seine fishery, HMS Advisory Panel members have strongly recommended "sunsetting" the Purse Seine category by prohibiting the use of purse seine gear as an allowable gear to catch Atlantic tunas, and reallocating the bluefin quota to the remaining quota categories. Some of the objectives of this recommendation include: optimizing utilization of bluefin quota by reducing unused quota, decreasing uncertainty in the bluefin fishery, and increasing quota and fishing opportunities for the rest of the bluefin fishery. Alternatives addressing these objectives are described in Chapter 2 and considered in this document.

Handgear Fisheries

The directed bluefin handgear fisheries include both commercial and recreational fisheries and occur along the Atlantic coast and not the Gulf of Mexico. Targeting bluefin in the Gulf of Mexico is prohibited, consistent with ICCAT recommendations, as this area is the recognized spawning grounds for western Atlantic bluefin. The availability of bluefin at specific locations and times of year is highly dependent on environmental variables that fluctuate from year to year. Owners/operators of vessels fishing commercially for bluefin using a combination of rod and reel, harpoon, and/or handlines must obtain an Atlantic Tunas General category permit. Owners of vessels that wish to commercially fish exclusively with Harpoon gear may obtain an Atlantic Tunas Harpoon permit. Owners of vessels fishing recreationally for bluefin (i.e., no sale) must obtain an HMS Angling permit. Owners of vessels that may take paying passengers must obtain an HMS Charter/Headboat permit, which allows some conditional flexibility to fish either recreationally or commercially for HMS species.

This Amendment includes, among other things, alternatives focused on the bluefin fisheries pursued under the General category quota (i.e., General category and Charter/Headboat permitted vessels when fishing commercially); the Harpoon category; and the Angling category. It is important to note that vessels issued either an Atlantic Tunas General category or an HMS Charter/Headboat permit (with a commercial sale endorsement and when fishing commercially) may land bluefin counted against the General category bluefin quota. Throughout the document, NOAA Fisheries refers to the Atlantic Tunas General category *permit category* and the bluefin tuna General category *quota*. It is important to distinguish between the two different references to the General category. The Atlantic Tunas General category *permit category* refers to the specific type of permit and to participants issued that permit (i.e., an Atlantic Tunas General category permit). The General category *quota* refers to the quota that is utilized by participants in the directed commercial bluefin handgear fishery who are issued either an Atlantic Tunas General category permit or an HMS Charter/Headboat permit when fishing commercially. This quota is divided among time-period subquotas. Each of five time periods is allocated a percentage of the annual General category quota (January, June through August,

September, October through November, and December). Although it is called the "January" subquota in the regulations, the regulations currently allow landings to continue until the subquota is reached, or until March 31, whichever comes first. For purposes of clarity, particularly given the alternatives that consider changing that subquota period, NOAA Fisheries uses "January through March" in this document. NOAA Fisheries may adjust each period's subquota based on overharvest or underharvest in the prior subquota period. Therefore, unused General category quota may be available for use in subsequent time periods. In addition, after considering regulatory criteria, NOAA Fisheries may decide through an inseason action to transfer quota from one subquota period to another, whether earlier or later in the calendar year. For example, NOAA Fisheries may transfer quota allocated for December of a particular year to January of that same year, to further fishing opportunities early in the calendar year. A more detailed description of the General category fishery is contained in Chapter 3.

Modification of management measures for the directed bluefin fisheries is being considered to optimize fishing opportunity and to provide equitable fishing opportunities across seasons and geographic areas. Modification of the current General category subquota allocations could alter the distribution of subquota among time periods (e.g., January through March, June through August), and may alter fishing opportunities for some vessels. Some General category quota participants perceive they are disadvantaged with respect to the amount of subquota available during the time period they fish, while others state the need to maintain the current distribution of quota, to recognize historical patterns of catch and participation in the fishery. Given the dynamic nature of the fishery, which is constantly changing over time, under NOAA's *Fisheries Allocation Review Policy* (NMFSPD 01-119, July 27, 2016), it is appropriate to periodically consider whether the General category subquota allocations, as well as other quota category allocations, are providing equitable fishing opportunities along with meeting the objectives of the 2006 Consolidated HMS FMP, as amended.

1.1.4 Social and Economic Concerns

To satisfy mandates of NEPA, the Magnuson-Stevens Act subsections summarized below, and other statutes, including those protecting marine mammals, threatened species, and endangered species, this document identifies and evaluates the direct, indirect, and cumulative impacts of the proposed action on the biological, ecological, social and economic elements of the human environment. These provisions are outlined in greater detail in Chapters 4 through 7.

The Magnuson-Stevens Act subsection 303(a)(9) requires any FMP to include a fishery impact statement which shall assess, specify, and analyze the likely effects, if any, including the cumulative conservation, economic, and social impacts, of the conservation and management measures on, and possible mitigation measures for:

- Participants in the fisheries and fishing communities affected by the plan or amendment;

- Participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants; and,
- The safety of human life at sea, including whether and to what extent such measures may affect the safety of participants in the fishery.

A similar analysis using much of the same economic and social data is included to ensure consistency with the Magnuson-Stevens Act National Standard 8 (Magnuson-Stevens Act subsection 301(a)(8)), which requires that conservation and management measures, including those developed to end overfishing and rebuild fisheries:

- Take into account the importance of fishery resources to fishing communities in order to provide for their sustained participation; and,
- To the extent practicable, minimize the adverse economic impacts on such communities.

Additionally,section 304(g)(1)(C) of the MSA requires the Secretary to:

- Evaluate the likely effects, if any, of conservation and management measures on participants in the affected fisheries; and,
- Minimize, to the extent practicable, any disadvantage to U.S. fishermen in relation to foreign competitors.

1.2 Scope and Organization of this Document

This Final Amendment 13 document includes an FEIS that assesses the potential direct, indirect, and cumulative ecological, social, and economic impacts associated with the alternatives to the proposed action. Under NEPA, Federal agencies prepare an EIS if a proposed major federal action may or will significantly affect the quality of the human environment. An EIS is an analytical document that provides full and fair discussion of significant environmental impacts and informs decision makers and the public of reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment. NOAA Fisheries developed this FEIS, consistent with procedural requirements of NEPA and CEQ implementing regulations, 40 C.F.R. §§ 1500-1508; NOAA's procedures for implementing NEPA, including NOAA Administrative Order (NAO) 216-6A and its Companion Manual; and "Revised and Updated NEPA Procedures for Magnuson-Stevens Fishery Management Actions" (See "Policy Directive 30-132: National Environmental Policy Act Compliance for Council Initiated Fishery Management Actions under the Magnuson-Stevens Act"-Appendix C). This FEIS is being prepared using the 1978 CEQ NEPA Regulations. NEPA reviews initiated prior to the effective date of the 2020 CEQ regulations may be conducted using the 1978 version of the regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020. This review began with a Notice of Intent published on May 21, 2019, and the agency has decided to proceed under the 1978 regulations. After considering public comments received on the Notice of Intent, and scoping,NOAA Fisheries has developed this EIS.

The following definitions were generally used to characterize the nature of the various impacts evaluated with this FEIS. Some or all of the terms may be used to describe impacts, as relevant.

- Short-term or long-term impacts. These characteristics are determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term impacts are those that would occur only with respect to a particular activity or for a finite period. Long-term impacts are those that are more likely to be persistent and chronic. An example of a short-term impact might include a change in an allocation of bluefin quota for a pelagic longline fisherman, if an alternative that modifies the method of allocating IBQ is selected. Long-term impacts might be more aligned with overall catch trends that might not be apparent following the implementation of a new management measure.
- Direct or indirect impacts. A direct impact is caused by an action and occurs contemporaneously at or near the location of the action. A direct action may also not be geographically linked with respect to impact. For example, increases or decreases in fishing effort may have negative or positive ecological impacts on stocks due to increased or decreased mortality on target species. An indirect impact is caused by an action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action. An example of an indirect action that is not geographically linked may include increases or decreases in catch of non-target species, or food web impacts for prey species that may result from actions that might increase or decrease localized abundance of predators.
- Minor, moderate, or major impacts. These relative terms are used to characterize the magnitude of an impact. Minor impacts are generally those that might be perceptible but, in their context, are not amenable to measurement because of their relatively minor character. Moderate impacts are those that are more perceptible and, typically, more amenable to quantification or measurement. Major impacts are those that, in their context and due to their intensity (severity), have the potential to meet defined thresholds for significance and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the requirements of NEPA.
- Adverse or beneficial impacts. An adverse impact is one having adverse, unfavorable, or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment. A single act might result in adverse impacts on one environmental or social resource and beneficial impacts on another environmental or social resource.
- Cumulative impacts. CEQ regulations implementing NEPA define cumulative impacts as the "impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." (40 CFR 1508.7) Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time within a geographic area.

In addition to NEPA, NOAA Fisheries must comply with other Federal statutes and requirements such as the Magnuson-Stevens Act, Executive Order 12866, and the Regulatory Flexibility Act. This document comprehensively analyzes the alternatives considered for all these requirements. Chapters 4, 5, 6, and 7 provide the ecological/environmental, economic, and social analyses; Chapter 6 meets the requirements under Executive Order 12866; Chapter 7 provides the Final Regulatory Flexibility Analysis required under the Regulatory Flexibility Act. Chapter 8 describes relevant communities and Chapter 9 describes how the preferred alternatives would comply with various statutes and executive orders. While some of the chapters were written in a way to comply with the specific requirements under these various statutes and requirements, it is the document as a whole that meets these requirements and not any individual chapter.

1.3 Purpose and Need

Purpose

The purpose of this action is to manage Atlantic HMS fisheries, focusing on improvement of bluefin management, to provide additional fishing opportunities to use available quotas, provide flexibility in management, and minimize adverse socioeconomic impacts on affected fisheries, consistent with conservation and management objectives for the stock, including established limits on allowable catch through the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota.

Need

An amendment to the 2006 Consolidated HMS FMP is needed to adjust bluefin management to respond to recent trends and characteristics of the bluefin fisheries consistent with domestic and international management obligations and the objectives identified below. The principal reasons for beginning this regulatory process were the release of the Three-Year Review, recent changes in the directed bluefin fishery, and advice and input from the HMS Advisory Panel and the public. Since the implementation of Amendment 7 in 2015, the pelagic longline fishery has undergone substantial changes, including successful implementation of individual quotas for bluefin, declining effort and underharvest of swordfish, and substantial reductions in bluefin dead discards. In addition to the pelagic longline fishery that incidentally catches bluefin, the directed bluefin fisheries also have evolved over time. The purse seine fishery has been predominantly inactive during the past 15 years. Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the handgear fisheries that began prior to 2015 have continued. With such increases, there has been renewed public interest in the optimal and equitable allocation of bluefin quota among seasons and geographic areas. In conjunction with possible changes in allocations, other changes could be considered to better distribute and optimize use of, and provide a reasonable opportunity to catch, available bluefin quota within the ICCAT-adopted U.S. quota.

The public and HMS Advisory Panel members provided formal and informal suggestions to NOAA Fisheries on an ongoing basis and during the scoping period provided comments on the Amendment 13 Issues and Options document. NOAA Fisheries developed objectives for Amendment 13 based on changes in the bluefin fisheries, new data, and public input.

1.4 Objectives

NOAA Fisheries developed the following management objectives based upon the data and recommendations of the Three-Year Review, comments received during the Amendment 13 scoping process, and the detailed suggestions and concerns expressed by the HMS Advisory Panel, fishery participants, and the public regarding management of bluefin over the last several years. These specific objectives are within the context of the current 2006 Consolidated HMS FMP and its amendments and of meeting legal obligations and conservation and management goals and requirements. The objectives are as follows:

1) Evaluate and optimize the allocation of U.S. bluefin quota among bluefin quota categories, considering historical allocations and use, and recent fishery characteristics and trends, to provide U.S. fishing vessels with a reasonable opportunity to catch the U.S. quota established by ICCAT, facilitate the ability for active HMS directed permit categories to catch their full bluefin quota allocations, and facilitate directed fishing for species other than bluefin in the pelagic longline fishery while accounting for incidental bluefin catch;

2) Maintain flexibility of the regulations to account for the highly variable nature of the bluefin fisheries, and maintain fairness among permit/quota categories;

3) Continue to manage the Atlantic pelagic longline fishery consistent with the IBQ Program objectives in Amendment 7, and consistent with the conservation and management objectives of the 2006 Consolidated HMS FMP and, its amendments, and consistent with all applicable laws; and

4) Modify the management of the pelagic longline fishery in response to the Three-Year Review of the IBQ Program, and in response to important relevant prevailing trends (e.g., declining fishing effort and revenue for target species).

1.5 References

NMFS. 1999. Fishery Management Plan for Atlantic Tunas, Swordfish and Sharks. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NMFS. 2006. Consolidated Atlantic Highly Migratory Species Fishery Management Plan. National Oceanic and Atmospheric Administration, National Marine Fisheries

Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NMFS. 2014. Final Amendment 7 to the 2006 Consolidate Atlantic HMS FMP. Final Environmental Impact Statement (FEIS). National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NMFS. 2016. Fisheries Allocation Review Policy. NMFSPD 01-119, July 27, 2016.

NMFS. 2019a. Issues and Options; Amendment 13 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NMFS. 2019b. Three-Year Review of the Individual Bluefin Quota Program. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NMFS. 2020. Final Regulatory Amendment to Modify Pelagic Longline Bluefin Tuna Area-Based and Weak Hook Management Measures. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

2 Summary of the Alternatives

The National Environmental Policy Act (NEPA) and its implementing regulations require that any federal agency proposing a major federal action consider a reasonable range of alternatives, in addition to the proposed action. The evaluation of alternatives in an Environmental Impact Statement (EIS) assists NOAA Fisheries (NMFS) in ensuring that any unnecessary impacts are avoided through an assessment of alternative ways to achieve the underlying purpose of the project that may result in less environmental harm.

To warrant detailed evaluation, an alternative must be reasonable and meet the purpose and need of the action (see Chapter 1). Screening criteria are used to determine whether an alternative is reasonable. The following discussion identifies the screening criteria used in this Final Environmental Impact Statement (FEIS) to evaluate whether an alternative is reasonable; evaluates various alternatives against the screening criteria (including the proposed measures) and identifies those alternatives found to be reasonable; identifies those alternatives found not to be reasonable; and for the latter, the basis for this finding.

Screening Criteria—To be considered "reasonable" for purposes of this FEIS, an alternative must be designed to meet the purpose and need for action described in Chapter 1 and meet the following criteria:

- *An alternative must be consistent with the 10 National Standards set forth in the Magnuson-Stevens Act and other requirements of the Act;*
- *An alternative must be administratively feasible and enforceable. The costs associated with implementing an alternative cannot be prohibitively exorbitant or require unattainable infrastructure;*
- *An alternative cannot violate other laws (e.g., Atlantic Tunas Convention Act (ATCA), Endangered Species Act (ESA), Marine Mammal Protection Act (MMPA));*
- *An alternative must be consistent with the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) and its amendments;*
- *An alternative must be consistent with International Commission for the Conservation of Atlantic Tunas (ICCAT) recommendations, which the United States is legally obligated to implement as necessary and appropriate under ATCA;*
- *An alternative must be consistent with the Terms and Conditions and Reasonable and Prudent Alternatives of applicable biological opinions (BiOps);*
- *An alternative should be consistent with the objectives of this action;*
- *An alternative should, where applicable, mitigate factors contributing to the continued decline in pelagic longline effort and target species landings; and*
- *An alternative should not result in additional regulations that may be considered unnecessarily duplicative to existing regulations.*

This FEIS includes an analysis of a reasonable range of alternatives, and prefers a set of alternatives that would achieve the objectives of this FMP amendment (as described in Chapter 1). NOAA Fisheries developed a range of alternatives considering changes to the incidental and directed bluefin fisheries that would be responsive to recent changes in the fishery, new information, and public suggestions. The environmental, economic, and social impacts of these alternatives are discussed in later chapters.

2.1 'A' Alternatives: Modifications to Individual Bluefin Quota (IBQ) Share Eligibility, Distribution and Allocation Methods

These alternatives analyze modifications to the IBQ Program including the method of determining eligibility for IBQ shares, the method of distributing IBQ shares (expressed as percentage of Longline category quota), and the method of distributing IBQ allocation (expressed as pounds). Closely related rules regarding the IBQ Program are analyzed in another section. The NOAA Fisheries Catch Share Policy (NMFS 2017) provides policy guidance regarding catch share programs, including a recommendation that for allocations, a broad range of specific criteria for allocations be considered. The Catch Share Policy informed the development of these alternatives. To facilitate understanding of the alternatives, terms from Amendment 7, which created the IBQ Program, are included below with slight modifications to clarify the terms and increase their precision to reduce confusion, because an understanding of the differences is important to a full understanding of the IBQ Program and related processes and regulations.

IBQ Share:
An IBQ share is the percentage of the Longline category quota that is associated with a permitted vessel, based upon the IBQ share formula, which considers the relevant vessel history.

IBQ Allocation:
IBQ allocation is the amount (pounds or mt) of bluefin quota that is associated with a permitted vessel, based upon the relevant IBQ share(s) and the annual Longline category quota.

Calculation of IBQ Allocation:
As described above, based upon an individual permitted vessel's IBQ share (expressed as a percentage of the Longline category quota), and the size of the Longline category quota (mt), a specific amount of bluefin quota (pounds or mt) would be allocated to a permitted vessel. For example, if permitted vessel A has an IBQ share of 0.33 percent, and the Longline category quota for the year were 74.8 mt, the permitted vessel's annual IBQ allocation would be 0.25 mt (i.e., 0.0033 X 74.8 mt = 0.25 mt).

Sale of IBQ Shares (*not* currently allowed):
Sales of IBQ shares (percentage) between permitted vessels would be formal sales of fishing privileges. Once an IBQ share is sold, the permitted vessel buying the IBQ share

would hold it across multiple years or until he/she sells it. If permitted vessel A sold its entire IBQ share (0.33 percent) to permitted vessel B, vessel A subsequently would have no IBQ share (0 percent). Thus, the sale of IBQ shares from one vessel to another would result in a standing decrease in the amount of IBQ shares associated with the vessel selling the IBQ share, and a fixed increase in the amount of IBQ share associated with the purchasing vessel until sold.

Leasing of IBQ Allocations (currently allowed):
In contrast, an "IBQ allocation" is expressed in weight (pounds or mt), and transactions between permitted vessels of these IBQ allocations are temporary leases. The lease of a IBQ allocation by one vessel from another could increase the amount of quota available for use by the receiving vessel during a single calendar year. For example, if permitted vessel A is a shareholder that has received a distribution of IBQ allocation, vessel A could lease 0.25 mt of its IBQ available allocation to permitted vessel B for a particular calendar year without affecting either party's allocated IBQ shares (assuming both are shareholders). The next year, if the Longline category quota is still 74.8 mt, permitted vessel A would still have access to the entire amount of IBQ allocation resulting from their share, without a deduction for the previously-leased 0.25 mt of IBQ allocation, assuming they otherwise remain eligible. Vessel A's IBQ share would not change.

Permit holder, vessel owner, vessel, shareholder:
Under the relevant regulations, permit holders are issued IBQ shares for use on the vessel associated with their permit. In referring to *the entity that holds the IBQ shares* in this document, the document sometimes refers to the "permit holder," the "vessel owner," the "vessel," or the "shareholder," using these terms largely interchangeably in this particular context. In most cases, the person or entity issued the permit is also the vessel owner and the IBQ shareholder and is understood practically to be used by the vessel itself. NMFS felt that using these terms in this way way eased understanding of how the system functioned and better reflected colloquial terminology used by the regulated community in comments and discussions.

2.1.1 Alternative A1: No Change to IBQ Share Eligibility, Distribution, and Allocation Method - No Action

This alternative would not make changes to the current method of determining IBQ share eligibility, distribution, and allocation, including regional designations. The No Action Alternative (current methods) described below are those approaches established in Amendment 7 (NMFS 2014) and its implementing rule (79 FR 71510, December 2, 2014) as modified by subsequent actions.

Eligibility: Under this alternative, vessels determined to be eligible to receive IBQ shares, and resultant annual IBQ allocation, would continue to be those vessels that were determined to be eligible under the provisions of Amendment 7 in 2014, i.e., they had a valid Atlantic Tunas Longline category permit as of August 21, 2013 and were deemed to be "active" (defined as vessels that made at least one set using pelagic longline gear from

2006 through 2012 based on HMS logbook data). The criteria have been applied, and are reflected in the current shareholders. These eligibility criteria were intended to reflect participation in the fishery and to facilitate continued participation by vessels that had made past investments in the fishery.

IBQ Share Formula: Under this alternative, the shareholders would continue to be those permitholders assignedIBQ shares in 2014 under Amendment 7. Under the formula in Amendment 7, NOAA Fisheries first considered each eligible vessel's ratio of bluefin catch to designated species landings, then assigned vessels to tiers that had associated amounts of IBQ shares. In the first step, the use of the two factors was intended to ensure a fair and equitable initial allocation, and take into consideration the diversity in vessel, effort, and catch characteristics of the fleet. The two factors for each eligible vessel were combined to simplify the IBQ share distribution and minimize the influence of potential imprecision in the data. The two factors were quantified by specific formulas that resulted in two scores, which combined, resulted in the IBQ share tier designations for eligible vessels. The first factor (based on the weight of designated species landings) was intended to help allocate IBQ shares proportionately to a vessel's historical landings, since more landings were inferred to reflect more effort and a need for more IBQ allocation to cover incidental bluefin interactions while fishing for other species. The second factor (based on the ratio of bluefin catch to designated species landings) was intended to increase the amount of IBQ share for vessels with a demonstrated history of avoiding bluefin. The second factor resulted in a score that was inversely proportionate to the ratio of bluefin interactions to target species landings. Using the two factors (scores) IBQ shares were assigned using three tiers. The Low tier received a share equivalent to at least two bluefin (at 0.25 mt each), the Medium tier share was equivalent to approximately three bluefin, and the High tier share was equivalent to approximately six bluefin. IBQ shares were intended to ensure allocation for active vessels to provide for sustained participation in the fishery, while disincentivizing targeting of bluefin tuna with pelagic longline gear by recognizing those vessels that effectively avoided bluefin during their directed fishing operations for other species. More information on the allocation formula can be found on the Atlantic HMS Division Website for Amendment 7.

Annual IBQ Allocation: Under the No Action Alternative, an Atlantic Tunas Longline category permitted vessel's initial IBQ allocation for a particular year would continue to be derived by multiplying its IBQ share (percentage) by the initial Longline category quota for that year. Only the current IBQ shareholders with Atlantic Tunas Longline category permits and associated with vessels would receive direct IBQ allocations. If a shareholder's Atlantic Tunas Longline category permit is not associated with a vessel (known as 'NOVESID' status), or has not been renewed, the relevant amount of IBQ allocation would be set aside for the vessel in the IBQ System, but would not be allocated to the vessel/permit for use (i.e., not put in the shareholder's online vessel account) unless/until the Atlantic Tunas Longline category permit is re-associated with a vessel, or renewed.

Inseason IBQ Allocation: NOAA Fisheries currently has the regulatory authority to transfer bluefin quota from the Reserve category to the Longline category, in accordance with specific regulatory determination criteria. In 2015 and 2016, NOAA Fisheries made

inseason transfers of bluefin quota from the Reserve to the Longline category and equally distributed that amount among all 136 IBQ shareholders (80 FR 45098, July 29, 2015; 81 FR 19, January 4, 2016). Some of these 136 shareholders neither fished with pelagic longline gear, nor leased IBQ allocation to other vessels. Thus a portion of that Reserve category quota transfer remained unavailable to those active in the fishery. Subsequently, NOAA Fisheries modified the regulations (81 FR 95903, December 29, 2016) to provide NOAA Fisheries the flexibility to allocate quota inseason to all permitted Atlantic Tunas Longline vessels with IBQ shares, *or* only to those permitted Atlantic Tunas Longline vessels with recent fishing activity, in order to facilitate targeted fishing activity for swordfish and tunas other than bluefin by active vessels so that they could account for incidental bluefin catch, consistent with Amendment 7 objectives.

Non-shareholders: Vessel owners that were not determined to be shareholders through the Amendment 7 process but that are interested in participating in the pelagic longline fishery would need to lease IBQ allocation from pelagic longline vessel owners who have IBQ allocation.

New Entrants: New entrants to the pelagic longline fishery would need to lease IBQ allocation from pelagic longline vessel owners who have IBQ allocation and would also need to obtain the requisite limited access vessel permits.

Rationale: Maintaining the current IBQ shares and method of distributing IBQ allocation would prevent disruption and uncertainty in the fishery that could be associated with changes to the method used to determine IBQ shares and allocations. This alternative would facilitate business planning by those that received IBQ shares under Amendment 7. Overall, vessels in the pelagic longline fleet have been able to resolve any quota debt accrued under the IBQ Program, and bluefin incidental catch has been well within the Longline category quota. This alternative is responsive to those that have commented that the IBQ Program is functioning as it should under the current regulations to limit bluefin catch in the pelagic longline fishery. The IBQ leasing market and inseason transfers of quota from the Reserve to the Longline category have mitigated some of the perceived and actual constraints of the current IBQ allocation system.

2.1.2 Alternatives Suite A2: Dynamic Determination of IBQ Shares: Eliminate existing designations of IBQ shareholders and distribute IBQ shares only to currently active vessels

The Three-Year Review contained a recommendation that an alternative method of distribution of IBQ shares should be considered because of the relatively large percentage of IBQ shares associated with recently inactive vessels, and given the Amendment 7 objective that the purpose of IBQ allocation is to account for incidental bluefin catch to facilitate fishing operations and use available quotas for species in the directed fishery. Research has shown that leasing in catch share programs, where the IBQ shareholder leases the annual allocation derived from his IBQ share, can allow inactive fishermen to retain their shares and profit from the catch of their Individual Fishing Quota (IFQ) without

incurring the physical or financial risks of fishing. Such leasing by 'armchair captains' (inactive shareholders) can contribute to IBQ share prices becoming prohibitively expensive for the next generation of fishermen (Squires et al., 1998).

Under this alternative, there are several sub-alternatives for determining IBQ shares. In general, under these sub-alternatives, IBQ shareholders would be determined annually, based on the application of eligibility criteria intended to define a pool of recently active vessels. Permit holders would not have to apply for or request shares, but they would need to meet criteria. Under the three sub-alternatives, differing share percentages and subsequent IBQ allocations would be given to permitholders of individual, active permitted vessels, in proportion to each active vessel's fishing effort (Alternatives A2a, A2b, and A2c), shares and subsequent IBQ allocations would be made in equal amounts to each active vessel (Alternative A2d).

The sub-alternatives in the DEIS and this FEIS include multiple elements. The first element is criteria for determining the pool of "active" vessels, those that have recently fished. In each of the sub-alternatives, the three most recent years of available data would be analyzed to determine which vessels have been recently active (e.g., using pelagic longline gear at least once during the previous three years, based on a specific set of available data). A three-year period is long enough so that if a vessel did not fish much during a recent year due to unusual circumstances (such as vessel status, personnel illness, etc.) it would not be disadvantaged, but would remain eligible to be designated an IBQ share holder, provided it had some fishing activity within the three-year period. In the context of the pelagic longline fishery, a highly dynamic fishery in which conditions and participation vary on an annual basis, a three-year period is short enough so that it is reasonable to characterize such a time period as 'recent'.

The second element would consider fishing effort using pelagic longline fishing gear, specifying the metric (e.g., number of hooks, or sets, or amount of landings) to be used to determine how much effort occurred and the resulting approach to share distribution. For such determinations made under the sub-alternatives, NOAA Fisheries would only consider effort and landings made when a permit holder had a valid permit. Fishing effort would be determined based on official NOAA Fisheries logbook records or weighout slips, or VMS data. Landings data or permit history would be assessed based on NOAA Fisheries logbook data, weighout slips, verifiable sales slips, receipts from registered dealers, or state landings records, and permit records. Permit history (i.e., the history of who owns a vessel, who the permit holder is, and when a valid permit was issued to the vessel) may be relevant, because the person to whom a permit is issued history may change over a three year period, and could make assessment of relevant information more complicated. NOAA Fisheries would look at fishing effort associated with a particular vessel, even if there were multiple vessel owners during the relevant three-year period. No other proof of catch history would be considered than what is described above.

The last aspect of shareholder eligibility (common to all the dynamic share determination alternatives) that would be considered is the status of a vessel's Atlantic Tunas Longline category permit (permit) at the time of the annual share determination. In the draft

Amendment 13 and DEIS, the dynamic share determination alternatives included a requirement that vessels be associated with a currently valid Atlantic Tunas Longline category permit (i.e., current at the time eligibility is assessed by NOAA Fisheries). In other words, if a vessel had been actively fishing at some time during the previous three years, but did not have a valid permit at the time NOAA Fisheries conducted its annual determination of shareholders, the vessel would *not* be eligible to be a shareholder. In contrast, in this final Amendment 13 and FEIS, due in part to public comment, the requirement that a shareholder have a valid permit at the time NOAA Fisheries conducts its annual determination of shareholders is no longer included in the dynamic share determination alternatives. In other words, if a vessel has been active (with a valid permit at the time it was active) during the relevant three-year period, the permit holder would be defined as a shareholder even if *at the time of annual determination* the permit had expired or had been put in NOVESID status. While such permit holders could become shareholders, under this alternative and its sub-alternatives, consistent with the practice from 2015 to the present and the approach in the DEIS, IBQ allocation would not be distributed to IBQ shareholders with permits that are in either an invalid or NOVESID permit status *at the time the annual allocation of IBQ is distributed on January 1 of each year* (i.e., the permit has not been renewed, or is not currently associated with a vessel). IBQ allocations would be held for those shareholders during that year until the permits are issued to a vessel or the NOVESID status is resolved.

The outcome of assessing these eligibility criteria (i.e., the amount of fishing effort using pelagic longline gear during the previous three years while holding a valid permit) would result in the annual determination of eligible IBQ shareholders. Because, under this dynamic share determination alternative, the specific vessels that fish with pelagic longline gear can change over time, the pool of vessels determined to be shareholders and receiving IBQ allocation could change annually.

Under this alternative, new entrants joining the fishery would have to obtain necessary permits and lease IBQ allocation from other pelagic longline participants for at least their first year in order to participate in the fishery. After that first year, fishing effort using leased IBQ allocation during their first year would be considered for purposes of determining whether new entrants are eligible to be shareholders and their amount of IBQ allocation in subsequent years. Additionally, NOAA Fisheries is laying the groundwork for future rulemaking, if needed, to consider setting aside a *de minimis* amount of bluefin quota for new entrants in the pelagic longline fishery. For more information, see "IBQ set-aside for new entrants" below.

Under this alternative, before the effective date of the Amendment 13 final rule, NOAA Fisheries would notify Atlantic Tunas Longline permit holders via electronic means and/or by letter whether they are IBQ shareholders and their IBQ allocation amount for the fishing year. In subsequent years, during the last quarter of each year and by January 1, NOAA Fisheries would notify permit holders via electronic means and/or by letter of their IBQ share and allocation for the subsequent fishing year.

Also, under this alternative and its sub-alternatives, if an Atlantic Tunas Longline category permit holder was concerned that NOAA Fisheries made an error in the annual determination of shareholders, the permit holder would be able to submit a written request for an appeal to the National Appeals Office, as described below.

IBQ set-aside for new entrants

Under this alternative and its sub-alternatives, based on public comment, NOAA Fisheries adds to the framework provisions of the 2006 Consolidated HMS FMP the authority to set aside a *de minimis* amount of bluefin quota from the Longline category quota prior to calculating the annual IBQ allocations (see detailed explanation after Section 4.1.2.4 and Table 4.12). This will provide NOAA Fisheries with another management tool should the dynamic share determination provisions finalized in this action not facilitate new entrants. If needed, future rulemaking under the framework provisions of the 2006 Consolidated HMS FMP would set the precise amount of set aside, and the requirements, process, and conditions associated with distributing IBQ shares and subsequent IBQ allocations to new entrants. Neither the Amendment 13 DEIS nor this FEIS analyze the set aside program.

Deepwater Horizon Oceanic Fish Restoration Project (OFRP) participants

The Deepwater Horizon (DWH) OFRP is a program conducted as a partnership between NOAA, the National Fish and Wildlife Foundation, and pelagic longline fishermen to restore damage caused by the DWH oil spill. More information about the DWH OFRP may be found at https://www.nfwf.org/programs/deepwater-horizon-oceanic-fish-restoration-project. DWH OFRP participants, who voluntarily took time out of the pelagic longline fishery for set periods of time ("Repose" - January to June) would not be disadvantaged under these dynamic share determination alternatives. For each sub-alternative below, each participating vessel would have a proxy amount of effort to represent the pelagic longline effort that each participating vessel would have had if it was not participating as a partner in the DWH OFRP. This aspect of share determination is not part of the No Action Alternative (A1). The OFRP began after Amendment 7 was implemented. DWH OFRP participants would have an IBQ share percentage based upon a level of fishing effort that includes a proxy level of effort for the time period(s) they participated in the OFRP. For example, under Sub-alternative A2a, based on hooks as the measure of fishing effort, the proxy level of fishing effort would be based on the average number of hooks fished by a pelagic longline vessel (not participating in the OFRP) in the Gulf of Mexico during the months of January through June (the months of the OFRP) during the years that the DWH OFRP participant was participating in the program. This proxy amount of fishing effort would be added to the amount of fishing effort the particular vessel had during the rest of the year. This provision for DWH OFRP participants would only be necessary for a limited number of years, because the last year of the program is anticipated to be 2022. As such, the proxies for effort in the alternatives for dynamic determination of IBQ shares would only be needed for relevant years of data used to calculate IBQ shares. After those years of participation in the DWH OFRP are no longer part of the effort calculation, then the proxy effort level would no longer be used.

Appeals

Upon publication of the Amendment 13 final rule, NOAA Fisheries would notify all permit holders by letter or email, whether they are IBQ share holders and of their IBQ allocation for the fishing year. In subsequent years, NOAA Fisheries would notify permit holders by January 1 of each year, with determinations made in the last quarter of the previous year. This letter would represent the initial administrative determination (IAD) of the permit holder's IBQ share and allocation. Permit holders would be able to submit a written petition of appeal to the National Appeals Office within 45 days after the date the IAD is issued.

The National Appeals Office appeals process cannot be used to challenge the validity of a statute or regulation, but is used for matters in controversy that require findings of fact and conclusions of law. 15 CFR § 906.1(d)-(e). Specifically, a permit holder could appeal an IAD on: (1) eligibility for IBQ shares based on ownership of an active vessel with a valid Atlantic Tunas Longline category permit combined with the required shark and swordfish limited access permits; (2) the IBQ share or allocation; (3) the permit holder's vessel's amount of fishing effort based on hooks (under Sub-Alternative A2a), pelagic longline sets (under Sub-Alternative A2b), or designated species landings (under Sub-Alternative A2c); and (4) assignment of target species landings and bluefin interactions to the vessel owner/permit holder. NOAA Fisheries permit records would be the sole basis for determining permit transfers (in contrast to a bill of sale between two vessel owners, for which no permit transfer was successfully completed in accordance with § 635.4(l)(2)(iv)).

When permit holders are informed of their IBQ shares and allocations through the IAD letter, they will be provided instructions regarding the appeal process. Under the National Appeals Office regulations, a permit holder must submit a written petition of appeal that contains the information required under 15 CFR § 906.3. The petition may include documentation in support of the appeal. 15 CFR 906.3(b)(3). As noted in the 3rd paragraph of this Section 2.1.2, for its IADs, NOAA Fisheries proposes to use only certain sources of information that it considers sufficient documentation of effort and landings. Landings data are required to be submitted within 7 days of landing under the applicable regulations. Recognizing that somewhat-late reporting could have occurred for a variety of reasons, landings reported within 60 days of landing could be considered in an appeal, but only if the species were landed legally when the owner had a valid permit.

Photocopies of the written documents are acceptable; NOAA Fisheries may request the originals at a later date. NOAA Fisheries would refer any submitted materials that are of questionable authenticity to the NOAA Fisheries Office of Law Enforcement for investigation. Appeals based on hardship factors would not be considered. Consistent with most limited effort and catch share programs, hardship is not a valid basis for appeal due to the multitude of potential definitions of hardship and the difficulty and complexity of administering such criteria in a fair manner.

When NOAA Fisheries determines that all the valid requests for appeals have been resolved, NOAA Fisheries may utilize some bluefin quota from the Reserve category to

accommodate permitted vessels that have been deemed eligible or provided an increased IBQ share through the appeals process.

Rationale: Distribution of IBQ shares only to active vessels is likely to optimize the allocation of the Longline category quota by reducing the amount of inaccessible quota and increasing allocations to many of the active vessels. This method of annually determining IBQ shareholders would facilitate the participation of new entrants to the fishery. Active participation measures are intended to ensure that the benefits of fishing privileges go to those who are actively fishing (Szymkowiak, M, and A. Himes-Cornell, 2015). One of the fundamental objectives of the IBQ Program is to account for bluefin catch during directed fishing operations for other species; vessels that are not fishing do not need IBQ allocation to account for bluefin catch. While Amendment 7 anticipated that some vessels would not fish but would lease IBQ allocation, the Three-Year Review documented that a meaningful amount of IBQ allocation was associated with shareholders that neither used IBQ allocation to account for bluefin catch nor leased it. Distributing IBQ shares and allocations to active vessels would facilitate continued participation in the fishery by vessels that have made past investments in the fishery and have been fishing recently. These alternatives would also provide new entrants to the fishery with additional certainty to receive annual IBQ allocation if they have recent fishing activity. Distribution of IBQ allocation to vessels that recently fished would address the principal shortcoming of the Amendment 7 allocation method noted in the Three-Year Review (allocation to inactive vessels).

The number of bluefin that pelagic longline vessels interact with, and the number of dead discards and landings that vessels must account for using quota, relates to several factors including fishing effort, fishing behavior/technique (i.e., vessel operator decisions regarding bait, where and when to set gear in relation to bluefin distribution), and bluefin distribution/availability. Three of the sub-alternatives (sub-alternatives A2a, b, and c) are based on the premise that a vessel's fishing effort is an important determinant of the number of its bluefin interactions. Therefore, determination of shares based on the level of fishing effort is a logical and effective method of determining which permitted vessels will be shareholders who annually receive IBQ allocation, consistent with the Amendment 7 objective of allocating to active vessels (and not to inactive vessels). Vessels with more fishing activity are generally more likely to interact with more bluefin, and therefore may need larger amounts of IBQ allocation to account for bluefin retained or discarded dead (Table 4.13). Note, this premise was a component of the IBQ share calculation method implemented by Amendment 7, but Amendment 7 also incorporated bluefin avoidance as a second element. NOAA Fisheries does not believe a similar second element is needed: the relatively small amount of IBQ allocation that shareholders would be distributed and the requirement that all bluefin landings and dead discards must be accounted for using IBQ allocation (and related restrictions of the IBQ Program), would continue to provide strong incentives for vessels to modify their fishing behavior to avoid and reduce interactions with bluefin. The Three-Year Review of the IBQ Program noted that these aspects of the Program were the key to its success, not the bluefin avoidance formula used in Amendment 7:

> The complex formula used in the Amendment 7 allocation of shares reflects the precedent of previous catch share program design procedures, as well as the Amendment 7 goal of providing incentives to reduce bluefin interactions. Although the Amendment 7 allocation formula "rewarded" historical avoidance of bluefin, the three-tiered shares and associated high, medium, and low annual allocations may not necessarily be functioning as an incentive under the IBQ Program. Under the IBQ Program, the three tiers landed similar percentages of their respective quotas (e.g., in 2017: 38 percent, 41 percent, and 41 percent by the high, medium, and low tiers, respectively; Table 6.10; Appendix 6.2).
>
> A tiered system of allocation of catch shares based on historical catch, which is typical of many catch share programs, may have disadvantages or limited relevance when implemented in the context of a bycatch quota catch share program. The distribution of allocation may not be aligned with the need for quota, given the fact that bluefin catch and the need for quota may be concentrated, and bluefin comprises only a fraction of the total catch of the fishery. Distribution of shares based on the ratio of bluefin to designated species may be overly restrictive in the way it translates into the share percentage."

As explained in detail in Chapter 4, in the development of a system to assign share percentages to individual vessels, in the DEIS and proposed rule NOAA Fisheries assigned individual vessels to one of four quartiles rather than assign each vessel a 'customized' percentage. In the final rule in the preferred alternative, NOAA Fisheries determined that the most equitable method of share determination would be a 'customized' percentage.

2.1.2.1 Sub-Alternative A2a: Dynamic determination of IBQ shares based on hooks as the measure of fishing effort

Sub-Alternative A2a would define IBQ shareholders and percentage shares based upon each individual permitted vessel's previous fishing effort using pelagic longline gear, relative to the total amount of pelagic longline fishing effort fishery-wide, using the number of hooks fished as the measure of fishing effort. IBQ allocations would then annually be distributed to shareholder vessels with current, valid permits. The time period used for determination of active vessels would be the three most recent years of available data. The essential concept is as follows: If the total number of hooks set over the previous three years across the pelagic longline fishery was 12 million, and a particular vessel had set 300,000 hooks during that three-year period (i.e., 2.5 percent of the total hooks), the vessel's IBQ share percentage would be based on 2.5 percent (i.e., indirectly based on 2.5 percent, due to the use of quartiles, as explained in Chapter 4). As described above under Alternative A2, OFRP participants would have a proxy level of fishing effort added to their actual fishing effort with pelagic longline gear for relevant years during which they participated in the program. As explained in more detail in Chapter 4, for this alternative, NOAA Fisheries would assign individual vessels to one of four quartiles, rather than using a 'customized' percentage.

Rationale: The number of hooks fished can be a useful proxy for *nominal* fishing effort, which is the measure of the amount of resources devoted to fishing. The number of hooks is a metric that is readily comparable among vessels of diverse size, location, and fishing strategies. Hooks are typically used in the estimation of catch per unit effort (CPUE), which may be useful indices of relative abundance (Hoyle et al., 2014). In the Atlantic HMS pelagic longline fishery, hooks are used in the estimation of CPUE and the estimation of dead discards.

2.1.2.2 Preferred Sub-Alternative A2b: Dynamic determination of IBQ shares based on pelagic longline sets as the measure of fishing effort

Sub-Alternative A2b would define IBQ shareholders and percentage shares based on the number of pelagic longline sets instead of hooks. Specifically, this alternative would define IBQ shareholders' percentage shares based upon each individual permitted vessel's fishing effort using the number of pelagic longline sets, relative to the total amount of pelagic longline sets fishery-wide, as the measure of fishing effort. IBQ allocations would then annually be distributed to shareholders with vessels with current, valid permits at the time of the annual distribution of IBQ allocation. The essential concept is as follows: If the total number of sets over the previous three years were 17,000, and a particular vessel had 300 sets during that three-year period (i.e., 1.8 percent of 17,000), the IBQ share would be based on 1.8 percent. As described above under Alternative A2, OFRP participants would have a proxy level of fishing effort added to their actual fishing effort with pelagic longline gear for relevant years in which they participated in the fishery. Only one pelagic longline set per day would be counted towards the determination of IBQ shares. While Draft Amendment 13 and the DEIS included all sets, this preferred alternative includes the one-set-per-day approach to minimize the extent to which a vessel operator might deploy speculative, short sets for the purpose of inflating their annual IBQ share determination. The majority of pelagic longline vessels deploy only one longline per day, therefore such a restriction on the consideration of sets for the purpose of share determination is a reasonable method of preventing the speculative behavior of deploying two sets per day. Vessels would be allowed to deploy as many sets per day as they wish, however only one set per day would count toward the IBQ share determination. Additional details of the preferred alternative are below.

In the DEIS, this sub-alternative (dynamic determination of shares based on sets) was not preferred, and was not proposed in the proposed rule (86 FR 27686, May 21, 2021). However, based in part on public comment, this alternative is preferred in this FEIS. This alternative does not have the issues associated with basing IBQ shares on landings (as described under Alternative A2c). Further, the use of sets as a metric for effort can be determined using a single data source (e.g., VMS or logbooks) and, if necessary, verified using electronic monitoring data. Because the pelagic longline fleet is diverse in geographic location, in vessel size, and in fishing strategies employed, NOAA Fisheries has determined that the use of sets represents a more standardized, uniform method of determining IBQ shares, and prefers this alternative in this final amendment and FEIS.

In the DEIS and draft amendment, under this sub-alternative, NOAA Fisheries would first calculate a percentage for each individual permitted vessel based on its number of pelagic longline sets relative to the total amount of pelagic longline sets fishery-wide, then the agency would assign vessels to one of four quartiles of share percentages. In this FEIS, based in part on public comment, this alternative was modified to simplify the process: assign each vessel a customized percentage share and eliminate the second step. Under this preferred alternative, some vessels would be assigned a share that would result in less than the minimum amount of IBQ allocation required to fish (on the first trip in each calendar quarter, under the quarterly accountability rules). Although some public comments suggested that vessels in this situation should be assigned a share that would result in an IBQ allocation of the minimum IBQ allocation for fishing, NOAA Fisheries determined that the most equitable method of addressing small shares would be to make no upward adjustment to these small shares, because the method for determination of percentage shares for all shareholders would be consistent (i.e.,with no exception for small shares). A shareholder with a share that results in less than the minimum amount to fish in the Gulf of Mexico (551 lb) or in the Atlantic (276 lb) would need to lease additional IBQ allocation prior to fishing. No upward adjustment to small shares is a more equitable method, because if adjustments are made to increase the share percentage of those vessels with the lowest range of percentage shares, the share percentages of all the other shareholders would need to be adjusted downward slightly so that the total percentage shares equals 100 percent.

Rationale: The number of pelagic longline sets fished can be a useful proxy for *nominal* fishing effort, which is the measure of the amount of resources devoted to fishing. Similar to the number of hooks, the number of sets is a metric that is readily comparable among vessels of diverse size, location, and fishing strategies. Unlike hooks, there are fewer sets with less variability in the numbers in that vessels typically fish at least one set a day, and vessel reported data on sets may be more readily corroborated using observer or EM data than hooks. Although hooks is a standard metric used in determining catch per unit effort in the pelagic longline fishery, in this context sets is the preferred measure of fishing effort. Using a metric of one set per day, rather than another metric, allows for a standard comparison that only considers effort and does not consider other confounding issues such as vessel size, target species, or method of fishing.

2.1.2.3 Sub-Alternative A2c: Dynamic determination of IBQ shares based upon designated species landings as the measure of fishing effort

Sub-Alternative A2c would define IBQ shareholders and percentage shares based on each individual permitted vessel's target species landings instead of hooks or sets, as the measure of fishing effort. In order to have a standardized method, that does not include sharks (as explained below), and that reduces complexity and administrative burden, only certain target species would count in the determination of IBQ shares, with the relevant species termed 'Designated Species'. The designated species would be swordfish, and yellowfin, bigeye tuna, albacore, and skipjack tunas, the species that are most frequently targeted by pelagic longline fishermen. Specifically, the measure of fishing effort would be the total amount by weight of each individual vessel's designated species landings relative

to the total amount of designated species landings by the pelagic longline fleet. This list of designated species differs from the Amendment 7 designated species list by removing dolphin, wahoo, shortfin mako, porbeagle, and thresher sharks. The reasons for not including dolphin and wahoo are different than the reasons for not including the shark species noted. Although dolphin and wahoo are targeted by some vessels with an Atlantic Tunas Longline permit, these species are not managed under the 2006 Consolidated HMS FMP, but are managed under the Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic (South Atlantic Fishery Management Council). Dolphin and wahoo comprise a relatively low portion (by weight) of the total landings (i.e., swordfish, and yellowfin, bigeye tuna, albacore, and skipjack tunas, *including* wahoo and dolphin) (one percent for wahoo; six percent for dolphin; based on 2016 through 2018 logbook data). Further, it would be difficult for NOAA Fisheries to compile and analyze the dolphin and wahoo data annually in an accurate and timely manner, because of reporting differences associated with their separate management. Regarding the reasons for not including certain shark species in the list of designated species, under current regulations shortfin mako and porbeagle sharks cannot be landed by vessels with pelagic longline gear on board unless the sharks are dead at haulback, and a recent rulemaking proposes to establish a shortfin mako retention limit, with a default of zero, consistent with a 2021 ICCAT recommendation. Additionally, ICCAT Recommendation 09-07 specifies that member countries should strongly endeavor to ensure that vessels flying their flag do not undertake a directed fishery for species of thresher sharks. Thus, sharks are not included in the designated species list.

While this alternative was the preferred alternative in the DEIS, based in part on public comment, this alternative is no longer preferred. Commenters stated that some vessel owners land a meaningful amount of dolphin, and therefore were concerned that not including dolphin landings would have a negative impact on vessel owners who land dolphin. Secondly, commenters noted that there are a variety of factors that determine which species are fished for and what is landed. Part of a vessel's fishing strategy is both maximizing value and maximizing pounds of fish landed. Commenters stated that the balance between maximizing value and pounds of fish has changed over time, and vessel owners or operators are increasingly maximizing value of species more than quantity of landings overall.

Under this sub-alternative, if the total amount of designated species landings by the pelagic longline fleet over the previous three years were 6,500,000 pounds and a particular vessel had 150,000 pounds of designated species landings during that three-year period (i.e., 2.3 percent of 6,500,000 pounds), the vessel IBQ shares would be based upon that percentage (i.e., indirectly based on 2.3 percent, due to the use of quartiles, as explained in Chapter 4). IBQ allocations would then annually be distributed to shareholders with vessels with current, valid permits at the time of the annual distribution of IBQ allocation. Individual vessels would be assigned to one of four quartiles similar to Alternative A2a. As described above under Alternative A2, OFRP participants would have a proxy level of fishing effort (landings) added to their actual fishing effort (landings) with pelagic longline gear for relevant years during which they participated in the program.

Rationale: The amount of designated species landings can be a useful proxy for *effective* fishing effort, which is reflective of both the amount of resources devoted to fishing, and also the effectiveness of the fishing. Using landings as a metric reflecting fishing effort in this context addresses the fact that fishing effort may have little correlation to catch because of the impact of fishing strategies on catch. Specifically, fishing strategies are the sequence of decisions made by vessel operators regarding the gear used and spatial deployment of effort, which are highly variable. Consideration of landings is relevant because the premise underlying the design of an IBQ allocation method is the need to account for incidental catch of bluefin.

2.1.2.4 Sub-Alternative A2d: Dynamic determination of IBQ shares and distribution of IBQ allocation in equal amounts to active vessels

Sub-Alternative A2d would define IBQ shareholders and percentage shares and distribute IBQ allocation annually in equal amounts to eligible vessels. An eligible vessel would be any active vessel that fished with pelagic longline gear during at least one of the three previous years. OFRP participants would be considered to be active during the relevant years of participation, even if they had not fished with pelagic longline gear during that year.

Rationale: This method of allocation is relatively easy to understand and implement, and may be perceived as more equitable than a dynamic allocation system based on fishing effort, given the high variability of bluefin catch and the number of factors influencing bluefin interactions.

2.1.3 Alternative A3: Amendment 7 Allocation Formula, using 2016-2018 data

Alternative A3 would define IBQ shareholders and percentage shares and distribute IBQ allocation using the same formula used in Amendment 7, but instead of using data during the period from 2006 through 2012 (which was used in Amendment 7), the alternative would define eligible vessels as those that reported making at least one set using pelagic longline gear (based on logbook data, as in Amendment 7) from 2016 through 2018. Relevant catch data from 2016 through 2018 would also be used to designate IBQ shareholders to one of three tiers. The use of the years 2016 through 2018 is intended to include the years following initial implementation of Amendment 7, and reflect participation in the fishery during that time period, in contrast to the No Action Alternatives and the dynamic alternatives. During development of Draft Amendment 13 and the DEIS, NOAA Fisheries had data from 2016 through 2018 for use in its analyses. NOAA Fisheries did not include 2019 data in the FEIS, as the agency did not think it was necessary to facilitate comparison of the type or scope of impacts among alternatives. Inclusion of 2019 data would have been relatively time consuming to analzye, yet yield little insight into the differences among alternatives.

Appeals: As explained above in section 2.1.2, appeals will be governed by the regulations and policies of the National Appeals Office. The National Appeals Office regulations can be found at 15 CFR part 906.

Rationale: The eligibility criteria are intended to reflect more recent participation in the fishery (since the implementation of Amendment 7) and to facilitate continued participation by vessels that had made past investments in the fishery. The two elements of the Amendment 7 method used to assign IBQ share tiers to eligible vessels were the weight of designated species landings and the ratio of bluefin catch to designated species landings. Under this alternative,these elements would remain the same in order to maintain consistency with the current structure and associated incentives. This allocation method would result in a smaller number of shareholders compared to Amendment 7 because of the decrease in the number of active vessels, and therefore reduce the IBQ shares and amount of IBQ allocation that is distributed to inactive vessels.

2.2 'B' Alternatives: Modifications to Rules Closely Linked to IBQ Allocations

2.2.1 Alternative B1: Regional Designations - No Action

Under this alternative, the same regional designations for IBQ shares and subsequent distributed IBQ allocations that were adopted in Amendment 7 would continue to be used. Such shares and allocations were designated as either "Gulf of Mexico" (GOM) or "Atlantic" (ATL) based on the geographic location of sets used in the determination of shares. Only GOM allocation can be used to account for bluefin caught in the Gulf of Mexico, while either ATL or GOM allocation can be used to account for bluefin caught in the Atlantic. In this document the abbreviations GOM and ATL are only used to describe IBQ shares or IBQ allocation regional designations, and not used more broadly as abbreviations for Gulf of Mexico or Atlantic, respectively. Amendment 7 IBQ shares and resultant IBQ allocations in total resulted in 35 percent of the total Longline category quota designated as GOM, and 65 percent designated as ATL. In other words, only 35 percent of the total IBQ allocation could be caught in the Gulf of Mexico. The maximum amount of IBQ shares designated as GOM was based upon the proportion of total pelagic longline sets in the Gulf of Mexico during the period 2006 through 2012. The total amounts of GOM and ATL designated shares and subsequent IBQ allocation represent the cumulative amounts of the regional designations of shares and subsequent IBQ allocations of individual shareholders (based on the geographic location of sets used in the determination of shares of individual permit holders).

Rationale: The regional designations and restrictions were intended to prevent potential increases in bluefin catch in the Gulf of Mexico, which is recognized as the primary spawning grounds for the western Atlantic stock of bluefin. Because many bluefin in the Gulf of Mexico are large fish that may be sexually mature or spawning, particularly during the spring spawning season, preventing potential increases in pelagic longline fishing effort in the Gulf of Mexico may also enhance spawning potential and stock growth. Amendment 7 stated that "This alternative is intended to prevent potential increases in bluefin catch, which could occur if fishing effort was redistributed from the Atlantic to the Gulf of Mexico,

through either vessel or permit movement, or trade of IBQ allocation" (NMFS, 2014). The current IBQ rules regarding the regional designation and use of IBQ allocation established a maximum amount of bluefin that could be caught from the Gulf of Mexico.

2.2.2 Alternative B2: Eliminate the Regional IBQ Designations and Cap Bluefin Catch from the Gulf of Mexico

This alternative would eliminate the regional IBQ designations for IBQ shares and subsequent IBQ allocations, and instead assign shares and distribute IBQ allocation with no associated regional restrictions on use. Any IBQ allocation could be used to account for bluefin caught in either the Gulf of Mexico or Atlantic, but there would be a maximum amount of IBQ allocation that could be used to account for landings and dead discards from the Gulf of Mexico. The maximum amount of catch from the Gulf of Mexico would be 35 percent of the total Longline category quota, which is consistent with the amount of IBQ allocation designated as GOM under the current regulations established by Amendment 7. NOAA Fisheries would monitor the catch from the Gulf of Mexico and close the pelagic longline fishery in the Gulf of Mexico if/when 35 percent of the total IBQ allocation is reached. Under the current regulations, the Gulf of Mexico pelagic longline fishery effectively is closed when vessels have used all of the GOM-designated IBQ allocation available to account for incidental catch of bluefin and therefore cannot depart on future pelagic longline trips. This alternative would also provide a regulatory mechanism for reducing the 35 percent cap in the Gulf of Mexico based upon specific considerations such as new scientific data, fishery or stock status information, or changes in the fishery, if the cap were no longer consistent with the FMP objectives or ICCAT recommendations. This alternative would provide greater protection for Gulf of Mexico bluefin than the No Action Alternative as a result of the flexibility to adjust the maximum percentage of GOM-designated shares and allocation downward from the current level of 35 percent.

Rationale: Although this alternative would have the same limit on the total percent of bluefin catch from the Gulf of Mexico as the current regulations (35 percent of the total IBQ allocation available), this alternative would provide more flexibility for vessels to fish in the Gulf of Mexico compared to the current rules, under which vessels with little or no GOM designated IBQ allocation may need to obtain GOM designated IBQ allocation via leasing in order to fish in the Gulf of Mexico. Elimination of the regional designations would increase flexibility to fish for target species, and may benefit both vessel owner/operators and dealers. Capping bluefin catch from the Gulf of Mexico would continue to limit the total catch of bluefin by the pelagic longline fleet in the Gulf of Mexico. Providing NOAA Fisheries the authority to reduce the maximum amount of bluefin that could be caught from the Gulf of Mexico would address the fact that circumstances may change over time, and therefore the ability to modify important elements of the regulations are needed.

2.2.3 Preferred Alternative B3: Modify Regional GOM and ATL Designations for a Dynamic Share Determination System and Cap Bluefin Catch from the Gulf of Mexico

Basis of GOM and ATL IBQ share designations

Under this alternative, regional designations of IBQ shares and allocations would be determined on an annual basis as part of the annual dynamic allocation process described under Alternative A2 and its sub-alternatives. As is done now, all IBQ shares and allocations would be designated as either GOM or ATL. While GOM allocation may be used in either the Gulf of Mexico or the Atlantic, ATL allocation may only be used in the Atlantic in order to prevent an increase in fishing effort in the Gulf of Mexico and cap the total amount of bluefin catch (landings and dead discards) in the Gulf of Mexico. Under this alternative, annual regional designations would be based on the location of the relevant pelagic longline fishing activity used in the annual allocation under the A alternatives (i.e., location of the hooks, or sets, or landings utilized as the basis of the allocation; Gulf of Mexico or Atlantic). For Sub-Alternatives A2a and A2b (dynamic allocation based on hooks and sets, respectively), the specific share percentages would be based on the proportion of the vessel's hooks or sets in the relevant area (during the most recent, three-year period for which NOAA Fisheries has information). For example, if a vessel fished 90 percent of their sets or hooks in the Gulf of Mexico, and 10 percent in the Atlantic, their IBQ share designations would be designated as 90 percent GOM and 10 percent ATL. Similarly, for Sub-Alternative A2c (dynamic allocation based on designated species landings), if a vessel had 80,000 pounds of designated species landings (during the relevant three-year period), with 60,000 pounds from the Gulf of Mexico, and 20,000 pounds from the Atlantic, the IBQ share designations and subsequent allocations for that vessel would be split 75 percent GOM and 25 percent ATL). Under this system, if a vessel is not allocated GOM designated IBQ shares (*because the vessel had no sets in the Gulf of Mexico during the previous three years)*, but wishes to fish in the Gulf of Mexico, they would need to lease GOM designated IBQ allocation initially, and then would be allocated GOM-designated IBQ shares and allocation for the following year, if they fished sets in the Gulf of Mexico (under Preferred Sub-Alternative A2b).

Low GOM shares threshold

This alternative includes an additional provision that was not included in the DEIS. Public comments expressed concern that future low levels of effort in the Gulf of Mexico could result in a very low percentage of shares being designated as GOM shares during the annual regional designation process. Reductions in the number of vessels fishing in the Gulf of Mexico or in the amount of fishing effort per vessel in the Gulf of Mexico could reduce the amount of IBQ shares designated for use in the Gulf of Mexico. Under conditions where very low amounts of GOM shares and IBQ allocation were made available in the annual designation process, vessels likely would be more reluctant to lease IBQ allocation to other vessels. If vessels are unable to lease GOM IBQ allocation, prospective new entrants to the fishery (who do not have access to IBQ shares) or vessels with only ATL designated shares would be unable to meet the minimum IBQ allocation requirement for departing on a fishing trip in the Gulf of Mexico (551 lb), and thus, would be unable to fish in the Gulf of Mexico. Similarly, vessels with GOM-designated IBQ allocation who are able to depart on a trip may find themselves unable to lease additional IBQ allocation to cover all catch that occurs during a trip and find themselves in quota debt and unable to fish in the next

quarter. In this scenario, all of this would occur with Gulf of Mexico incidental catch of bluefin tuna still well below the limits established in Amendment 7. Such serious constraints could result in poor functioning or disruption of the IBQ Program and result in further declines in fishing effort or participation in the pelagic longline fishery, or prevent utilization of available IBQ allocation consistent with fishery management objectives. The new provisions in the IBQ Program described below would address the potential issue of low GOM IBQ shares.

Therefore, in order to prevent serious constraints in the functioning of the IBQ Program in the Gulf of Mexico under such circumstances, the preferred alternative includes a threshold that triggers a change in the IBQ designation and accounting rules. The threshold is when annual GOM designated shares are at five percent or less of total IBQ shares (ATL plus GOM designated shares). If this threshold is met, the requirement to account for bluefin caught in the Gulf of Mexico with GOM IBQ allocation and to use only GOM IBQ allocation to satisfy the minimum IBQ requirement needed to depart on the first fishing trip of each calendar quarter (551 lb) would not apply in that year. Rather, vessels would be able to use ATL IBQ allocation or GOM IBQ allocation to either account for bluefin catch (landings or dead discards) and to satisfy the minimum IBQ allocation requirements for in the Gulf of Mexico. In the Gulf of Mexico, the minimum amount of pounds to satisfy the minimum quarterly requirement (i.e., at least one fish equivalent in weight of IBQ required to depart on the first fishing trip of each calendar quarter) would still be 551 lb due to the larger average size of bluefin in the Gulf of Mexico.

In addition, as described in more detail below, there would be an annual cap on the maximum amount of bluefin that may be caught in the Gulf of Mexico. When NOAA Fisheries provides information to shareholders regarding their annual shares and allocations, the agency will also provide notice regarding the use of GOM IBQ shares and allocation. To preserve the intent of the GOM designated shares and allocation, as first articulated in Amendment 7 regarding the level of effort in the Gulf of Mexico, when this low GOM share threshold provision is in effect, the maximum allowable bluefin catch from the Gulf of Mexico will be the catch weight equivalent of the otherwise applicable 35 percent cap (or lower if NOAA Fisheries modifies the level consistent with other provisions in this Amendment). This cap will be measured by weight of bluefin catch (landings and dead discards)(i.e., the default level of 35 percent,). If this level of bluefin catch (landings and dead discards) were reached in the Gulf of Mexico, NOAA Fisheries would prohibit vessels from fishing with pelagic longline gear in the Gulf of Mexico for the remainder of that year. For example, assuming the default cap of 35 percent is in effect and the Longline category bluefin quota is 360,656 lb, then the maximum amount of bluefin catch allowed in the Gulf of Mexico would be 126,230 lb (35 percent of 360,656 lb). The specific bluefin catch cap, in pounds, associated with the low GOM share threshold provision would be communicated to shareholders as described above. If this level of incidental bluefin catch (landings and dead discards) were reached in the Gulf of Mexico, NOAA Fisheries would prohibit vessels from fishing with pelagic longline gear in the Gulf of Mexico for the remainder of that year.

Basis for setting the threshold at five percent

For purposes of establishing the threshold of five percent, NMFS considered hypothetical levels of participation and bluefin catch in the Gulf of Mexico reduced from recent levels and the need for vessels to have some IBQ allocation to lease and satisfy the minimum IBQ allocation requirements, without effectively closing the Gulf of Mexico in the subject year. Specifically, NOAA Fisheries used an assumed 'low participation' number of vessels fishing in the Gulf of Mexico of 10 vessels. The average number of vessels that fished in the Gulf of Mexico from 2015 through 2019 was 32 (in 2019 there were 22 vessels that fished). NOAA Fisheries assumed one half the average bluefin catch in the Gulf of Mexico (8,868 lb), the minimum amount of IBQ allocation needed per vessel to satisfy the minimum requirement (under the quarterly accountability rules (551 lb)), and some IBQ to enable a functioning leasing program (5,145 lb total). Based on a Longline category quota of 390,465 lb (new Longline category percentage under preferred alternative F3a applied to the U.S. baseline quota), five percent is 19,523 lb of GOM IBQ. Therefore, under a five percent threshold there would be adequate IBQ allocation to account for a total bluefin catch of 8,868 lb in the Gulf of Mexico, meet the minimum IBQ requirement for 10 vessels (551 lb/vessel x 10 vessels =5,510 lb), and provide an additional amount of IBQ to facilitate the IBQ leasing market (5,145 lb total for leasing). That is: 8,868 + 5,510 + 5,145 = 19,523 lb.

Overall, relaxing the requirement regarding designated shares in the GOM when the five percent threshold is met would allleviate the concern raised in public comment while also meeting the goals of this Amendment particularly those centered around addressing the needs of the pelagic longline fishery. If NOAA Fisheries determines that the five percent threshold is not the appropriate level and does not address the concerns as laid out above, then NOAA Fisheries may take action in a separate rulemaking to modify as appropriate.

Cap on GOM Designated IBQ Shares and Allocation, and Modification of Cap

As described above, under this alternative the location and relative amount of fishing effort of an individual permit holder would determine whether the shares would be designated as GOM or ATL (or both). In turn, the total effort designated as GOM would determine the total percentage of shares designated as GOM. The total percentage of shares designated as GOM is important because the amount of GOM designated shares will determine the maximum amount of bluefin that may be caught in the Gulf of Mexico. For example, if the total number of sets fishery wide for the three-year period were 17,000, and 11,900 sets are from the Atlantic and 5,100 sets are from the Gulf of Mexico, then the relative amounts of ATL and GOM designated IBQ shares for the subject year would be 70 percent and 30 percent, respectively.

In order to cap the maximum amount of bluefin catch from the Gulf of Mexico, this alternative would establish a cap on both the percentage of IBQ shares and IBQ allocation that could be annually designated as GOM. The default level of the cap would be 35 percent of the total IBQ shares and resulting IBQ allocation (i.e., 35 percent of the Longline category quota), which is the same percent as under Amendment 7.

If NOAA Fisheries determines that the 35-percent cap level should be adjusted downward to achieve conservation and management objectives, the cap could be adjusted to values lower than 35 percent. A determination to lower the cap would be based upon the determination criteria under § 635.27(a)(8) utilized for making inseason or annual quota adjustments. The overall concept is to ensure that the cap continues to afford protection to spawning bluefin in the Gulf of Mexico consistent with Amendment 7 objectives, while also providing a mechanism to appropriately respond to new conditions or information. This information could include scientific data or advice, information specific to the stock status, changes in the fishery, etc., that warrant adjustment to the default cap of 35 percent (or other lower cap in effect). This adjustment may coincide with the start of a year or occur inseason (after the year has begun).

If regional designations are temporarily relaxed due to the low GOM shares threshold being triggered, the maximum amount of bluefin catch from the Gulf of Mexico would still be that associated with 35 percent of the total IBQ allocation (or lower as described above).

Adjustment of GOM IBQ shares to Match the Cap

As described above, under this alternative, the annual percentage of GOM shares issued could vary. In contrast, the cap on the percentage of GOM IBQ shares (and potential bluefin catch) from the Gulf of Mexico would not vary on an annual basis from its default level of 35 percent (unless adjusted downward as described above). In some years, the resultant total amount of IBQ shares designated as GOM could be greater than the GOM percent cap. In these cases, NOAA Fisheries may need to reduce the total amount of shares designated as GOM in order to equal the GOM IBQ share cap. The reduction in total GOM share percentage would be achieved through equal reductions among IBQ shareholders with GOM designated IBQ shares. NOAA Fisheries would notify affected permit holders of any reductions in their IBQ share percentage resulting from this adjustment. This adjustment would not be subject to appeal, because it is not a determination based on the data associated with an individual shareholder, but based upon the need to reduce the total amount of allocated IBQ shares distributed across all shareholders with GOM designated shares.

For example, in a given year, if 38 percent of fishing effort (depending on the alternative, based on sets, hooks, or designated species landings analyzed for the determination of annual shares) were from the Gulf of Mexico, only 35 percent of the total IBQ shares and subsequent allocation could be designated as GOM. In Figure 2.1, the bars on the left side of the figure show the actual division of fishing effort between regions. However, in this scenario the Gulf of Mexico fishing effort of 38 percent exceeds the 35 percent fleet-wide share cap, the actual fishing effort alone would not be used to issue shares. Rather, NOAA Fisheries would adjust the GOM share percentages downward to reflect the maximum amount of shares that can be issued for the Gulf of Mexico, as shown on the right side of the figure. In this case, the amount of GOM shares is equivalent to the default Gulf of Mexico cap of 35 percent. In this example, each GOM IBQ share would be reduced by multiplying the share percent by 35/38, or 0.92; a 2.1 percent GOM IBQ share would be reduced to 1.9

percent. The ATL shares would be increased in an analogous manner, so that the total share percentages add up to 100 percent.

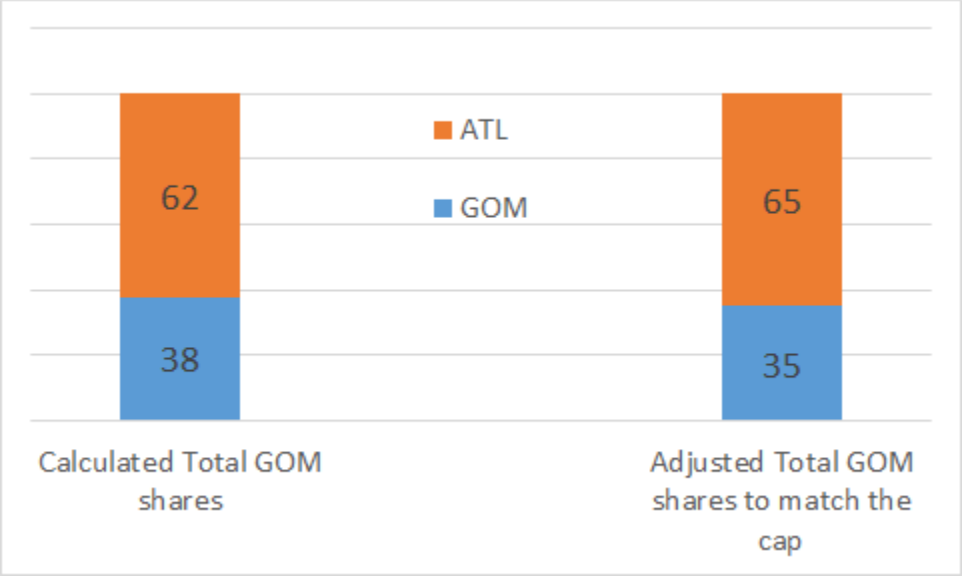

Figure 2.1 Example adjustment of IBQ Shares to match the cap on GOM designated IBQ

Rationale: This alternative provides additional flexibility for the regional designations to work in the context of a dynamic allocation system, while capping the maximum amount of bluefin catch from the Gulf of Mexico. This alternative would enhance protections for Gulf of Mexico bluefin, compared to the No Action Alternative, as a result of the flexibility to adjust the maximum percentage of GOM-designated shares and allocation downward from the default level of 35 percent. This alternative would provide a stronger mechanism to prevent increases in fishing effort in the Gulf of Mexico than would Alternative B2, and continue to afford protections to spawning bluefin. Spawning bluefin would be protected, even if the low GOM shares threshold is triggered because there would be a cap on the maximum amount of bluefin that may be caught in the Gulf of Mexico.

Setting aside the low GOM shares scenario, under this alternative, a vessel that fishes predominantly in the Atlantic, but sometimes in the Gulf of Mexico, or a new entrant into the fishery could be allocated some GOM-designated IBQ allocation to reflect fishing patterns and reduce their need to lease, thus providing a reasonable opportunity to both fish for target species and account for incidental bluefin catch in a profitable manner, while remaining within the applicable cap. Increased flexibility to fish for target species would benefit both vessel owner/operators and dealers. The IBQ share and allocation regional designations provide accountability for the pelagic longline fishery in the Gulf of Mexico, while providing flexibility in the quota system to allow vessels to optimize their fishing strategies. For example, some vessels that have home ports in the Atlantic and that fish predominantly in the Atlantic, that may have seasonally fished for swordfish in the Gulf of Mexico since 2015, might only have ATL designated shares under Amendment 7 based on past fishing activity. Under current rules, such vessels have to lease GOM-designated IBQ allocation (to meet the minimum share requirement under quarterly accountability or

account for bluefin catch). Under this Alternative, such vessels could receive GOM-designated IBQ shares as a result of fishing in the Gulf of Mexico during the time period analyzed (i.e., most recent three-year period). If the relative amount of effort in the Gulf of Mexico decreases, the relative amount of IBQ shares that are designated as GOM would also decline, and in effect set a lower cap on the amount of bluefin that could be caught from the Gulf of Mexico for that year.

Any increase in the amount of GOM-designated IBQ shares (up to 35 percent) would be the result of incremental increases in fishing effort. Annual shares and allocations under the dynamic allocation alternatives are based on the three most recent years of fishing effort. Therefore a single year of fishing effort has a relatively low impact on the amount of annual IBQ shares and allocations. Any increase in the amount of GOM IBQ shares would only result from increasing fishing effort in the Gulf of Mexico over time, and any sustained increase in GOM IBQ shares would be the result of sustained fishing effort in the Gulf of Mexico over time. Therefore sudden increases in the amount of GOM IBQ shares or allocation, and more importantly, sudden increases in the amount of bluefin catch from the Gulf of Mexico would be unlikely. NOAA Fisheries anticipates fluctuations in fishing effort within recent historical ranges and associated fluctuations in bluefin incidental catch in the Gulf of Mexico, but bluefin incidental catch would be capped by the amount of IBQ shares and allocations that could be designated as GOM (or by a similar cap applicable if the low GOM shares threshold is triggered). Providing a regulatory mechanism for reducing the maximum amount of bluefin (i.e., cap) that could be caught from the Gulf of Mexico addresses the fact that circumstances may change over time. Such a system would provide greater flexibility for vessels to fish in desired locations, maintain constraints on effort shifts, and enable potential increases in target species catch from the Gulf of Mexico. This approach would continue to limit bluefin catch in the Gulf of Mexico and continue strict accountability for bluefin catch, continuing incentives to avoid bluefin catch during directed fishery operations for other species while also providing vessels flexibility to pursue target species and maintain profitability.

2.2.4 Preferred Alternative B4: Northeast Distant Gear Restricted Area (NED) Rules - No Action

Preferred Alternative B4 would maintain the inclusion of any data associated with fishing in the Northeast Distant Gear Restricted Area (NED)(Figure 2.2) as part of formulas that determine IBQ shares, and maintain the current IBQ Program catch accounting rules for fishing in the NED. Vessels do not have to use IBQ allocation to account for bluefin catch from the NED until after the ICCAT-designated 25 mt of bluefin have been caught. Permitted vessels fishing in the NED must still fish in accordance with the relevant minimum IBQ allocation requirements under the quarterly accountability rules to depart on a trip using pelagic longline gear. This alternative could be combined with any of the allocation alternatives under consideration in this document, because it pertains to inclusion of the NED data, and not a particular method of defining IBQ shares.

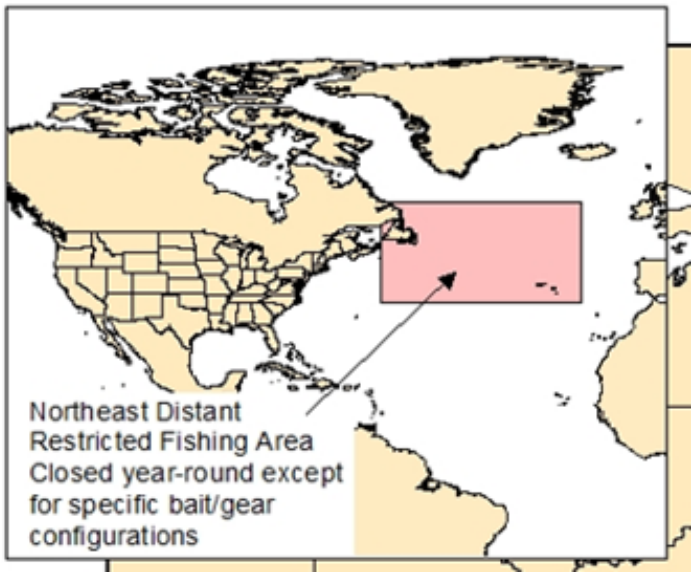

Figure 2.2 Location of Northeast Distant Gear Restricted Area

Rationale: Under current regulations, vessels fishing in the NED do not need to account for bluefin catch using IBQ allocation unless/until the 25-mt NED set-aside specified by ICCAT has been caught. Under Amendment 7 the share determination formula did not consider whether relevant data was from the geographic area comprising the NED, and included IBQ catch accounting rules for fishing in the NED. All fishing activity was treated the same for the purpose of distributing IBQ shares and subsequent allocation under Amendment 7, and did not take into account the geographic location of the data used in determining allocations, with the exception of the GOM and ATL regional designations. Inclusion of all fishing activity as the basis of allocation formulas increases fishing opportunity and flexibility for vessels to fish in multiple areas, as conditions warrant. Vessels that fish in the Atlantic are highly mobile and fish in many areas. The NED fishery is an intermittent fishery with only a few participating vessels and does not warrant the development of different allocation rules. NED accounting rules take into account the fact that a binding ICCAT recommendation specifies a separate 25-mt bluefin quota to account for bycatch from the NED. Exclusion of NED fishing activity from data used to determine allocations may affect the profitability or incentives to fish in the NED, and affect fishing for target species. Unless clearly warranted, constraints on fishing for target species are not desirable. Under current regulations, any pelagic longline vessel may fish in the NED.

2.2.5 Alternative B5: Do not include NED fishing activity under 25-mt set-aside as part of the data used in calculating IBQ allocations

Under this alternative, pelagic longline fishing effort in, or designated species landings from, the NED under the 25 mt NED set-aside would be excluded from the formulas used to determine IBQ shares and subsequent IBQ allocation.

Rationale: Under current regulations, vessels fishing in the NED do not need to account for bluefin catch using IBQ allocation unless/until the 25-mt NED set-aside specified by ICCAT has been caught. Therefore, there is the perception by some vessel operators that do not fish in the NED that giving IBQ shares (based on fishing effort or catch) to those vessels is excessive, and not equitable with regard to vessels that do not fish in the NED. Under current regulations, as well as under this alternative, any pelagic longline vessel may fish in the NED. However, because of the remote location of the NED, vessels that fish in the NED are among the larger vessels in the fleet. Owners of smaller vessels that may not be able to safely fish in the NED may perceive this as an inequity. This alternative would address this concern by excluding fishing effort/landings in the NED under the 25-mt set aside from consideration in determining IBQ shares.

2.3 'C' Alternatives: Sale of IBQ Shares

These alternatives analyze allowing sale of IBQ shares under the IBQ Program. Under the current regulations, entities may obtain IBQ shares by acquiring an Atlantic Tunas Longline category permit with IBQ shares. IBQ shares are associated with Atlantic tunas Longline category permits, and under current regulations IBQ shares cannot be bought and sold separately from Atlantic Tunas Longline category permits. A 'shareholder' is typically a vessel owner who is issued an Atlantic Tunas Longline permit that has IBQ shares associated with it. The relevant permit is that associated with the 'active' vessel. Amendment 7 stated that NOAA Fisheries would consider allowing sale of IBQ shares subsequent to the Three-Year Review of the IBQ Program. Sale of quota shares is allowed under some other catch share programs.

2.3.1 Preferred Alternative C1: No Sale of IBQ Shares Allowed - No Action

This alternative would continue the current regulations under which no sale of IBQ shares is allowed. Amendment 7 (2014) implemented the current rules, which prohibit sale of IBQ shares, yet allow temporary (annual) leasing of IBQ allocation among Atlantic Tunas Longline category permit holders (as well as leasing by purse seine participants). IBQ shares are linked to, and non-severable from Atlantic Tunas Longline category permits and may not be sold (Atlantic Tunas Longline category permits may be sold however). Sale of shares is a separate and distinct type of transaction from temporary leasing of IBQ allocation. Atlantic Tunas Longline category permit holders may lease IBQ allocation at any time during a calendar year to another permit holder, but the leased IBQ allocation does not carry over from one year to the next.

Rationale: Amendment 7 did not authorize sale of IBQ shares in order to reduce risk of speculative sales of IBQ shares or IBQ allocation leasing market disruption for Atlantic Tunas Longline category permit holders during the initial stages of the IBQ Program, when the market for IBQ shares would be new and uncertain. During the initial years of the IBQ Program, price volatility may have occurred, as well as undesirable outcomes of selling or buying IBQ shares. There are several reasons to continue a prohibition on sale of IBQ

shares. There is little need for Atlantic Tunas Longline category permit holders to accumulate additional IBQ shares, because for most permit holders, annual IBQ allocations based on shares (under any of the allocation alternatives) combined with a minimal amount of leasing is likely to be sufficient for permit holders to account for incidental bluefin catch. In contrast to many catch share programs where the catch share is associated with a targeted species, bluefin is incidental catch in the longline fishery. A limited amount of IBQ allocation is likely to suffice for pelagic longline fishermen because bluefin is not the target species, and pelagic longline fishermen only depend on IBQ allocation indirectly in order to obtain revenue from their target species. Secondly, continued prohibition on sale would not increase uncertainty in the IBQ allocation leasing market, and would reduce the likelihood of accumulation of IBQ shares by individual entities. Alternative C2: Allow Sale of IBQ Shares

This alternative would allow sale of IBQ shares and would continue to allow annual leasing of IBQ allocation. Specifically, holders of valid Atlantic Tunas Longline category permits would be able to purchase IBQ shares from each other and retain them for the duration of the IBQ Program or until changed by future rulemaking. Alternative C2 would *not* work with the dynamic share determination alternatives, which redefine shareholders on an annual basis. Under this alternative, IBQ shares would no longer be linked to specific Atlantic Tunas Longline category permits, as provided in Amendment 7. Permit holders would be able to increase or decrease their IBQ share via sale for use on one or multiple vessels. These sales would be conducted through the online IBQ System, similar to the manner in which IBQ leasing transactions are completed, including a requirement that the price paid for the IBQ shares is reported. Sale of IBQ shares to entities who are not holders of valid Atlantic Tunas Longline category permits (such as seafood dealers, non-governmental organizations, or business speculators) would not be allowed. More specifically, buyers of IBQ shares must be holders of valid Atlantic Tunas Longline category permits issued to a vessel, while a seller of IBQ shares may be the holder of a permit in NOVESID status (not associated with a vessel), or an expired permit. The IBQ allocation leasing rules would apply concurrently. Both the sale of IBQ shares and the IBQ leasing program would have associated conditions on the eligible participants that relate to permit status. Therefore, there are a number of specific scenarios under which vessels may be restricted from selling IBQ shares or leasing IBQ allocation. For example, if the owner of a permitted vessel purchased IBQ shares, but then sold the vessel and retained the Atlantic Tunas Longline permit in NOVESID status, they would be able to sell the IBQ shares, but not participate in the IBQ leasing market.

Rationale: Allowing the sale of IBQ shares would provide Atlantic Tunas Longline category permit holders an alternative means for a vessel owner to obtain IBQ allocation, in addition to participating in the IBQ leasing market, that enables management of their IBQ shares (and associated IBQ allocation) and business planning on a longer time scale than a single year. Permit holders need IBQ allocation to comply with minimum IBQ balance requirements, account for bluefin catch, and may choose to lease (or sell) their IBQ share (or a portion of their share) to other permit holders. Permit holders may be able to save money through a single IBQ share purchase instead of via annual IBQ allocation lease transactions. Sale of IBQ shares to entities that are not permit holders would *not* be allowed

in order to remain consistent with the principal objectives of the IBQ Program. Specifically, IBQ shares and allocation are a means to account for bluefin catch and provide incentives to minimize bluefin catch, and therefore are needed by vessels fishing with pelagic longline gear (i.e., active holders of Atlantic Tunas Longline category permits). IBQ shares are not intended as a means for entities to make money, influence the IBQ leasing market, or otherwise influence the fishery.

2.4 'D' Alternatives: Cap on IBQ Shareholder Percentage or IBQ Allocation Use

The following management alternatives would place a cap on the amount of IBQ shares an entity may hold or acquire, and/or place a cap on the amount of IBQ allocation an entity may lease or use, including No Action alternatives. The Magnuson-Stevens Act requires that NOAA Fisheries must ensure that limited access privilege permit holders do not acquire an excessive share of the total limited access privileges. Existing permit regulations limit the ownership/control of HMS permits to no more than five percent of vessels for which limited access permits have been issued (§ 635.4(l)(2)(iii)), although there is no current limit on the amount of IBQ allocation that can be acquired through purchase of permits, leased, or used by a single vessel or permitholder. The management alternatives described below are intended to limit IBQ share accumulation or use of IBQ allocation in the IBQ Program, and therefore include references to who or what is limited. In this context, the text refers to placing limits on "entities" because it is a term that is broad enough to describe several types of permitholders. In these alternatives, a single entity is defined as the Atlantic Tunas Longline category permit holder where that holder is an individual or organization such as a corporation, partnership, or trust. A cap under these alternatives would apply to the sum of IBQ shares or IBQ allocations an entity controls, whether the entity is associated with a single or multiple Atlantic Tunas longline permits.

2.4.1 Alternatives Suite D1: Cap Accumulated Sum of IBQ Shares

These alternatives analyze caps on the amount of IBQ shares one entity can hold or acquire and caps on the amount of IBQ allocation an entity may lease or use under the IBQ Program. A range of caps are analyzed to address both the need to limit potential excessive control of shares or IBQ allocation, but also provide flexibility for entities to control or use an amount of shares that meet entities' need to account for bluefin and take into consideration the risk of potential bluefin incidental catch. These alternatives are focused on pelagic longline vessels. Alternatives applicable to Purse Seine category permit holders are described under the "F" Alternatives.

2.4.1.1 Sub-Alternative D1a: No Action

This alternative would maintain the current regulations under which pelagic longline vessels may not permanently sell IBQ shares, but may temporarily lease IBQ allocation, with the "limit" on the amount of IBQ allocation an individual vessel (longline or purse

seine) can lease annually as the combined Longline and Purse Seine category allocations. An entity would be able to accumulate IBQ shares through the purchase of Atlantic Tunas Longline category permits (allowed currently), or through the purchase of IBQ shares (if allowed through this amendment; see C alternatives).

Rationale: Under the current IBQ Program, an Atlantic Tunas Longline category permit holder may not purchase IBQ shares from other shareholders (i.e., it is not possible to separate the IBQ shares from the Atlantic Tunas Longline category permit), therefore, accumulating excessive shares through the direct purchase of IBQ shares is not possible. Although entities may purchase multiple Atlantic Tunas Longline category permits, entities are limited by existing permit regulations regarding how may permits they may hold. This, in effect, establishes a maximum share of total limited access privileges that a privilege holder is permitted to hold, acquire, or use under the current IBQ Program rules. Existing regulations limit ownership or control of limited access HMS permits to no more than five percent of vessels for which limited access permits have been issued. This functions to limit accumulation of excessive IBQ shares indirectly, because shares are associated with the Atlantic Tunas Longline limited access permits.

If sale of IBQ shares were allowed, there still may not be a meaningful risk of accumulation of excessive shares even absent an explicit limit. Because the IBQ Program is designed to manage bluefin as an incidental catch species, it is likely that there is a lower incentive for vessel owners to accumulate large amounts of IBQ shares, compared to catch share programs managing target species. Only the portion of the fleet that routinely interacts with bluefin while fishing for target species, and therefore are more likely to expend IBQ allocation to account for bluefin catch, has a consistent incentive to accumulate IBQ shares to augment the amount of IBQ allocation available to them (i.e., distributed to them annually if they are a shareholder or leased to them). Because of the likely costs associated with accumulation of IBQ shares, the incentive to accumulate shares would be constrained.

2.4.1.2 Sub-Alternative D1b: Cap amount of IBQ shares at seven percent

This alternative would cap the percentage of IBQ shares that an entity could hold or acquire as shareholder at seven percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (which is not allowed under the preferred alternative in this amendment; see Alternative C1). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

Rationale: Setting an ownership cap at seven percent of the total amount of IBQ shares would reflect the fact that the maximum amount of IBQ shares that a single entity held as shareholder, on an annual basis 2015-2019, was between five and six percent of the total shares. This sub-alternative would be the most restrictive of those being considered. A cap at seven percent would be at a conservative level and preclude additional consolidation.

2.4.1.3 Preferred Sub-Alternative D1c: Cap amount of IBQ shares at 25 percent

This alternative would cap the percentage of IBQ shares that an entity could hold or acquire as shareholder at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (which is not allowed under the preferred alternative in this amendment; see Alternative C1). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

Rationale: This cap would be around four times the maximum amount of IBQ shares that a single entity held, acquired, or used on an annual basis 2015-2019 (between five and six percent). It would balance the need to address consolidation with the need to provide flexibility for the fishery participants to account for bluefin incidental catch using various business models, including cooperatives and limited consolidation that enable efficiencies in order to remain profitable and competitive in the international seafood market. High bluefin landings is an unusual event under the current IBQ Program, and such an event is even more unlikely under Amendment 13, given this cap and the fact that IBQ allocations will only be issued to active pelagic longline vessels.

2.4.1.4 Sub-Alternative D1d: Cap amount of IBQ shares at 50 percent

This alternative would cap the percentage of IBQ shares that an entity could hold or acquire as shareholder at 50 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (which is not allowed under the preferred alternative in this amendment; see Alternative C1). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

Rationale: Based on current data on the extent of share consolidation 2015-2019, setting an ownership cap at 50 percent of the total amount of IBQ shares would be the least restrictive among those being considered, while still setting a maximum level that would preclude consolidation of shares above 50 percent. As described under alternative D1a, there may not be a meaningful risk of IBQ share accumulation, so a more restrictive cap may not be necessary.

2.4.2 Alternatives Suite D2: Establish a Cap on the Amount of IBQ Allocation an Entity may Lease or Use

These alternatives analyze implementing a cap on the amount of IBQ allocation one entity can lease or use under the IBQ Program.

2.4.2.1 Preferred Sub-Alternative D2a: No Cap on Amount of IBQ Allocation Leased or Used - No Action

This alternative would maintain the Amendment 7 limit on the amount of IBQ allocation an individual vessel (longline, or purse seineif relevant*) can lease annually as the combined Longline and Purse Seine category allocations on an annual basis. *This alternative could be combined with any of the Purse Seine alternatives including No Action.

Rationale: Long-term control of IBQ allocation by a single entity through leasing is not possible, because leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year. The amount of IBQ allocation an entity may use is limited only by the amount of IBQ allocation they receive through shares and/or the amount they lease from other vessels. The amount of IBQ allocation received through IBQ shares is limited because such shares are associated with the permit and would be capped under Alternative D1c. Investment in leasing large amounts of IBQ allocation is not likely to occur because the IBQ allocation would not carry over from one year to the next and therefore an investment in IBQ allocation would not likely be a sound investment, due to the short-term nature of the lease. Typically, the likely reason a vessel might need to lease a large amount of IBQ allocation would be to account for an unusually large incidental catch of bluefin, which is consistent with the objectives of the IBQ Program. In contrast to catch share programs where the catch share is a target species, the limited amount of IBQ allocation available through annual distribution to shareholders, and the limited amount of IBQ allocation available via leasing (as well as the associated costs), provide strong incentives to avoid bluefin. Furthermore, there are other potential challenges associated with the incidental catch of bluefin by pelagic longline vessels including bluefin weighing down longline gear (which typically catch lighter species) and bluefin market limitations and volatility. Provided the IBQ Program elements continue to function in a manner consistent with its objectives, with individual vessel accountability for bluefin catch, the IBQ Program should maintain design aspects that provide ample flexibility for vessel owners to lease IBQ allocation in the amounts that they need. Such needs include the ability to account for bluefin incidental catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin. During 2015-2019, the highest amount of IBQ allocation that a single entity held in one year, including leased allocation, was 12.3 percent of the total annual allocation (i.e., the Longline category bluefin quota) in 2017. That single entity used 3.8 percent of the total annual allocation in 2017 to account for bluefin incidental catch. The overall IBQ allocation leasing market has been robust, with the accountability rules of the IBQ Program providing incentives, described above, to avoid bluefin. The flexibility for vessels to lease IBQ allocation as needed to account for bluefin catch does not affect the amount of overall longline quota that may be caught.

The IBQ Program has been functioning under these regulations since 2015, and over the years, there have been no reported or observed issues relating to excessive accumulation of IBQ shares. Although the relevant data and analyses for this Amendment run through 2018, 2019, or 2020 only, NOAA Fisheries notes that during development of Final Amendment 13 in Spring 2022,NOAA Fisheries became aware of concerns regarding recent, high bluefin landings in a portion of the pelagic longline fishery. NOAA Fisheries considers this to be an unusual event and not reflective of how the Program has functioned overall. This is not a

common occurrence affecting the effectiveness of the IBQ Program overall. Below in the description of this Sub-Alternative and Sub-Alternatives D1c and D2c is additional discussion of the relevant issues. While a high bluefin landings event is unusual, the risk of such an event is even more unlikely under Amendment 13, given the cap on shares (sub-alternative D1c) and fact that IBQ allocations may only be leased from active pelagic longline vessels (sub-alternative F2b: discontinuing Purse Seine category).

2.4.2.2 Sub-Alternative D2b: Establish a Cap on the amount of IBQ Allocation an Entity may lease or use

This alternative would cap the amount of IBQ allocation a single entity could lease or use during a year at 25 percent of the total annual allocation (i.e., the Longline category bluefin quota).

Rationale: This alternative would cap the amount of IBQ allocation a single entity could lease or use to account for bluefin incidental catch during a year in order to ensure that a particular entity would not have a negative effect on the IBQ leasing market. The cap would be set at 25 percent of the distributed IBQ allocation, to balance the need for an entity to account for bluefin incidental catch, with the need to maintain a robust IBQ leasing market and maintain the strong incentives for entities to avoid bluefin interactions inherent in the IBQ Program accountability rules. During 2015-2019, the maximum amount of IBQ allocation that a single entity held in one year, including leased allocation, was 12.3 percent of the total annual allocation in 2017. That single entity used 3.8 percent of the total annual allocation in 2017 to account for bluefin catch.

2.5 'E' Alternatives: Adjustments to Other Aspects of the IBQ Program

The alternatives described below are relatively minor aspects of the IBQ Program, including modifications to monitoring or reporting requirements, and cost recovery. The underlying objectives for such adjustments (with the exception of cost recovery) is to reduce regulatory burden, increase efficiency, or optimize the effectiveness of existing regulations without erosion of the key functional elements of the IBQ Program. Maintaining the current regulations (No Action) is also being considered.

2.5.1 Alternatives Suite E1: Dealer Reporting Requirements

2.5.1.1 Sub-Alternative E1a: Maintain Current Dealer Reporting Requirement for IBQ Program - No Action

This alternative would make no changes to the current dealer reporting requirements that were implemented by Amendment 7 in support of the IBQ Program. Vessel owner/operators are currently required to coordinate with dealers to enter data on bluefin discarded dead into the IBQ System via the dealer's account, when a dealer is entering data on bluefin purchased from the vessel owner/operator, at the end of a fishing trip. This requirement was instituted to ensure accurate dead discard data is collected and entered into the IBQ accounting system, and associated with the correct vessel account. In addition, vessel operators are required to provide their vessel Personal Identification Number (PIN)

to the dealer in order for the dealer to be able to enter relevant data on bluefin dead discards or landings into the IBQ System.

Rationale: Entry of dead discard data at the end of the trip results in all data regarding bluefin landings and dead discards being entered into the online system at one time, and is also intended to provide an incentive for communication between the dealer and vessel operator regarding relevant bluefin data. The requirement that the dealer put in the relevant vessel PIN is intended as a tool to ensure that the vessel operator and dealer coordinate and agree on any data entered into the online IBQ System.

2.5.1.2 Preferred Sub-Alternative E1b: Modify Dealer Reporting Requirements for IBQ Program

This alternative would remove the dealer reporting and PIN requirements described under sub-alternative E1a, but continue to require that dealers enter the data on bluefin *landings* into the online IBQ System. Real-time bluefin dead discard information would continue to be collected through existing Vessel Monitoring System (VMS) reporting requirements under which vessel operators enter bluefin set reports while at-sea. This VMS set report data is integrated into the online IBQ System. Instead of using PINs, under this alternative, NOAA Fisheries would use email notification via the IBQ System (or a message within the IBQ System) to inform the vessel owner when a dealer conducts a transaction with that vessel's IBQ account. This would provide a means for vessel operators to have oversight of dealer transactions with their IBQ vessel accounts.

Rationale: The current requirement that vessel operators coordinate with dealers to enter dead discard data into the IBQ System at the end of a trip is redundant, because vessel operators have successfully reported bluefin dead discard data in 'real-time' via VMS set reports, which have been integrated into the IBQ System. At the onset of the IBQ Program, VMS data had to be manually input into the IBQ System for accounting purposes. VMS data are automatically entered into the IBQ System, which debits IBQ allocation from the appropriate vessel account based on the size of the bluefin discarded. Although the requirement to report dead discards via the dealer's IBQ account was considered useful as verification of VMS submitted dead discards, operationally it has not served this purpose. Vessel operators may not be present when dealers are entering landings data into the IBQ data management system, and very little discard information has been entered into the IBQ System using the dealer portal. Dealers may not be aware of the number or size of dead discards since the fish are not present at the time of landing the rest of the vessel's catch. It is important that vessel operators submit dead discard data in 'real-time' through VMS (i.e., soon after the occurrence) as currently required to support quota monitoring and reporting obligations, as well as to inform future management actions and evaluations.

The intent of the PIN requirement was to provide an opportunity for vessel operators to ensure accurate information regarding bluefin transactions with the dealer and correct accounting of bluefin in the IBQ System and IBQ vessel accounts. In practice, most vessel owners have not entered their PIN into the IBQ System at the time of offloading. Vessel operators have instead provided the PIN to the dealer with whom they usually conduct business to enable the dealer to retain the PIN and enter the number each time a bluefin

landing (from that particular vessel) occurs, to streamline logistics and communication during offloading. Secondly, providing the PIN to the dealer on a one-time basis has provided the dealer the flexibility to delay the time of data entry until sometime after the landing of the fish, while still complying with the requirement that the dealer electronically submit the data no later than 24 hours after receipt of the bluefin. Accurate data entry of pelagic longline bluefin landings information into the IBQ System by dealers has not been a problem, with the exception of limited late data entry.

2.5.2 Alternatives Suite E2: Requirements for Mailing Electronic Monitoring (EM) Hard Drives

2.5.2.1 Sub-Alternative E2a: Maintain Current Requirement for Mailing Electronic Monitoring Hard Drives - No Action

This alternative would continue the current requirement that EM hard drives be submitted after each trip using pelagic longline gear, according to the instructions provided by NOAA Fisheries. Specifically, vessel operators are required to mail the computer hard drive from the EM System within 48 hours after the end of each pelagic longline trip, regardless of how much storage capacity is remaining on the drive.

The associated instructions, which are not specified in the regulations, would continue unless revised by NOAA Fisheries under their current authority. For reference, the associated instructions are as follows: The vessel operator must remove hard drives from the EM System, as instructed by NOAA Fisheries, put the drive(s) in a padded envelope, with a pre-paid, self-addressed mailer or label, and send to the third-party contractor (address and information provided by NOAA Fisheries). The vessel operator must provide a pre-paid, self-addressed mailer or label to receive their replacement drives. The vessel operator is also responsible for obtaining padded mailers for shipping the hard drives to the contractor. The computer hard drives (and mailer or label) should be sent via United States Parcel Service (USPS) or FedEx (or another traceable method) to the address as instructed by NOAA Fisheries. Subsequently, the replacement hard drives for the vessel are sent to the address provided by the vessel operator.

Rationale: The current requirement to submit the hard drives after each trip was intended to allow adequate hard drive space to record any length trip and facilitate the process of video review. Having a single hard drive corresponding to a single trip facilitates the process of video review because the sets selected for review based on VMS data must be matched with corresponding EM data.

2.5.2.2 Preferred Sub-Alternative E2b: Modify Requirement for Mailing Electronic Monitoring Hard Drives

This alternative would require that the vessel operator mail the hard drive(s) within 48 hours after the completion of every other trip (every second trip), instead of after *each* pelagic longline fishing trip. An exception to this requirement would be if the hard drive is at capacity (full) after one trip, as indicated by the EM System, the vessel operator must mail the hard drive at the end of that trip.

Rationale: This requirement would reduce the amount of time and costs required of vessel operators as associated with the EM Program. Currently, hard drives are not typically full of data at the completion of one trip, and there is adequate room for the data from more than one trip to be stored on a single hard drive.

2.5.3 Alternatives Suite E3: Electronic Monitoring - Camera Installation

2.5.3.1 Sub-Alternative E3a: Maintain Current Regulations for Camera Installation - No Action

This alternative would retain the current procedures regarding camera installation. Current EM Systems have a minimum of two cameras, one facing the processing area of the deck where the retained fish are processed, and the other facing the rail where fish are brought on board, or discarded. This current camera configuration allows for a full view of the processing area and a limited view of the rail. Under this alternative, NOAA Fisheries would continue to install video cameras in similar manners and locations as under current procedures. Locations for camera installation are limited to currently existing vessel structures for mounting.

Rationale: The EM Program has been successfully implemented, and video images have been obtained from both cameras. Additional regulations regarding camera placement, such as authorizing modifications to vessel superstructure may add costs or complexity to vessel operations, which are already impacted by the EM Program.

2.5.3.2 Preferred Sub-Alternative E3b: Clarify and expand regulations for installation of cameras

This alternative would expand the regulations regarding EM cameras to include installation of permanent or semi-permanent hardware, if necessary, in order to mount and install video cameras at locations on vessels as necessary to obtain optimal views. NOAA Fisheries expects this alternative would require relatively minor modifications to the structure of some vessels in order to mount cameras in locations that provide required views of the vessel and adjacent areas. For example, NOAA Fisheries may require the installation of the rail camera on the vessel structure, or installation of permanent or semi-permanent hardware. This could include, for example, a boom on a structure near the vessel's rail for the purpose of obtaining a different camera angle with the side of the vessel to optimize the view of the rail to provide the optimal view of the area of the water surface and seaward of the rail, down to the water surface, where the gear and fish are hauled out of the water. A boom would likely be a customized piece of hardware that is fixed or movable (e.g., extended or lowered prior to beginning fishing activities).

Rationale: Currently, the rail camera is mounted on the existing vessel structure at the rail or slightly inboard of the rail, and is able to achieve only a partial view of the seaward area of the vessel as a result of the low camera angle (to the side of the vessel). Therefore, the current rail camera configuration provides a limited view of the seaward area of the rail where gear is hauled and hooked fish emerge from the water, and some of the discard events occur. Clarifying that NOAA Fisheries has the authority to require mounting and

installing cameras in locations that it determines are necessary, including the installation of minor structures to support cameras, would provide opportunities to improve camera placement, field of view, and improve the detection of fish (especially fish that are hooked, but not brought aboard the vessel) by the EM System, and improve the accuracy of resulting data.

2.5.4 Alternatives Suite E4: Specify Additional Fish Handling Protocols for Electronic Monitoring

2.5.4.1 Sub-Alternative E4a: Maintain Current Fish Handling Protocols for Electronic Monitoring - No Action

This alternative would make no changes to the current EM fish handling procedures. The regulations require that the vessel operator ensure that all fish are handled in a manner that enables the video system to record such fish, and there are no additional specific requirements how fish or gear must be handled. NOAA Fisheries contractors provide vessel operators with vessel-specific instructions regarding alterations of camera placement or gear placement on deck if required to obtain unobstructed camera views. EM video analysts currently use items on deck (e.g., fish boxes, baskets, poly balls) as a reference/proxies to estimate relative size of fish on deck.

Rationale: Fish handling techniques for retained fish and reference items have enabled the review staff to accurately identify and estimate size of retained fish.

2.5.4.2 Preferred Sub-Alternative E4b: Specify Additional Fish Handling Protocols for Electronic Monitoring

This alternative would require more specific fish handling procedures and the installation/placement of a measuring grid on deck, in view of one of the cameras. Specifically, the vessel crew would be required to place retained fish on a mat with grid lines or a grid painted on deck in view of the processing camera, so the video recording includes images of the fish. The grid may be customized to an individual vessel while also having lines of standard intervals.

Rationale: The use of a standardized grid would enable the video analyst to have a standardized size reference to use as an aide in the estimation of fish size and determination of fish species. The total length of a fish or the relative size of the pectoral fin are some of the fish characteristics used in specifies identification. With the use of a measuring tool, size estimation would be less affected by camera placement and angle with respect to fish, and the estimation of size and species identification may be improved. Additionally, a standardized reference grid may facilitate the development and use of computer algorithms and automation of video analysis.

2.5.5 Alternative Suite E5: Cost Recovery Program

Cost recovery, a required element of limited access privilege programs under the Magnuson-Stevens Act, was not implemented at the start of the IBQ Program in 2015, for reasons explained under sub-alternative E6a. Under the Magnuson-Stevens Act, NOAA Fisheries has authority to provide for a program of fees paid by limited access privilege holders that will cover the costs of management, data collection and analysis, and enforcement that are directly related to and in support of the program (i.e., incremental costs of the program). 16 U.S.C. § 1853a(e). A fee shall not exceed three percent of the ex-vessel value of fish harvested under the limited access privilege program. 16 U.S.C. § 1854(d)(2)(B).

2.5.5.1 Sub-Alternative E5a: Not Implement a Cost Recovery Program - No Action

This alternative would make no changes to the current regulations, under which there is no cost recovery.

Rationale: Bluefin is an incidental catch species in the pelagic longline fishery, and total ex-vessel value of the bluefin landed by the pelagic longline fishery is low. Therefore, the maximum recoverable amount from the fishery under a cost recovery program would also be low. When Amendment 7 was adopted, NOAA Fisheries did not implement a cost recovery program because it anticipated that the annual costs for such a program would approach or exceed the recoverable costs and provide little or no net value. Delaying the program also provided NOAA Fisheries with an opportunity to gather information about the operation of the fishery under the new IBQ Program and reduce initial costs and uncertainty.

2.5.5.2 Preferred Sub-Alternative E5b: Implement a Cost Recovery Program

Overview

This alternative would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by permit holders participating in the IBQ Program is warranted. Annually, NOAA Fisheries would estimate its incremental costs associated with the IBQ Program (including costs associated with the cost recovery program) and the total ex-vessel value of bluefin sold from the pelagic longline fishery, and notify Atlantic tunas longline permit holders electronically or by letter whether a cost recovery fee will be charged for the year, at the end of the calendar year. Permit holders would pay the cost recovery fee through the online IBQ Program website and the associated pay.gov link.

Estimation of Recoverable Costs

The incremental costs to NOAA Fisheries of implementing the IBQ Program are principally costs associated with labor, both NOAA Fisheries staff and contracted entities. The types of tasks include IBQ Program oversight, customer service, database maintenance, computer programming (maintenance and development), the EM Program, data monitoring, preparation of fleet communications, providing status reports to the HMS Advisory Panel,

preparation of Federal Register documents, and enforcement related activities. NOAA Fisheries would estimate the incremental costs to NOAA Fisheries of implementing the IBQ Program on an annual basis, including an estimate of the costs of the cost recovery program (i.e., the activities associated with the annual process of implementing the cost recovery program).

Estimation of Ex-Vessel Value of Bluefin Landed under IBQ Program

In the case of the IBQ Program, the relevant ex-vessel value is the value of bluefin landed, not the ex-vessel value of the target species that are not managed under the IBQ Program, such as swordfish and yellowfin tuna, which comprise the majority of the value of the fishery. NOAA Fisheries would calculate, on an annual basis, the average ex-vessel price per pound (price paid by the dealer to the vessel) for bluefin incidentally caught during pelagic longline fishing, using dealer data, and derive a total ex-vessel value of bluefin for the pelagic longline fishery as a whole (total dressed weight of bluefin sold to dealers).

Comparison of Incremental Costs to Ex-Vessel Value to Determine Recoverable Costs

Annually, NOAA Fisheries would compare its incremental costs associated with the IBQ Program to the estimate of total ex-vessel value of bluefin sold from the pelagic longline fishery to determine recoverable costs. Under the Magnuson-Stevens Act, the recoverable costs are capped at three percent of the ex-vessel value of fish landed under the limited access program. Given the relatively small total ex-vessel value of bluefin incidentally caught and landed by pelagic longline vessels, and the substantial incremental costs to NOAA Fisheries associated with the IBQ Program, NOAA Fisheries anticipates that the likely cost recovery fee would be three percent of the ex-vessel value of bluefin sold. If the incremental cost to NOAA Fisheries is less than three percent of the total ex-vessel value of the quota species, then that estimate of incremental cost is the total amount of fees that may be recovered from the fishery. If the total incremental cost to NOAA Fisheries of implementing the program exceeds three percent of the ex-vessel value of the quota species, then the total amount of fee recovered is limited to three percent of the ex-vessel value of the quota species.

Determination of Whether to Collect Cost Recovery Fees

The annual decision of whether to collect cost recovery fees would be based on the administrative/ operational cost to NOAA Fisheries of implementing the cost recovery program (as distinct from the operational costs associated with the routine administration of the IBQ Program). If the total fees that could be collected (up to 3 percent of ex-vessel value of bluefin landed under the IBQ Program) are similar to or less than the administrative costs of the cost recovery program, no cost recovery fee would be collected.

If NOAA Fisheries proceeds with collecting fees, it would determine recoverable costs (as described above), calculate individual fees based on individual permit holder landings of bluefin, develop a Federal Register document providing formal public notification, and notify permit holders of their individual fees and instructions for payment through the

online IBQ System. If permit holders do not pay their fees or are delinquent in payment, they may be subject to relevant enforcement penalties, including permit revocation.

Annual Report

Given the potential economic impacts of annual cost recovery fees, and the importance of transparency, NOAA Fisheries would prepare a brief annual report that summarizes relevant information including the estimation of recoverable costs, estimation of ex-vessel value of bluefin, comparison of incremental costs to ex-vessel value to determine recoverable costs, and the determination of the cost recovery fee. This report would be made available to the public online or as part of the annual HMS Stock Assessment and Fishery Evaluation Report.

Rationale: Bluefin is an incidental catch species, and total ex-vessel value of the bluefin landed by the pelagic longline fishery is low. Therefore, the maximum recoverable amount from the fishery under a cost recovery program would also be low. The costs associated with annual implementation of a cost recovery program may approach or exceed the recoverable costs and provide little or no net value to NOAA Fisheries. In other words, if the total funds to be recovered is small, it may cost close to or more to recover these funds than would be recovered, while introducing a cost to fishery participants. Therefore, a flexible approach is warranted, where NOAA Fisheries would implement a process for cost recovery, but provide flexibility for NOAA Fisheries to make an annual determination whether or not to charge a cost recovery fee, based on relevant information.

2.6 'F' Alternatives: Purse Seine Category and Quota Allocation Process

These alternatives analyze potential changes to the current management of the Atlantic Tunas Purse Seine category. These alternatives continue the process that began with Amendment 7 to address quota allocations among the different categories in a changing fishery. As described earlier, the purse seine fishery for Atlantic tunas has been essentially inactive for the past 15 years.

This section also includes alternatives regarding the quota allocation process among categories that were implemented under Amendment 7. Discussion of these alternatives comes first in this section to facilitate understanding of the potential Purse Seine category quota reallocation alternatives. The amount of quota allocated to each category was specified in 1999, based upon historical landings, and did not account for dead discards. Landings were the only portion of catch that were factored into the 1999 FMP percentage allocation analysis because, at that time, dead discards were accounted for under a separate quota allowance (68 mt) per ICCAT recommendations. However, in 2006, the separate dead discard allowance was discontinued per ICCAT recommendation and dead discards must now be accounted for within each country's annual quota.

2.6.1 Alternatives Suite F1: Modify codified quota allocation percentages to reflect the annual 68-mt allocation to the Longline category

2.6.1.1 Sub-Alternative F1a: Current Method of Deriving 68 mt for Allocation to Longline Category - No action

Under the current regulations, in effect since the implementation of Amendment 7, each quota category (including the Longline category) is annually allocated a percentage of the U.S. bluefin quota after 68 mt (i.e., the historical 68-mt dead discard allowance, as described in Amendment 7) is subtracted from the U.S. baseline quota and allocated to the Longline category. This process was intended to have all bluefin quota categories contribute proportionally to the 68 mt provided to the Longline category annually. See Current Allocations column of Table 2.1.

Rationale: This would maintain the status quo quota allocation process among categories established in Amendment 7, which provides the Longline category annually 68 mt, the historical dead discard allowance, prior to allocation of the remainder of the U.S. baseline quota per the FMP allocation percentages that had been in place since 1999.

2.6.1.2 Preferred Sub-Alternative F1b: Modify codified quota allocation percentages to reflect the annual 68-mt allocation to the Longline category

This alternative simplifies the annual quota allocation process among categories. Specifically, this alternative makes a change to the mathematical method used in the annual quota allocation process in order to achieve a similar result through simpler means. Instead of a two-step process of subtracting the 68 mt from the U.S. baseline quota and then applying the category allocation percentages, there would be a one-step process applying slightly revised category allocation percentages. As shown in Table 2.1, under current methods (Alternative F1a, No Action), although the percentage of the U.S. baseline quota for the Longline category is 8.1 percent, once the 68 mt amount is included, the amount allocated to the Longline category is effectively 13.1 percent of the 1,247.9-mt U.S. baseline quota. Under this alternative, the Longline category percent would simply be revised to 13.1 percent and the other category allocation percentages would be slightly modified. For example, for the General category, instead of having an annual deduction of 32.1 mt (as its portion of the 68 mt) and a baseline quota percentage of 47.1 percent, the General category would have a baseline quota percentage of 44.1 percent (and no deduction of 32.1 mt). Note that the United States also receives an annual allocation of 25 mt from ICCAT for incidental catch of bluefin related to directed longline fisheries in the NED. Thus, the total U.S. quota, including the 25-mt NED allocation, is 1,272.9 mt.

Rationale: This alternative is designed to simplify the quota regulations, by making a change to the mathematical method used in the annual quota allocation process among categories. The intent is to be consistent with Amendment 7 in providing additional quota to the Longline category quota consistent with previous ICCAT recommendations. Simplification of the allocation methodology will facilitate comparison among the

reallocation alternatives in this document, as well as reduce the complexity in reporting on quota usages in the future.

Table 2.1 Comparison of Annual U.S. Bluefin Category Quotas (in percent and mt) under Alternatives F1a and F1b

	Alternative F1a - No Action			Alternative F1b % equivalent to 68 metric tons	
Category	(A) Current allocation of the U.S. Base Quota minus 68 metric tons, per Amendment 7 (%)	(B) Current allocation of the U.S. Base Quota minus 68 metric tons, per Amendment 7 (mt)	For calculation of actual %_of U.S. Base Quota, adding 68 metric tons Longline allocation	(C) Revised Allocation of U.S. Base Quota 1,247.9 mt (%)	(D) Allocation based on column "C"(same resultant mt as current in column "B") (mt)
General	47.1	555.7		44.5	555.7
Harpoon	3.9	46		3.7	46
Purse Seine	18.6	219.5		17.6	219.5
Longline	8.1	95.6[1]	+ 68	13.1	163.6[1]
Trap	0.1	1.2		0.1	1.2
Angling	19.7	232.4		18.6	232.4
Reserve	2.5	29.5		2.4	29.5
Total	100	1179.9		100	1247.9

[1] The current Longline category allocation is 163.6 mt, including the 68-mt allocation described above, i.e., 95.6 mt + 68 mt = 163.6 mt. This table does not reflect the 25-mt allocation for the NED.

2.6.2 Alternatives Suite F2: Purse Seine category and quota allocation

2.6.2.1 Sub-Alternative F2a: Continue Purse Seine Category - No action

This alternative would maintain all aspects of the current Purse Seine category regulations. Under current regulations, NOAA Fisheries considers the previous year's catch by Purse Seine category participants in determining the amount of quota available to each participant in the current year. NOAA Fisheries would continue to reallocate a substantial portion of the baseline Purse Seine category quota annually to the Reserve category based on prior-year landings of the Purse Seine category, as described in § 635.27(a)(4).

Rationale: This alternative would continue the potential for historical participants with permitted vessels to direct on Atlantic tunas with purse seine gear and to fish the quota as allocated to them under the Amendment 7 process, considering their previous year's fishing activity, provided they obtain a Purse Seine category permit for a vessel they own. It also would allow pelagic longline vessels to lease bluefin quota from Purse Seine category participants through the IBQ System.

2.6.2.2 Preferred Sub-Alternative F2b: Discontinue Purse Seine category and reallocate quota upon implementation of Amendment 13

This alternative would discontinue the Purse Seine category through redistribution of Purse Seine category quota effective upon implementation of the Amendment 13 final rule. NOAA Fisheries would remove purse seine from the list of authorized gears and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants. This alternative could be implemented in conjunction with any of the methods of reallocation described under Alternatives F5 and F6, and is intended only to address the timing of the discontinuation of the Purse Seine category.

Rationale: The Purse Seine category is effectively allocated 17.6 percent of the U.S. baseline bluefin quota (as discussed above in Alternative F1b), yet the purse seine fishery has been largely inactive over the past 15 years, and there are no longer any historical Purse Seine category participants actively fishing. Discontinuation of the Purse Seine category and reallocation of its quota upon implementation of Amendment 13 would address various types of uncertainty that result from the inactive status of the Purse Seine category (described in Chapter 1), provide additional quota to active fisheries that are, at times, quota-limited, and increase the likelihood that more of the U.S. quota will be utilized.

2.6.2.3 Sub-Alternative F2c: Discontinue Purse Seine category and reallocate quota at a future date (i.e., "sunset" date)

This alternative would include the same actions as in sub-alternative F2b, but would discontinue the Purse Seine category and redistribute the Purse Seine category quota two years after implementation of Amendment 13. As in Alternative F2b, NOAA Fisheries would remove purse seine from the list of authorized gears and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants. These changes to the regulations would be implemented

two years after the implementation of Amendment 13. The alternative could be implemented in conjunction with any of the methods of reallocation described under Alternatives F3 and F4, and is intended only to address the timing of the discontinuation of the Purse Seine category.

Rationale: Postponing discontinuation would allow Purse Seine category participants to continue leasing bluefin quota to pelagic longline vessels through the IBQ System and/or fishing for bluefin (if NOAA Fisheries were to issue Purse Seine category permits to vessels owned by the participants) in the period prior to the sunset date. A phase-out period may reduce any short-term disruption to the Purse Seine category participants and pelagic longline vessels by allowing a longer period of time during which they would be aware of future changes to the regulations and could begin to make any necessary changes to their business plans or fishing strategies.

2.6.2.4 Sub-Alternative F2c1: Partially reallocate Purse Seine category quota and allow current Purse Seine category participants to lease quota and fish until sunset date (two years after implementation of Amendment 13)

This alternative would modify the quota allocation rules for the Purse Seine category upon the implementation of Amendment 13. Specifically, this alternative would adjust the Purse Seine category quota to 4.4 percent of the bluefin quota (25 percent of the 17.6-percent allocation that would be provided under Alternative F1b). The remaining 75 percent of the Purse Seine category quota would be reallocated to the other bluefin quota categories in accordance with one of the reallocation alternatives described below. This alternative would result in a set annual quota percentage, in contrast to the No Action alternative (F2a), which considers the previous year's catch by Purse Seine category participants in determining the amount of quota available to each participant in the current year. This alternative would allow current Purse Seine category participants to receive an annual allocation, which would be 4.4 percent of the U.S. baseline bluefin quota, and lease it (via the IBQ System) to and from other Purse Seine category participants or Atlantic Tunas Longline category permit holders. It also would allow them to fish for Atlantic tunas, including bluefin, with purse seine gear provided the relevant vessel is issued a valid Purse Seine category fishing permit and meets all other applicable requirements. These actions would be allowed for two years after implementation of Amendment 13, when the Purse Seine category would be terminated.

Rationale: This alternative would restructure the annual allocation to Purse Seine category participants to more closely reflect their most recent quota use. In the most recent active years, purse seine fishing activity was by one Purse Seine category participant making only a handful of sets. This level of catch is well below 4.4 percent of the U.S. baseline bluefin quota. Limiting the Purse Seine category quota to 4.4 percent of the U.S. baseline bluefin quota would increase the amount of quota that could be distributed to other quota categories, and reduce uncertainty in the phase-out period prior to the sunset date. This alternative would maintain Purse Seine category participants' current ability to lease and to fish the annual quota distributed to them (with a valid Purse Seine category fishing

permit) in the short term, in order to provide a transition before discontinuation of the Purse Seine category.

2.6.2.5 Sub-Alternative F2c2: Partially reallocate Purse Seine category quota and allow current Purse Seine category participants to lease quota but not fish until sunset date (two years after implementation of Amendment 13)

This alternative is similar to Alternative F2c1 (including a reduction in the size of the quota to 4.4 percent of the bluefin quota) but would authorize Purse Seine category participants only to *lease* annual quota distributed to them until the sunset date. Although this alternative would eliminate the ability of Purse Seine category participants to fish for tunas, including bluefin, current Purse Seine category participants would continue to receive an annual allocation and have the ability to lease quota via the IBQ System until the sunset date.

Rationale: During 2017 through 2019, an average of 31 percent of the total leases (by weight) in the IBQ System were from Purse Seine category participants to Atlantic Tunas Longline category permit holders. Although limited in scope, these bluefin quota leases were a meaningful component of the IBQ Program, contributing to a successful leasing market. This alternative would allow this leasing activity to continue in the short term, in order to provide a transition before discontinuation of the Purse Seine category. Because purse seine gear would be disallowed, it would eliminate the uncertainty that currently exists from one year to the next, of whether the purse seine fishery will commence operations for bluefin and how much bluefin they will catch.

2.6.3 Alternatives Suite F3: Reallocate Purse Seine category quota proportionally to all other quota categories

This and the remaining F alternatives that follow relate to discontinuation of the Purse Seine category (described in Alternatives F2b and F2c) and address which categories (and for Longline, area) would receive reallocated quota.

Rationale: Proportional redistribution of the Purse Seine category quota to all other quota categories is a relatively simple method of reallocating quota, which would reduce uncertainty in the fishery. It would promote optimum yield and likely be perceived as fair by affected permit holders, because it reflects the current baseline quota distribution methods, which have been in place since 1999, and reallocate to all active quota categories. The Longline category, an incidental category, would be included in the proportional reallocation method, because the Longline category has been reliant upon leased Purse Seine category quota since 2015 (Amendment 7).

2.6.3.1 Preferred Sub-Alternative F3a: Reallocate Purse Seine category quota proportionally to all other quota categories, and apply Longline category increase to all areas

This alternative would result in reallocating quota from the Purse Seine category proportionally to all other quota categories, including the Longline category, based on the

current percentages associated with each quota category as revised with the removal of the Purse Seine category percentage. The resulting revised allocations and quotas are shown in Table 2.2. This alternative would not place additional restrictions on the location of the use of such quota, in contrast to Alternative F3b, that would restrict the use of reallocated quota received by the Longline category to the Atlantic. Under the IBQ Program, the additional quota would be designated as Atlantic or Gulf of Mexico IBQ shares and allocations, consistent with the relevant method of calculating IBQ shares and distributing IBQ allocation described under the A and B alternatives. In the DEIS, this alternative was not preferred, and was not proposed in the proposed rule. However, based in part on public comment, this alternative is preferred in this FEIS. As explained below and in Section 2.6.4, and in detail in section 4.6.2.7, the Longline category would be included in the proportional reallocation, as it has been reliant upon leased Purse Seine category quota. Whereas the analysis of the leasing program in the DEIS compared the portion of leases from the Purse Seine category participants to the portion of leases from pelagic longline vessels, the analysis in this FEIS also explored the source of pelagic longline leases from either active or inactive vessels.

Calculations for the revised category quotas are based on the 2019 quota, which was in effect at the time the DEIS was published. Although it is anticipated that a revised bluefin quota will be in effect in 2022 because of a 2021 ICCAT recommendation (*see* 87 FR 12648, March 7, 2022 (proposed rule)), for the purposes of this FEIS these analyses use the same quota as used for the DEIS in order to facilitate comparisons between the DEIS and the FEIS.

The math to determine these new quota amounts is as follows:

(1) Start with the preferred baseline quotas in Alternative F1b.
(2) Subtract the current Purse Seine quota (219.5 mt) from the U.S. quota (i.e., 1,247.9 mt - 219.5 mt = 1,028.4 mt).
(3) Divide the quota for each category by 1,028.4 mt (i.e., the total amount of quota <u>not being</u> reallocated). Then multiply by 219.5 mt (i.e., the amount of quota <u>being</u> reallocated).
(4) This gives you the amount of quota to be added to each category's base.
(5) Add the additional amount to each category's base quota to calculate the new quotas.

A breakdown of steps 1-5 is shown in Table 2.2

Table 2.2 Purse Seine quota reallocation process for Alternative F3

	General category	Angling category	Purse Seine category	Longline category	Harpoon category	Reserve category	Trap category	Total
Quotas under Alternative F1b (%)	44.5	18.6	17.6	13.1	3.7	2.4	0.1	100

	General category	Angling category	Purse Seine category	Longline category	Harpoon category	Reserve category	Trap category	Total
Quotas under Alternative F1b (step 1) (mt)	555.7	232.4	219.5	163.5	46	29.5	1.2	1,247.9
Subtract Purse Seine quota (step 2) (%)	44.5	18.6	17.6	13.1	3.7	2.4	0.1	-17.6
Redistribution calculation (step 3)	(44.5/84.2) x 17.6	(18.6/84.2) x 17.6	N/A	(13.1/84.2) x 17.6	(3.7/84.2) x 17.6	(2.4/84.2) x 17.6	(0.1/84.2) x 17.6	
Additional quota after redistribution (step 4) (%)	9.5	4.0	0	2.8	0.8	0.5	<0.1	17.6
New quotas (%)	54.0	22.6	0	15.9	4.5	2.9	0.1	100
New quotas (step 5) (mt)	674.3	282	0	198.5	55.8	35.8	0.1	1,247.9

Addition of the values in the seven category columns may not equal the value in the "Total" column due to rounding of values

Rationale: This alternative is a relatively simple method of reallocating quota, which would reduce uncertainty in the fishery. It would promote optimum yield and likely be perceived as fair by affected permit holders, because it reflects the current baseline quota distribution methods, which have been in place since 1999, and reallocates to all active quota categories, including the Trap and Longline categories. The Longline category, an incidental category, would be included in the proportional reallocation method, because the Longline category has been reliant upon leased Purse Seine category quota since 2015. The IBQ Program participants require adequate bluefin quota in order to meet the accounting requirements, participate in the leasing market, and mitigate risk. Adequate IBQ is important to achieve a balance between incentives to reduce bluefin interactions and ability to fish for target species to maintain profitability and supply the seafood market. This alternative would not place additional restrictions on the use of Longline quota or on the process of determining regional designations for IBQ allocation, as these regional designations would be analyzed and determined as described under the B alternatives. A detailed explanation for the rationale for the selection of the preferred alternative, based upon the analysis of its impacts is in Section 4.6.2.7.

2.6.3.2 Sub-Alternative F3b: Reallocate Purse Seine category quota proportionally to all other quota categories, but do not allow an increase in Longline category quota that could be used in the Gulf of Mexico

This alternative would result in reallocating quota from the Purse Seine category to all of the remaining quota categories, including the Longline category as described above, but

would place a restriction on the use of such quota by pelagic longline vessels, in the context of the IBQ Program (see Table 2.2). Specifically, all of the additional Longline category quota would be designated as Atlantic IBQ allocation, which could not be used to account for bluefin caught in the Gulf of Mexico. This sub-alternative is based on the premise that Longline category IBQ share and allocation regional designations remain under the non-preferred Alternative B1.

Rationale: This alternative is intended to reflect the geographic areas, broadly speaking, where the Purse Seine category fishery was prosecuted, i.e., fishing for Atlantic tunas with purse seine gear has occurred in the Atlantic and not in the Gulf of Mexico. This alternative recognizes the historical location of the fishery and would offer some additional protections to spawning bluefin in the Gulf of Mexico by not reallocating Purse Seine category for use in the Gulf of Mexico by pelagic longline vessels. This alternative may augment the rules regarding regional designations alternatives (e.g., B1, B2, or B3).

2.6.4 Alternative F4: Reallocate Purse Seine category quota proportionally to directed bluefin categories, including Reserve

This alternative would reallocate the Purse Seine category quota proportionally to the *directed* bluefin quota categories (General, Angling, Harpoon, and Reserve categories) based on the percentages associated with each quota category, and result in revised allocations and quotas as shown in Table 2.3. Purse Seine category quota would not be reallocated to the Longline or Trap categories that catch bluefin incidentally. This alternative would result in quotas for the directed categories that would be slightly greater than in Alternative F3, where the quota would be reallocated to all categories.

This alternative was the preferred alternative in the DEIS, and proposed in the Amendment 13 proposed rule. Based on public comment, and further consideration by NOAA Fisheries, this alternative is no longer preferred. Public comments included various concerns about the potential negative socioeconomic impacts of this alternative, focusing on two aspects. The first was the past reliance of pelagic longline vessels on IBQ leased from purse seine participants and the concern that, without the availability of purse seine quota to lease, there would be insufficient IBQ available to active pelagic longline vessels to meet their needs. The second noted aspect was the perception that even though the Longline category is not a directed category, exclusion of the Longline category from the annual Purse Seine category quota reallocation is not fair, given the extensive reporting and monitoring requirements for bluefin that are applicable only to pelagic longline vessels. In this FEIS, the preferred alternative is F3a (*Reallocate Purse Seine category quota proportionally to all other categories, and apply Longline category increase to all areas*). A detailed explanation for the rationale for the selection of the preferred alternative, based on the analysis of impacts, is in Section 4.6.2.7.

Rationale: The Purse Seine category is a directed bluefin fishing category. NOAA Fisheries manages the pelagic longline and trap fisheries as incidental categories for bluefin. The IBQ Program for the Longline category balances incentives to avoid bluefin and reduce dead

discards, with providing flexibility to fish for target species and maintain profitability. The bluefin allocated to the Longline category is intended to be used to account for incidental catch of bluefin. Based on the Three-Year Review, the relative amount of bluefin quota, in combination with the amount of IBQ leased have been adequate for vessels to account for bluefin, and therefore a substantive increase in the Longline category quota percentage may not be necessary. Reallocating quota from the Purse Seine category to other directed bluefin fishing categories would be consistent with the objectives of the IBQ Program, and the objective to provide a reasonable opportunity for directed vessels to catch the U.S. quota.

Table 2.3 Purse Seine reallocation process for Alternative F4

	General category	Angling category	Purse Seine category	Longline category	Harpoon category	Reserve category	Trap category	Total
Quotas under Alternative F1b (%)	44.5	18.6	17.6	13.1	3.7	2.4	0.1	100
Quotas under Alternative F1b (Step 1) (mt)	555.7	232.4	219.5	163.5	46	29.5	1.2	1,247.9
Subtract Purse Seine quota (step 2) (%)	44.5	18.6	(-17.6)	13.1	3.7	2.4	0.1	100
Redistribution calculation (step 3)	(44.5/69.2) x 17.6	(18.8/69.2) x 17.6	N/A	N/A	(3.7/69.2) x 17.6	(2.4/69.2) x 17.6	N/A	-17.6
Additional quota after redistribution (step 4) (%)	11.3	4.7	0	0	0.9	0.6	0	17.6
New quotas (Step 5) (%)	55.8	23.3	0	13.1	4.6	3.0	0.1	100
New quotas (mt)	696.3	290.8	0	163.5	57.4	37.4	1.2	1,247.9

Addition of the values in the seven category columns may not equal the value in the "Total" column due to rounding of values.

2.7 'G' Alternatives: Modifications to General Category Subquota Periods and/or Allocations

Under the regulations at § 635.27(a)(1), the General category quota is divided into five subquotas for the following five time periods: January, June through August, September, October through November and December. Although it has been called the "January" subquota, the regulations currently allow landings to continue until the subquota is reached, or until March 31, whichever comes first. The flexibility to allow landings to continue until March 31 was intended to allow the January base quota to be caught even

under the circumstances when the bluefin are not available in January but arrive in February or March, later than is typical. In other words, it was intended to provide flexibility due to the variability of bluefin (spatial and temporal distribution), and not intended to provide fishing opportunity in each month of the first quarter. For purposes of clarity, NOAA Fisheries uses "January through March" to refer to the January subquota here. Table 2.4 shows the time period percentages of the General category quota, plus the current baseline subquota, and Figure 2.3 shows the percentages in a pie chart.

Table 2.4 General category subquota time periods, base subquota allocation (%), and current baseline subquota (mt)

Subquota Time period	Percent of General category baseline quota (%)	Current baseline subquota (mt)
January-March	5.3	29.5
June-August	50	277.9
September	26.5	147.3
October-November	13	72.2
December	5.2	28.9
Total	100	555.7

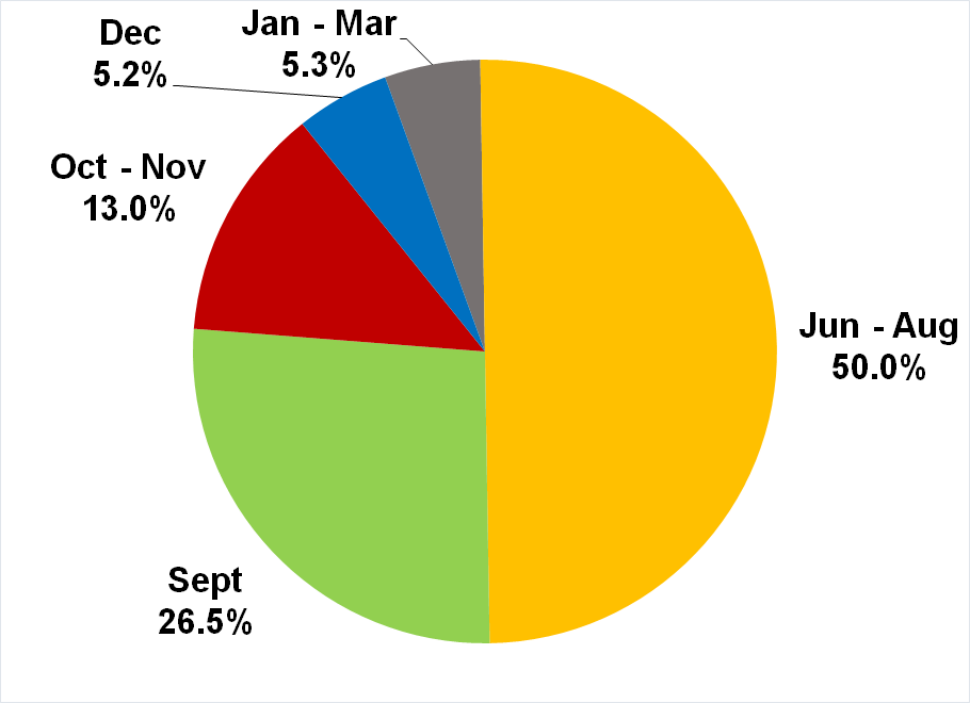

Figure 2.3 General category subquota time periods and base subquota allocation percentages

NOAA Fisheries may adjust each period's subquota based on overharvest or underharvest in the prior subquota period. Therefore, unused General category quota may be available for use in subsequent time periods (e.g., unused quota from June through August may be available for use in the September period; unused quota from September may be available for use in the October through November period). In addition, NOAA Fisheries may decide, through an inseason action, to transfer quota from one subquota period to another, whether earlier or later in the calendar year. For example, NOAA Fisheries may transfer quota allocated for December of a particular year to January through March of that year, to further fishing opportunities early in the calendar year.

2.7.1 Preferred Alternative G1: No Modifications to General category subquota periods and/or allocations - No Action

This alternative would make no changes to the current regulations regarding suballocation of the General category bluefin quota into time-period subquotas.

Rationale: The current subquota periods and allocations are intended to provide fishing opportunity temporally and geographically. Generally, the commercial handgear fishery occurs off New England in the summer and fall months and off mid-Atlantic states in the winter months. The current subquota allocations by time period reflects both the seasonal distribution of bluefin and general timing of fishing activity. For example, the June through August allocation and the January through March allocation reflect the seasonal distribution of bluefin; the different percentages associated with the two subquota periods reflect the duration of the subquota periods and historical availability of bluefin (i.e., the June through August subquota period has 50 percent of the subquota because the duration

is three months, and historically the bluefin have been in high abundance during that period). Although there is annual variability in the distribution of bluefin, the current system of allocation still reflects the overall fishery both in current availability of bluefin and in historical fishing patterns.

2.7.2 Alternatives Suite G2: Modify General category subquota time periods

This alternative would modify the current General category time periods as defined at § 635.27(a)(1) and listed in Table 2.4 above. It is important to note that changes to the General category time periods would also likely require changes to the subquota allocation percentages (see Alternative G3). The current regulations regarding NOAA Fisheries authority to transfer quota inseason would remain.

Rationale: Changes to the General category time periods could provide additional fishing opportunities in some time/areas and could address perceived inequities in current allocations. There are concerns that the current system of allocation does not reflect bluefin availability and/or historical fishing patterns. Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the commercial (and recreational) handgear fisheries that began prior to 2015 have continued. With such increases there has been renewed public interest in the optimal and equitable allocation of bluefin quota among seasons and geographic areas.

2.7.2.1 Sub-Alternative G2a: Modify General category subquota time periods: 12 equal months

This alternative would divide the General category quota into 12 monthly time periods, including two months that historically have not been open to fishing under the General category quota (April and May). This alternative was considered, but not selected, in the 2011 Environmental Assessment for a Rule to Adjust the Atlantic Bluefin Tuna General and Harpoon Category Regulations (NMFS 2011; 76 FR 74003, November 20, 2011) as well as in Amendment 7.

Rationale: This alternative would allow the General category fishery to be open in every month, potentially allowing for additional opportunities temporally and geographically. Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the commercial (and recreational) handgear fisheries that began prior to 2015 have continued. With such increases there has been renewed public interest in the optimal and equitable allocation of bluefin quota among seasons and geographic areas.

2.7.2.2 Sub-Alternative G2b: Modify General category subquota time periods: Extend the January through March subquota time period through April 30

This alternative would allow landings in the January through March time period to continue until the subquota is reached, or until April 30, whichever comes first. This alternative is similar to an alternative that was considered, but not selected, in the 2011

Environmental Assessment for a Rule to Adjust the Atlantic Bluefin Tuna General and Harpoon Category Regulations, i.e., to extend the "January" subquota time period through May 31 rather than through January 31, which was the end date of that subperiod at the time. It was in that rulemaking that the March 31 end date was established for the "January" subquota.

Rationale: This alternative could extend fishing opportunities within the January through March subquota temporally. For instance, if bluefin are not available until February and are available on the fishing grounds until April, landings could occur in April and continue until the available January through April subquota is reached. Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the commercial (and recreational) handgear fisheries that began prior to 2015 have continued. With such increases there has been renewed public interest in the optimal and equitable allocation of bluefin quota among seasons and geographic areas.

2.7.3 Alternatives Suite G3: Modify General category subquota allocation percentages

This alternative would modify the current General category bluefin quota allocations outlined at § 635.27(a)(1) and listed in Table 2.4 above. Sub-alternatives would increase the January through March and/or the fall subquotas (September, October through November) suballocation amounts and decrease other time-period subquotas such as the June through August subquota.

Rationale: Changes to the suballocations could provide additional or more equitable opportunities (temporally) and could address perceived inequities in current allocations. In addition, some General category (quota) participants would prefer to see additional opportunities available when market prices are perceived to be generally higher (e.g., in fall months). Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the commercial (and recreational) handgear fisheries that began prior to 2015 have continued. With such increases there has been renewed public interest in the optimal and equitable allocation of bluefin quota among seasons and geographic areas.

2.7.3.1 Sub-Alternative G3a: Modify General category subquota allocation percentages: Increase the January through March amount

This alternative would increase the January through March suballocation from its current value of 5.3 percent to up to 15 percent and decrease the suballocations for the remainder of the year proportionally to achieve this increase (i.e., decrease the June through August suballocation from 50 percent to as low as 44.9 percent, the September suballocation from 26.5 to as low as 23.8 percent, the October through November suballocation from 13 to as low as 11.7 percent, and the December suballocation from 5.2 to as low as 4.7 percent). NOAA Fisheries received various suggestions regarding allocation percentages and

discusses potential ranges here (and below) as a way of noting "bookends" of potential changes. In selecting a specific change (i.e., a percent increase). NOAA Fisheries may adjust each period's subquota based on overharvest or underharvest in the prior subquota period. Therefore any unused General category quota may be available for use in subsequent time periods.

Rationale: This sub-alternative would provide additional fishing opportunities (temporally) for General category (quota) participants during the January through March time period, which NOAA Fisheries has, in some recent years, needed to close prior to March 31 due to the subquota being reached. Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the commercial (and recreational) handgear fisheries that began prior to 2015 have continued. With such increases there has been renewed public interest in the optimal and equitable allocation of bluefin quota among seasons and geographic areas.

2.7.3.2 Sub-Alternative G3b: Modify General category subquota allocation percentages: Increase the September and the October through November amounts and decrease June through August amount

This alternative would decrease the June through August suballocation from 50 percent to as low as 25 percent of the total quota and increase the September suballocation from 26.5 percent to up to 43.1 percent and the October through November suballocation from 13 percent to up to 21.4 percent. In other words, the reduction in the June through August suballocation (25 percent of total quota) would result in corresponding increases in two of the other suballocations (16.6 and 8.4 percent of the total quota; 25 = 16.6 + 8.4). Any unused quota from the January through March period would roll forward and be added to the amount for June through August.

Rationale: This sub-alternative would provide additional fishing opportunities (temporally) for fall General category (quota) participants. Some General category participants would prefer to see additional opportunities available when market prices are perceived to be generally higher (e.g., in fall months). Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the commercial (and recreational) handgear fisheries that began prior to 2015 have continued. With such increases there has been renewed public interest in the optimal and equitable allocation of bluefin quota among seasons and geographic areas.

2.7.3.3 Sub-Alternative G3c: Modify General category subquota allocation percentages: If reallocate Purse Seine quota proportionally to other quota categories, place all quota that is reallocated to the General category to the fall time periods

This alternative is directly associated with Alternatives F5 and F6 - Discontinue Purse Seine category fishery and reallocate quota. Any increases of General category quota resulting from Alternatives F5 and F6 would be applied to the September and the October through

November subquota periods, both of which have often been open for only a small portion of the subperiod. Based on current relative size of the September and October through November percentages to each other, the quota from the Purse Seine category would be divided proportionally between the September and the October through November subquota periods, which would result in the September subquota period receiving about twice as much as the October through November subquota period.

Rationale: This sub-alternative would provide additional fishing opportunities (temporally and geographically) for fall General category fishery participants. Reallocating only to these late summer and fall periods would address a perceived lack of fishing opportunity (i.e., a focus on the low number of days able to be fishing with a quota subperiod rather than the amount landed) and the perception that bluefin are worth more in the fall months. Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the commercial (and recreational) handgear fisheries that began prior to 2015 have continued. With such increases there has been renewed public interest in the optimal and equitable allocation of bluefin quota among seasons and geographic areas.

2.8 'H' Alternatives: Modifications to the Angling Category Trophy Fishery

2.8.1 Alternative H1: Maintain Angling category trophy areas and allocations (percentages) - No Action

This alternative would maintain the current Angling category trophy bluefin subquota areas and allocations at § 635.27(a)(1), shown in Figure 2.4. Under the current regulations, no more than 2.3 percent (currently 5.3 mt) of the annual Angling category bluefin quota (currently 232.4 mt) may be large medium (73" - < 81" curved fork length (CFL)) or giant (81" or greater) ("trophy") bluefin. The trophy subquota is divided equally (i.e., 1.8 mt each) among three geographic areas: North of 39°18′ N. lat. (off Great Egg Inlet, NJ); south of 39°18′ N. lat., and outside of the Gulf of Mexico; and the Gulf of Mexico, as shown in Figure 2.4. Because the amount of school bluefin (27" - < 47") is limited in the codified regulations, and in compliance with ICCAT's binding western Atlantic bluefin recommendation, to no more than 10 percent of the annual U.S. bluefin tuna quota, any increase to the trophy subquota would need to be balanced with an equivalent reduction of the subquota for large school/small medium bluefin subquota (47" - < 73").

Rationale: The division into three geographic areas was intended to provide fishing opportunity for trophy fish in the Atlantic and to authorize landings of incidentally caught trophy fish in the Gulf of Mexico (while fishing for yellowfin tuna or other pelagic species), and reduce discards. The rationale for the current subquota areas and allocations was described in further detail in Amendment 7, which, in brief, divided the former southern area into two areas - a distinct southern area and Gulf of Mexico area and divided the former southern area allocation in half such that each of the new areas is allocated 33 percent of the Angling category trophy subquota.

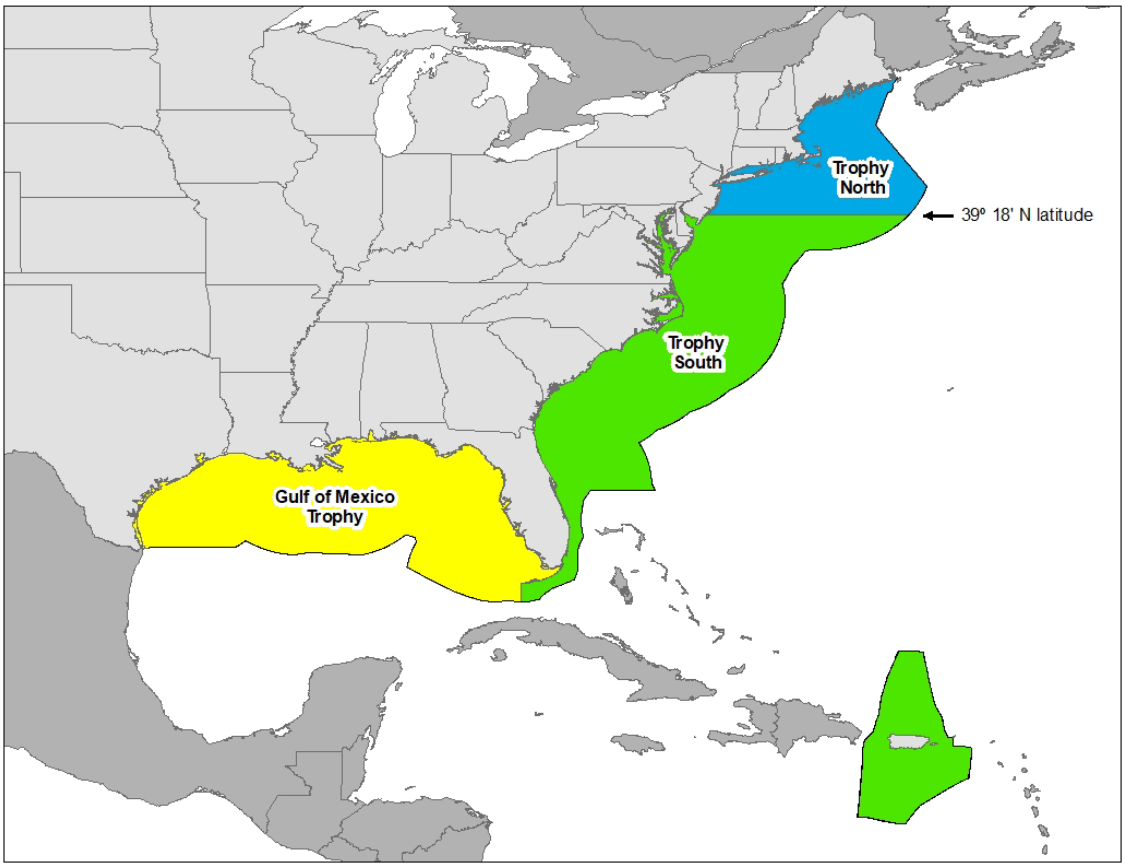

Figure 2.4 Trophy regions for the Angling category established under Amendment 7

2.8.2 Preferred Alternative H2: Modify Angling category trophy areas and allocations (percentages).

This alternative would modify the current Angling category Trophy North subquota areas and allocations specified at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° North latitude (N. lat.) (off Chatham, MA); these newly formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively, as shown in Figure 2.5. The net result would be that the Angling category Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each area would receive the same amount of quota.

To create the new trophy suballocation for the Gulf of Maine trophy area, NOAA Fisheries would increase the allocation for trophy bluefin. Because the amount of school bluefin (27" - < 47") that can be caught each year is limited in the codified regulations, and in compliance with ICCAT's binding western Atlantic bluefin recommendation, to no more than 10 percent of the annual U.S. bluefin tuna quota, any increase to the trophy subquota would be best balanced with an equivalent reduction of the subquota for large school/small medium bluefin subquota (47" - < 73"), which is the remainder of the Angling category quota once the school bluefin subquota and trophy subquotas are subtracted. For

example, referring to the current Angling category quota regulations (as summarized in Table 3.8), NOAA Fisheries would increase the portion of the Angling category quota allocated for trophy bluefin from 2.3 percent to 3.1 percent. This would result in a minor decrease in the amount of allocation for large school/small medium bluefin (measuring 47 - < 73").

Rationale: Creation of a Gulf of Maine area and an allocation equivalent to the allocations for the existing areas could provide additional opportunities for anglers fishing north of 42° N. lat. where bluefin are available in summer and fall, including those fishing on HMS Charter/Headboat-permitted vessels. In four recent years (2016 through 2019), the northern area Trophy fishery has closed on August 6, August 11, July 26, and June 27, respectively. Prior to 2016, the last time the northern area closed was July 29, 2011. Division of the northern area and creation of an allocation for the new area may also address perceived inequity. Although landings of large school/small medium, school bluefin tuna and the Angling category overall were less than the available quota from 2018-2019, landings in recent years (i.e. 2020-21) have shown a fuller use of these subquotas, and the quota overall.

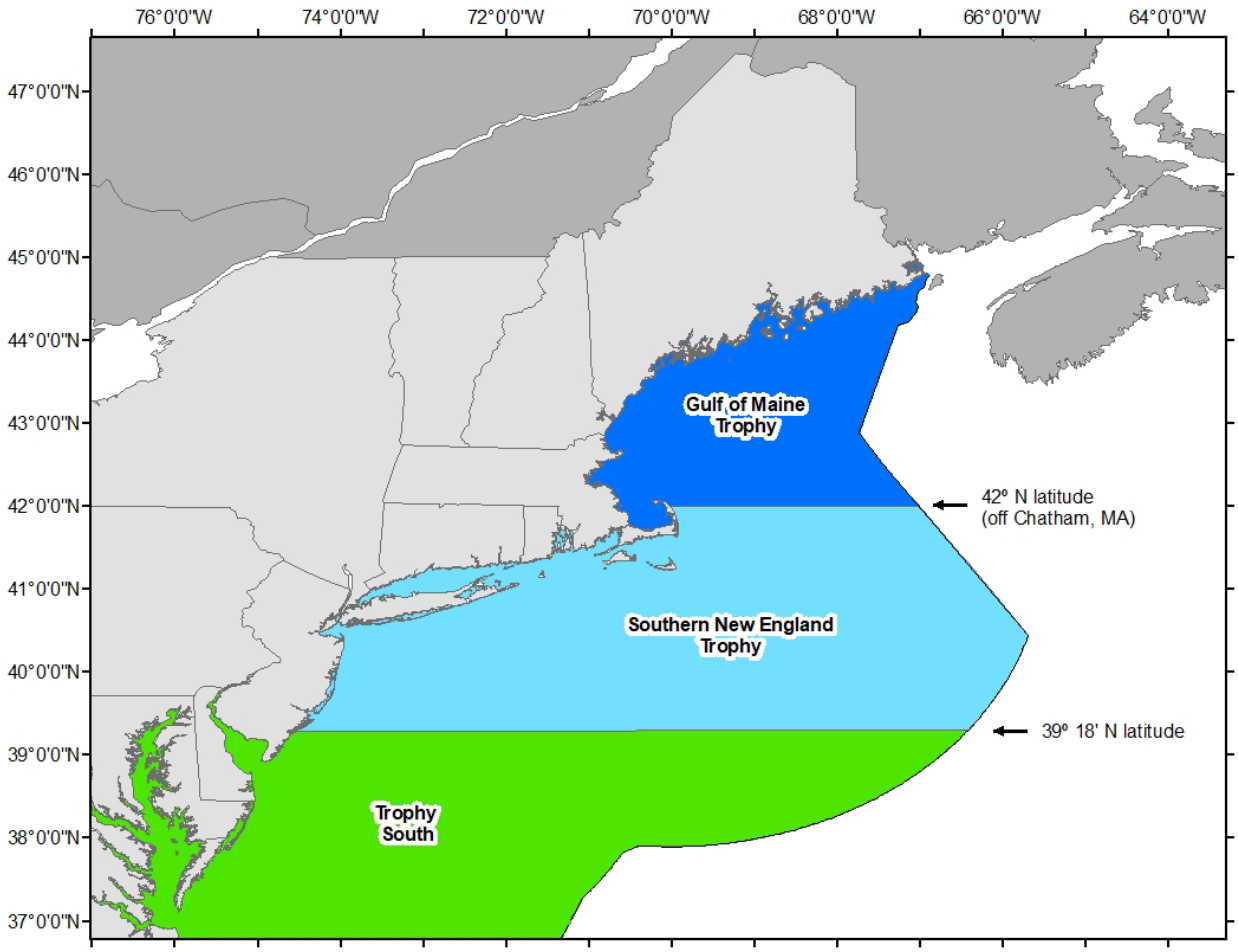

Figure 2.5 Modifications to the Trophy North area for the Angling category under Alternative H2

2.9 'I' Alternatives: Modifications to Other Handgear Fishery Regulations

2.9.1 Alternatives Suite I1: Use of harpoon gear on vessels other than Harpoon category-permitted vessels

2.9.1.1 Preferred Sub-Alternative I1a: Maintain the current authorized gears - No Action

This alternative would maintain the current authorized gears applicable to the Atlantic tunas permit categories (§ 635.19(b)). For example, vessels permitted in the HMS Charter/ Headboat category would be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for recreational catch of non-bluefin tunas, and vessels permitted in the General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. In 2008, NOAA Fisheries proposed authorization of harpoon gear for Atlantic tunas fishing by HMS Charter/Headboat category permitted

vessels on all trips, but did not prefer that alternative in the final rule (73 FR 54721, September 23, 2008).

Rationale: Maintaining the current authorized gears for each permit category would keep the fishery historically consistent and not allow introduction or elimination of currently authorized gear types to other categories. The HMS and Atlantic tunas permit structure and authorized gears are intended to allow the needed diversity to support business planning and allow reasonable opportunities to catch available quotas, while balancing interests of diverse users. This alternative is intended to avoid disruption to current fishery practices and to be consistent with current management under relevant ICCAT Recommendations.

2.9.1.2 Sub-Alternative I1b: Allow use of harpoon gear on charter/headboat vessels

This alternative would add harpoon gear as an authorized gear for the HMS Charter/Headboat category vessels. The addition of this gear would only apply to vessels with the ability to carry six or fewer passengers for hire. Currently, authorized gears for HMS Charter/Headboat category vessels fishing commercially are: rod and reel, handline, bandit gear, and green-stick.

Rationale: This alternative would allow HMS Charter/Headboat operators increased flexibility and efficiency in commercially catching bluefin. It could also be perceived as providing additional opportunities for commercial bluefin catch and more equity with General category permitted vessels.

2.9.1.3 Sub-Alternative I1c: Remove harpoon gear as an authorized gear for General category permitted vessels

This alternative would eliminate harpoon as gear authorized for use by General category permitted vessels.

Rationale: This alternative would more clearly delineate the General (permit category) as for handgear involving hook and line use (such as rod and reel) and the Harpoon category for harpoon use. Isolation of harpoon activity into the Harpoon (permit) category may address perceived inequities by some General category participants.

2.9.2 Alternatives Suite I2: Harpoon category daily retention limit

The current regulations at § 635.23(d) allow persons aboard a vessel permitted in the Atlantic Tunas Harpoon category to retain, possess, or land an unlimited number of giant bluefin per day (measuring 81” CFL fork length or greater). An incidental catch of two large medium bluefin per vessel per day (73” - < 81”) may be retained, possessed, or landed, unless the retention limit (of large medium bluefin) is increased by NOAA Fisheries through an inseason adjustment to a maximum of four per vessel per day, based upon the criteria under § 635.27(a)(8). Harpoon category landings are highly variable within and

across years, and depend on access to commercial-sized bluefin and fishing conditions, among other factors.

2.9.2.1 Sub-Alternative I2a: Maintain current Harpoon category retention limits - No Action

This alternative would maintain the current Harpoon category retention limit regulations.

Rationale: This alternative would be consistent with recent Harpoon retention limit management, with the intent of the Harpoon category fishery being a fishery that targets giant bluefin with a small incidental allowance for large mediums per day or trip. Keeping the incidental limit range of large mediums at a maximum of four (versus a higher number) would support maintaining fishing opportunities over a longer portion of the Harpoon category season.

2.9.2.2 Sub-Alternative I2b: Set a Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and maintain current retention limit (range) on large medium bluefin

This alternative would set an overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip (i.e., the combined limit of large medium (73” - < 81”) and giant (81” or greater) would be 10 fish), and would maintain the current regulations regarding retention of large medium bluefin (73” - < 81”) (i.e., the range of two (default) to four fish, adjustable through inseason action). For example, if the default limit of two large medium bluefin were in effect, as a result of the overall daily limit of 10 fish, a vessel would be limited to eight giant bluefin. This Sub-Alternative was the Preferred Alternative in the DEIS, but based on public comment, Sub-Alternative I2c is preferred in this FEIS (as explained under Sub-Alternative I2c).

Rationale: Current Harpoon category regulations limit the number of large medium bluefin that may be retained (two (default) to four fish) but there is no limit on the number of giant bluefin that may be retained. This alternative would set an overall limit on the combined number of bluefin (large medium and giant) that may be retained in order to extend Harpoon category fishing opportunities over time within the available quota (i.e., extend the season) and among a larger number of Harpoon category participants.

2.9.2.3 Preferred Sub-Alternative I2c: Set a Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and adjust daily retention limit for large medium and giant bluefin to a range of five to 10 fish (combined large medium and giant) (adjusted inseason)

This Sub-Alternative was not the Preferred Alternative in the DEIS, but based in part on public comment, this sub-alternative is now preferred. In contrast to Sub-Alternative 12b, this Sub-Alternative provides flexibility to adjust the limit to meet the objectives of the fishery management plan, and provides parity with bluefin trip limits applicable to other permit categories, which are adjustable via inseason actions.

This alternative would set a default overall daily limit of 10 commercial-sized bluefin per day or trip (i.e., the combination of large medium (73” - < 81”) and giant (81” or greater)

would be 10 fish). *Secondly*, this alternative would allow NOAA Fisheries to set the daily retention limit of large medium bluefin (73" - <81") and giant (81" or greater), combined over a range of *five to ten* fish (adjustable through inseason action). NOAA Fisheries would maintain the current range of between two and four large medium fish per day or trip and the default large medium bluefin limit of two fish would not change. Table 2.5 illustrates the potential retention limit scenarios that would be created with the applicable retention limits (i.e., the Preferred combined limit and the current existing limits on large medium bluefin). For example, if the combined retention limit is nine, and two large medium bluefin are retained, the maximum of seven giant bluefin would be allowed to be retained.

Table 2.5 Harpoon Category Retention Limit Scenarios under Applicable Limits

	Combined Retention Limits					
	10	9	8	7	6	5
Large medium bluefin retained*	Maximum number of giant bluefin allowed					
0	10	9	8	7	6	5
1	9	8	7	6	5	4
2	8	7	6	5	4	3
3*	7	6	5	4	3	2
4*	6	5	4	3	2	1

*Table depicts the full range of large medium fish that may be retained under a limit of four large medium bluefin. If the default limit of two large medium fish were in effect, the rows "3" and "4" would not be applicable. If a limit of three large medium fish were in effect, row "4" would not be applicable.

Rationale: Similar to Alternative I2b, this alternative would cap the total number of bluefin (the combination of both large medium and giant size classes) that may be retained per vessel in order to extend Harpoon category fishing opportunities over time within the available quota (i.e., extend the season) and among a larger number of Harpoon category participants. However, in contrast to Alternative I2b, this alternative also would also enable NOAA Fisheries to adjust the number of combined bluefin to a range of five to ten fish to provide flexibility to adjust the limit to meet the objectives of the fishery management plan, and provide parity with bluefin trip limits applicable to other permit categories, which are adjustable via inseason actions.

2.9.3 Alternatives Suite I3: Harpoon category season

Under current regulations, the Harpoon category fishery annually commences on June 1 and closes November 15. Bluefin tend to be more abundant in the near surface waters and available to the harpoon fishery during the summer months in New England.

2.9.3.1 Preferred Sub-Alternative I3a: Maintain current start and closure dates – No Action

This alternative would maintain the June 1 start date and November 15 closure date for the Harpoon category season.

Rationale: This alternative would be consistent with established season management, under which the Harpoon and General categories commence (or re-commence) on the same date (June 1). The seasons starting together facilitates enforcement and business planning, and provides greater certainty to participants regarding opportunities, participation/effort, and potential impact on market prices. Harpoon category participants would continue to have the potential to catch the same percentage of the quota. Maintaining the same start date (June 1) for the General and Harpoon category would likely be perceived by General category fishermen as more fair, than allowing the Harpoon category to begin fishing on May 1 (as described below in Alternative I3b), which would enable such vessels to begin fishing prior to General category fishermen, giving them first access to the fish and the markets.

2.9.3.2 Sub-Alternative I3b: Lengthen Harpoon category season (May 1 start date)

This alternative would lengthen the season for the Harpoon category by implementing a May 1 start date for the fishery instead of the current start date of June 1. The November 15 closure date would remain the same.

Rationale: This alternative could increase fishing opportunities to catch the Harpoon category quota. Because bluefin are only on the surface and available to harpoon gear for a limited time annually, starting the annual season earlier would increase the overall chances of the fishery encountering bluefin when the fishery is open. Under current regulations, if bluefin are available in surface waters during May, harpoon vessels would not have an opportunity to fish for them during May. Secondly, starting the season in May, prior to the opening of the rod and reel fishery on June 1, would reduce the potential for gear conflict with the rod and reel fishery during June and July.

2.9.4 Alternatives Suite I4: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed bluefin

2.9.4.1 Sub-Alternative I4a: Maintain 45 day permit change restriction - No Action

This alternative would maintain the current requirement that gives permit holders up to 45 days to change their permit category (to/from the Atlantic tunas General, Harpoon, or Trap category, or Atlantic HMS Angling or Charter/Headboat category), as long as they have not landed a bluefin.

Rationale: This alternative would help prevent vessels from landing bluefin under multiple quota categories in a year, unless authorized.

2.9.4.2 Preferred Sub-Alternative I4b: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed a bluefin

This sub-alternative would extend the ability for permit holders with an Atlantic tunas permit in the General, Harpoon, or Trap category, or Atlantic HMS permit in the Angling or Charter/Headboat category, to change permit categories from 45 days to the full fishing year as long as the vessel has not landed a bluefin.

Rationale: This alternative would not allow vessels to land bluefin from multiple permit categories in a year, but would give vessel owners more opportunity to change their permit type, and provide flexibility to account for mistakes made by permit applicants when choosing the permit type. The majority of vessel owners that request NOAA Fisheries to waive this requirement did not fish, and are not attempting to circumvent the regulations and/or quota system. They generally request a permit category change because they, or someone obtaining the permit on the owner's behalf, made a mistake on the permit application, and/or did not fully understand the requirements associated with a particular permit type. Because vessels are not allowed to both land bluefin and change categories, the restriction would still preclude vessels from landing bluefin under two different quota categories or sets of retention limits to gain some type of an advantage over vessels fishing under a single permit type. NOAA Fisheries may incur some administrative burden associated with verifying that vessels have not landed bluefin.

2.9.5 Alternatives Suite I5: Clarify Regulations for Retention of Bluefin Caught with Green-stick Gear by Permitted Vessels Authorized to Fish with Pelagic Longline Gear

NOAA Fisheries has received requests from the public and from enforcement partners to clarify the regulations concerning green-stick gear. Furthermore, as discussed in detail in Chapter 4, although the Atlantic Tunas Longline category permit authorizes the use of green-stick gear, the current suite of regulations does not allow for retention or accounting of green-stick caught bluefin by vessels fishing under the restrictions ofthe IBQ Program. These alternatives consider different approaches for future management for fishery participants using green-stick gear.

2.9.5.1 Sub-Alternative I5a: Maintain the current green-stick gear regulations - No Action

This alternative would make no changes to the current regulations concerning green-stick gear. Vessels authorized to fish with pelagic longline gear are only allowed to retain bluefin incidentally caught on pelagic longline gear. Vessels fishing with pelagic longline gear must use IBQ allocation to account for all bluefin, which may only be used to account for bluefin caught on pelagic longline gear, under current regulations. Therefore, pelagic longline vessels are not permitted to retain bluefin caught with green-stick gear unless participating in a program that specifically authorizes it, like the OFRP.

Rationale: A change in these regulations may not affect many fishermen, due to the relatively low number of pelagic longline vessels that use green-stick gear. The primary target species when fishing with green-stick gear are yellowfin tuna, not bluefin, and as of early 2020, there had only been one circumstance where a fishery participant accounted for a bluefin caught on green-stick gear through the IBQ Program (special circumstances

per the Deepwater Horizon OFRP requirements). The regulatory changes described under the other I5 sub-alternatives are anticipated to address regulatory needs identified only by a very small number of fishermen.

2.9.5.2 Sub-Alternative I5b: Allow Atlantic Tunas Longline category permitted vessels to retain bluefin caught on green-stick gear, provided that pelagic longline gear is not onboard.

This alternative would clarify retention and reporting requirements for bluefin caught with green-stick gear by vessels with Atlantic Tunas Longline category permits to allow the retention of one bluefin per trip (73" or greater CFL) taken incidentally while fishing for target species, provided that pelagic longline gear is not onboard, and with additional regulations applying to such trips. If a vessel caught a bluefin on green-stick gear and pelagic longline gear is on board, the bluefin would have to be discarded. Vessels would be required to submit a VMS set report for each green-stick retrieval with interactions with bluefin, and report information on the location of the set, and numbers and length of bluefin within 12 hours. This VMS requirement differs from the VMS requirement associated with the use of pelagic longline gear, which requires submission of a report after each pelagic longline set. Regardless of whether sets are made with green-stick gear or pelagic longline gear, vessels issued an Atlantic Tunas Longline category permit would be required to comply with HMS logbook requirements, and comply with the IBQ Program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations. The EM requirements would not apply to such trips because pelagic longline gear would not be onboard the vessel.

Rationale: As a result of the cumulative regulatory history, the current regulations are incomplete and do not address all circumstances and requirements under which green-stick gear may be fished. Under current regulations, pelagic longline vessels must discard bluefin caught on green-stick gear instead of landing and accounting for them via the IBQ Program. This alternative would support the minimization of dead discards by allowing limited retention of bluefin. Separating the green-stick fishing activity from pelagic longline fishing activity avoids enforceability concerns and simplifies reporting and monitoring. Requiring VMS set reporting, logbook reporting, and IBQ Program participation is consistent with the intent of the 2008 rule authorizing green-stick gear, that the use of this gear be consistent with quotas, size limits, or other established limitations and requirements (73 FR 54721, September 23, 2008). This alternative would not apply EM requirements to green-stick gear because of the relatively low expected incidental bluefin catch by green-stick gear, and the complexity and cost of adapting EM requirements to green-stick gear deployment.

2.9.5.3 Preferred Sub-Alternative I5c: Allow Atlantic Tunas Longline category permitted vessels to retain bluefin caught on green-stick gear, regardless if pelagic longline gear is onboard

This alternative would clarify retention and reporting requirements for bluefin caught with green-stick gear by vessels with Atlantic Tunas Longline category permits to allow the retention of one bluefin per trip (73" or greater CFL) taken incidentally with green-stick

gear while fishing for target species, and with additional regulations applying to such trips. Vessels would be required to submit a VMS set report for each green-stick retrieval that catches bluefin, and report information on the location of the set, and numbers and length of bluefin within 12 hours (in addition to the VMS reports for pelagic longline sets). This VMS requirement differs from the VMS requirement associated with the use of pelagic longline gear, which requires submission of a report after each pelagic longline set (also within 12 hours). Regardless of whether sets are made with green-stick gear or pelagic longline gear, vessels would be required to comply with HMS logbook requirements, and comply with the IBQ Program requirements regarding accounting for bluefin catch using IBQ allocation, quarterly accountability, and other applicable regulations. If pelagic longline gear is onboard, vessels would be required to comply with EM requirements (to continue monitoring the retrieval of longline sets with the EM System on the same trip) and other regulations that are triggered by the presence of pelagic longline gear.

Rationale: Current regulations do not address the nuances of all circumstances and requirements under which green-stick gear may be used. Under current regulations, pelagic longline vessels must discard bluefin caught on green-stick gear instead of landing and accounting for them via the IBQ Program. This alternative would support the minimization of dead discards by clarifying that retention of an incidentally caught bluefin by green-stick gear is allowed. Incidental retention of one green-stick caught bluefin is consistent with the intent of the 2008 rule, which permitted green-stick gear to be fished by vessels concurrently deploying longline gear. Requiring VMS reporting of bluefin interactions, logbook reporting, and IBQ Program participation is consistent with the intent of the 2008 rule authorizing green-stick gear that the use of this gear be consistent with quotas, size limits, or other established limitations. Allowing the use of green-stick gear while pelagic longline gear is onboard is intended to provide vessel operators flexibility to employ fishing strategies with multiple gear types to optimize their business in a highly dynamic fishery. The use of EM systems, although required to monitor pelagic longline set retrieval, would not be required for haulback with green-stick gear or to record an image of a bluefin caught with green-stick gear. Application of EM requirements for the deployment of green-stick gear would increase the complexity and cost of the EM Program, with relatively little benefit, given the relatively low expected incidental catch of bluefin by green-stick gear.

2.10 Management Options Considered but Not Further Analyzed

The management options in this section were considered for Amendment 13, but were eliminated from further detailed analysis for various reasons as described below.

2.10.1 Distribute Atlantic Tunas Longline IBQ Allocation to Current Shareholders and Divide Allocation Evenly Among Current Shareholders

This management option would distribute IBQ allocation to the holders of the 136 Atlantic Tunas Longline category permits with IBQ share (shareholders) defined in Amendment 7, and divide the annual Longline category quota evenly among those 136 permits.

Reasons for not analyzing further:

This method of allocation would alleviate some of the perceived inequities associated with the Amendment 7 method of defining share percentages, by allocating in equal amounts to all Atlantic Tunas Longline category permits with IBQ shares. However, by allocating to the current pool of 136 Atlantic Tunas Longline category permitholders with IBQ shares, including permits on both active and inactive vessels, this alternative would not address the principal shortcoming of the Amendment 7 allocation method noted in the Three-Year Review, which is that a relatively high proportion of the total IBQ allocation is associated with inactive vessels, which is neither used to account for bluefin nor leased. The screening criteria presented at the beginning of this chapter note that alternatives must be consistent with the objectives of this action in order to be considered a reasonable alternative for purposes of this FEIS. This management option would not be consistent with several of the objectives of this action, as described below. Providing allocation to all participants with IBQ shares, including inactive vessels, is not consistent with the IBQ Program objectives implemented by Amendment 7 regarding the intent for IBQ allocation to be used by active vessels to account for bluefin catch (objective number 3).

The Three-Year Review found that the allocation design principle (quota use by active vessels) was only partially achieved, and that the current distribution of IBQ shares and allocation may not align with vessels' need for it. Misalignment of IBQ allocation to need does not optimize the ability of the permit category to catch the target species and mitigate factors contributing to the continued decline in pelagic longline effort. The Three-Year Review noted that a different method of IBQ share determination (which would adjust the composition of shareholders) may warrant consideration. This management option would retain the same composition of shareholders, and would not be consistent with the Amendment 13 objective to be responsive to the Three-Year Review (objective number 4). For these reasons, this alternative was considered but was not further analyzed.

2.10.2 Hybrid IBQ Allocation Concept: Amendment 7 Method and Dynamic Allocation

This management option would establish a base amount of IBQ allocation to disburse to current Atlantic Tunas Longline category permitholders with IBQ shares, as defined by Amendment 7, according to the three defined share percentage tiers. The remaining IBQ allocation would be disbursed equally to active vessels. For example, one half of the total Longline category bluefin quota would be allocated to current IBQ shareholders and the other half would be allocated equally among active vessels.

Reasons for not analyzing further:

This method of distributing IBQ allocation would provide some continuity with the current method of allocation, and also better optimize the distribution of IBQ allocation to active vessels to reflect recent activity in the fishery and facilitate new entrants. However, this alternative would still result in the distribution of IBQ allocation to inactive vessels. Additionally, new entrants to the fishery that do not have Atlantic Tunas Longline category permits with IBQ shares may receive relatively little IBQ allocation. This management option would not be consistent with the IBQ Program objectives implemented by Amendment 7 regarding the intent for IBQ allocation to be used by active vessels to account for bluefin catch. Therefore, for the same reasons discussed under subsection 2.10.1 above, this management option would not be consistent with the Amendment 13 objective number 3. *See* section 2.10.1, Reasons for not analyzing further.

2.10.3 Set-Aside of IBQ Allocation for New Entrants

This management option would create a complete set of regulations necessary to implement a new entrant 'set-aside' quota using a relatively small percentage of the total U.S. quota that would not otherwise be distributed (under whatever allocated methods were in place). In other words, a set amount or percentage of the U.S. quota would be taken 'off the top' prior to any other calculations. Although Alternative A2, and by extension preferred sub-alternative A2b, adds to the framework provisions of the 2006 Consolidated HMS FMP the authority to set aside a *de minimis* amount, no quota is being set aside at this time under Amendment 13. If NOAA Fisheries decided to consider a set aside, it would conduct rulemaking and associated analyses. Neither Draft Amendment 13/DEIS nor this Final Amendment 13/FEIS analyze a full set-aside program.

Reasons for not analyzing further:

Although the concept is simple, as a practical matter, a set-aside quota would involve many policy questions such as precisely how much quota, what are the criteria for access to the set-aside quota, how much set-aside quota should go to new entrants, what happens to unused set-aside quota, etc. Since 2015, under the Amendment 7 allocation rules, there have been new entrants, and the Three-Year Review concluded that the IBQ Program neither precluded new entrants, nor presented unreasonable barriers to new entrants. If a dynamic allocation method is implemented, the barrier to new entrants would be even less than under the current system, as described in the A alternatives, because once a vessel becomes active, the fishing activity during a particular year could result in allocation in subsequent years. Therefore, the need for a set-aside quota to facilitate new entrants would not be substantial under Alternatives A2 or A3. Given the large number of measures in Amendment 13 as well as the increase in complexity of the IBQ Program that would be associated with a set-aside, and the relatively low need for a set-aside, this alternative was considered but was not further analyzed at this time. NOAA Fisheries could consider a thorough approach to such a bluefin quota set-aside for the IBQ Program in a future regulatory action, if necessary, should the dynamic allocation provisions finalized in this action not facilitate new entrants.

2.10.4 Annual Accountability for Quota Debt under the IBQ Program

This management option would replace the current quarterly accountability with a system of annual accountability. The accountability rules would mirror those that were in place during 2015, during which there was no minimum amount of IBQ required to fish at any time during the year, and vessel owners were not required to reconcile any quota debt that may have accrued during the year, until the end of the calendar year.

Reasons for not analyzing further:

Although such an accountability system would provide substantial flexibility for vessel owners, this method of accountability would likely result in higher prices for IBQ leases, a compressed market for IBQ allocation at the end of the year, and may reduce incentives to avoid bluefin. Amendment 13 includes preferred alternatives that provide additional flexibility for vessel owners, but do not have the negative aspects that may be associated with annual accountability.

As described in the Three-Year Review, vessels have successfully accounted for bluefin catch under the quarterly accountability rules. The timing of quarterly accountability is likely to maintain incentives for vessels to utilize fishing strategies that minimize the likelihood of interactions with bluefin. Quarterly accountability provides the appropriate balance between accountability and flexibility. Under quarterly accountability, vessels must have the requisite minimum amount of IBQ allocation prior to departing on the first trip in any calendar quarter (i.e., 551 lb in the Gulf of Mexico and 276 lb in the Atlantic). Quarterly accountability provides flexibility for two important operational business decisions made by vessel owners: Decisions regarding quota balance and quota debt (subject to full accounting quarterly) and decisions regarding the timing and price at which they lease additional quota. The additional flexibility in vessel operations thus provides vessel owners more of a reasonable opportunity to catch available quota for target species. At the same time, quarterly accountability maintains vessel accountability for bluefin catch and the associated incentives for vessel operators to minimize catch of bluefin. Changing to annual accountability would not be consistent with the IBQ Program objectives implemented by Amendment 7, regarding providing strong incentives to avoid bluefin interactions and reduce dead discards. Therefore, this management option would not be consistent with the Amendment 13 objective number 3. This management option would not be consistent with the Amendment 13 objective to be responsive to the Three-Year Review (objective number 4), which noted that quarterly accountability was a regulatory component of the IBQ Program that resulted in effective incentives to avoid bluefin. Since this option is not consistent with the objectives of this action, it does not meet the screening criteria for a reasonable alternative and has not been further considered.

2.10.5 Allow sale of Purse Seine category participant distribution of quota until sunset date

Under existing regulations, Purse Seine category participants may lease their quota within the Catch Shares Online System. This alternative would allow them to sell their quota within that System, until the effective date of sunset of the Purse Seine category. In contrast to a lease transaction, which is limited in duration to a year, this sale transaction would enable the transfer of quota from the time of transfer until the sunset date. Under existing regulations (§ 635.27(a)(4)) adopted in Amendment 7, NOAA Fisheries annually determines the amount of quota available to the individual Atlantic Tunas Purse Seine category participants based on their bluefin catch (landings and dead discards) in the previous year. The remainder of Purse Seine category quota is then transferred to the Reserve category. In recent years, NOAA Fisheries did not open the Purse Seine fishery because there were no purse seine vessels permitted to fish for bluefin and thus no catch. As a result, each Purse Seine category participant typically has received 25 percent 1/5th of the individual baseline quota amount, which is the required distribution even with no fishing activity under the current regulations. Purse Seine category participants may lease their quota within the Catch Shares Online System, although it is not "IBQ allocation."

This alternative would modify regulations at §§ 635.15 and 635.27(a)(4) and allow Purse Seine category participants to sell quota distribution to Longline and Purse Seine category participants. Other elements of the fishery would remain the same (i.e., the ability for Purse Seine category participants to fish and lease quota under the IBQ Program). The maximum amount that each participant could sell would be limited to the equivalent of 25 percent of its portion of the individual baseline quota amount. This alternative would only be in effect until the sunset date of the Purse Seine category.

This option would provide additional flexibility for Purse Seine category participants before the sunset date, but provide for a limit on quota sale to preclude possible speculative behavior by Purse Seine category participants. It would also provide pelagic longline vessels with the option to lease Purse Seine quota from the category participants through the IBQ system (similar to IBQ allocations) or purchase Purse Seine quota. The latter would be considered IBQ shares of the longline vessels.

Reasons for not analyzing further:

This management option is not consistent with the current structure of the IBQ Program, where IBQ shares are associated with Longline category permits and sale of such shares is prohibited. Purse Seine category participants receive a portion of the Purse Seine category quota and, while they are allowed to lease it to pelagic longline fishery through the IBQ system, they do not have defined IBQ shares that could be sold under an alternative that allows sale of shares under the IBQ Program. The alternative would increase the uncertainty and complexity of the management of the fishery, would not make any more bluefin quota available to the directed fishery than under current regulations and may not result in making any additional quota available to pelagic longline vessels. Thus, this management option would not be consistent with the Amendment 13 objective 1, to "Evaluate and optimize the allocation of U.S. bluefin quota among bluefin quota categories, considering historical allocations and use, and recent fishery characteristics and trends, to provide U.S. fishing vessels with a reasonable opportunity to catch the U.S. quota

established by ICCAT; facilitate the ability for active HMS directed permit categories to catch their full bluefin quota allocations, and facilitate directed fishing for species other than bluefin in the pelagic longline fishery while accounting for incidental bluefin catch." Secondly, leaving a portion of the bluefin quota associated with an inactive fishery reduces the likelihood that quota would be used to benefit any sector of the bluefin fishery, directed or incidental, and therefore is not consistent with Amendment 13 objective number 2, "Maintain flexibility of the regulations to account for the highly variable nature of the bluefin fisheries, and maintain fairness among permit/quota categories." The management option does not meet the screening criteria that a management alternative should be consistent with the objectives of the action and should mitigate factors contributing to the continued decline in pelagic longline effort and target species landings. Since this option does not meet these screening criteria, it was not considered a reasonable alternative.

2.10.6 Modify Bluefin Quota Category Allocations

This option would make fundamental changes to the structure of the bluefin quota category allocations, such as reconsidering all quota categories and the associated percentage allocations. No specific options were developed to explore this management concept.

Reasons for not analyzing further:

Quota categories are tightly associated with authorized gears and permit types. This structure based on gear and permit type has been in place since the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks with minor modifications in 2015 (Amendment 7 to the 2006 Consolidated HMS FMP), and remains an effective, rational way to align quota distribution among diverse fisheries. There is no new scientific information or fishery trends that warranted fundamental reconsideration of the entire allocation structure beyond the alternatives examined in this Amendment. Ultimately, the preferred alternatives include modifications to the relative size of the category allocations (i.e., the percentages for each quota category) in order to further optimize the use of the bluefin resource, elimination of the Purse Seine category with redistirbution to other categories, and some changes within the General category. The scope and rationale for the allocation changes under consideration are consistent with NOAA Fisheries Procedural Directive 01-119-01 "Criteria for Initiating Fisheries Allocation Reviews", and the 2006 Consolidated HMS FMP. Triggers for the consideration of allocation chnges are described under the rationale for the F alternatives. Additionally, NOAA Fisheries implemented Amendment 12 to the 2006 Consolidated HMS FMP (86 FR 46836, August 20, 2021), an amendment that, among other things, addresses the 2016 revised National Standard guidelines and the 2017 Fisheries Allocation Review Policy Directive 01-119. Amendment 12 established triggers for the review of allocations for quota-managed HMS species, and these factors were appropriately considered within the examined alternatives.

2.10.7 Require General, Charter/Headboat, and Harpoon permit categories to report all trips

This management option would require, for the Atlantic Tunas General, HMS Charter/Headboat, and Harpoon categories, submission of trip reports for all trips targeting bluefin. Currently, fishermen in these categories are only required to report landings and dead discards of bluefin. Full trip reporting for these categories would allow fishery managers to estimate effort for the commercial aspects of these fisheries, which would provide for a broader analysis of socioeconomic impacts of fishery alternatives.

Reasons for not analyzing further:

This management option is not analyzed further at this time because NOAA Fisheries anticipates that on balance this issue could better be addressed in a future action that considers vessel reporting more broadly. NOAA Fisheries is currently working with several inter-jurisdictional fishery management entities, including the Mid-Atlantic Fishery Management Council, Greater Atlantic Regional Fisheries Office, Atlantic Coastal Cooperative Statistics Program, and states, to improve the current systems available for vessel reporting. These and other entities may consider additional related management actions, and NOAA Fisheries would prefer to address these issues together in a single action, to allow for better public understanding of how these issues interrelate with each other and the reporting systems that are available. This will ensure that regulations are not unnecessarily duplicative, and that modernization of reporting requirements is more administratively feasible and coherent (consistent with screening criteria for this action). Thus, because NOAA Fisheries is considering broader changes in another process that includes other management entities, this alternative is not further analyzed here.

2.10.8 Allow Retention of Bigeye, Albacore, Yellowfin, and Skipjack Tunas with Buoy Gear

This management option would allow the retention of bigeye, albacore, yellowfin, or skipjack tuna with buoy gear by vessels with one of the following permit combinations: an Atlantic Tunas Longline permit held in combination with a Swordfish Directed permit, an Atlantic Tunas General category permit held in combination with a Swordfish Handgear permit, or HMS Charter/Headboat permit held in combination with a Swordfish Handgear permit. Current regulations only allow the retention of these species with buoy gear by vessels with an HMS Commercial Caribbean Small Boat permit.

Reasons for not analyzing further:

This management option is not analyzed further at this time because NOAA Fisheries would prefer to address these issues together in a single action to allow for better public understanding of how these issues interrelate with each other, the permitting requirements, and the reporting systems that are available. Additionally, some data has been collected through exempted fishing permits issued for the Deepwater Horizon OFRP, and additional data continues to be collected, which should be available for further consideration in the future.

2.11 Other Regulatory Changes

The regulatory changes listed in Table 2.6 are being undertaken through Amendment 13 and will not have any environmental, social, or economic impacts.

Table 2.6 Regulatory Changes that Do Not Need Further Analysis

Removal of the mandatory '3-calendar days' for retention limit adjustments (§ 635.23(a)(4))
Clarification of the definition of CFL (curved fork length) to indicate what "on top of" means (i.e., in dorsal direction above caudal keel) (§ 635.2)
Addition of a prohibition that clarifies that vessels with pelagic longline gear onboard must retain all dead bluefin tuna that are 73 inches or greater CFL (§ 635.71)

Regarding the removal of the minimum “3 calendar days” before effectiveness of retention limit adjustments, regulations in effect since at least 1999, provide that, in no case shall such adjustment be effective less than three calendar days after filing with the Office of the Federal Register. This measure would remove that minimum period to provide for greater flexibility in management response for the General category. The General category is very dynamic: fish may swim from Massachusetts to Virginia in three days, there is limited quota and seasonal allocations, and high and variable levels of fishing pressure. Given all of this, NOAA Fisheries may need flexibility to more swiftly implement a measure that may provide additional opportunity (in the case of an increased trip limit), or take swift action to slow a catch rate (in the case of a lowered retention limit). NOAA Fisheries will continue to consider each adjustment on a fact-specific basis, consistent with Administrative Procedure Act requirements. There is, and will continue to be, variability in the timing of when fishery participants are notified of retention limit adjustments. As is the agency’s current practice, NOAA Fisheries will provide for as much notice as possible of such adjustments.

Clarifying the curved fork length definition would enable improved understanding of the current regulation, but would not change the meaning and impact of the regulation. The last change would not modify what is allowable under current regulations, but would simply clarify in the “prohibitions” what is not lawful.

2.12 References

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3 Description of Affected Environment

This chapter describes the affected environment (the fishery, the gears used, the communities involved, *etc*.), and provides a view of the current condition of the fishery, which serves as a baseline against which to compare potential impacts of the different alternatives. This chapter also provides a summary of information concerning the biological status of the bluefin stock; the marine ecosystems in the fishery management unit; the social and economic condition of the fishing interests, fishing communities, and fish processing industries; and the best scientific information available concerning the past, present, and possible future condition of bluefin stocks, ecosystems, and fisheries. The data in this Chapter of the FEIS is the same as that contained in the DEIS, with the exception of the inclusion of 2019 data in this FEIS, where available and most relevant to the consideration of alternatives. Table 3.18 (IBQ leasing data) contains minor corrections.

3.1 Summary of Atlantic Highly Migratory Species Management

The HMS Management Division develops regulations for Atlantic HMS fisheries. *See* Chapter 1, paragraphs 1 and 2 for explanation of Magnuson-Stevens Act, ATCA and ICCAT. Because of the highly migratory nature of HMS, NOAA Fisheries manages HMS fisheries in federal waters (domestic) and the high seas (international). For bluefin fisheries (directed and incidental), federally permitted HMS fishermen must also comply with federal regulations in state waters, unless state regulations are at least as restrictive as relevant federal regulations and are effectively enforced. NOAA Fisheries works closely with states, councils, and the interstate fisheries management commissions to ensure complementary regulations are implemented across state jurisdictions. *See* Section 9.1.2 (discussing Council and other consultations). States are invited to send representatives to HMS Advisory Panel meetings and to participate in stock assessments, public hearings, or other fora. NOAA Fisheries continues to work on improving its communication and coordination with state agencies and welcomes comments from states about various pelagic HMS fishery measures.

International cooperation is critical to the effective conservation and management of bluefin stocks (western Atlantic and eastern Atlantic/Mediterranean), given the species' highly migratory nature. The United States participates in such management on the international level through ICCAT, a regional fisheries management organization that issues binding management recommendations for tuna and tuna-like species and species caught in ICCAT fisheries pursuant to the ICCAT Convention. ICCAT also has assessed numerous HMS stocks, and has conducted several ecological risk assessments for various HMS species, among other things. Stock assessments and management recommendations are listed on ICCAT's website.

3.1.1 Atlantic HMS Stock Status

The term "stock of fish" means a species, subspecies, geographical grouping or other category of fish capable of management as a unit (Magnuson-Stevens Act § 3(42)). "Stock" may also refer to a multispecies complex managed as a single unit due to the occurrence of two or more species being caught together. Stock assessments measure the impact of fishing on stocks and project catch levels that maximize the number of fish that may be caught while preventing overfishing, and where necessary, rebuilding depleted stocks. The thresholds that NOAA Fisheries uses to determine the status of Atlantic HMS are presented in Figure 3.1. These thresholds are fully described in Chapter 3 of the 1999 HMS Fishery Management Plan (FMP) (64 Federal Register (FR) 29090, May 28, 1999) and in Amendment 1 to the Billfish FMP (64 FR 29090, May 28, 1999), and were carried over in full in the 2006 Consolidated HMS FMP (71 FR 58058, October 2, 2006). These thresholds are based on those described in a paper providing the initial technical guidance for implementing National Standard 1 of the Magnuson-Stevens Act (Restrepo et al., 1998).

Images like Figure 3.1 also known as a Kobe plot, are frequently used by stock assessment scientists to summarize the results of various stock assessment models. Generally, if the model results are in the green portion of the figure, the stock may have a status of "not overfished" and "overfishing is not occurring." Similarly, model results in the yellow portions of the figure are not desirable, generally representing a stock with a status of "overfished" or "overfishing is occurring" and results in the red portion represent a stock that is both "overfished" and for which "overfishing is occurring."

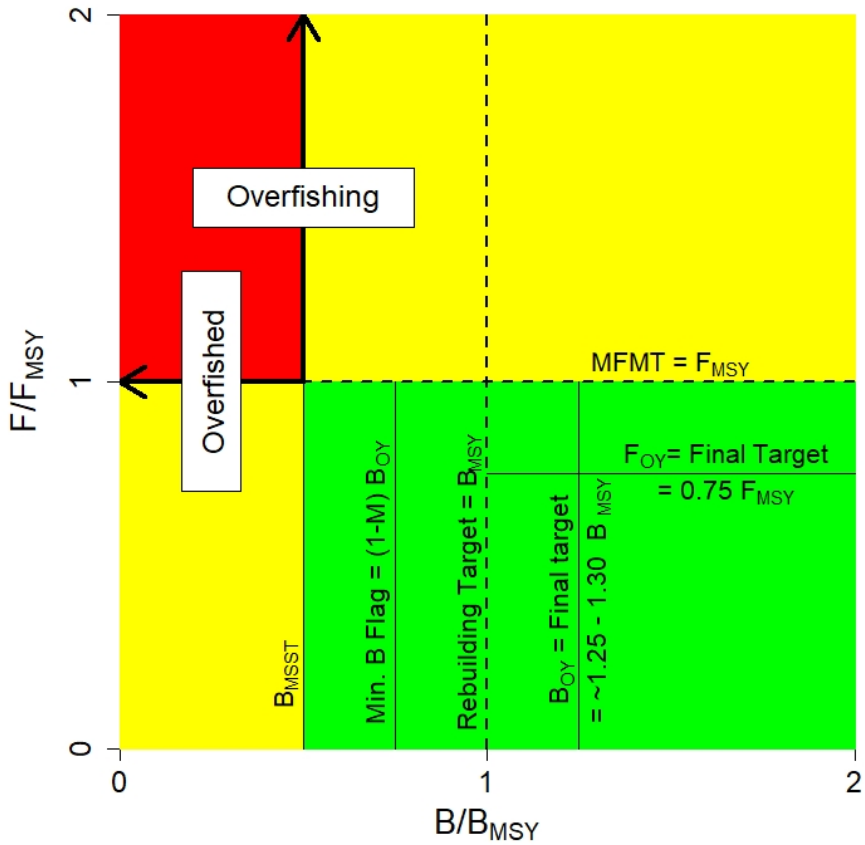

Figure 3.1 Illustration of the Status Determination Criteria and Rebuilding Terms for Domestically managed HMS stocks

Under the applicable status determination criteria used for Atlantic HMS that are not ICCAT-managed species, a species is considered overfished when the current biomass (B) is less than the minimum stock size threshold (B < BMSST) (MSST). The MSST is determined based on the biomass at maximum sustainable yield (BMSY) and the natural mortality of the stock. Maximum sustainable yield (MSY) is the maximum long-term average yield that can be produced by a stock on a continuing basis. The biomass, B, can fall below BMSY without causing the stock to be declared overfished as long as B remains above BMSST. If a stock is declared overfished, action to rebuild the stock is required by law. A stock is considered rebuilt when B is greater than BMSY. A minimum biomass flag is a biomass level below BMSY and above BMSST, which can be used to alert managers to the need implement measures to prevent the stock from becoming overfished.

The domestic thresholds generally used to determine the status of Atlantic HMS as described in the 1999 FMP and Amendment 1 to the Atlantic Billfish FMP are:

- Maximum fishing mortality threshold = F_{limit} = F_{MSY}.

- Overfishing is occurring when $F_{year} > F_{MSY}$.
- MSST = $B_{limit} = (1\text{-}M)B_{MSY}$ when $M < 0.5$ or MSST = $0.5B_{MSY}$ when $M \geq 0.5$, M = natural mortality. (In manycases, an average M across age classes or sensitivity runs from a stock assessment model is used to calculate MSST.) Domestically, an overfished status is defined as B_{year} relative to B_{MSST}
- Biomass target during rebuilding = B_{MSY}.
- Fishing mortality during rebuilding < F_{MSY}.
- Fishing mortality for healthy stocks = $0.75F_{MSY}$ (final target = F_{OY}).
- Biomass for healthy stocks = $B_{OY} \approx 1.25$ to $1.30B_{MSY}$.
- Minimum biomass flag = $(1\text{-}M)B_{OY}$.
- Level of certainty of *at least* 50 percent but depends on species and circumstances (e.g., 70 percent probability is generally used for rebuilding Atlantic shark species).
- For some stocks (e.g., bluefin and albacore tuna), spawning stock biomass is used as a proxy for biomass. For sharks, in some cases, spawning stock fecundity (SSF) or number of fish can be used as a proxy for biomass since biomass does not influence pup production in sharks. SSF is the sum of the number of mature sharks at age multiplied by pup-production at age.

Amendment 12 to the 2006 Consolidated HMS FMP adopted ICCAT status determination criteria for ICCAT-managed HMS stocks, including some sharks that are assessed through ICCAT and caught in association with ICCAT fisheries and for which ICCAT management measures exist. Amendment 12 (pp. 23-26) contains a complete description of the implications of the use of ICCAT status determination criteria.

NOAA Fisheries annually provides a current list of the status of Atlantic HMS in the HMS Stock Assessment and Fishery Evaluation (SAFE) Report, which may be downloaded at the Atlantic HMS website. See tables 2.1 and 2.2 in the most recent SAFE Report (NMFS 2021) for a complete list of stock status summaries. In preparing this action and considering alternatives, NOAA Fisheries considered relevant information in the most recent stock assessments. Table 3.1 below contains the Atlantic HMS stock assessment information and the current stock statuses for the principal pelagic longline target species as of November 2021 under the domestic, and when applicable, international thresholds. The stock status of other relevant species, including other HMS target species and bycatch species are contained in the most recent SAFE Report (NMFS 2021). In some cases, these statuses are preliminary as NOAA Fisheries is still reviewing the most recent stock assessment results and has not yet issued formal stock status determinations. NOAA Fisheries quarterly updates U.S. fisheries' stock statuses and provides an annual Status of the Stocks Report to Congress.

Table 3.1 Atlantic HMS Stock Status Summaries For Pelagic Longline Target Tunas (and Bluefin Tuna, Incidental)

Species	Current Relative Biomass Level	B_{MSY}	International Threshold	Domestic Minimum Stock Size Threshold	International Stock Status	Domestic Stock Status	Stock Assessment (Last Assessment Year)^
Western Atlantic bluefin tuna	Unspecified*1	Unspecified *1*2	B_{MSY}	0.86 SSB_{MSY}	Overfished status unknown; Overfishing not occurring*1	Overfished status unknown; Overfishing not occurring*1	2021
Atlantic yellowfin tuna	B_{2018}/B_{MSY} = 1.17 (0.75 - 1.62)	Unspecified *2	B_{MSY}	0.5 B_{MSY} (age 2+)	Not overfished	Not overfished	2019^
Atlantic bigeye tuna	$SSB_{2019}/SSBMSY$ = 0.94 (0.71–1.37)	Unspecified *2	B_{MSY}	0.6 B_{MSY}	Overfished	Overfished	2021
North Atlantic albacore tuna	B_{2018}/B_{MSY} = 1.32 (1.13 - 1.51)	B_{MSY} = 392,556 mt (349,403 - 405,097)	B_{MSY}	0.7 B_{MSY} (247,789 mt)	Not overfished	Not overfished (Rebuilt)	2020
West Atlantic skipjack tuna	B_{2013}/B_{MSY}: Probably close to 1.3	30,755 mt	B_{MSY}	*Unknown*	Not overfished	Not overfished	2014^

*1 In the 2021 bluefin stock assessment, the Standing Committee on Research and Statistics did not use biomass-based reference points in formulating 2017, 2020 updates, or 2021 revised models. The SCRS has been unable to resolve the long-term recruitment potential, and reiterated that it is not possible to calculate biomass-based reference points absent additional knowledge or a basis for assumptions regarding how future recruitment potential relates to spawning stock biomass.

*2 A value for B_{MSY} (or its proxy) was not provided in the 2021 stock assessment.

^Upcoming assessments scheduled for 2022 (skipjack tuna), and 2023 (yellowfin tuna)

For the quota-managed stocks listed below, the actions considered and analyzed in this document would not affect or alter the ICCAT-adopted quotas or U.S. portion of the quota for the stocks. Only the time and place, and/or manner (gear type), in which the allowable quotas are caught would be affected. For example, the alternatives affecting quota reallocation among and within quota categories would not increase or decrease the overall U.S. quotas but would redistribute that quota for use by different categories or gear types. Any action considered would manage stocks within these quotas. For bluefin tuna, additional information on the most recent ICCAT-adopted quota and the most recent ICCAT stock assessment update is included below. For quota-managed stocks listed below, NOAA Fisheries has implemented the quotas through rulemaking with the appropriate environmental analyses of the effects of quota implementation. Those rulemakings and analyses are not repeated here in their entirety. They include:

- Final Rule on Atlantic Bluefin Tuna and Northern Albacore Tuna Quotas; Atlantic Bigeye and Yellowfin Tuna Size Limit Regulations (83 FR 5139, October 11, 2018). In this final rule, NOAA Fisheries modified the baseline annual U.S. quota and subquotas for bluefin and the baseline annual U.S. North Atlantic albacore quota to reflect quotas adopted by ICCAT. Supporting documents, including the Environmental Assessment (EA), Regulatory Impact Review (RIR), and Final Regulatory Flexibility Analysis (FRFA) (NMFS 2018), may be downloaded from the HMS website at Adjustments to North Atlantic bluefin tuna and northern albacore quotas.
- 2012 Swordfish Quota Adjustment Rule (77 FR 45273, July 31, 2012). NOAA Fisheries analyzed the North Atlantic swordfish quota and quota adjustment process in the EA, Final RIR, and FRFA that were prepared for the rule.
- Proposed Rule on Atlantic Bluefin Tuna and Northern Albacore Tuna Quotas (87 FR 12648, March 7, 2022). In this rule, NOAA Fisheries has proposed modifying the baseline annual U.S. quota and subquotas for bluefin and the baseline annual U.S. North Atlantic albacore quota to reflect quotas adopted by ICCAT. This rulemaking is not yet finalized but is expected to be by the summer of 2022. Draft supporting documents may be found on the HMS website at Proposed changes to Atlantic Bluefin Tuna and North Albacore Quotas.

Additional information on the bluefin quota:

NOAA Fisheries implemented the current baseline U.S. quota and subquotas in October 2018 (83 FR 5139, October 11, 2018), consistent with the quota adopted by ICCAT in 2017 (Rec. 17-06). That recommendation established interim conservation and management measures for 2018 through 2020 for the western Atlantic bluefin stock, including establishing a total allowable catch (TAC) of 2,350 mt. This recommendation was adopted to be responsive to a 2017 stock assessment by ICCAT's Standing Committee on Research and Statistics (SCRS) while recognizing the need for a transition between the 20-year rebuilding program adopted in 1998 and a future approach to managing the stock that relies on management procedures to meet ICCAT Convention objectives (i.e., to maintain populations at levels that will support maximum sustainable yield). Rather than continue to use divergent high and low recruitment scenarios based upon biomass reference points that had dominated past assessments, the SCRS in that assessment decided to use an approach relying on fishing mortality rate, using a rate of $F_{0.1}$ as a proxy for biomass-based

reference points, pending development of a Management Strategy Evaluation (MSE) for the stock. Work on the MSE has continued, with strong U.S. participation and support.

Due to the unprecedented situation regarding the pandemic in 2020, ICCAT canceled its annual meeting and conducted negotiations via correspondence. Recognizing the significant challenges of complex decision making by correspondence, but also the need to keep management measures in place where measures were expiring, rollovers of expiring measures was ICCAT's default approach. For bluefin, ICCAT's SCRS had conducted a stock assessment update in 2020. However, this strict update format did not provide the SCRS with enough flexibility to address potential issues with the data and their treatment. Given all of the above, ICCAT adopted Rec. 20-06, which rolled over the TAC for 2020; provided for a 2021 stock assessment that would incorporate the most recent available data, including any new abundance indices; and specified TAC levels that would be endorsed for 2022 and 2023 to address overfishing based on the 2020 stock assessment update and management scenario 3 analyzed therein, unless ICCAT were to decide otherwise based on new SCRS advice.

The SCRS conducted a western Atlantic bluefin tuna stock assessment in 2021. This assessment used data through 2020 and updated the modeling assumptions given scientific concerns expressed by the SCRS regarding the 2020 assessment update. The 2021 assessment results were more positive than in 2020 as detailed below.

Due to continued uncertainty regarding stock recruitment potential and the SCRS' continued inability to resolve the divergent (*i.e.*, low vs. high) recruitment potential scenarios, the SCRS, as in the 2017 assessment, did not estimate spawning stock biomass (SSB) or determine stock status based on maximum sustainable yield (MSY) reference points. Rather than presenting two SSB series based on these two scenarios, the SCRS presented total biomass information to assess the stock, which does not depend on which of these scenarios is selected. The 2021 stock assessment estimated that the total biomass increased by 9 percent over 2017 through 2020. In the 2021 assessment, the SCRS also concluded that overfishing was not occurring. Since the 2017 stock assessment and in subsequent stock assessments, the SCRS has focused on giving short-term management advice based on an $F_{0.1}$ reference point (taken to be a proxy for achieving F_{MSY}) assuming that near term recruitment will be similar to the recent past recruitment. The $F_{0.1}$ strategy compensates for the effect of recruitment changes on biomass by allowing higher catches when recent recruitment is higher and reducing catches when recent recruitment is lower. Fishing consistently at $F_{0.1}$ is expected to, over the long-term, cause the stock to fluctuate around the corresponding long-term biomass (B0.1), whatever the future recruitment potential. The 2021 report indicates that the TAC in place for 2018 through 2021 likely did not lead to overfishing relative to $F_{0.1}$, and that the stock showed clear signs of several strong subsequent recruitment years. Domestically, following the 2017 stock assessment, NMFS determined that the overfished status for bluefin tuna is unknown and that the stock is not subject to overfishing, and this status remains in effect.

Recognizing that the results of the 2021 stock assessment and projections, including the Kobe matrix, do not capture the full degree of uncertainty regarding the spawner-recruit

relationship, the effects of stock mixing, and other aspects of the assessment and projections, the SCRS recommended that managers use the scientific advice with caution. Toward that end, the SCRS recommended that a moderate increase to the TAC was allowable and provided additional advice on alternative approaches to assist in determining the level of an appropriate moderate increase in TAC. Considering this advice, ICCAT adopted a TAC of 2,726 mt at its November 2021 meeting (Rec. 21-07), which is a 16-percent increase from the prior TAC of 2,350 mt. The recommendation describes the adopted TAC as a precautionary TAC that prevents overfishing with a high probability, prioritizes continued stock growth, including into the long-term, and ensures relative stability by avoiding a large fluctuation in catches.

3.2 Bluefin Tuna Management

3.2.1 Overview

International Management

Atlantic bluefin are managed by ICCAT as western and eastern stocks separated by a management boundary at the 45° W. meridian. *See* Chapter 1, paragraphs 1 and 2 for explanation of ICCAT, ATCA and Magnuson-Stevens Act. The two-stock hypothesis was supported by NOAA Fisheries' 2011 Endangered Species Act (ESA) Status Review of Atlantic Bluefin Tuna (ABT SRT 2011)[4]. Further evidence of meta- or subpopulations for each stock was considered; however, the Status Review Team found the only conclusive evidence (under ESA definitions) was for two differentiated stocks (i.e., Mediterranean and Gulf of Mexico). The Status Review Team acknowledged evidence suggesting that there may be two discrete populations within the Mediterranean, but did not have enough information to determine the significance of these populations to the species as a whole.

Since 2002, ICCAT has, in its recommendations regarding western Atlantic bluefin, provided that the United States and Canada receive 25 metric ton (mt) and 15 mt, respectively, for retention of bluefin related to longline fisheries in the vicinity of the management area boundary (45° West Longitude (W. long.)., north of 10° North Latitude (N. lat.)) (ICCAT Recommendation 02-07). This amount is in addition to the annual U.S. baseline bluefin quota included in ICCAT Recommendation 21-07 and past recommendations. In the rule implementing the 2003 quotas, NOAA Fisheries defined the vicinity of the management area boundary as the Northeast Distant Area (NED): The Atlantic Ocean area bounded by straight lines connecting the following coordinates in the order stated: 35°00' N. lat., 60°00' W. long.; 55°00' N. lat., 60°00' W. long.; 55°00' N. lat., 20°00' W. long.; 35°00' N. lat., 20°00' W. long.; 35°00' N. lat., 60°00' W. long. This fishing ground covers virtually the entire span of the western north Atlantic, as far east as the Azores and the Mid-Atlantic Ridge. NOAA Fisheries uses the ICCAT-recommended 25-mt set-aside to account for incidental bluefin catch by pelagic longline fisheries in the NED.

Domestic Management

Chapter 1, paragraphs 1 and 2, provide an explanation of domestic management authority under the Magnuson-Stevens Act and ATCA. *See also* Chapter 9.0 for discussion of Magnuson-Stevens Act National Standards and other requirements.

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[4]On May 24, 2010, the Center for Biological Diversity petitioned NOAA Fisheries to list Atlantic bluefin tuna as endangered or threatened under ESA. NOAA Fisheries evaluated the petition as required by the ESA, determined that the petitioned action may be warranted, and published a positive 90-day finding (75 FR 57431, September 20, 2010). A Status Review was conducted under the requirements of the ESA and published on May 20, 2011.

Bluefin Quota Management and Annual Quota Allocation to Categories

The Atlantic bluefin fishery is a quota-managed fishery, and catch (landings and dead discards) must be accounted for within the available U.S. quota agreed at ICCAT. Consistent with ATCA requirements, NOAA Fisheries implemented the 1,247.9-mt U.S. quota from ICCAT (explained above) for 2018 through 2020 and also distributed the quota among subquota categories according to the methodology codified at 50 C.F.R. § 635.27(a), (bluefin quotas)(83 FR 51391, October 11, 2018). In 2020, ICCAT adopted Rec. 20-06, which rolled over the existing 2020 TAC for 2021.

ICCAT recommendation 21-07 requires annual adjustment to the overall quota for overharvest of the previous year's quota if overharvest occurs and also allows adjustment for a portion of the previous year's underharvest. Through rulemaking, NOAA Fisheries adds available underharvest, if any, to the Reserve category once complete catch information is available and finalized for the previous year. ICCAT caps the addition of underharvest at 10 percent of a country's initial catch quota (i.e., 10% of (1,247.9 +25) = 127.3, Table 11.1). ICCAT also provides an additional 25 mt for catches in the vicinity of the management area boundary, which the United States interprets as longline catches in the NED.

While the currently codified U.S. baseline quota is 1,247.9 mt NOAA Fisheries has proposed through rulemaking to increase the U.S. baseline annual bluefin tuna quota to 1,316.14 mt, to implement the 2021 ICCAT recommendation (Rec. 21-07), and dividing that quota among the established regulatory domestic bluefin tuna subquota categories (87 FR 12648, March 7, 2022). That rulemaking is not yet finalized but is expected to be final by summer 2022.

NOAA Fisheries currently allocates the ICCAT quota domestically among seven quota categories. Two of the categories are incidental (the Longline and Trap categories) meaning bluefin are not the target species. Four of the categories (General, Angling, Harpoon, and Purse Seine categories) target or direct on bluefin. There is also the Reserve category, referred to above, in which quota is held in reserve for research and inseason quota transfers among categories as warranted. Because the pelagic longline fishery primarily targets swordfish, yellowfin tuna, and bigeye tuna, and incidentally catches bluefin, the Longline quota category provides the pelagic longline fishery with bluefin quota to account for that bycatch. The amount of quota allocated to each category is expressed as a percentage of the U.S. quota after 68 mt (i.e., the historical 68-mt dead discard allowance, as described in Amendment 7) is subtracted from the baseline quota and allocated to the Longline category as provided in § 635.27. Each year the annual allocation of quota among the seven quota categories reflects these percentages, the U.S. quota, and, as described in Chapter 2 (Sub-Alternative F1a and Preferred sub-alternative F1b), the 68-mt quota allocation for the Longline category quota.

Subsequent to the deduction of the 68 mt and splitting of the quota among categories, NOAA Fisheries determines whether a portion of the Purse Seine category quota will be reallocated based on the category's previous years catch, according to a formula that

reallocates a percentage of the Purse Seine category quota to the Reserve category in proportion to the amount of catch (landings and dead discards) in the previous year. Amendment 7 implemented this regulation in 2015, after several years of *de minimis* levels of fishing activity by Purse Seine category participants, to increase the opportunity for the United States to catch available quota. The Purse Seine category is currently allocated at least 25 percent of its base quota (see Alternative F2a), even if no catch has occurred during the previous year, however a larger percentage of its base allocation can be distributed provided there was bluefin catch in the previous year. Since 2016, 75 percent of the Purse Seine category's base quota has been reallocated to the Reserve category as there has been no purse seine fishing activity, nor catch. The section of this document that describes the purse seine fishery (Section 3.2.2.2) contains detailed information on this fishery.

Bluefin Quota and Inseason Adjustments

After the annual quota allocations among categories are complete, the category quotas will remain at those levels unless adjusted by NOAA Fisheries inseason, during the fishing year. NOAA Fisheries has the authority to adjust bluefin quotas among or within categories, based on specific regulatory determination criteria. NOAA Fisheries is required under the Magnuson-Stevens Act to provide U.S. fishing vessels with a reasonable opportunity to harvest quotas under relevant international fishery agreements such as the ICCAT Convention, which is implemented domestically pursuant to ATCA, and which prohibits increasing or decreasing the quota through regulation. Thus, NOAA Fisheries must provide U.S. fishing vessels with a reasonable opportunithy to catch the ICCAT-recommended quota.

Under § 635.27(a)(9), NOAA Fisheries has the authority to transfer quota among fishing categories or subcategories via an inseason action, after considering fourteen regulatory determination criteria provided under § 635.27(a)(8) and listed in Table 3.2 below. Based on these determination criteria NOAA Fisheries has transferred bluefin quota from the Reserve category to the various quota categories (and/or among General category subquota periods inseason (i.e., at various times during the fishing year)). Since implementation of Amendment 7, NOAA Fisheries has published numerous inseason quota transfers from one bluefin quota category (including the Reserve category) to another, as follows: 3 in 2016, 6 in 2017, 6 in 2018, 8 in 2019, 7 in 2020, and 6 in 2021. Table 11.6 in Appendix B summarizes fishery management information for the General category (quota), including inseason actions (daily retention limit adjustments, quota transfers, and fishery closures and reopenings), landings and quota use by time-period subquota for 2015 through 2019.

Table 3.2 Regulatory determination criteria for transfer of bluefin tuna (BFT) quota during inseason or annual adjustments (50 CFR § 635.27(a)(8))

(1) The usefulness of information obtained from catches in the particular category for biological sampling and monitoring of the status of the stock.
(2) The catches of the particular category quota to date and the likelihood of closure of that segment of the fishery if no adjustment is made.
(3) The projected ability of the vessels fishing under the particular category quota to harvest the additional amount of BFT before the end of the fishing year.
(4) The estimated amounts by which quotas for other gear categories of the fishery might be exceeded.
(5) Effects of the adjustment on BFT rebuilding and overfishing.
(6) Effects of the adjustment on accomplishing the objectives of the fishery management plan.
(7) Variations in seasonal distribution, abundance, or migration patterns of BFT.
(8) Effects of catch rates in one area precluding vessels in another area from having a reasonable opportunity to harvest a portion of the category's quota.
(9) Review of dealer reports, daily landing trends, and the availability of the BFT on the fishing grounds.
(10) Optimize fishing opportunity.
(11) Account for dead discards.
(12) Facilitate quota accounting.
(13) Support other fishing monitoring programs through quota allocations and/or generation of revenue.
(14) Support research through quota allocations and/or generation of revenue.

Other Management Measures Applicable to the Affected Fisheries

All owners/operators of vessels (commercial, charter/headboat, or recreational) fishing for regulated Atlantic tunas (including bluefin) in the management area must obtain an Atlantic tunas or Atlantic HMS vessel permit. Atlantic tunas permits are issued in five commercial categories: General, Harpoon, Purse Seine, Longline, and Trap. Atlantic HMS permits are issued in two categories: Recreational Angling and Charter/Headboat. Only one permit category may be assigned to a vessel. All fish dealers purchasing regulated Atlantic tunas from vessels holding an Atlantic tunas permit or an Atlantic HMS vessel permit must obtain a Federal Atlantic tunas dealer permit. Retention in all categories is conditioned on permit terms and compliance with applicable regulations. The permit categories include both limited access and open access permits. Other management measures include gear

restrictions, minimum fish sizes, closed areas, and trip limits, among others. Other fisheries, or states, may have additional permit requirements, including special permits to sell fish. The annual SAFE Report includes more detailed information on other management measures.

3.2.2 Description and Management of the Directed Bluefin Fisheries

Bluefin fisheries include recreational and commercial sectors, and the Charter/Headboat fishery that has both recreational and commercial components. The Angling category is purely recreational and receives approximately 20 percent of the annual quota (following 68-mt allocation for the Longline category. (Table 3.3). The commercial directed categories include the General and Harpoon categories (handgear) and the Purse Seine category, which collectively receive about three-quarters of the annual quota (47, 4, and 18.5 percent, following the 68-mt deduction, respectively). The non-directed (incidental) categories are the Longline and Trap categories. There is also a small amount of quota allocated annually to the Reserve category for inseason adjustments and authorized research activities.

Table 3.3 Bluefin landings (mt) by year and category, 2015-2019

Category	Base Quota (2018-2019)	2015	2016	2017	2018	2019	Average 2017-2019
General	555.7	614.7	750.5	695	784.3	814.1	764.5
Harpoon	46	43.7	26.4	43.1	26.5	102.4	57.3
Incidental	95.6	71.4	86.2	103.8	88	83.6	91.8
Purse Seine	219.5	33.7	N/A	N/A	N/A	N/A	0
Angling	232.4	113.1	142.8	141.8	112.6	181.8	145.4

Source: SAFIS Federal dealer landings data.

3.2.2.1 Handgear Fisheries

The handgear fisheries direct on bluefin and other HMS species, depending upon location and permit type. This section describes the handgear fisheries, with a focus on bluefin, and relevant data (effort, fishery trends, and socioeconomic data), to provide a view of the current condition of the fishery, which serves as a baseline against which to compare potential impacts of the different alternatives.

The principal gear used to target bluefin both commercially and recreationally is rod and reel. Secondarily, harpoon or handline are used to fish for bluefin commercially. Vessels participating in the bluefin fishery include private vessels, charter vessels, and headboat vessels. Again, it is important to note that vessels permitted in both the Atlantic Tunas

General category and the HMS Charter/Headboat category (with a commercial sale endorsement and when fishing commercially) may land bluefin,which are counted against the General category bluefin quota. Throughout the document, NOAA Fisheries refers to the Atlantic Tunas General category *permit category* and the bluefin tuna General category *quota*. Rod and reel gear may be deployed from a vessel that is anchored, drifting, or underway. In general, trolling occurs while the vessel is underway and consists of dragging baits or lures on the water's surface. While trolling, vessels often use outriggers to assist in spreading out or elevating baits or lures and to prevent fishing lines from tangling.

Atlantic Tunas General Category

Owners/operators of vessels fishing commercially for Atlantic bluefin, BAYS (bigeye, albacore, yellowfin, and skipjack) tunas using a combination of rod and reel, harpoon, handlines, bandit gear, and/or green-stick must obtain an Atlantic tunas General category permit, which is an open access permit. This permit is required in federal waters of the Atlantic, which includes the Gulf of Mexico and Caribbean Sea. Additionally, the owner of a vessel with an HMS vessel permit agrees, as a condition of the permit, to comply with all applicable federal regulations, regardless of where fishing occurs, including in state waters. However, when fishing in the waters of a state with more restrictive regulations, the more restrictive state regulations must be followed. Sale of tuna is permitted with this permit. If fishing is taking place in a registered recreational HMS fishing tournament only, this permit will also allow a vessel to recreationally fish for sharks, swordfish, and/or billfish. The discussion below focuses on the bluefin fishery pursued under the General category permit and the relevant General category bluefin quota system. In 2019, General category permits made up 65 percent of all commercial permits. The number of General category permits issued in 2019, organized by state, is shown in Table 3.4. The number of Charter/Headboat permits issued in 2019 is shown in Table 3.5, below.

Table 3.4 Number of Atlantic Tunas General Category Permits by State/Territory in 2019.

State	Permits Issued	State	Permits Issued
Massachusetts	961	Delaware	14
Maine	648	South Carolina	12
North Carolina	255	Texas	9
New Hampshire	198	Pennsylvania	6
Florida	123	U.S. Virgin Islands	3
New York	102	Vermont	1
Rhode Island	99	Ohio	1
New Jersey	82	West Virginia	1
Puerto Rico	58	Tennessee	1
Connecticut	44	Georgia	1
Virginia	35	California	1
Maryland	16	Oregon	1
Alabama	16	Washington	1
Louisiana	16	Hawaii	1
Mississippi	15		

State	Permits Issued	State	Permits Issued
		TOTAL	2,721

Table 3.5 Number of HMS Charter/Headbout permits by State/Territory in 2019.

State	Permits Issued	State	Permits Issued
Florida	723	Georgia	26
Massachusetts	699	Puerto Rico	19
New Jersey	471	Mississippi	17
North Carolina	456	U.S. Virgin Islands	16
New York	314	Pennsylvania	10
Maine	138	Ohio	2
South Carolina	130	Wisconsin	1
Rhode Island	128	West Virginia	1
Maryland	123	Oklahoma	1
Texas	100	New Mexico	1
Delaware	98	Michigan	1
New Hampshire	92	Illinois	1
Louisiana	91	Idaho	1
Virginia	75	California	1
Connecticut	68		
Alabama	64	TOTAL	3,868

The General category is currently allocated 47 percent of the baseline annual U.S. bluefin quota (once 68 mt is subtracted and allocated to the Longline category quota). The General category quota is further subdivided into time period subquotas, shown in Table 3.6, as codified by regulation.

Table 3.6 General category time-period subquota allocations by percent and weight (mt)

Subquota time periods	Percentage of General category annual bluefin quota	Quota allocations (mt)
January through March	5.3	29.5
June through August	50	277.9
September	26.5	147.3
October through November	13	72.2
December	5.2	28.9

Recent Catch and Landings

Bluefin landings under the General category quota have increased annually since 2012. Over the past five years, this category landed a large percentage of the total bluefin landings (e.g., 80 percent in 2019; Standard Atlantic Fishery Information System (SAFIS) federal dealer landings data, 2020; Figure 3.2). Inseason transfers have contributed to the ability of the General category to land this amount. Landings can vary considerably, however, and in recent years, fishermen have noted a substantial increase in the availability of large medium and giant bluefin in the New England area (SAFIS federal dealer landings data, 2020).

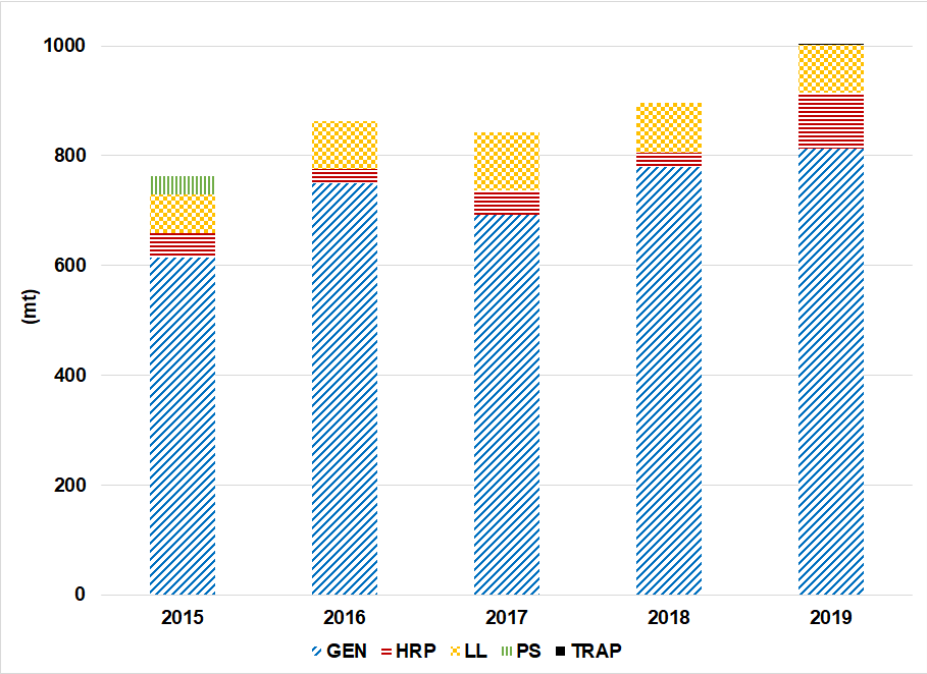

Figure 3.2 **Total commercial handgear landings of bluefin by category. Gen = General; HRP = Harpoon; LL = Pelagic longline; PS = Purse seine**
Source: SAFIS Federal dealer landings data.

In 2019, General category bluefin (quota) landings (by vessels permitted in the Atlantic Tunas General categories and the HMS Charter/Headboat category when fishing commercially) accounted for approximately 84 percent of commercial bluefin landings. NOAA Fisheries augmented the General category quota five times via inseason quota transfers totaling 264.2 mt, and this contributed to the General category landings reaching this level.

General Category Cost/Earnings Study - 2018

In 2018, NOAA Fisheries conducted a study of the costs and earnings associated with the Atlantic Tunas General category fishery. Permit holders that had commercial landings of bluefin under the General category quota (both Atlantic Tunas General category and HMS Charter/Headboat permit holders) in the prior two years (2016 and 2017) were selected for logbook reporting. NOAA Fisheries selected 682 vessels based on this criteria, of which, 587 renewed their permits for 2018.

The logbooks were required for each trip targeting HMS. Effort, catch, catch, costs and earnings for each trip were collected. In addition, an annual expenditure form was required at the end of the year to collect information on less trip-specific cost such as boats, equipment, insurance. Participants were mailed copies of the trip summary form, "no fishing" reports, and annual expenditures form. In addition, participants were also provided a web link to complete the forms online. Of the 587 eligible permit holders selected, 457 returned either a trip or "no fishing" report, which is a 78 percent response rate. Of the 4,239 bluefin landed in 2018 under the General category quota, 2,918 were by vessels selected for reporting in this survey. The proportion of trip reports by month very closely matched landings by month, suggesting that the data received was representative of the fishery.

NOAA Fisheries received trip reports from 334 participants, while 123 (26.9 percent of participants) did not go fishing and just submitted "no fishing" reports. From those 334 participants, NOAA Fisheries received 3,406 total trip reports. Owner operated trips account for 93 percent of trips. In addition to bluefin, these trips also landed other species including: mackerel (51percent by number), yellowfin tuna (16 percent), haddock (15 percent), bigeye (3 percent), squid (3 percent), pollock (3 percent), whiting (2 percent), dolphin fish (2 percent), and other species (5 percent). Figure 3.3 shows the trip location information derived from the survey responses. Based on the geographic information provided by the survey responses, most fishing under the General category quota occurred in the Gulf of Maine or off the coast of North Carolina.

Table 3.7 shows trip cost information for all General category trips reported (2018). The most costly expense categories were fuel and payment to hired crew. Based on 1,337 trips reports with bluefin landings and full survey data, 92 percent of trips landed only one bluefin. The average price received per bluefin was $2,306 at an average price of $6.86 per pound. The average bluefin revenue per trip was a bit higher at $2,485 and trip costs averaged $823, so the net return per trip was estimated at $1,662. The survey data suggests that one bluefin for every three trips will cover trip costs.

Table 3.8 provides details on the annual expenditures reported by the General category survey participants. Repair and maintenance and the purchase of capital were the biggest expenditures. Average total annual expenditures were $29,354 (median $15,746) in 2018. Based on the 932 General category and Charter/Headboat category permitted vessels that landed bluefin in 2018, total annual expenditures were estimated to be $14.7 million for the fleet.

Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish. Figure 3.4 shows the average price for bluefin under the General category quota for 2017 through 2019.

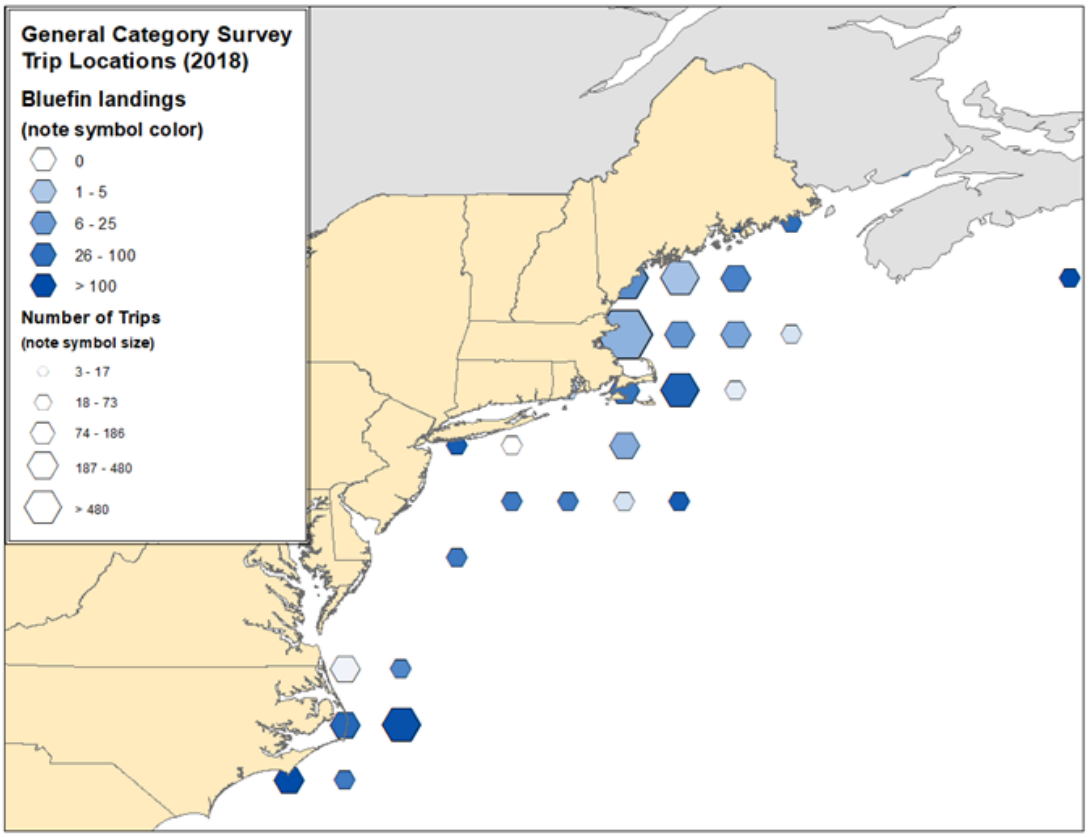

Figure 3.3 General Category Survey Trip Locations (2018)
Source: NMFS. 2018. Atlantic Tunas General Category Cost Earnings Logbook Database

Table 3.7 Trip costs statistics for all General category trips reported (2018)

Expense Category	Mean	Median
Fuel	$183	$130
Bait	$13	$0
Grocery	$46	$0
Ice	$24	$15
Tackle	$74	$40
Other expenses	$47	$0
Payment to hired captain	$28	$0
Payment to hired crew	$128	$0

Source: NMFS. 2018. Atlantic Tunas General Category Cost Earnings Logbook Database

Table 3.8 General category annual fishing expenditure statistics (2018)

Expense Category	Mean	Reporting (%)
Repair & Maintenance	$7,319	97.7
Purchases of Capital	$4,564	53.1
Dockage/Rent & Utilities	$3,117	80.6
Fishing Supplies	$2,807	92.6
Hull Insurance	$1,716	88
Dry dock / Haul Out Expense	$1,366	71.4
Fishing Licenses & Permits	$460	100
Vessel Boat Loan Payments	$3,294	29.1
Other Annual or One-Time Expenses	$1,691	28
Business Taxes Paid	$1,280	48
Office Expenses	$744	42.9
Relocation Expenses	$525	14.3
P&I Insurance	$473	41.1

Source: NMFS. 2018. Atlantic Tunas General Category Cost Earnings Logbook Database

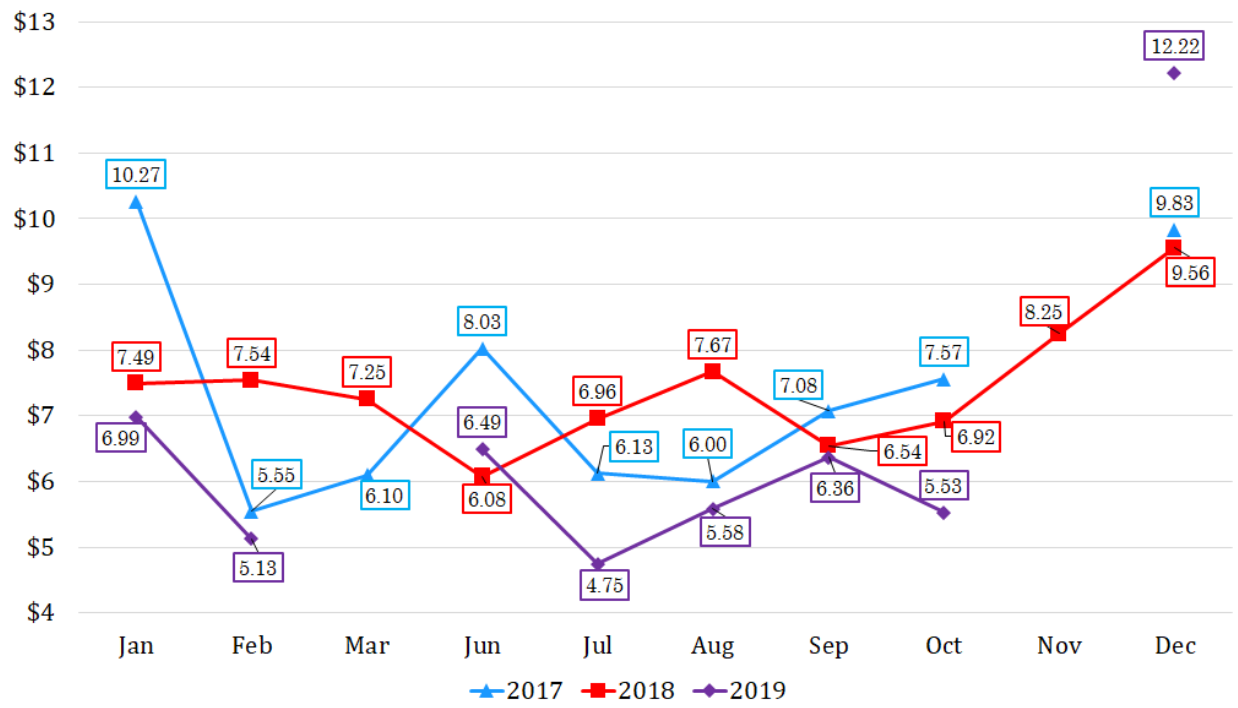

Figure 3.4 Average price by month for bluefin landed under General category quota, 2017 through 2019
Source: SAFIS federal dealer landings data

Atlantic Tunas Harpoon Category

The Atlantic tunas Harpoon category is allocated 3.7 percent of the U.S. baseline bluefin quota (after 68 mt deducted and allocated to the Longline category). Vessels that are permitted in the Harpoon category fish under the Harpoon category rules and regulations. The Harpoon category is an open access permit fishery. Vessels with a Harpoon category permit may retain between two and four bluefin measuring 73" - < 81" curved fork length (CFL) per vessel per trip per day depending on the current regulations while the fishery is open. There is no limit on the number of giant bluefin (measuring 81" or greater), as long as the Harpoon category season is open. The Harpoon category season opens on June 1 of each year and remains open until November 15, or until the quota is filled. The harpoon fishery is a highly specialized fishery that is reported to have begun in the early 1800s off the coast of New England (for swordfish), with vessels operating out of Rhode Island to Maine. Some Harpoon category vessels work in conjunction with spotter planes to locate schools of bluefin.

Recent Catch and Landings

Atlantic tunas Harpoon category bluefin landings are presented in Figure 3.5. The Harpoon category has always comprised a small proportion of U.S. bluefin landings and landings have varied substantially over recent years.

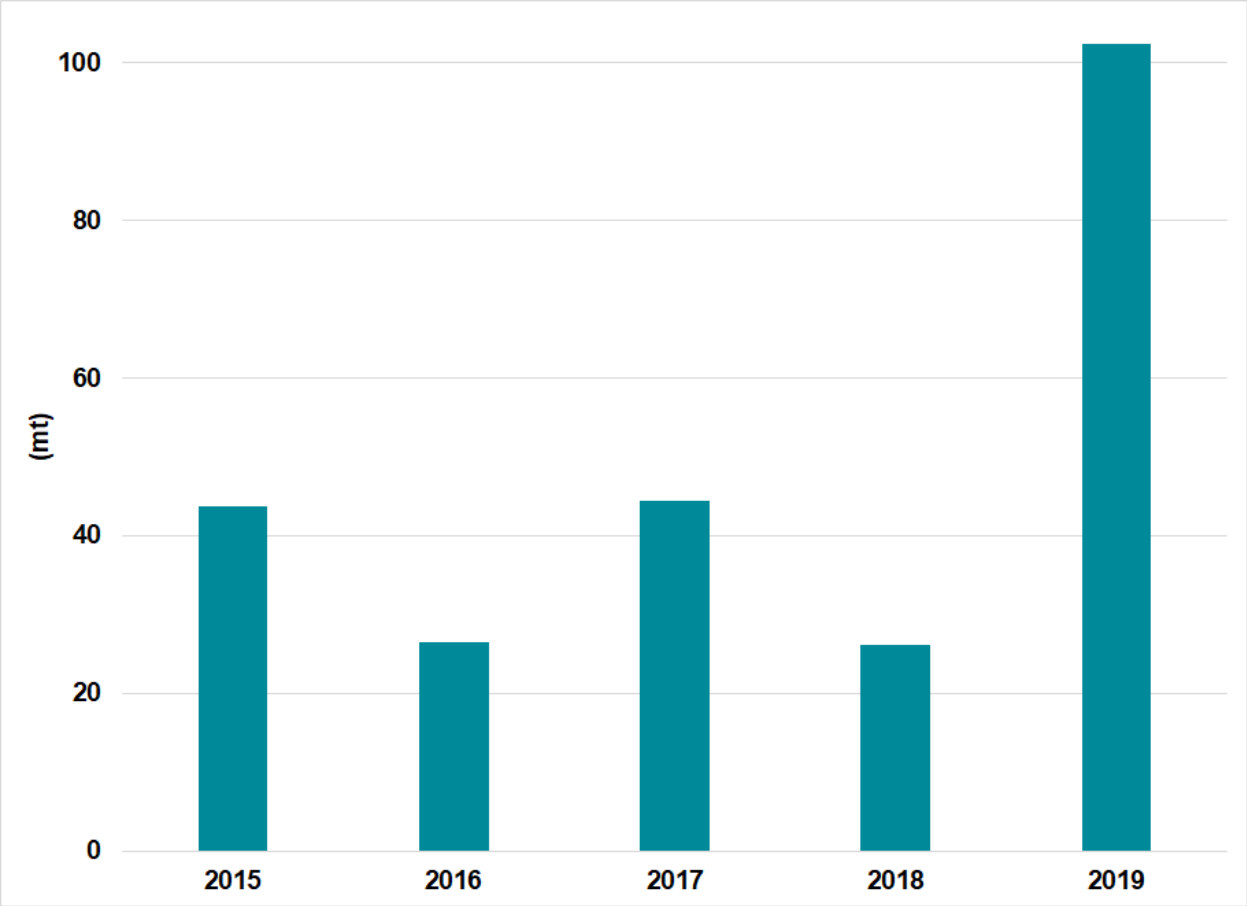

Figure 3.5 Harpoon category bluefin landings (mt), 2015 through 2019. Source: SAFIS federal dealer landings data

In 2018, NOAA Fisheries conducted a logbook study of the costs and earnings associated with the Atlantic Tunas General category fishery. While most General category trips involve fishing with rod-and-reel gear, permit holders are also authorized to use harpoon gear. Out of 3,406 trips reported through the study, 226 (6.6 percent) reported the use of harpoon gear. Of those 226 trips using harpoon gear, 28 percent (63 trips) landed only one bluefin, while an additional 5 percent (12 trips) landed two or three bluefin. The average price received per bluefin was $2,191 at an average price of $5.69 per pound. The average bluefin revenue per successful trip (i.e., a trip on which at least one bluefin was landed) was a bit higher at $2,631 and trip costs averaged $1,251, so the net return per trip was estimated at $1,380. The survey data suggests that one bluefin for every two trips will nearly cover trip costs. Mean trip costs for successful General category trips reporting the use of harpoon gear tended to be higher for harpoon trips (Table 3.9) when compared to trip costs sampled across General category trips (Table 3.7).

Table 3.9 Mean and median trip cost for successful General category trips reporting the use of harpoon gear (2018)

Expense Category	Mean	Median
Fuel	$181	$140
Bait	$4	$0
Grocery	$23	$15
Ice	$15	$0
Tackle	$60	$28
Other expenses	$68	$0
Payment to hired captain	$238	$0
Payment to hired crew	$662	$500

Source: NMFS. 2018. Atlantic Tunas General Category Cost Earnings Logbook Database

HMS Angling Category

The HMS Angling permit is open access and required to recreationally fish for, retain, or possess any federally regulated HMS, including sharks, swordfish, white and blue marlin, sailfish, spearfish, bluefin, and BAYS tunas. This requirement extends to catch-and-release and tag-and-release fishing. The permit does not authorize the sale or transfer of HMS to any person for a commercial purpose. As of 2018, vessel owners issued an HMS Angling permit intending to fish for sharks were required to obtain a shark endorsement. In 2019, over 21,000 Angling permits were issued.

Authorized gear for the Angling category includes handgear (rod and reel, handline). The Angling category is allocated 19.7 percent of the baseline bluefin quota following the deduction of the 68 mt that is allocated to the Longline category. The Angling category quota is further subdivided into size class subquotas (school, large school/small medium, and large medium/giant) and then areas (north and south, divided at 39° 18' North latitude, or Great Egg Inlet, NJ). Table 3.10 shows the Angling category bluefin quota allocations, and Figure 3.6 shows the associated geographic areas (based upon current regulations).

Table 3.10 Angling Category Bluefin Quota Allocations (2019)

Quota/subquota	Amount
Total Angling quota	19.7 percent of U.S. baseline quota (- 68 mt deducted and allocated to the Longline category)
Large medium or giant "Trophy" (73"+)	No more than 2.3 percent of annual Angling category quota
School (27" - <47")	No more than 10 percent of annual U.S. bluefin quota may be school bluefin
School reserve	18.5 percent of school Angling category quota
Large school or small medium (47 - <73")	Remainder of the Angling category quota
Area subquotas (%)	
School south	52.8 of school subquota after deducting the school reserve
School north	47.2 of school subquota after deducting the school reserve
Large school/small medium south	52.8 of large school/small medium subquota
Large school/small medium north	47.2 of large school/small medium subquota
Large medium/giant "Trophy" Gulf of Mexico	33.3 of large medium/giant "trophy" subquota
Large medium/giant "Trophy" south	33.3 of large medium/giant "trophy" subquota
Large medium/giant "Trophy" north	33.3 of large medium/giant "trophy" subquota

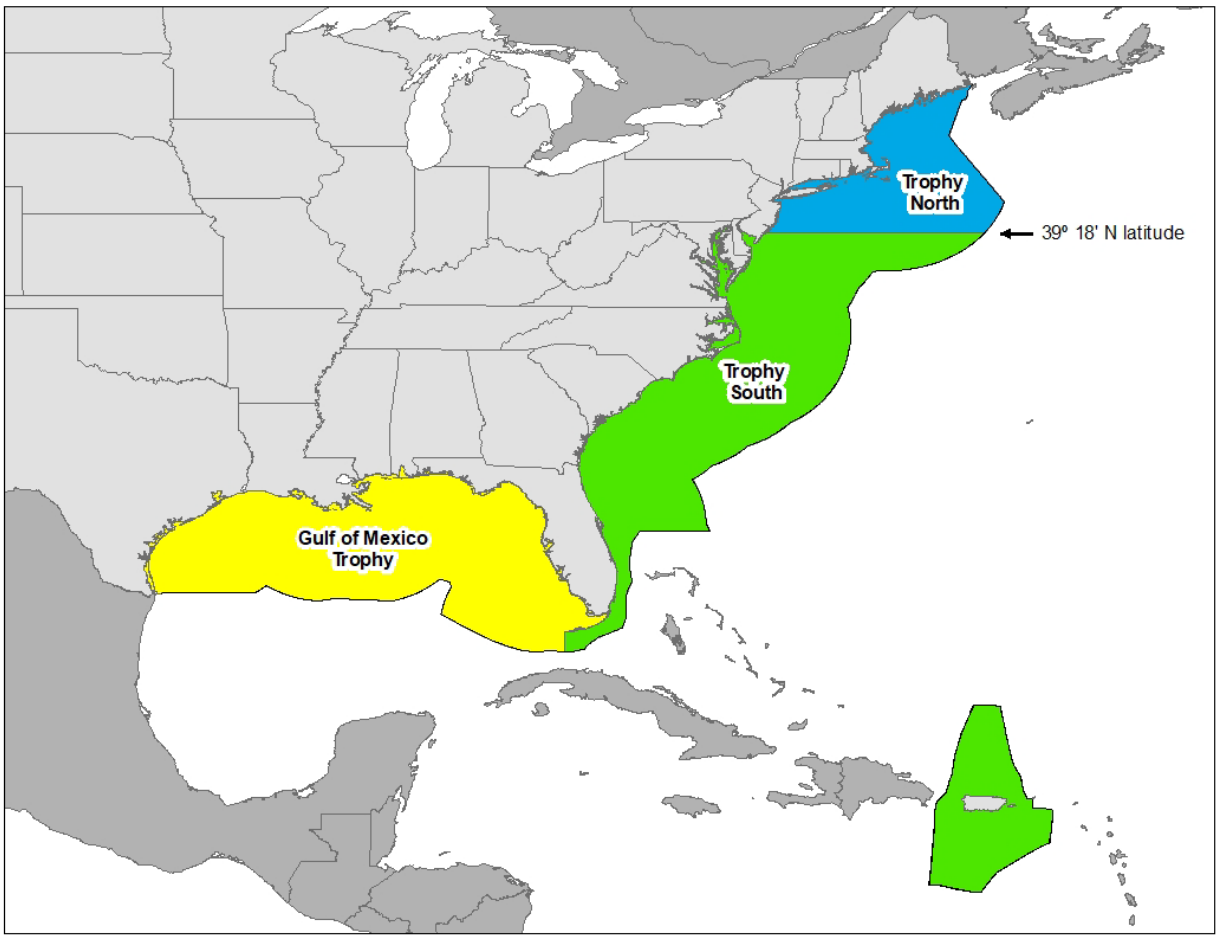

Figure 3.6 Recreational trophy area designations.

Recreational anglers must also comply with retention limits, reporting requirements, applicable regulations for the bluefin fishery, and the general regulations for HMS fisheries. Recent size and retention limits for the Angling category, as well as for the Charter/Headboat category when fishing recreationally (discussed in more detail below) when fishing recreationally, are summarized in Table 3.11, based on information published in the Federal Register (assorted dates). All restrictions are applied to the vessel, per day and/or trip.

Table 3.11 Recent Bluefin Retention Limits for Vessels Permitted in the Angling Category

Date Range	Restriction (limit per vessel/day)
Jan 1 - Apr 22, 2016	• 1 bluefin 27" - < 73"
Apr 23 - Dec 31, 2016	• 2 school bluefin (27"- < 47") • 1 large school/small medium bluefin (47" - < 73")
Jan 1 - Apr 29, 2017	• 1 bluefin 27" - < 73"
Apr 30 - Dec 31, 2017	• 2 school bluefin (27"- < 47") • 1 large school/small medium bluefin (47" - < 73")
Jan 1 - Apr 25, 2018	• 1 bluefin 27" - < 73"
Apr 26 - Dec 31, 2018	• 2 school bluefin (27"- < 47") • 1 large school/small medium bluefin (47" - < 73")
Jan 1 - May 10, 2019	• 1 bluefin 27" - < 73"
May 11 - Dec 31, 2019	• 2 school bluefin (27"- < 47") • 1 large school/small medium bluefin (47" - < 73")

Source: NMFS, HMS

Recent Catch and Landings

Table 3.12 summarizes annual recreational bluefin landings (i.e., landings against the Angling category quota by the Angling and Charter/Headboat permit categories) by size class for 2016 through 2019.

Table 3.12 Annual recreational bluefin landings by size class for 2016 through 2019

Year	Size Class	Landings (mt)	Quota (mt)	Quota use (%)
2016	School	40.3 (18.3 N; 22 S)	108.4	37
	Large school/small medium	96.8 (22.1 N; 74.6 S)	82.3	118
	Large medium/Giant	5.9 (2.7 N; 2.2S; 1 GOM)	4.5	131
2017	School	47.1 (33.6 N; 13.4 S)	108.4	43
	Large school/small medium	84.5 (65.2 N; 19.3 S)	82.3	103
	Large medium/Giant	10.2 (3.4 N; 5.2 S; 1.7 GOM)	4.5	227
2018	School	55.8 (45 N; 10.7 S)	127.3	44
	Large school/small medium	45.5 (9.2 N; 36.3 S)	99.8	46
	Large medium/Giant	12.6 (1.8 N; 9.8 S; 1.0 GOM)	5.3	238
2019	School	71	127.3	56
	Large school/small medium	95	99.8	95
	Large medium/Giant	15.8 (2.1 N; 11.9 S; 1.9 GOM)	5.3	298

Source: Large Pelagics Survey (LPS) estimates, NC catch card data, MD catch card data (outside LPS sampling timeframe) and the NMFS Automated Landings Reporting System (outside LPS sampling timeframe). Totals subject to imprecision due to rounding. GOM is Gulf of Mexico trophy area.

Angling category cost earnings narrative and data

In 2016, NOAA Fisheries conducted a survey of Atlantic HMS (Hutt and Silva, 2019) Angling permit holders. Atlantic HMS Angling permit holders were surveyed about expenditures associated with their most recent HMS fishing trip with surveys going out in bimonthly waves to collect data on trips conducted throughout the year. Ultimately, of the 4,847 Atlantic HMS Angling permit holders sampled, 1,806 returned completed surveys (1,272 via web; 534 via mail) and 482 were ineligible (i.e., did not fish for HMS during the selected sample wave) resulting in a 42.6 percent response rate. HMS anglers were asked to provide expenditure data for their most recent marine fishing trip spent targeting HMS, and 1,379

of the responses received (76 percent) listed an HMS as either their primary or secondary target species.

In 2016, nationally HMS Angling permit holders reported spending an average of $682 per daily vessel trip with average trip expenditures ranging from $502/trip in New England to $821/trip in the Gulf of Mexico (Table 3.13). Trip expenditures by HMS Angling permit holders included purchases of fuel, groceries, lodging, bait, ice, rentals, access fees, and gifts. Boat fuel consistently accounted for the majority of trip expenditures at $388/trip or 57 percent of trip costs. Boat fuel was followed by bait ($76/trip) and groceries ($71/trip) which accounted for either the second or third greatest expenditure item per region. Overall, fuel, bait, and food accounted for 88 percent of total trip costs.

Average trip expenditures were slightly more variable by primary target species group (Table 3.14). Shark, tuna, and swordfish trips all had similar average daily expenditures, which ranged between $623 to $637/trip.

Table 3.13 Estimated average daily vessel trip expenditures by Atlantic HMS Angling permit holders by region and nationally, 2016

Expenditures	New England	Mid-Atlantic	South Atlantic	Gulf of Mexico	All HMS Trips
Boat Fuel	$298.52	$394.65	$384.92	$447.14	$387.60
Bait	$48.87	$99.63	$70.34	$59.09	$75.60
Groceries	$57.83	$68.19	$68.43	$85.76	$71.37
Restaurants	$26.96	$30.91	$31.31	$54.81	$35.66
Auto Fuel	$23.60	$27.51	$29.46	$46.68	$32.14
Ice	$24.86	$31.93	$24.85	$32.61	$29.22
Lodging	$9.67	$6.95	$35.02	$49.81	$23.39
Parking	$5.86	$7.09	$4.93	$17.39	$8.64
Captain /Charter	$2.13	$3.76	$10.24	$7.53	$5.80
Crew	$1.36	$3.79	$10.57	$8.26	$5.72
Airfare	$0.70	$1.62	$6.34	$6.05	$3.71
Gifts & Souvenirs	$0.84	$0.94	$2.12	$3.77	$1.78
Auto Rental	$0.22	$0.57	$1.00	$1.30	$0.81
Public Transportation	$0.13	$0.10	$0.21	$0.07	$0.13
Fish Processing	$0.03	$0.09	$0.14	$0.27	$0.13
Boat Rental	$0.00	$0.01	$0.01	$0.03	$0.01
Total	$501.58	$677.74	$679.89	$820.57	$681.71

Source: NMFS. 2018. Atlantic Tunas General Category Cost Earnings Logbook Database

Table 3.14 Estimated average daily vessel trip expenditures by Atlantic HMS Angling permit holders by primary target species group, 2016

Expenditures	Tuna (n = 899)	Billfish (n = 200)	Sharks (n = 136)	Swordfish (n = 61)
Boat Fuel	$366.38	$604.29	$293.69	$371.30
Bait	$67.37	$97.24	$111.12	$64.08
Groceries	$69.09	$90.80	$67.49	$72.59
Restaurants	$32.29	$49.55	$42.74	$26.17
Auto Fuel	$30.08	$40.28	$32.56	$19.76
Ice	$30.16	$29.83	$27.71	$30.50
Lodging	$18.72	$47.64	$9.87	$17.02
Parking	$5.72	$6.94	$26.74	$11.77
Captain/Charter	$4.81	$8.14	$7.56	$8.76
Crew	$3.44	$19.98	$0.00	$7.70
Airfare	$1.83	$14.46	$0.00	$5.25
Gifts & Souvenirs	$1.24	$3.47	$2.33	$1.74
Auto Rental	$0.66	$2.09	$0.52	$0.00
Public Transportation	$0.08	$0.40	$0.05	$0.20
Fish Processing	$0.13	$0.02	$0.23	$0.07
Boat Rental	$0.01	$0.04	$0.00	$0.00
Total	$632.01	$1,015.16	$622.60	$636.92

Source: NMFS. 2018. Atlantic Tunas General Category Cost Earnings Logbook Database

Overall, HMS Angling permit holders spent an estimated $46.7 million on private, non-tournament boat trips targeting HMS (Table 7 in Hutt and Silva 2019). This was calculated by expanding the average HMS trip cost by an estimate of 68,468 private boat, non-tournament trips targeting HMS species.

HMS Charter/Headboat Category

The Atlantic HMS Charter/Headboat permit is open access and authorizes recreational fishing for all Atlantic HMS, commercial fishing for Atlantic tunas under certain conditions, and commercial fishing for North Atlantic swordfish only on non for-hire trips. As of 2018, vessel owners with an HMS Charter/Headboat permit who intend to fish recreationally for sharks are required to obtain a shark endorsement (82 FR 16478). Similarly, as of 2018, vessel ownerswith an HMS Charter/Headboat permit and who intend to sell their catch (e.g., tunas and/or swordfish) are required to obtain a commercial sale endorsement (82 FR 57543); they also are required to abide by the U.S. Coast Guard commercial fishing vessel safety regulations and any applicable state regulations.

HMS Charter/Headboat permitted vessels with the commercial sale endorsement can fish under the General category catch limits and quota when fishing commercially. When fishing, HMS Charter/Headboat permitted vessels may retain either commercial or recreational size bluefin depending on which size class is retained first (on a particular trip). HMS Charter/Headboat permitted vessels may then sell a commercial size class bluefin independent of whether or not the trip is classified as for hire. Other BAYS tunas may be sold under the recreational limits so long as the trip is for hire. In 2019, HMS Charter/Headboat permits with the commercial sale endorsement made up 35 percent of the total commercial handgear permits.

Recent size and retention limits for the Charter/Headboat permit category when fishing recreationally, are shown in Table 3.15. All restrictions are applied to the vessel, per day and/or trip.

Table 3.15 Recent Bluefin Retention Limits for Vessels Permitted in the Charter/Headboat Permit Category (when Fishing Recreationally)

Date Range	Participants	Restriction (limit per vessel/day)
Jan 1 - Apr 22, 2016	Charter/Headboat	• 1 bluefin 27” - < 73”
Apr 23 - Dec 31, 2016	Charter/Headboat	• 3 school bluefin (27”- < 47”) • 1 large school/small medium bluefin (47” - < 73”)
Jan 1 - Apr 29, 2017	Charter/Headboat	• 1 bluefin 27” - < 73”
Apr 30 - Dec 31, 2017	Charter/Headboat	• 3 school bluefin (27”- < 47”) • 1 large school/small medium bluefin (47” - < 73”)
Jan 1 - Apr 25, 2018	Charter/Headboat	• 1 bluefin 27” - < 73”
Apr 26 - Dec 31, 2018	Charter/Headboat	• 3 school bluefin (27”- < 47”) • 1 large school/small medium bluefin (47” - < 73”)
Jan 1 - May 10, 2019	Charter/Headboat	• 1 bluefin 27” - < 73””

Date Range	Participants	Restriction (limit per vessel/day)
May 11 - Dec 31, 2019	Charter	• 3 school bluefin (27"- < 47") • 1 large school/small medium bluefin (47" - < 73")
May 11 - Dec 31, 2019	Headboat	• 6 school bluefin (27"- < 47") • 2 large school/small medium bluefin (47" - < 73")

Source: NMFS. HMS.

Socioeconomic Data

Table 3.16 shows estimates of the total ex-vessel annual revenues of key Atlantic HMS fisheries, from 2015 through 2019. While total annual revenues for bluefin and yellowfin decreased in 2019, total ex-vessel annual revenues from swordfish increased, regaining levels observed in 2017.

Table 3.16 Estimates of the total ex-vessel annual revenues of key Atlantic HMS Fisheries (2015-2019)

Species	Year	Annual Landings (pounds dw)	Average Ex-Vessel Price (per pound)	Ex-Vessel Annual Revenue
Bluefin Tuna	2015	1,347,920	$6.45	$8,716,613
	2016	1,522,634	$7.23	$11,008,644
	2017	1,490,321	$6.45	$9,581,816
	2018	1,587,794	$6.99	$11,010,617
	2019	1,742,863	$5.63	$9,787,551
Yellowfin Tuna	2015	1,965,050	$3.71	$8,494,781
	2016	2,351,936	$3.53	$9,622,286
	2017	2,637,684	$3.70	$10,918,095
	2018	1,543,898	$4.03	$7,052,949
	2019	1,579,646	$3.93	$6,585,970
Swordfish	2015	2,576,537	$4.07	$10,175,662

Species	Year	Annual Landings (pounds dw)	Average Ex-Vessel Price (per pound)	Ex-Vessel Annual Revenue
	2016	2,488,044	$4.54	$10,351,695
	2017	2,019,857	$4.32	$9,012,183
	2018	1,750,631	$4.10	$7,540,277
	2019	2,239,596	$4.32	$9,435,022

Source: HMS eDealer database, 2020 HMS SAFE Report (NMFS 2021).

3.2.2.2 Atlantic Tunas Purse Seine Category

The Atlantic tunas purse seine fishery, which has been predominantly inactive over the past 15 years, was a historically important directed, limited access fishery for bluefin. The current baseline Purse Seine category quota is 18.6 percent of the U.S. baseline quota following the 68-mt allocation to the Longline category.

Purse seine gear consists of a floated and weighted encircling net that is closed by means of a drawstring, known as a purseline, threaded through rings attached to the bottom of the net. Atlantic tuna purse seining operations typically use spotter aircraft to locate schools of fish. Once a school is spotted, the vessel, with the aid of a smaller skiff, intercepts and uses the large net to encircle it. Once the school is encircled, the purseline is pulled, closing the bottom of the net and preventing escape. The net is hauled back onboard using a power block, and the tunas are removed and placed onboard the larger vessel.

Since 1982, the Purse Seine category has been managed with non-transferrable limited entry permits, and limited to five participants who historically were financially dependent on the fishery. Limited entry was initiated due to the large harvesting capacity of this gear type and its ability to exceed U.S. quotas in very short periods of time. Limited entry was also applied in this fishery, as it was practical given the small pool of ownership in this sector of the fishery, and the intent of the system was to ensure that only those persons who had depended on this fishery for all or part of their livelihood were allowed access. Under this limited entry system, the use of purse seine gear was authorized, and equal baseline quotas of bluefin were assigned to five individual vessel owners. This enabled owners to replace older vessels they owned with newer ones. Thus, NOAA Fisheries limited the purse seine fishery participation to only those historical purse seine participants' vessels or their replacements. Although new entrants are prohibited, an owner of a vessel with an Atlantic Tunas permit in the Purse Seine category may transfer the permit to another purse seine vessel that he or she owns. In 1996, the purse seine quotas were made transferrable among the five participants provided they notified NOAA Fisheries in writing. Regulations establish that NOAA Fisheries may start the bluefin purse seine season

between June 1 and August 15 and the fishery closes on December 31 of each year it is open.

From 1983 through 2000, the annual landings of bluefin by the purse seine vessels was between 245 and 398 mt, representing a substantial portion of the U.S. annual bluefin catch. The last year during which purse seine landings approached that level was in 2005 (178 mt). From 2005 through 2012 there was no purse seine fishing activity. From 2013 through 2015, only one Purse Seine category participant fished, making only a few sets, and accounting for only a small percentage of total annual bluefin landings each year (six, five, and four percent in 2013, 2014, and 2015, respectively).

There have been *de minimis* landings in this category since 2005, and no landings since 2015. There are currently no active vessels operating in this fishery. One purse seine vessel fished in 2014-2015 under an exempted fishing permit that allowed an additional 15 percent tolerance for a total retention of 30 percent large medium bluefin, with an exception issued to certain regulations. The intent of the exempted fishing permit was to determine if modification to the retention limit of the smaller size range bluefin (smaller than the target size range) would result in the reduction of discarded fish. The vessel owner observed that the relative amount of smaller fish had been increasing in recent years and it had become more difficult to locate schools of bluefin that were composed of predominantly the larger size classes.

To provide more overall flexibility in administering the U.S. bluefin quota system, Amendment 7 (2015) revised the quota allocation process to address the fact that the purse seine fishery had been inactive. The objective of the revised quota process was to provide flexibility to enable both reallocation of unused purse seine bluefin quota, and allocation of bluefin quota to the purse seine fishery commensurate with its needs and to allow the potential for a period of renewed fishing activity among the five historic fishery participants (i.e., rather than immediately redistributing the quota to other categories). Specifically, 75 percent of the baseline Purse Seine category quota is reallocated annually to the Reserve category if there is no catch during the previous year, allowing the historic fishery participants an opportunity to resume fishing. The specific amount of allocation that the Purse Seine category is distributed is determined by a formula, relating the percent of the previous year's quota caught to specific percentages of the current year's quota that would be allocated (i.e., *if X was caught then Y will be allocated*). The relevant relationships between bluefin catch in a year and the resulting Purse Seine allocation in the next are illustrated in Figure 3.7. In 2019, the total baseline Purse Seine category quota was 219.5 mt. Because there was no bluefin catch by purse seine vessels in 2018, the Purse Seine category was allocated only 25 percent of their base quota (55.0 mt), and 75 percent (164.5 mt) was reallocated to the Reserve category. Table 11.1 in the Appendix contains detailed information regarding the bluefin base quota allocations and annual adjustments by quota category and example annual quota distribution for 2019.

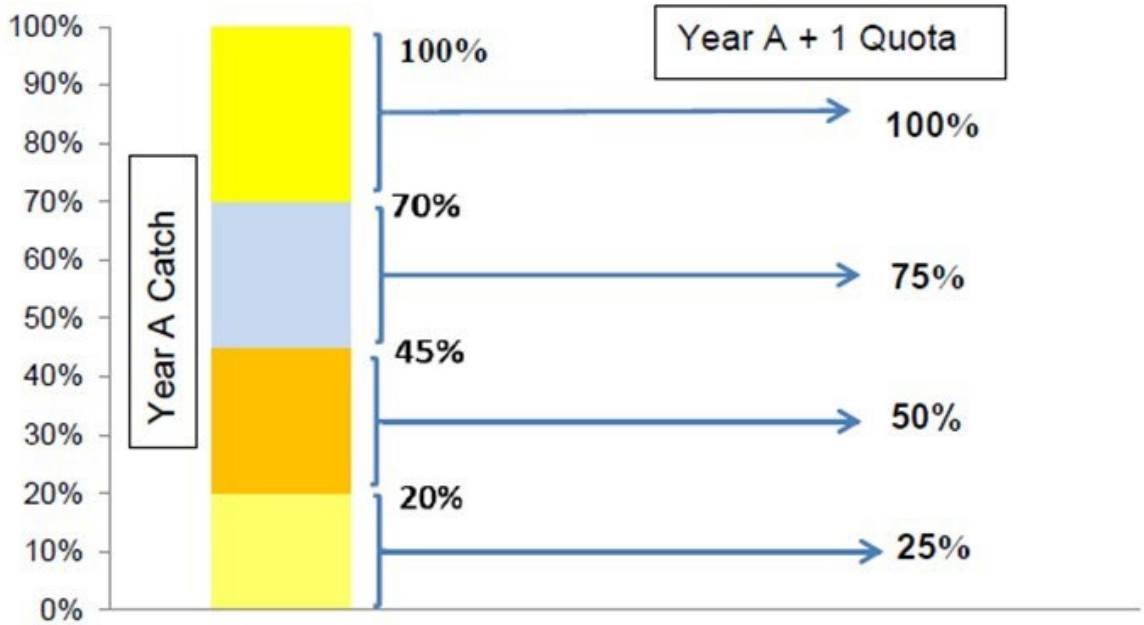

Figure 3.7 Annual Purse Seine category Reallocation: Relationship between Individual Vessel's Year A Catch and Year A + 1 Quota
Source: Amendment 7.

The potential reallocation from the Purse Seine category quota to the Reserve category quota, as well as the potential of ICCAT's recommendation to allow for the maximum 10 percent carry forward of previous year's underharvest (from all quota categories) may result in a relatively large amount of quota in the Reserve category. Just under 300 mt were transferred to the Reserve during 2019.

Since 2016, 75 percent of the Purse Seine category quota has been reallocated to the Reserve; for 2018, this amount was approximately 165 mt. This reallocation substantially increases the Reserve category quota (baseline of 29.5 mt) and allows for inseason transfers to active fishing categories after considering the determination criteria listed previously.

As noted above, Amendment 7 also provided the opportunity for Purse Seine category participants to lease quota to (and/or from) pelagic longline vessel owners. In order to enable a leasing market for IBQ allocation, pelagic longline vessels are allowed to lease Purse Seine category quota through the IBQ System from Purse Seine category participants.

Authorized vessels fishing with purse seine gear are required to carry an observer to ensure compliance with ICCAT recommendation 16-14 (Recommendation by ICCAT to Establish Minimum Standards for Fishing Vessel Scientific Observer Programs), as implemented in HMS regulations, which state a minimum of 5 percent observer coverage of fishing effort in purse seine fisheries as measured in number of sets or trips. It should also be noted that Amendment 7 implemented a requirement for Electronic Monitoring Systems to be installed and certified on all permitted Purse Seine category vessels.

Catch, Landings, and IBQ Leasing

Figure 3.8 shows bluefin landings by the Purse Seine category from 1999 through 2019. Purse seine landings historically made up approximately 20 percent of the total annual U.S. landings of bluefin (about 25 percent of total commercial landings), but Purse Seine category landings declined precipitously in the mid-2000s and over the past 20 years only account for a small percentage.

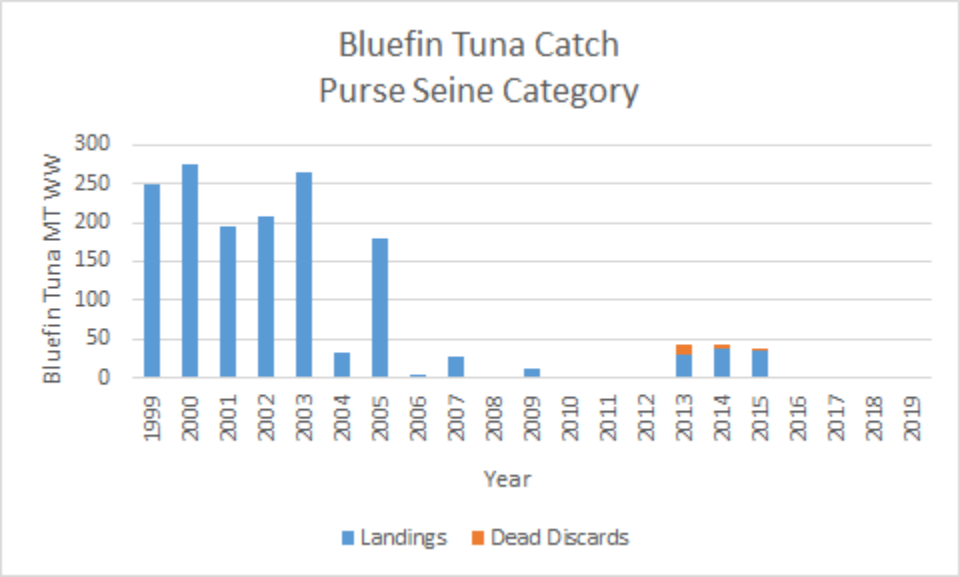

Figure 3.8 Purse Seine category landings of bluefin from the last 20 year (1999-2019). Source: SAFIS federal dealer landings data and NMFS observer data

NOAA Fisheries annually makes a determination when the Purse Seine category fishery will start (between June 1 and August 15), based on variations in seasonal distribution, abundance or migration patterns of bluefin, cumulative and projected landings in other commercial fishing categories, the potential for gear conflicts on the fishing grounds, or market impacts due to oversupply. Vessels may continue to fish through December 31, provided the vessel has not fully attained its individual vessel quota. Since 2015, NOAA Fisheries has not opened (i.e., announced a start date for) the Atlantic tunas purse seine fishery because there were no active vessels permitted to fish for bluefin with purse seine gear and therefore there was no catch in these years.

The amount of Purse Seine category quota leased to pelagic longline vessels was variable from year to year, and represented from 11.1 percent to 61.4 percent of the 'adjusted' Purse Seine category quota (Table 3.17). Similarly, the value of the leased quota, based on the weighted average price per pound varied from year to year (e.g., from a low of $45,195 to a high of $153,204). The relative amount of allocation leased by pelagic longline vessels from purse seine participants (relative to the total amount of quota leased by pelagic longline vessels) was fairly consistent. During 2015, 2016, 2017, 2018, 2019, and 2020, 16, 28, 7, 15, and32 percent of the total amount of leased quota (by weight) was leased from Purse Seine category to Longline participants, respectively (Table 3.18). During 2015, only

one Purse Seine category participant was involved in leasing, however during 2016 through 2018, three Purse Seine category participants leased to pelagic longline vessels during each of those years. Two Purse Seine category participants were responsible for most of the leasing from Purse Seine category participants to pelagic longline vessels. Although limited in scope, quota leases from Purse Seine category participants to pelagic longline vessel owners were a meaningful component of the initial successful transition to the IBQ Program. Data for 2020 were not included in the DEIS (because the preparation of the DEIS began prior to 2020), but are included in this FEIS in some instances due to the high relevance of the IBQ leasing data to the consideration of the alternatives. The lower amount of leasing from Purse Seine category participants during 2020 is likely due to the low fishing effort in the pelagic longline fishery during 2020 as a result of the COVID pandemic. Inclusion of the 2020 data indicates that the trends prior to 2020 continued during 2020. Some of the values in Tables 3.17 and 3.18 are different from those shown in the DEIS due to modifications in this FEIS to remove leases *between two Purse Seine category participants* and correct errors. Leases between two Purse Seine category participants do not represent leasing activity from Purse Seine category participants to pelagic longline vessels, which are the focus of these tables.

Table 3.17 Quota leased by pelagic longline vessels from Purse Seine category participants

Year	Purse Seine Category Adjusted Quota (mt)	Purse Seine Category Adjusted Quota (lb)	Purse Seine Quota Leased in pounds by Pelagic Longline Vessels (lb)	Total Purse Seine Quota Leased (% of Purse Seine Quota)	Weighted Average Price/pound for Purse Seine leases	Total Value of Leases
2015	82.9	182,763	20,283	11.1	$4.50	$91,274
2016	82.9	182,763	51,068*	27.9*	$3.00	$153,204*
2017	46.1	101,633	38,061*	37.4*	$1.79	$68,129*
2018	46.1	101,633	47,440*	46.7*	$2.13	$101,047*
2019	55.0	121,254	74,469*	61.4*	$1.25	$93,086*
2020	55.0	121,254	39,300	32.4	$1.08	$42,444

Source: NMFS SERO Catch Shares Online System. * modified from the DEIS

Table 3.18 Amount of Quota Leased by pelagic longline vessels from Purse Seine Participants Compared to Total Leased Quota

Year	Amount of Purse Seine Quota Leased (pounds) by Pelagic Longline Vessels	Total Amount of Quota Leased (pounds) by Pelagic Longline Vessels	Percent of Total Leased Quota from Purse Seine participants (%)
2015	20,283	126,407	16
2016	51,068*	141,183	36*
2017	38,061*	152,050	25*
2018	47,440*	149,844*	32*
2019	74,469*	156,472*	48*
2020	39,300	84,994	46

Source: NMFS SERO Catch Shares Online System. *modified from the DEIS

3.2.3 Description and Management of the Incidental Bluefin Fisheries

3.2.3.1 Pelagic Longline Fishery

This section describes the pelagic longline fishery, and relevant data (effort, fishery trends, and socioeconomic and data) to provide a view of the current condition of the fishery, which serves as a baseline against which to compare potential impacts of the different alternatives.

The pelagic longline fishery for Atlantic HMS primarily targets swordfish, yellowfin tuna, and bigeye tuna in various areas and seasons. Secondary target species include dolphin (*Coryphaena hippurus*), skipjack tuna, and albacore tuna. Although this gear can be modified (e.g., depth of set, hook type, hook size, bait) to target swordfish, tunas, or other fish, it is generally a multi-species fishery. These vessel operators are opportunistic, switching gear style and making subtle changes to target the best available economic opportunity on each individual trip. Pelagic longline gear sometimes attracts and hooks non-target finfish with little or no commercial value, as well as species that cannot be retained by commercial fishermen due to regulations. For example, the pelagic longline fishery interacts with multiple managed or restricted bycatch species, including shortfin mako, dusky shark, sandbar shark, and billfish, and also has incidental catch of bluefin. Pelagic longline gear may also interact with protected species such as marine mammals, sea turtles, and seabirds. Thus, this gear has been classified as a Category I fishery with respect to the Marine Mammal Protection Act (MMPA). Any species (or undersized catch of permitted species) that cannot be landed due to fishery regulations are required to be released, regardless of whether the catch is dead or alive.

Pelagic longline gear is composed of several parts (Figure 3.9). The primary fishing line, or mainline of the longline system, can vary from five to 40 miles in length, with approximately 20 to 30 hooks per mile. The depth of the mainline is determined by ocean currents, the length of the floatline, the number of hooks and the manner of weighting (if any). The floatline connects the mainline to several buoys and periodic markers which can have radar reflectors or radio beacons attached. Each individual hook is connected by a leader, or gangion, to the mainline. Lightsticks, which contain light emitting chemicals, are used, particularly when targeting swordfish. When attached to the hook and suspended at a certain depth, lightsticks attract baitfish, which may, in turn, attract pelagic predators (NMFS, 1999). Two general strategies of deploying pelagic longlines are depicted in Figure 3.10. In 2020, NOAA Fisheries became aware of another strategy of fishing pelagic longline gear that Atlantic longline fishermen are beginning to utilize to target swordfish that consists of sinking the mainline to just below the thermocline; this strategy is current called deep setting.

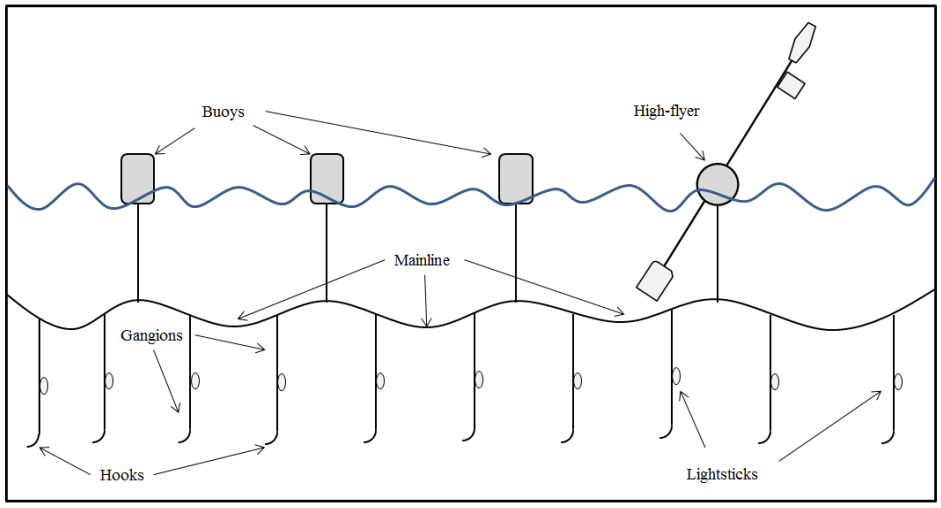

Figure 3.9 Typical U.S. Pelagic Longline Gear
Source: Redesign from original in Arocha (1997).

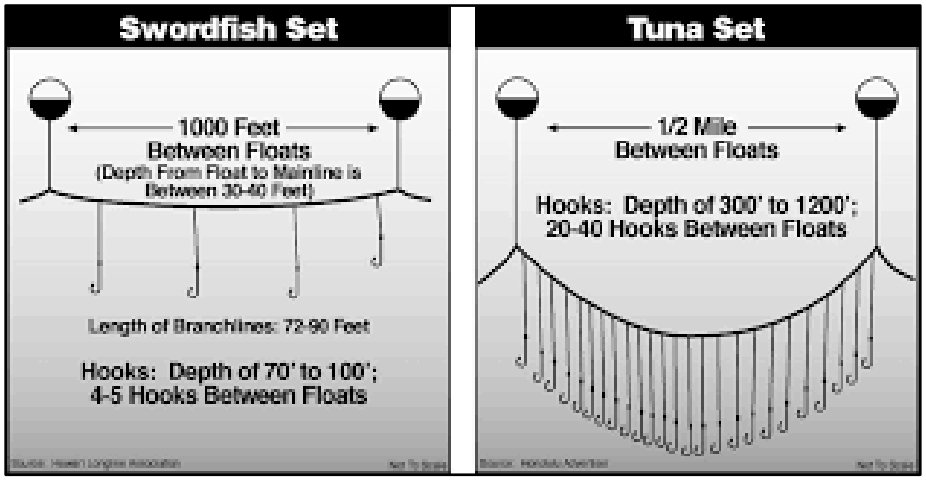

Figure 3.10 Pelagic Longline Gear Deployment Techniques
Note: This figure is included only to show basic differences in pelagic longline gear configuration and to illustrate that this gear may be altered to target different species.
Source: Hawaii Longline Association and Honolulu Advertiser.

Many of the vessels participating in the pelagic longline fishery are diesel powered fiberglass- or steel-hulled boats constructed in the late 1970s through the 1980s. The steel-hulled vessels are generally longer, with most vessels between 60 and 115 feet, compared to fiberglass-constructed boats, which are generally less than 60 feet. These larger steel-hulled vessels are more often equipped to carry a larger fuel capacity that enables them to take longer trips. Compared with vessels targeting swordfish or mixed species, vessels specifically targeting tuna are typically smaller and fish different grounds.

Regulations for the U.S. Atlantic pelagic longline fishery include minimum sizes for swordfish, yellowfin tuna, bigeye tuna, and bluefin; gear and bait requirements; limited access vessel permits; the IBQ Program (described in detail below) to limit incidental catch of bluefin; gear restricted areas; closed areas; observers, protected species incidental take limits; reporting requirements (including logbooks); mandatory workshop requirements; regional quotas for swordfish; and shark landings restrictions. The retention of billfish by commercial vessels, or the sale of billfish from the Atlantic Ocean, is prohibited. As a result, all billfish caught on pelagic longline gear must be released, and are considered bycatch. Many of the management strategies implemented have a spatial component. For example, some gear requirements are designated for certain areas (e.g., weak hooks in the Gulf of Mexico, certain gear and bait combination requirements for the NED). The pelagic longline fishery is also bound to certain regulations under the Magnuson-Stevens Act and other laws. For example, in 2016 the Northeast Canyons and Seamounts Marine National Monument was created and designated to protect pristine deep marine ecosystems, under authority of the Antiquities Act of 1906. All commercial fishing, excluding the red crab and lobster fisheries, was prohibited. A June 5, 2020 Presidential Proclamation (Proc. 10049; 85 FR 35793, June 11, 2020) lifted the prohibition on commercial fishing in the Canyons and Seamounts Marine National Monument that was implemented in the 2016 Presidential Proclamation (Proc. 9496). On October 8, 2021, the prohibited activities were again revised to include a prohibition on commercial fishing (Proc. 10287; 86 FR 57349). Given the 2021 Proclamation, commercial fishing for Atlantic HMS is therefore disallowed in the area.

Pelagic Longline Bluefin Tuna Spatial and Gear Management: Closed Areas, Restricted Areas, and Weak Hooks

Pelagic longline is a heavily managed gear type and is strictly monitored. Because it may be difficult for pelagic longline fishermen to avoid undersized or prohibited fish in some times and areas, NOAA Fisheries incorporates “spatial management” of areas in the Gulf of Mexico and along the U.S. East Coast (Figure 3.11) as a component of effective fisheries management. In general, Atlantic HMS fishery participants may be required to comply with a number of different types of fishery closures, depending on the combination of vessel permits held. These may include closures or restricted areas for Council-managed species,

measures to protect Habitat Areas of Particular Concern, National Monuments, and National Marine Sanctuaries, among other things.

Some time/area closures or gear restricted areas for pelagic longline gear were designed to reduce bycatch in the fishery including bycatch of some HMS (e.g., undersized swordfish) and sea turtles. These include the Charleston Bump Closed Area (February 1-April 30), the East Florida Coast Closed Area (year-round), and Desoto Canyon (year-round). NOAA Fisheries conducted public scoping in 2019 on a document titled "Issues and Options for Research and Data Collection in Closed and Gear Restricted Areas in Support of Spatial Fisheries Management"(Research and Data Collection in Support of Spatial Fisheries Management) and is currently developing draft analyses to support a potential regulatory action regarding areas currently closed to certain gears or fishing activities for Atlantic HMS. These analyses consider approaches to collect data, perform research, evaluate these spatially managed areas, and improve the future use of spatial management as a tool.

Area-based and weak hook management measures regarding incidental catch of bluefin were modified in a 2020 final rule (85 FR 18812, April 2, 2020). Specifically, the Northeastern United States Pelagic Longline Closed Area and Spring Gulf of Mexico Gear Restricted Area were converted to monitoring areas, and the Cape Hatteras Gear Restricted Area was removed. For the Northeastern United States Pelagic Longline Closed Area and Spring Gulf of Mexico Gear Restricted Areas, NOAA Fisheries established a three-year evaluation period during which fishing with pelagic longline gear initially will has been allowed. Fishing activity in the monitoring areas has been closely monitored by NOAA Fisheries. Under this process, fishing will be prohibited if the fleet uses more IBQ allocation than pre-established annual thresholds that account for bluefin landings and dead discards caught within the boundaries of the monitoring areas. If no closure notice for the Northeastern United States or Spring Gulf of Mexico Monitoring Areas are filed between June 1, 2020 and December 31, 2022 or April 1, 2020 and December 31, 2022, respectively, the Monitoring Areas will remain open. In 2020 there were no landings or dead discards of bluefin from within either of the monitoring areas. Relevant data on bluefin catch from these monitoring areas is available at this website. At the end of the three-year evaluation period, NOAA Fisheries will develop a report on issues such as bluefin catch rates, IBQ allocation debt from vessels fishing in the area, and percentage of IBQ allocation usage. This report will inform any future actions, if warranted.

Secondly, the final rule modified the requirement for pelagic longline fishermen to use weak hooks in the Gulf of Mexico. Specifically, the requirement now applies to January through June, the period when spawning bluefin are abundant in the Gulf of Mexico. Previously the requirement was for the full year.

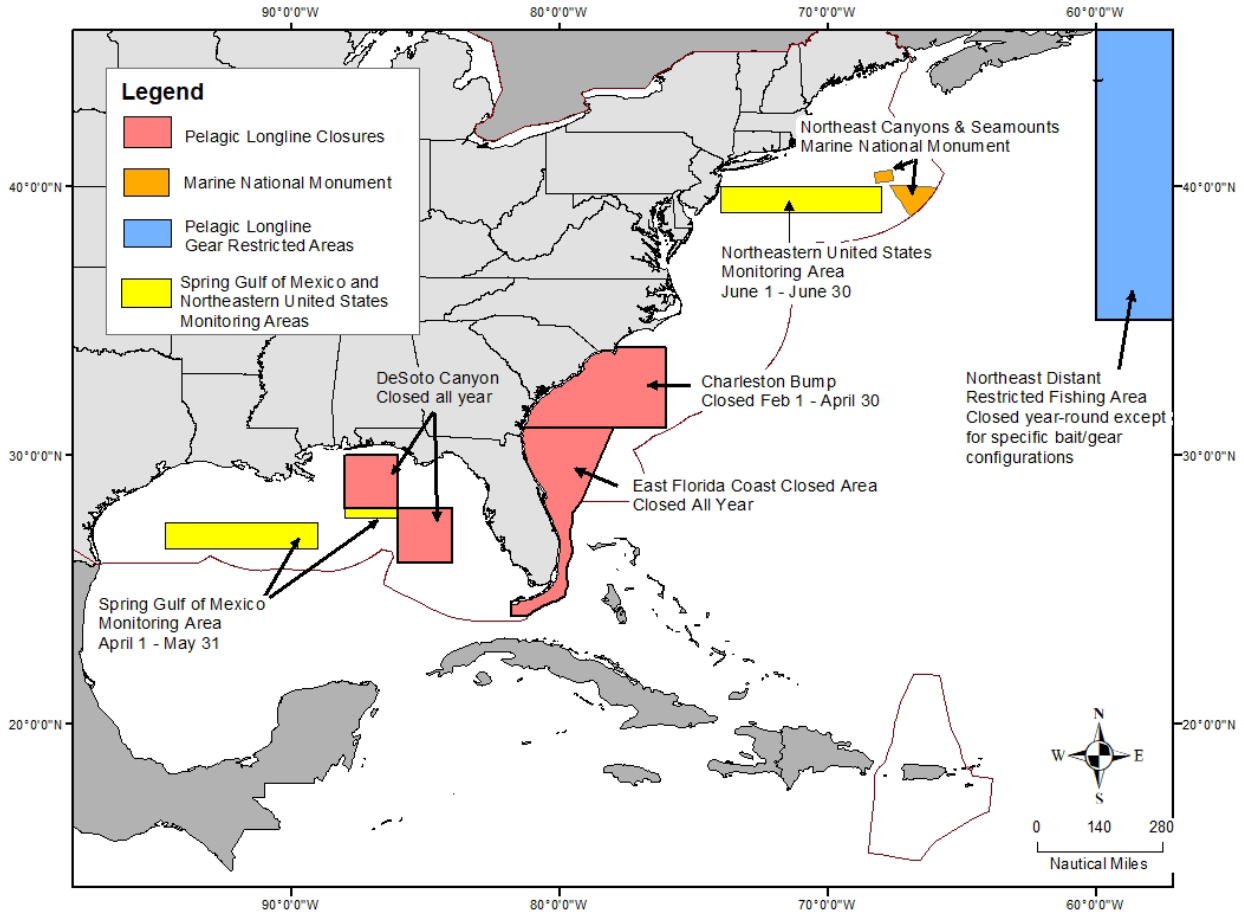

Figure 3.11 Principal Spatially Managed Areas That Prohibit or Restrict Pelagic Longline Fishing by U.S. Flagged Vessels

Limited Access Permits

HMS limited access permit (LAP) regulations at § 635.4(l)(2)(iii) state that no person or entity may own or control more than five percent of the vessels for which swordfish directed, shark directed, or Atlantic Tunas Longline category LAPs have been issued. 2019 permit data were analyzed at the Lowest Known Entity level. If an individual owns a LAP, then that individual is the Lowest Known Entity with a 100 percent share in ownership. If a business owns a LAP, then the individual(s) who is the shareholder(s) of that business is the Lowest Known Entity. The Lowest Known Entity can own anywhere from 1-100 percent of a permit, based on their percent share ownership of the business. A few businesses do not have shareholders designated in NOAA Fisheries' Southeast Regional Office (SERO) Permits Information Management System, in which case the business' president was designated as the 100 percent shareholder. The analyzed data includes only LAPs in valid status; expired LAPs were not included. This analysis is necessarily a snapshot in time, as LAP owners can transfer permits or renew permits at any time throughout the year. Based on this analysis, in 2019, the highest percent ownership by a single entity for each HMS LAP type was 3.3 percent of valid Atlantic Tunas Longline

category permits, 4.1 percent of valid swordfish directed permits, and 2.1 percent of valid shark directed permits. The five-percent ownership limit has not been reached for these LAPs.

Pelagic Longline Individual Bluefin Quota (IBQ) Program

This section provides background and recent data on the IBQ Program. Prior to the 2015 implementation of the IBQ Program, pelagic longline vessels were limited in the number of bluefin they could retain per trip (based on the amount of target species catch), and only landings counted against the Longline quota. Vessels could retain one, two, or three bluefin if they had 2,000, 6,000, or 30,000 pounds of target catch, respectively. Bluefin caught in excess of this limit were required to be discarded. The category quota did not include an allowance for dead discards. Discards by the pelagic longline fishery were estimated annually and accounted for within the overall U.S. quota.

Prior to the implementation of Amendment 7 and its IBQ Program, annual Longline category catches (landings plus dead discards) of bluefin had significantly exceeded the Longline category quota for several years. Because the amount of quota allocated to the Longline category did not reflect the larger amount of catch including dead discards, NOAA Fisheries had to rely on underharvest from other quota categories and annual quota adjustments to account for dead discards, to ensure that the United States remained within its annual bluefin quota. In some years, the activity of only a few pelagic longline vessels constituted the majority of the category quota overharvests. It became apparent through discussions with the HMS Advisory Panel and various data analyses that measures focused more on individual vessel accountability, versus fleet level accountability, would be needed to help realign the pelagic longline fleet catch to the Longline category quota and that the category quota allocations should be re-examined.

In 2015, Amendment 7 implemented substantial changes to the management of bluefin that affected all participants/categories in the bluefin fisheries (both directed categories and those with bluefin bycatch). The most sweeping regulations were those affecting the pelagic longline fishery in the Atlantic and Gulf of Mexico to reduce interactions with bluefin and provide vessel-level accountability. The IBQ Program implemented a catch share program into the fishery in order to achieve the following objectives: 1) Limit the amount of bluefin landings and dead discards in the pelagic longline fishery; 2) Provide strong incentives for the vessel owner and operator to avoid bluefin interactions, and thus reduce bluefin dead discards; 3) Provide flexibility in the quota system to enable pelagic longline vessels to obtain bluefin quota from other vessels with available individual quota in order to enable full accounting for bluefin landings and dead discards, and minimize constraints on fishing for target species; 4) Balance the objective of limiting bluefin landings and dead discards with the objective of optimizing fishing opportunities and maintaining profitability; and 5) Balance the above objectives with potential impacts on the directed permit categories that target bluefin, and the broader objectives of the 2006 Consolidated HMS FMP and the Magnuson-Stevens Act.

Amendment 7 also implemented electronic monitoring (EM) (i.e., video cameras and associated equipment in order to record fish during haul-back of the pelagic longline sets) as a key component of the management structure. All haul-backs are recorded, and a portion of the recorded video is audited by analysts who review the video. EM requirements were implemented to provide NOAA Fisheries a means to verify the accuracy of counts and identification of bluefin reported by the vessel owner/operator.

As described previously, per Amendment 7, NOAA Fisheries subtracts a total of 68 mt from the U.S. baseline bluefin quota and allocates the 68 mt to the Longline category, before the category percentage allocations are applied. Amendment 7 also increased management flexibility for transfers among quota categories through the Reserve category quota, as well as implemented new gear restricted areas in the Atlantic (and performance metrics for accessing this area) and Gulf of Mexico designed to reduce bluefin interactions. As discussed above, these areas have since been eliminated (i.e., the Cape Hatteras Gear Restricted Area) or modified to allow evaluation of the continued need to achieve management goals (i.e., the conversion of the Spring Gulf of Mexico Gear Restricted Area to a monitoring area) in a final rule published on April 2, 2020 (85 FR 18812).

On September 30, 2019, NOAA Fisheries released a formal Three-Year Review of the IBQ Program evaluating the IBQ Program's effectiveness in meeting its goals and objectives. Based on the number of bluefin landings and dead discards during the IBQ period (2015-2017), the IBQ Program was successful in limiting bluefin incidental catch in the pelagic longline fishery. Total bluefin catch during the IBQ period was reduced compared to the baseline period (2012-2014). During the IBQ period, there was a 65 percent reduction in the average annual catch of bluefin. The Longline category, since implementation of the IBQ Program has not overharvested its quota and therefore has not needed non-Longline quota (either under-harvests or quota carried-forward from a previous year) to account for dead discards.

Much of the following information is from the Three-Year Review. Figure 3.12 shows bluefin landings and dead discards by pelagic longline vessels from 2012 through 2019 (not including the NED). The 2019 number for dead discards is based on VMS data, and is likely low. The estimated dead discards based on logbook and observer data (which are usually higher than the estimate based on VMS data) are not yet available for 2019. During the IBQ period, NOAA Fisheries also transferred Reserve category quota to the directed categories (2015-2020) and the Longline category (2015-2018) as warranted. See Table 5.1 for a list of recent actions from 2017-2020, which includes transfers from the Reserve category. The Longline category did not utilize a disproportionate amount of bluefin quota compared with the directed categories.

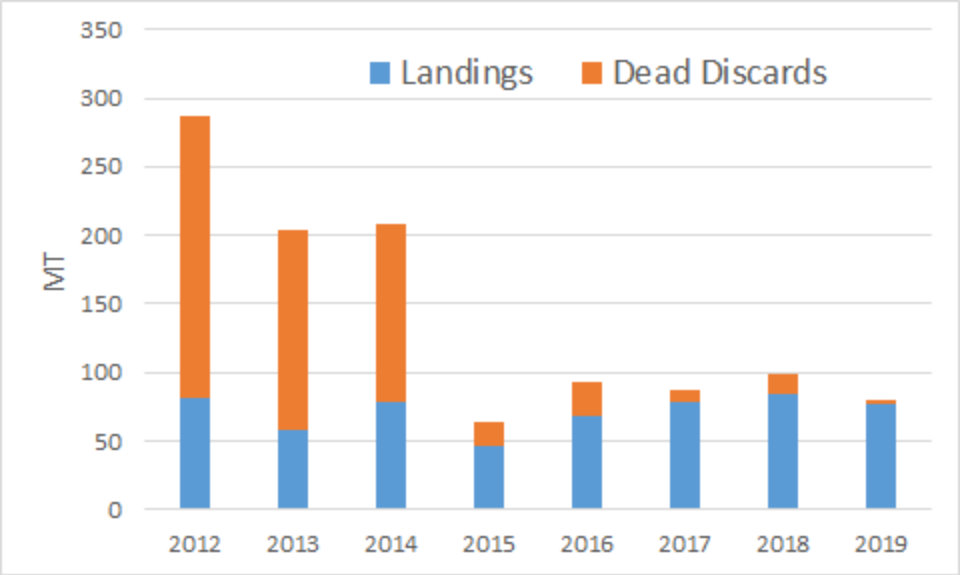

Figure 3.12 Pelagic Longline Bluefin Landings and Dead Discards (2012-2019), excluding the NED. Source: Dead discard estimates based on observer and logbook data (and VMS data for 2019); landings from SAFIS federal dealer landings data.

In addition, the overall catch per unit of effort (CPUE) of estimated dead discards declined (based on observer data and logbook data), and the percentage of active vessels with dead discards decreased after implementation of the IBQ Program (based on logbook data) compared to the Baseline period prior to the IBQ Program (Three-Year Review, NMFS 2019a). Interactions with bluefin in the time period after implementation of the IBQ Program analyzed in the Three-Year Review ('IBQ Period') were relatively rare, with the percentage of sets in which bluefin interactions occurred ranging from 4 to 14 percent. The percentage of active vessels landing bluefin was lower during the IBQ period compared to the Baseline period, and the proportion of total bluefin landings from the Gulf of Mexico declined during the IBQ period as compared to the Baseline period. In addition to the IBQ Program, there were other factors contributing to the change in bluefin catch during the IBQ period such as declining fishing effort, and the effects of other regulations such as gear restricted areas. However, this review appeared to demonstrate that the Gulf of Mexico Gear Restricted Areas (GRA) and the Cape Hatteras GRA had limited roles in the overall reductions in bluefin catch. Additional information is available in the Three-Year Review (NMFS 2019a).

Table 3.19 shows landings, dead discards, and total catch of bluefin from 2012 through 2019. The markedly lower catch as of 2015 is the result of reduced dead discards, with the landings stable or increasing slightly as of 2015, as a result of a portion of the dead discards being converted into landings. It is likely that modified fishing strategies can explain the remaining reduction in dead discards. The 2019 value for dead discards is preliminary, and likely an underestimation (based on the past relationship between the magnitude of vessel monitoring system (VMS) dead discard data and that based on observer and logbook data; NMFS 2019a).

Table 3.19 Landings, dead discards, and total catch of bluefin, including the NED (2012-2019)

Year	Landings (mt)	Dead Discards (mt)	Total Catch (mt)
2012	89.6	205.8	259.4
2013	62.9	156.4	219.3
2014	82.5	139.2	221.7
2015	71.4	17.1	88.5
2016	86.2	25.0	111.3
2017	104.1	10.3	114.4
2018	88.0	14.6	102.6
2019	86.3	5.5	91.8

Source: Landings: SAFIS federal dealer landings data; Dead discard estimates based on Observer and Logbook data.

Table 3.20 shows the landings of bluefin expressed in number of fish, including the NED. The pattern is a slight increase in the numbers of bluefin landed. The Three-Year Review indicates that after 2015, the percentage of bluefin landings from the Atlantic that were from the NED increased (Three-Year Review, Figure 6.6). The 2012 through 2014 average percent of bluefin landings from the Atlantic that were from the NED was 9 percent, whereas the 2015 through 2017 average was 37 percent.

Table 3.20 Pelagic longline landings of bluefin in numbers, including the NED; 2012-2019

Year	Number of Bluefin
2012	407
2013	299
2014	392
2015	323
2016	437
2017	501
2018	467
2019	445

Source: SAFIS federal dealer landings data.

Table 3.21 provides the percent of total pelagic longline bluefin landings and dead discards that occurred in the Atlantic and Gulf of Mexico based on weight (not including the NED). Note that if these percentages were analyzed and shown by number of fish (not shown) instead of weight, the percentage splits would differ from those in this table, due to the difference in average weight of bluefin between the Atlantic and the Gulf of Mexico. Landings and dead discards in the Atlantic and Gulf of Mexico appear to exhibit different patterns. As of 2015, the percentage of landings in the Atlantic increased (and the percentage in the Gulf of Mexico decreased), whereas the distribution of dead discards between the Atlantic and Gulf of Mexico did not shift. The percentage of total bluefin landings that were caught in the Gulf of Mexico declined from 41 percent in 2012 to 4 percent in 2018. The percentage of overall dead discards that occurred in the Gulf of Mexico has increased since implementation of Amendment 7 and the IBQ Program, but may have declined in 2019. After the implementation of Amendment 7 there was some confusion regarding the next regulations, which may have contributed to the trend.

Bluefin landings from the Gulf of Mexico declined, which is notable due to the importance of the Gulf of Mexico in the life history of Western Atlantic bluefin (i.e., the primary spawning area for the western Atlantic stock). Both the proportion and amount of total bluefin landings from the Gulf of Mexico declined. During the Baseline period, an average of 26 percent of the total bluefin landings were from the Gulf of Mexico. During the IBQ period an average of 7 percent of the total bluefin landings were from the Gulf of Mexico (Table 3.21). This change in distribution in bluefin landings did not appear to be attributable to a change in the distribution in fishing effort, since fishing effort distribution remained constant across both periods. The proportion of the total number of sets occurring in the Gulf of Mexico only declined slightly during the IBQ period. The numbers of bluefin landed from the Gulf of Mexico were low (15, 13, 21, and 14 fish during 2015, 2016, 2017, and 2018 respectively). In contrast, 308, 424, 481, and 453 bluefin were landed from the Atlantic during 2015, 2016, 2017, and 2018 respectively. The Oceanic Fish Restoration Project, which had the effect of reducing fishing effort with pelagic longline gear in the Gulf of Mexico, did not begin until 2017. The number of monthly bluefin landings from the Gulf of Mexico from 2015 through 2017 (combined) was less than during the baseline period, for each month (Table 3.21).

Table 3.21 Percent of total PLL bluefin landings (by weight) and dead discards (by number) in ATL and GOM, not Including NED quota, 2012-2019

Year	Percent of Total Pelagic Longline bluefin landings in the Atlantic (%)	Percent of Total Pelagic Longline bluefin landings in the Gulf of Mexico (%)	Percent of Total Pelagic Longline bluefin dead discards in the Atlantic (%)	Percent of Total Pelagic Longline bluefin dead discards in the Gulf of Mexico (%)
2012	59	41	66	34
2013	79	21	84	16
2014	85	15	77	23
2015	92	8	67	33
2016	95	5	70	30
2017	93	7	36	64
2018	96	4	25	75
2019	98	2	53	47

Dead discards, by weight. Note: 2017 first year of DWH Oceanic Fish Restoration Project in Gulf of Mexico. Sources: Landings: SAFIS federal dealer landings data; Dead discard estimates based on observer and logbook data.

Table 11.10 in Appendix E includes data on the annual (January 1), inseason, and combined (total) distributions of bluefin quota to the Pelagic Longline category and IBQ allocation by shareholder tier. Table 11.7 in the Appendix summarizes various IBQ Program metrics regarding allocation, catch, fishing effort, leasing of IBQ allocation, and reporting and monitoring.

The substantial reduction in total bluefin incidental catch in the pelagic longline fishery described in the Three-Year Review is evidence of the effectiveness of the regulatory incentives to avoid bluefin inherent in the IBQ Program. The National Academy of Sciences, Engineering and Medicine concluded in a 2021 study that the IBQ Program successfully reduced dead discards (National Academies of Sciences, Engineering, and Medicine 2021). These regulatory incentives to avoid bluefin interactions resulted from the combination of requirements associated with the IBQ Program, including individual shares and subsequent allocations of bluefin, an IBQ allocation leasing program, requirements for minimum balances of IBQ allocation before trips each quarter, accountability for bluefin catch, VMS reporting, and electronic monitoring. The specific regulations that provided the most incentives for vessel operators to avoid bluefin were the catch accounting requirements. The potential need for vessel owners to lease additional IBQ allocation in order to account for bluefin catch and satisfy the minimum IBQ allocation requirements, and the cost of such leasing, provided additional incentive to avoid bluefin during pelagic longline fishing

operations. Some vessel owner/operators stated that the IBQ Program made them risk averse and modified their fishing behavior to reduce the likelihood of catching bluefin and the chance of having to shut down their operations or lease quota allocation through the IBQ System. It is difficult to attribute the overall reduction in bluefin catch to a specific fishing behavior, due to the number of factors that affect catch in a commercial fishery and the number of factors affecting fishing behavior in addition to the IBQ Program.

IBQ Share Eligibility Criteria

Overall, NOAA Fisheries found that the majority of IBQ Program elements functioned as designed; however, a relatively large number of IBQ shareholders did not fish (i.e., 23 percent, 37 percent, 37 percent, and 27 percent of shareholders during 2015, 2016, 2017, and 2018, respectively). The allocation and use of quota is optimized when it is distributed to vessels that fish and need IBQ allocation to account for bluefin incidental catch.

A tiered system of distributing catch shares based on historical catch, which is typical of many catch share programs, may prove to have disadvantages or limited relevance when implemented in the context of a catch share program for incidental catch species. The distribution of shares, and subsequent allocations to shareholders, may not fully align with the need for quota, given the fact that bluefin catch and the need for quota are variable among the fleet, and bluefin comprises only a small fraction of the total catch of the fishery. The success of the IBQ Program in reducing dead discards likely relates more to the other elements of the IBQ Program than the precise method of catch share distribution and incentives associated with the distinct amounts of annual allocation.

Amendment 7's eligibility criteria for receiving an IBQ share resulted in an initial pool of 136 shareholders, only a subset of which fished during the IBQ period. The intent of the criteria was to create a pool of qualified shareholders composed of recent fishery participants.

The eligibility criteria were successful at not being excessively restrictive, as indicated by the small number of vessels (6) that fished at some time during the IBQ period but had not met eligibility criteria to receive IBQ shares and had to lease IBQ allocation to fish. Fewer IBQ shareholders fished during the IBQ period than were eligible, although a few of the shareholders that did not fish leased allocation to other fishery participants. The Three-Year Review concluded that a different method of IBQ share allocation, and/or distribution of IBQ allocation among permit holders could warrant consideration in the future for several reasons. The current distribution of allocation may not align with vessels' need for it. The share distribution method adopted in 2015 through Amendment 7 was based in part on historical participation (2006-2012) and catch (both the amount of target catch landings and the ratio of bluefin catch to target catch landings) and may not reflect current fishery participation or current restrictions on species that can be landed (e.g., restrictions placed on shortfin mako and porbeagle landings since Amendment 7). Additionally, there were costs incurred by many fishery participants due to the need to lease IBQ allocation to account for their bluefin catch. Given the number of shareholders that were inactive (only 77 percent, 63 percent, and 63 percent of shareholders were active during 2015, 2016, and

2017, respectively), a simpler allocation system based on more recent vessel activity could be considered for the future, as was suggested by HMS Advisory Panel members during input on Draft Amendment 7, and is occurring now through Amendment 13. For example, annual allocations based on the previous year's pelagic longline activity could result in more IBQ allocation per active vessel due to reduced numbers of vessels allocated IBQ, as well as reduce any perceptions that the allocations are not fair.

Fishing Effort and Catch

This section presents data and discusses trends in fishing effort, and catch data for target and incidentally caught species, as well as a more detailed description of fishing practices. Vessel logbook data was analyzed in order to document relevant trends in the fishery, and provide context for the pelagic longline alternatives under consideration. The number of pelagic longline trips has declined since every year since 2012, with the exception of 2017, which was slightly higher than 2016 (Figure 3.13).

Total sets deployed each year is loosely correlated to the total number of trips taken by the fleet (p = 0.55), and accordingly most of the sets deployed by the pelagic longline fleet occurred in the Atlantic outside of the Gulf. On average, trips fishing in the Gulf deployed slightly more sets per trip than those fishing outside the Gulf, and also took slightly longer trips. Trips in the Atlantic to areas further out to sea had the greatest trips lengths, especially trips fishing in the NED, however they were less numerous than trips closer to shore.

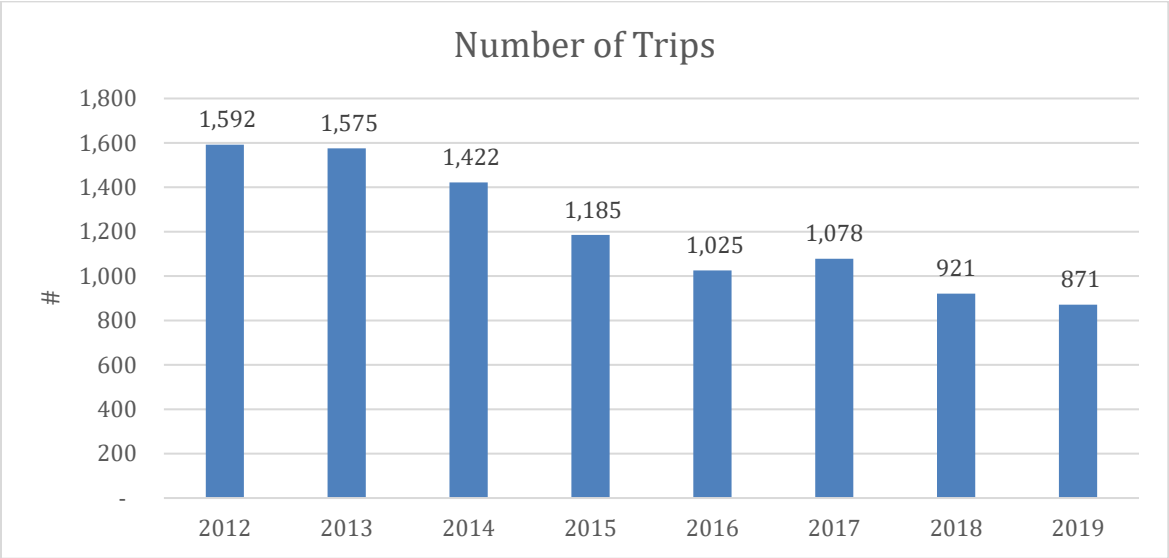

Figure 3.13 Total annual number of pelagic longline fishing trips, 2012-2019.
Source: Logbooks.

Table 3.22 shows the average number of hooks fished by the pelagic longline fishery from 2006 through 2019, broken into three time periods corresponding to three regulatory periods. The 2006 through 2011 period encompasses the period after implementation of

the 2006 Consolidated HMS FMP, while the 2012 through 2014 period encompasses the average number of hooks prior to the implementation of Amendment 7. The data from 2015 through 2019 represents post-Amendment 7 activity. Table 3.23 shows the total number of hooks fished by year from 2015 through 2019. The average number of hooks fished by the pelagic longline fishery over time, and the total number of hooks show declining trends.

Table 3.22 Average number of hooks fished by the pelagic longline fishery by regulatory period, 2006- 2019

Time Period	Average Annual Number of Hooks Fished
2006–2011	6,195,209
2012–2014	7,369,858
2015–2019	4,816,197

Source: Logbooks.

Table 3.23 Total number of hooks fished by the pelagic longline fishery, 2015-2019

Year	Total Hooks Fished
2015	5,855,977
2016	5,217,547
2017	5,327,587
2018	4,030,875
2019	3,649,000

Source: Logbooks.

Based on logbook data from 2015 through 2018, the areas with the greatest fishing effort include the Gulf of Mexico, Mid-Atlantic Bight, South Atlantic Bight, Florida East Coast, and the Northeast Coastal areas (Figure 3.14). The distribution of areas with the greatest fishing effort has changed little since 2006.

Pelagic Longline Fishery Methods

The majority of pelagic longline sets are deployed in the late afternoon or evening. However, sets targeting yellowfin tuna are more commonly deployed in the morning and hauled back in the evening. Sets for dolphin are generally set during the daylight hours, but were allowed to soak for a shorter time than those targeting yellowfin. Figure 11.12 in the

Appendix shows the time periods gear is deployed based on target species as reported in logbooks. Whether in the Gulf of Mexico or other regions of the Atlantic, the majority of sets in the pelagic longline fishery since 2006 indicated they were targeting multiple species. Sets targeting yellowfin tuna occurred more commonly in the Gulf of Mexico, where vessels fished for other species of tuna much more seldom than all other areas in the Atlantic combined. Conversely, sets specifically targeting swordfish occurred less frequently in the Gulf than in the Atlantic, and those targeting swordfish in the Gulf were mainly concentrated in an area to the west of the Florida Keys. While a relatively small number of sets specifically targeted bigeye tuna, they occurred almost exclusively along the Mid-Atlantic Bight.

Gear deployed by the pelagic longline fleet varies among target species and area fished. Gangions used in gear targeting yellowfin are longer than when targeting other species. Gear configurations used during mixed target species sets tend to be more similar to either yellowfin or swordfish gear configurations, which suggests mixed species sets may tend to favor a primary target. The amount of mainline set is greatest by those vessels targeting yellowfin tuna or mixed species. The longest mainlines are set in the Gulf, where the majority of sets target these species/species groups. However, the number of hooks set per length of mainline is greater in the Atlantic outside of the Gulf. A summary of gear characteristics is provided in Table 11.8 in the Appendix.

Based on logbook data, natural baits are used exclusively in the fishery regardless of species or area fished. Overall, squid is the most widely deployed bait in the fishery, and the dominant bait type for all targets with the exception of yellowfin tuna, where the most commonly used bait is sardines. Mackerel is used almost as frequently as squid when fishing for swordfish. The regulations limit pelagic longline baits to whole finfish and/or squid. In the NED, vessels may only use whole mackerel and/or squid bait.

Figure 3.14 shows the distribution of pelagic longline hooks from 2015 through 2018. The distribution of hooks during this time period is very similar to previous time periods, since 2006 (Figure 11.14, Figure 11.15, and Figure 11.16; Appendix D).

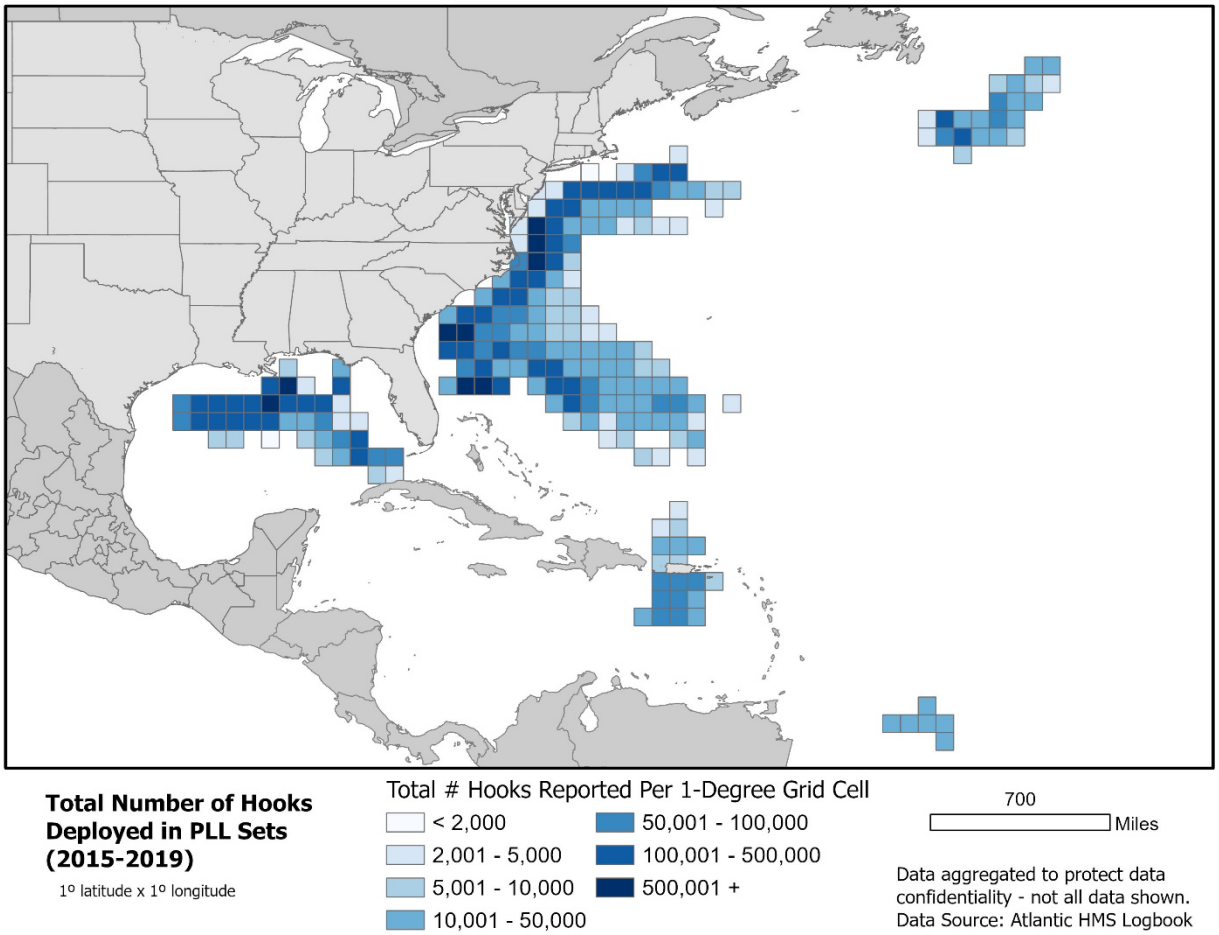

Figure 3.14 Total number of hooks deployed, 2015-2019
Source: Logbooks

The total number of hooks set by the pelagic longline fishery generally peaks in the summer and declines through winter (Appendix Figure 11.6). Seasonally, effort peaks in distinct geographic fishing regions at different times of the year.

The pelagic longline fishery experienced moderately high catch-per-unit efforts for swordfish across much of the fishing grounds in the Atlantic, with catch-per-unit effort hotspots occurring in the Grand Banks, Georges Bank, Florida (Blake Plateau and Florida Keys), South Carolina (Charleston Bump region), in the high seas east of the Bahamian Exclusive Economic Zone (EEZ), and in the U.S. Caribbean. Dolphin catch-per-unit effort hotspots occurred mainly within coastal regions of the South Atlantic Bight with some in the Caribbean. Two regional hotspots for yellowfin tuna are apparent in the Gulf of Mexico, and between North Carolina and Georges Bank. In comparison to these three species, catch-per-unit effort is much lower and more dispersed for bigeye and bluefin. A moderate catch-per-unit effort hotspot is apparent just outside of the Florida East Coast Closure, and moderately high catch-per-unit efforts for bluefin are apparent off southern Georges Bank. In general, target species landings decreased between 2012 and 2017 (Table 3.24). For example, the number of swordfish, BAYS tunas, and dolphin kept has decreased by nearly

55 percent, 19 percent, and 31 percent, respectively. The United States utilized nearly 87 percent of the ICCAT baseline swordfish allocation as in 2012, though only utilized just over 34 percent in 2018 (a decrease of 60 percent in 6 years) (Table 3.25). The percent of active vessels landing bluefin has generally declined since 2012; however, the percent of active vessels reporting dead discards has fluctuated between 15 and 35 percent (Table 3.5 and Table 3.7, Three-Year Review, NMFS 2019a)

Figure 3.15 shows bluefin CPUE from 2015 through 2019. There are diverse locations with relatively high CPUE are the NED, south of Georges Bank, the mid-Atlantic, locations east of Florida and locations in the Gulf of Mexico, that reflect both the broad distribution and variability of bluefin presence.

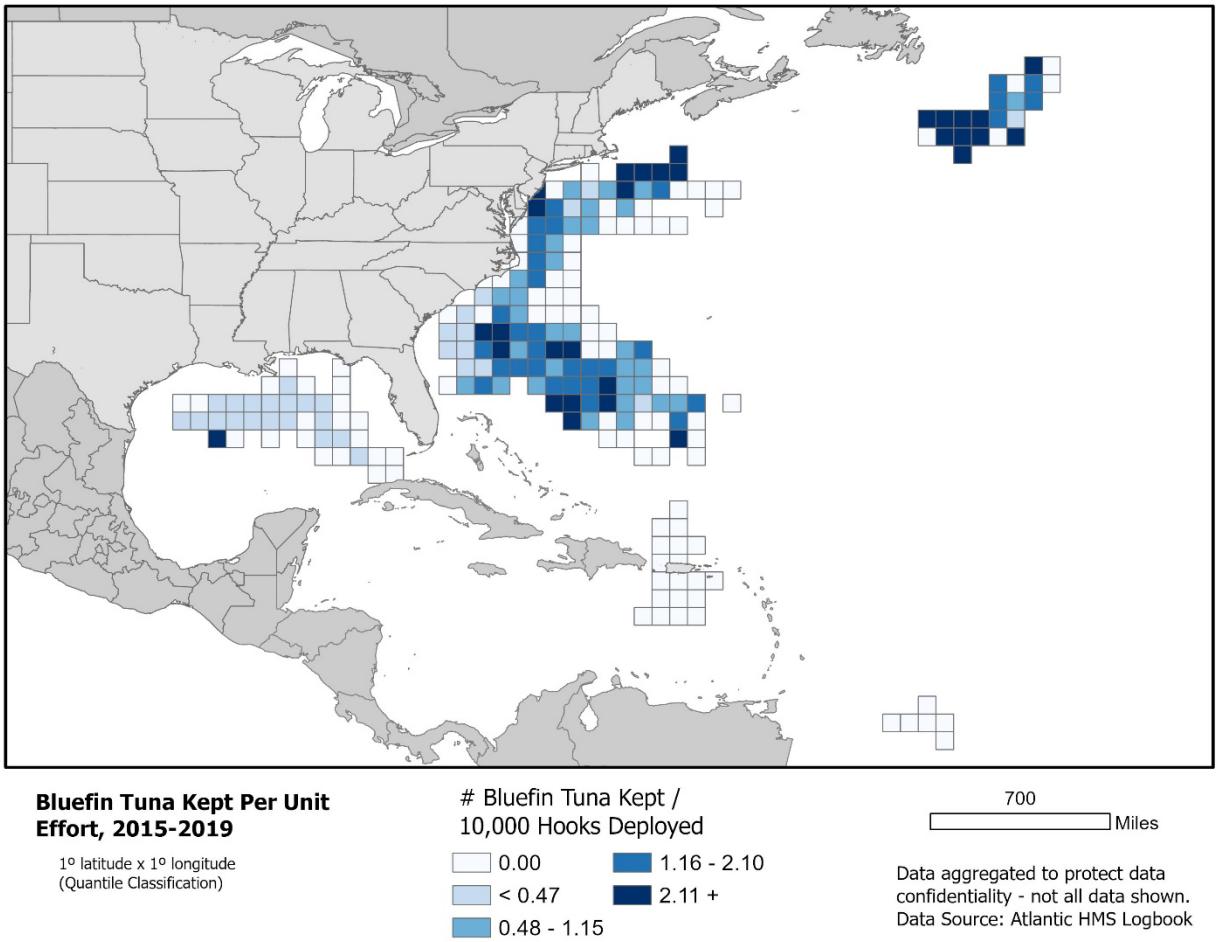

Figure 3.15 Bluefin CPUE from 2015-2019
Source: Logbooks

Table 3.24 Reported Numbers of Catch by Species in the U.S. Atlantic Pelagic Longline Fishery (2013–2019)

Species	2013	2014	2015	2016	2017	2018	2019
Swordfish kept	44,556	32,908	27,730	24,456	23,332	25,088	27,495
Swordfish discarded	4,756	4,655	5,382	4,437	7,116	8,004	4,307
Blue marlin discarded	844	718	990	1,050	1,562	854	984
White marlin discarded	1,239	1,580	2,885	2,153	2,221	1,586	1,467
Sailfish discarded	456	445	715	855	657	810	402
Spearfish discarded	342	306	837	745	686	459	469
Bluefin tuna kept*	299	392	323	437	501	465	447
Bluefin tuna discarded dead*	84	115	48	162	28	56	66
Bluefin tuna discarded alive*	168	232	158	418	201	254	555
Bigeye, albacore, yellowfin, and skipjack tunas kept	67,083	73,339	54,734	56,978	68,329	37,831	50,291
Dolphin kept	34,250	63,217	53,526	46,376	29,141	27,341	36,979

Sources: 2017, 2018, 2019 HMS SAFE Reports. *2012-2017 numbers were generated from the final Three-Year Review (Table 3.3; Table 6.26; and Table 6.27); 2018 and 2019 numbers are from the 2019 and 2020 HMS SAFE reports.

Table 3.25 ICCAT swordfish total allowable catch and U.S. quota allocation and catch (2012-2019)

Year	ICCAT Total Allowable Catch (mt dw)	U.S. Allocation (mt dw)	U.S. Catch (Landings & Discards) (mt dw)	U.S. Swordfish Catch Relative to ICCAT Swordfish Allocation (%)
2012	10,300.8	2,937.59	2,714.2	92%
2013	10,300.8	2,937.59	2,213.5	75%
2014	10,300.8	2,937.59	1,475.3	50%
2015	10,300.8	2,937.59	1,292.0	44%
2016	10,300.8	2,937.59	1,125.9	38%
2017	10,300.8	2,937.59	1,035.5	35%
2018	9,924.8	2,937.59	958.5	33%
2019	9,924.8	2,937.59	1,321.9	45%

Sources: NMFS 2021b, and the Annual Report of the United States to ICCAT (2020). U.S. Department of Commerce, NMFS. ANN-041/2021. Includes all gear types, commercial and recreational fisheries.

Socioeconomic Data

It is likely that the IBQ Program contributed to reduced revenue and fishing effort during the IBQ period. The reduction in fishing effort during 2015 compared to 2014 may have been due to uncertainty regarding the new IBQ Program; however, other factors driving the long-term reduction in fishing effort in the pelagic longline fishery were also just as likely contributing to that reduction. The increasing trend in average annual operating income per vessel during the IBQ period supports the contention that the economic situation has stabilized for many of the vessels that fished during the IBQ period, although there is high annual variability in the data. Other factors, such as the relatively high amount of imported swordfish on the U.S. market compared to domestically caught swordfish, may be a more significant variable affecting the profitability of the fishery than the IBQ Program (Three-Year Review, NMFS 2019a).

There was a reduction in the annual total revenue of pelagic longline vessels during the IBQ period compared to the Baseline period, but the annual total revenue during the IBQ period

was fairly stable ($27.2 million (M), $25.6 M, and $27.1 M, during 2015, 2016, and 2017 respectively). The average revenue per vessel during the IBQ period was less than during the Baseline period, but increased from 2015 to 2017, and during 2017 approached the level it was during 2014 (i.e., $307,422 in 2017 and $316,055 in 2014). These trends in revenue were calculated fleet-wide (combining all of the vessels together). Fleet-wide calculations of revenue tend to mask underlying trends, however, because the average annual revenue per vessel during the IBQ period depended upon how the revenue was summarized. Slightly different trends in revenue emerged when metrics were calculated for groups of vessels with similar characteristics (i.e., by vessel size or amount of fishing effort expressed as hooks or sets). The differences in revenue metrics reflect the diversity of the pelagic longline fleet (geographically, vessel size, and annual fishing effort), and highlights the challenges of drawing conclusions from the data. The IBQ Program imposes constraints and costs on the fishery, but of a magnitude that, absent other factors, likely should not affect the viability of longline vessel businesses (based on the socioeconomic analyses in this document). However, for some individual vessels or businesses, the IBQ Program, in conjunction with other factors facing the fishery, may result in cumulative economic impacts that are not sustainable or a level of uncertainty in operations that is not practical (Three-Year Review, NMFS 2019a).

Table 3.26 shows data on the leasing of IBQ allocation from 2015 through 2020. Data for 2020 were not included in the DEIS, but are included in this table in this FEIS due to the high relevance of the IBQ leasing data to the consideration of the alternatives. The data includes all leases for which price information was provided by the lessor (for both Purse Seine category participants and pelagic longline vessels). The overall pattern is an increasing amount (pounds) of IBQ allocation leased over time, with a declining average price. The number of participants was fairly consistent, but expressed as a percentage of active vessels, increased (due to the number of declining active pelagic longline vessels over time). The low numbers of lease transactions in 2020 are likely the result of low fishing effort due to the Covid pandemic. These numbers included all leasing transactions, including those among Purse Seine category participants.

Table 3.26 IBQ Leasing program data (2015-2020)

Year	Total pounds of IBQ leased	Number of lease transactions	Number of Leasing market participants	Percent of active vessels leasing	Weighted average price per pound	Number of transactions used to calculate price per pound
2015	126,407	49	44	42	$3.46	14
2016	141,183	81	63	74	$2.52	45
2017	152,050	85	52	60	$1.67	27

Year	Total pounds of IBQ leased	Number of lease transactions	Number of Leasing market participants	Percent of active vessels leasing	Weighted average price per pound	Number of transactions used to calculate price per pound
2018	170,160	83	55	75	$2.02	31
2019	180,756	76	56	86	$1.40	35
2020	84,994	38	38	54	$1.15	25

Source: NMFS SERO Catch Shares Online System

Table 3.27 shows the weighted average price per pound of IBQ leases, including two sub-sets of the data: those leases from Purse Seine participants to pelagic longline vessels and those among pelagic longline vessels. This table was not included in the DEIS, but is included in this FEIS in order to further explore the relevant data. For example, in 2019 the weighted average price per pound of leased IBQ was $1.40 per pound overall, and the price per pound of leased IBQ from pelagic longline vessels ($1.61/lb) was 36 cents more than was IBQ leased from Purse Seine category participants ($1.25/lb). Therefore, for example, if during 2019, a pelagic longline vessel leased 2,000 lb of IBQ allocation from another pelagic longline vessel they may have paid $460 more than if they had instead leased from a Purse Seine category participant. In contrast, in 2018 a pelagic longline vessel owner would have likely paid $360 less for a 2,000 lb lease transaction from another pelagic longline vessel owner than they would have if they had leased bluefin quota from a Purse Seine category participant.

Table 3.27 Weighted Average Price per pound of Leased IBQ by Lessor, 2015-2020

Year	Purse Seine	Pelagic Longline	Difference	All
2015	$3.34	$3.61	[$0.27]	$3.46
2016	$2.74	$2.44	$0.30	$2.52
2017	$1.79	$1.63	$0.16	$1.67
2018	$2.13	$1.95	$0.18	$2.02
2019	$1.25	$1.61	[$0.36]	$1.40
2020	$1.08	$1.21	[$0.13]	$1.15

Brackets indicate that the pelagic longline average price per pound was greater than purse seine average price per pound.

Shore-Based Cooperatives and Owners of Multiple Permits or Vessels

Although the majority of pelagic longline vessels are owner operated, in 2017 there were 10 entities that owned more than one permit, and several shore-based organizations that functioned as cooperatives, facilitating or providing various support services to local

vessels including dock space, fuel, ice, mechanical support, dealer services, and technical support for complying with regulations. Such cooperatives may also facilitate the leasing of IBQ allocation. The principal cooperative activities appear to occur in the New Orleans, LA area and Fort Pierce, FL.

Based on industry feedback, participation in these cooperatives has increased since the implementation of the IBQ Program, in part as a response to financial pressure and logistics associated with the need to lease IBQ allocation. It is difficult to anticipate the nature of these cooperatives and any potential impacts their existence may have on the IBQ Program, because NOAA Fisheries is only able to make inferences about their membership and operations due to a lack of information about the nature of any cooperative agreements and reasons why vessel owners participate in alternative business models. Cooperatives usually involve close relationships with bluefin dealers, with multiple vessels. Anecdotal information suggests that vessels may accrue benefits in addition to the sale of their catch, including the facilitation of the leasing market, and assistance with data entry and the use of the online IBQ System.

The cooperative in Fort Pierce, FL, provided information regarding its operation to NOAA Fisheries for use in this document. The cooperative is a vertically integrated company that operates a full service commercial fishing dock out of Fort Pierce. It owns a fleet of thirteen Longline vessels and services an additional six to eight vessels seasonally, and provides provisioning and the marketing of product for this combined fleet of vessels. The provisioning includes fuel, tackle, ice, bait, and food. Vessel maintenance, mechanical repairs, and fabrication are also available.

A fish dealer in Houma, LA, that works with approximately 12 vessels noted that their business "fronts" fishing supplies (fuel, bait, tackle) to vessels for all their trips, as well as facilitates obtaining IBQ allocation and completing required paperwork for fishing permits, etc. Operating in this manner, the dealer assumes a portion of the risk of the trips, and may lose revenue of trips with little or no catch.

A New England dealer facilitates communication among IBQ shareholders and assists them in the process of obtaining IBQ allocation in exchange for exclusive sale of fish to them. The role of cooperative behavior in the fishery under the IBQ Program may be important for some vessels, based on the above information.

Deepwater Horizon Oceanic Fish Restoration Project (OFRP)

On April 20, 2010, an explosion occurred on the Deepwater Horizon (DWH) drilling platform in the Gulf of Mexico resulting in a catastrophic oil leak from the well. Before it was capped three months later, approximately 134 million gallons of oil had spilled into the Gulf. During that time period, bluefin were migrating into the Gulf of Mexico to spawn.

In September 2015, the Final Phase IV Early Restoration Plan described this initial restoration project, originally named the Pelagic Longline Bycatch Reduction Project and later to become the Deepwater Horizon OFRP. This project was implemented as a

partnership between NOAA, pelagic fishermen in the Gulf of Mexico, and the National Fish and Wildlife Foundation (NFWF) to restore pelagic fish biomass through actions that were expected to reduce fish mortality from incidental catch and regulatory discards in the portion of the U.S. Atlantic pelagic longline fishery operating in the Gulf of Mexico. The project is funded from the early restoration funds provided by BP Oil Company as part of the legal settlement for the spill. There is no set time frame for this project, which began in 2017, but NFWF and NOAA Fisheries anticipate it will run for an additional three to five years. The full length of the project will depend on the level of participation necessary to meet the fish restoration goals.

The Gulf of Mexico fishery primarily targets yellowfin tuna and swordfish, but incidentally catches and discards other fish, including marlin, sharks, bluefin, as well as smaller individuals of the target species. The OFRP project goal was to restore pelagic fish biomass and consisted of:

- A "Repose" – The repose component which compensates pelagic longline fishermen who agreed to voluntarily refrain from pelagic longline fishing in the Gulf of Mexico during an annual six-month repose period (January 1- June 30) that coincides with the bluefin spawning season.
- An "Alternative Gears" program - This component provides participating fishermen gear that is expected to produce lower bycatch (e.g., green-stick, deep drop, and buoy gear). The alternative gear program is intended to help mitigate economic impacts of the DWH OFRP for some shore-side businesses and investigate the viability of use of these gears in the Gulf of Mexico. The project initially provided participating fishermen with two alternative gear types (green-stick and deep drop). In order to authorize the use of other alternative gears on pelagic longline vessels, NOAA Fisheries issued exempted fishing permits (EFPs) to the vessels. Through these EFPs, NOAA Fisheries was able to respond to constituents' request to use other gear. In 2017, NOAA Fisheries provided EFPs that permitted participants holding a Swordfish Incidental permit the use of buoy gear for swordfish. In 2018, NOAA Fisheries provided EFPs that permitted participants to use buoy gear for and retain BAYS tunas. In 2019, NOAA Fisheries provided EFPs that permitted participants to use power-operated haulback to retrieve buoy gear (2019) in order to allow for the continued catch of yellowfin tuna and swordfish during the repose period when pelagic longline gear is not used.
- A "Monitoring" element - This component of the program collects information of alternative gears used and overall bycatch reduction of the Deepwater Horizon OFRP.

In April 2016, implementing partners NOAA Fisheries and NFWF developed a Cooperative Agreement to facilitate implementation of the DWH OFRP. In November of 2016, following initial planning, NFWF issued what became an annual request for quotation (RFQ) to eligible vessel owners in the Gulf of Mexico. The RFQ asked interested vessel owners to indicate the level of compensation they would be willing to accept to take part in the pilot and refrain from pelagic longline fishing. Of the 45 eligible vessel owners in the Gulf, about half applied for the 2017 pilot project. Of those interested in participating, the vast majority

were from Louisiana. The remainder were from Florida. All applications were considered. In total, seven vessels were chosen to participate in the pilot, all of which are based in Louisiana. All participants were testing alternative gear (e.g., green-stick). Having all participants from a single state allowed for effective dissemination of best practices and in-depth analysis from a concentrated segment of the Gulf of Mexico market. The pilot project also allowed NFWF and NOAA Fisheries to easily monitor results and progress in order to make adjustments and enhancements in order to respond to a larger number of participants in subsequent project years. The 2016 DWH OFRP had an annual authorized budget of $20 million and expended $7,188,212.85 (For details on DWH OFRP expenditures please visit Deepwater Horizons OFRP expenditures).

In 2017, the DWH OFRP was launched as a pilot, featuring a shortened, 4-month repose from March 1 through June 30, 2017. Seven Louisiana vessels were chosen to participate in the pilot, and all seven participants were testing alternative gear (e.g., green-stick). In September 2017, the NOAA Open Ocean Trustee Implementation Group approved the addition of two fishing methods as alternatives to pelagic longline gear beginning in 2018. The fishing methods were deep drop gear for swordfish and buoy gear for targeting BAYS tuna (which required the issuance of an EFP from the Atlantic HMS Management Division of NOAA Fisheries). These techniques were identified by stakeholders in the pelagic longline fishery as a way to maintain landings of target catch and increase participation. NOAA Fisheries provided participants the option to apply for an EFP to use buoy gear for swordfish for those participants that had a swordfish incidental permit. In addition to the 2017 EFP, in 2018, another EFP was available to participants that would allow fishermen to fish for and retain BAYS tunas while using buoy gear. Any EFPs issued to participants through the OFRP were only valid during the OFRP repose period and invalid July 1 to December 31 of each year the OFRP took place. The 2017 Deepwater Horizon OFRP had an annual authorized budget of $20 million and expended $7,522,544.59.

The 2018 DWH OFRP incorporated project changes into the first full repose period, which started on January 1, 2018. Ten participants, seven from Louisiana and three from Florida, were selected for participation from among the vessel owners that submitted an RFQ. With nine participants electing to fish with alternative gear and one participant elected not to fish with alternative gear. Participants selected two of the three gear types (i.e., green-stick, deep-drop, and/or buoy gear). All three gear types were selected for use during 2018. In August 2018, the Open Ocean Trustee Implementation Group approved the use of a power-operated hauler to retrieve buoy gear (which required the issuance of an EFP from the Atlantic HMS Management Division of NOAA Fisheries). This modification, again, was identified by stakeholders in the pelagic longline fishery as a way to improve the utility and participant selection of buoy gear with possible benefits including increased target catch, increased chance for survival of bycatch, and decreased economic impacts to the industry. The 2018 DWH OFRP had an annual authorized budget of $20 million and expended $10,746,237.

In the 2019 DWH OFRP, 10 participants, eight from Louisiana and two from Florida, were selected from among the vessel owners that submitted an RFQ. All ten participants participated in the repose and elected to fish with alternative gear (i.e., green-stick, deep-

drop, and/or buoy gear). Participants selected two of the three gear types. All three gear types were selected for use during the season. In addition to the EFPs offered in 2017 and 2018, in 2019, one more EFP was available that permitted OFRP participants the ability to use power-operated haulback.

After three successful project years, the 2020 Deepwater Horizon OFRP began on January 1, 2020. Twelve fishermen from Florida and Louisiana were selected to participate in the fourth annual season of the project. More than half of the eligible vessel owners applied for the project. Seven vessel owners from Louisiana and five vessel owners from Florida were selected to participate, from among the vessel owners that submitted an RFQ. The number of applicants far exceeded the capacity of the project. Unlike previous years, participants selected in the 2020 repose will have the option to renew their involvement based on interest and review of the participant's performance and compliance in the OFRP.

3.2.3.2 Green-stick Gear Use by Pelagic Longline Vessels

Because of regulatory changes over time (described below), currently, vessels with a pelagic longline permit may not use green-stick gear and keep incidentally caught bluefin.

However, green-stick gear was an authorized gear type for holders of Atlantic Tunas Longline category permits starting in 2008, allowing permit holders to use the gear for directed fishing for target species (i.e., yellowfin tuna) and incidental catch of bluefin (see 73 FR 54721, September 23, 2008). NOAA Fisheries managed the pelagic longline fishery as an incidental fishery only for bluefin, but made allowances for the use of green-stick gear (and different hooks) to provide fishermen with additional opportunities to catch Atlantic tunas. Regulations authorizing this gear used target catch requirements applicable to the Longline category to ensure incidental retention of bluefin. At the time of authorization in 2008, NOAA Fisheries determined that target catch requirements and other constraints were necessary amid ongoing concerns about the overfished status of bluefin and the continuing need to avoid increases in bluefin catch and levels of effort that might negatively impact bluefin stocks.

Adoption of the IBQ Program in Amendment 7 changed the regulations for Atlantic Tunas Longline category permit holders to specify that they could only retain incidentally caught bluefin in compliance with the IBQ Program requirements, including the use of IBQ allocation to account for such catch. These regulations, however, applied only to vessels fishing with pelagic longline gear. Amendment 7 also eliminated the previously applicable target catch requirements for retention. Furthermore, the regulations did not specify a retention limit for green-stick gear for vessels fishing with pelagic longline gear and did not specify whether vessels fishing with green-stick gear (and having or not having pelagic longline gear onboard) must or may comply with requirements of the IBQ Program to incidentally retain and land bluefin.

The net result was a combined set of regulations that contained inconsistencies. Specifically, green-stick technically remained an authorized gear for incidental retention of bluefin, but such retention was not consistent with the Amendment 7 regulations and IBQ

Program requirements. Furthermore, such catch would be disallowed by the regulatory prohibitions at § 635.71(a)(48) and (49) prohibiting the sale or purchase of any HMS offloaded from an individual vessel in excess of the retention limits.

In the Gulf of Mexico, the Deepwater Horizon OFRP does not allow any bluefin retention with green-stick or any other gear, during a repose from pelagic longline gear use consistent with OFRP terms. The OFRP specifies, however, that IBQ allocation must be used by those vessels to account for any dead discards.

Overall, there is relatively little use of green-stick gear to target HMS species. Minimal use of green-stick and pelagic longline gear in tandem could be due to the costs and benefits of having different types of gear onboard. Fishermen may be limited to selecting one gear type based on available deck space, cost of the gear, trip length, or other factors. As noted in the rule authorizing the use of green-stick gear (73 FR 54721, September 23, 2008), the growth in the use of green-stick gear is constrained by capital investments involved in rigging a vessel. A green-stick rig with fiberglass pole and separate hydraulic haul-back capability was estimated to cost $5,300 - $9,300 in 2008. Accounting for inflation and assuming no additional factors influencing price, these costs today could range from $6,266 to $10,995 (U.S. Labor Department's Bureau of Labor Statistics, Consumer Price Index Inflation calculator: Inflation calculator). Additionally, the catch rates of yellowfin per green-stick set are higher on average when fishing with pelagic longline gear versus green-stick gear. For example, examination of sets reported in the HMS logbook data in 2018 where yellowfin tuna were caught indicate that on average, approximately 6.61 ± 9.06 yellowfin were captured per longline set versus 5.79 ± 8.14 yellowfin captured per green-stick set. Gear selection by fishermen targeting yellowfin would likely maximize economic returns and efficiency, or reflect adherence to specific requirements if fishing under the OFRP in the Gulf of Mexico.

3.3 Essential Fish Habitat (EFH)

Section 303(a)(7) of the Magnuson-Stevens Act requires FMPs and their amendments to describe and identify EFH, minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat. The Magnuson-Stevens Act defines EFH as “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.” (16 U.S.C. § 1802(10). Implementing regulations for EFH provisions are at 50 Code of Federal Regulations (CFR) 600, Subpart J.

Adverse effects from fishing may include physical, chemical, or biological alterations of the substrate, and loss of, or injury to, benthic organisms, prey species, and their habitat, and other components of the ecosystem. Based on an assessment of the potential adverse effects of all fishing equipment types used within an area identified as EFH, NOAA Fisheries must propose measures to minimize fishing effects if there is evidence that a fishing practice is having more than minimal and lasting adverse effect on EFH.

NOAA Fisheries originally described and identified EFH and related EFH regulatory elements for all HMS in the management unit in 1999, some of which were updated in 2003 via Amendment 1 to the 1999 HMS FMP (68 FR 45237, August 1, 2003). EFH boundaries published in the 1999 HMS FMP and Amendment 1 to the 1999 HMS FMP were updated in Final Amendment 10 to the 2006 Consolidated HMS FMP (NMFS 2017). Amendment 10 included a complete review and update of the 10 components of EFH, which includes updates to EFH boundaries and text descriptions and an updated review of fishing and non-fishing impacts to EFH. Information presented in this section is summarized from Amendment 10, which reflects the best scientific information available. Amendment 10 incorporates by reference several analyses that were completed in earlier Atlantic HMS FMP amendments. An EFH impacts analysis of all Atlantic HMS gears was completed for the 2006 Consolidated HMS FMP and is shown in Table 3.28.

Most HMS reside in the upper part of the water column and habitat preferences are likely influenced by oceanic factors such as areas of convergence or oceanographic fronts (e.g., those found over submarine canyons, continental shelf edges, or boundary currents), temperature convergence zones (e.g., boundaries of currents or features that influence currents including landforms such as Cape Hatteras or undersea features like the Charleston Bump, or surface structure (e.g., floating *Sargassum* mats). Although there is no substrate or hard structure in the traditional sense, these water column habitats can be characterized by their physical, chemical and biological parameters. The water column can be defined by a horizontal and vertical component. Horizontally, salinity gradients strongly influence the distribution of biota. Horizontal gradients of nutrients, decreasing seaward, affect primarily the distribution of phytoplankton and, secondarily, the organisms that depend on this primary productivity. Vertically, the water column may be stratified by salinity, oxygen content, and nutrients. The water column is especially important to larval transport. While the water column is relatively difficult to define in terms of habitat characteristics, it is no less important since it is the medium of transport for nutrients and migrating organisms between estuarine, inshore, and offshore waters.

The following is a summary of habitats comprising EFH of Atlantic HMS target species and bluefin, originally published in the 2006 Consolidated HMS FMP and updated in Amendment 10 to the 2006 Consolidated HMS FMP (2017).

Tuna, swordfish, and billfish distributions are most frequently associated with hydrographic features such as density fronts between different water masses and currents. The scales of these features may vary.

- On the largest scale, the North and South Equatorial currents occur in the U.S. Caribbean islands. The North Equatorial Current continues through the Caribbean Basin to enter the Gulf of Mexico through the Yucatan Straits. The current continues through the Florida Straits to join the other water masses (including the Antilles Current) to form the Gulf Stream along the eastern coast of the United States. Variations in flow capacities of the Florida Straits and the Yucatan Straits produce the Loop Current, the major hydrographic feature of the Gulf of Mexico. These water movements in large part influence the distributions of the pelagic life stages of Atlantic HMS.

- The river plume of the Mississippi River extends for miles into the Gulf of Mexico and is a predictable feature, depending on the season.
- Fronts that set up over the DeSoto Canyon in the Gulf of Mexico, or over the Charleston Bump or the Baltimore Canyon in the Mid-Atlantic, may be of a much smaller scale. The locations of many fronts or frontal features are statistically consistent within broad geographic boundaries. These locations are influenced by riverine inputs, movement of water masses, and the presence of topographic structures underlying the water column, thereby influencing the habitat of Atlantic HMS.

The continental shelf is characterized by depths ranging from a few meters to approximately 60 m (198 ft), with a variety of bottom habitat types. From the Scotian Shelf in the north, past Georges Bank and through the Mid-Atlantic Bight, a shelf-slope front exists. This hydrographic boundary separates the fresher, colder, and more homogeneous waters of the shelf and the horizontally stratified, warmer, and more saline waters of the continental slope. The shelf-slope front may act as a barrier to shelf-slope transfer of water mass and momentum.

From Nova Scotia to Cape Hatteras, 26 large valleys that originate on the shelf cut into the seafloor across the continental slope and rise. The current patterns in and around these submarine canyons promote significant biological productivity and diversity. Peak currents occur near the canyon heads and flow down the canyon, while currents at intermediate depths flow up the canyon. Water circulation may trap sediments in the canyon heads and produce conditions conducive to front development. Atlantic HMS are known to aggregate in the areas where these fronts form, most likely as productive feeding grounds.

The shelf area of the Mid-Atlantic Bight averages about 100 km (60 mi) in width, reaching a maximum of 150 km (90 mi) off New England near Georges Bank, and a minimum of 50 km (30 mi) offshore Cape Hatteras, North Carolina. Current speeds are strongest at the narrowest part of the shelf where wind-driven current variability is highest. The distribution of marine species, including HMS, along the Atlantic seaboard may be strongly influenced by currents, the warm Gulf Stream in the middle and south portions of the region, and generally by the combination of high summer and low winter temperatures.

The Mid-Atlantic area from Cape Cod, Massachusetts to Cape Hatteras, North Carolina represents a transition zone between northern cold-temperate waters of the north and the warm-temperate waters to the south. Water temperatures in the Mid-Atlantic vary greatly by season. Consequently, many of the fish species of importance in the Mid-Atlantic area migrate seasonally, whereas the major species in the other three areas are typically resident throughout the year (MMS 1992; 1996). The shelf-edge habitat may range in water depth between 40 and 100 m (131 and 328 ft). The bottom topography varies from smooth sand to mud to areas of high relief with associated corals and sponges.

Gear Impacts

NOAA Fisheries completed reviews of fishing gear impacts in the 1999 HMS FMP, Amendment 1 to the 1988 Billfish FMP, the 2006 Consolidated HMS FMP, and Amendments 1 and 10 to the 2006 Consolidated HMS FMP. These analyses determined that the majority

of HMS gears are fished within the water column and do not make contact with the sea floor. Because of the magnitude of water column structures and the processes that create them, there is little effect expected from the HMS fishing activities with pelagic longline gear undertaken to pursue these animals. Excessive dead discards could induce minor, localized increases in biological oxygen demand. However, deployment of pelagic longline gear is not anticipated to permanently affect the physical characteristics that define HMS EFH such as salinity, temperature, dissolved oxygen, and depth. Because pelagic longline gear is fished in the water column and does not come in contact with the benthic environment, the pelagic longline fishery is anticipated to have minimal to no impact on EFH (for Atlantic HMS or for other species managed under Council FMPs) associated with the benthic environment.

For more information, please refer to the following websites:

- Final Amendment 10 website.
- EFH Boundaries may be viewed on the NOAA Fisheries Habitat Mapper.
- Shape files, metadata, a species list, and a preview map may be viewed on the EFH Data Inventory website.

NOAA Fisheries will initiate the 5-Year review of Atlantic HMS essential fish habitat in 2022.

Table 3.28 Impact Assessment of HMS Fishing Gear on HMS and Non-HMS EFH

HMS Gear Type	Contacts Bottom	SAV	Coral Reef	Hard Bottom	Sand/ Shell	Soft Bottom	HMS EFH Water Column
Bandit gear				/+			0
Bottom longline	X	0/	+/	+/+	0/+	0/+	0
Handline		0/	+/	+/+	0/	0/	0
Harpoon							0
Gillnet, anchored	X	+/+	++/	+/+	+/+	0/+	0
Gillnet/strikenet							0
Pelagic longline		0/0	0/0	0/0	0/0	0/0	0
Purse seine, tuna		0/?	0/	0/	0/+	0/+	0
Rod and feel		0/	+/	+/+	0/	0/	0
Tuna trap/fish weir	X	++/++	-	-	0/?	0/?	0

SAV = submerged aquatic vegetation.
"-" indicates that the gear type is not used in these habitat types.
Habitat impacts are as follows: negligible = 0, low = +, medium = ++, high = +++, unknown = ?. A blank indicates not evaluated.
Source: The symbols before the slash are from the Caribbean FEIS, 2004 (Table 3.15a). Symbols after the slash are taken from Barnette, 2001.

3.3.1 Bluefin Tuna Distribution, Migration, and EFH

A thorough discussion of bluefin life history is available in Amendment 10 to the 2006 Consolidated HMS FMP (82 FR 42329, September 7, 2017) (Amendment 10), which addressed EFH for Atlantic HMS. The information below summarizes migration and distribution information that is considered relevant to this action.

Bluefin are highly migratory and in the Western Atlantic generally range from 45° N. lat. to the equator, but have also supported short-term fisheries off Brazil and in the North Sea (Fromentin 2010). The prevailing assumptions have been that mature western bluefin follow an annual cycle of foraging off the eastern U.S. and Canadian coasts from June through March. Bluefin spawn from mid-April through June, mainly in the Gulf of Mexico, which contains the recognized spawning grounds for the western stock of Atlantic bluefin. Protecting these fish during spawning can help the long-term sustainability of the bluefin population. Although individuals may spawn more than once a year, it has generally been assumed that there is a single annual spawning period. However, recent tagging data and the presence of small (less than 94 inches curved for length) sexually mature females in the Gulf of Maine in June and July suggest that either individual bluefin do not spawn on an annual cycle (Lutcavage et al., 2012; Block et al., 2005; Fromentin and Powers 2005; Goldstein et al., 2007), or a component of the western stock is spawning somewhere other than the Gulf of Mexico (e.g., in the central North Atlantic or Gulf Stream edge) (Mather et al., 1995; Lutcavage et al., 2012; Goldstein et al., 2007).

Larval presence has been confirmed in the Gulf of Mexico (Cornic et. al. 2017; Richards 1991, 1993). Most of the larvae found in the Gulf of Mexico were located around the 1,000-fathom (1,828.8 m) curve in the northern Gulf of Mexico, with some sporadic collections off Texas. Using a time series of larval bluefin data from the Gulf of Mexico, Muhling et al., (2010) defined favorable habitat for bluefin larvae as moderately warm waters (i.e., they were most commonly collected in 23.5 to 28°C) outside the Loop Current and Loop Current eddies, and outside of cooler, higher chlorophyll continental shelf waters. It appears that larvae are generally retained in the Gulf of Mexico until they grow into juveniles.

Larvae have also been documented outside of the Gulf of Mexico, and the possibility of additional spawning areas cannot be discounted (McGowan and Richards 1989). Larvae have been found as far north as the Slope Sea (Richardson et al., 2016), although their presence was previously associated with advection from the Florida Straits and not from offshore spawning (McGowan and Richards 1989). A more recent publication supports the Slope Sea as a spawning ground (Hernandez et. al. 2021). In the Florida Straits, larvae are primarily collected along the western edge of the Florida Current, suggesting some active transport from the Gulf of Mexico. This could also explain their occasional collection off the southeast United States in some studies.

In June, young-of-the-year bluefin (YOY) begin movements in schools to juvenile habitats (McGowan and Richards 1989) thought to be located over the continental shelf around 34° N. lat. and 41° W. long. They have also been identified from the Dry Tortugas area in June

and July (Richards 1991; ICCAT 1997). Juveniles migrate to nursery areas located between Cape Hatteras, North Carolina and Cape Cod, Massachusetts (Mather et al., 1995).

Variations in distribution and migration patterns have been noted through tagging studies and fishery independent surveys. For example:

- Lawson et al., (2010) noted that in March-April of a given year that tagged bluefin occupy weakly stratified, off-shelf waters along the edge of the Gulf Stream. As shelf waters warmed into the summer, the fish shifted distribution shoreward onto the shelf. Diving behavior changed by season. The fish departed shelf waters by November.
- Golet et al., (2013) studied the distribution of commercial sized (greater than 185 cm) bluefin schools in the Gulf of Maine. Using a 28-year (1979-2005) time series of commercial bluefin catches and sightings from fishermen's logbooks, they noted a gradual eastward shift of commercial sized bluefin school distribution towards offshore and Canadian waters. The authors associated this shift in size distribution to the changes in size and abundance of Atlantic herring.
- Galuardi and Lutcavage (2012) developed and deployed mini popup satellite archival tags (PSAT) on juvenile bluefin (aged 2-5) captured in coastal recreational fisheries off Cape Cod from 2005 through 2009. Tagged fish traveled between summer habitats in the Mid-Atlantic Bight and off Southern New England (coastal areas, the Gulf Stream margin and shelf break) to winter habitats in the South Atlantic Bight and the northern Bahamas.

The EFH text descriptions for bluefin are provided in this section, along with corresponding maps for the Spawning/Eggs/Larvae (Figure 3.16), Juvenile (Figure 3.17), and Adult (Figure 3.18) life stages. This section also describes boundaries for a Habitat Area of Particular Concern (Figure 3.19).

Spawning, eggs, and larvae

This life stage is found from the mid-east coast of Florida in the Atlantic Ocean to the western Gulf of Mexico (seaward of the 100m depth contour in the Gulf of Mexico). This life stage has been expanded into two areas of the Slope Sea (between North Carolina and Georges Bank, north of the Gulf Stream) due to the presence of extremely young larvae. One area encompasses pelagic habitats on and off the continental shelf, off the coast of North Carolina, and extends to the shoreline between the NC/VA line and Oregon Inlet. The other area includes pelagic waters of the Slope Sea, extending to the outer U.S. EEZ south of Georges Bank. EFH for larvae is defined by habitat associations with temperatures ranging from 23.5 to 28°C.

Juveniles (< 73 inches fork length)

Coastal and pelagic habitats of the Mid-Atlantic Bight and the Gulf of Maine, between southern Maine and Cape Lookout, from shore (excluding Long Island Sound, Pamlico Sound) to the continental shelf break. EFH in coastal areas of Cape Cod are located between

the Great South Passage and shore. EFH follows the continental shelf from the outer extent of the U.S. EEZ on Georges Bank to Cape Lookout. EFH is associated with certain environmental conditions in the Gulf of Maine (16 to 19 °C; 0 to 40 m deep). EFH in other locations, associated with temperatures ranging from 4 to 26°C, is often in depths of less than 20 m (but can be found in waters that are 40-100 m in depth in winter).

Adults (≥ 73 inches fork length)

EFH is located in offshore and coastal regions of the Gulf of Maine; the mid-coast of Maine to Massachusetts; on Georges Bank; offshore pelagic habitats of southern New England; from southern New England to coastal areas between the mouth of Chesapeake Bay and Onslow Bay, North Carolina; from coastal North Carolina south to the outer extent of the U.S. EEZ, inclusive of pelagic habitats of the Blake Plateau, Charleston Bump, and Blake Ridge. EFH also consists of pelagic waters of the central Gulf of Mexico from the continental shelf break to the seaward extent of the U.S. EEZ between Apalachicola, Florida and Texas.

Habitat Area of Particular Concern (HAPC)

The HAPC for bluefin is the pelagic waters of the Gulf of Mexico seaward of the 100m bathymetric line, extending to the seaward extent of the United States' EEZ and eastward to the 82º W longitude meridian.

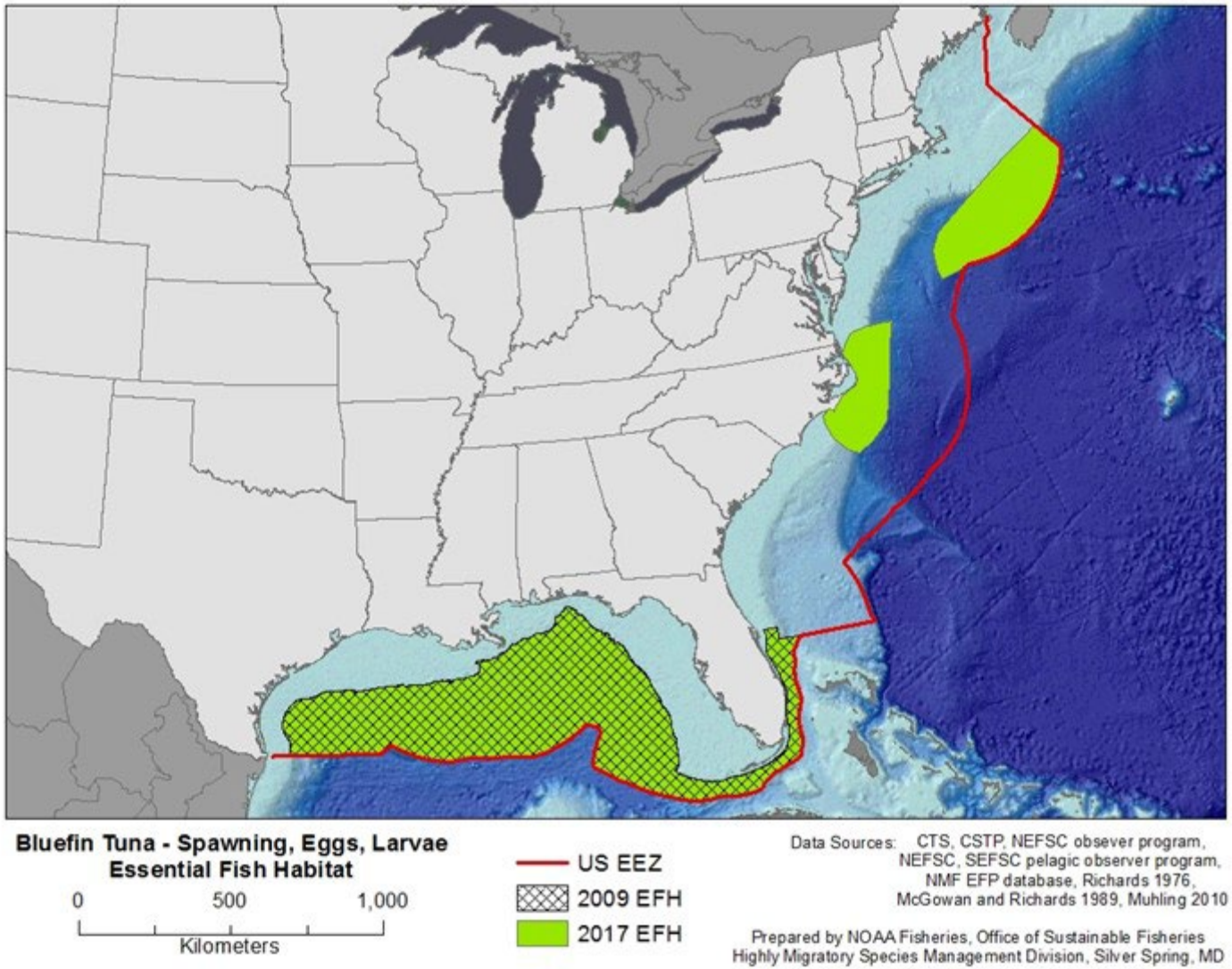

Figure 3.16 Essential Fish Habitat for Spawning, Eggs, and Larvae of Bluefin Tuna
Source: NMFS 2017.

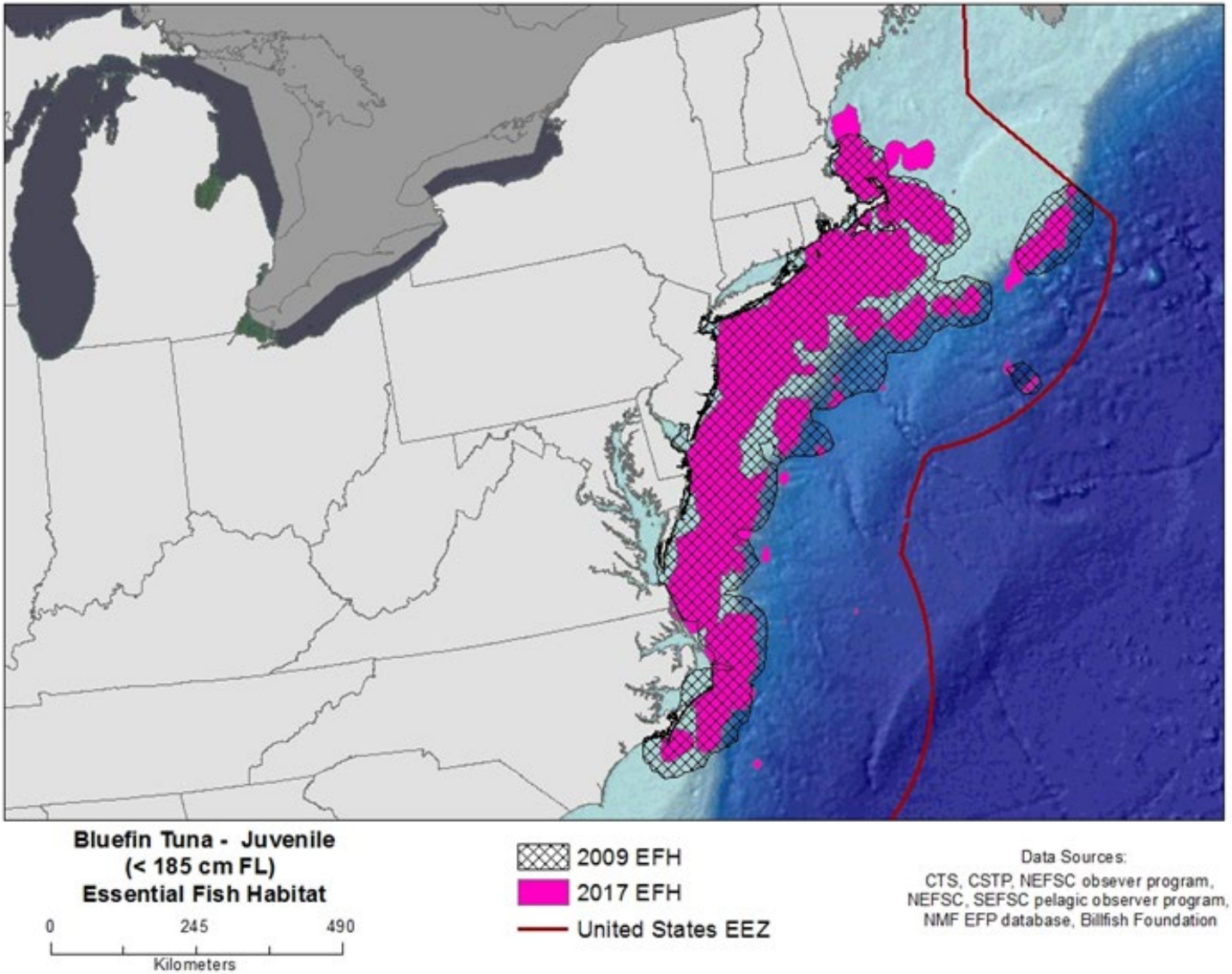

Figure 3.17 Essential Fish Habitat for Juvenile Bluefin Tuna
Source: NMFS 2017

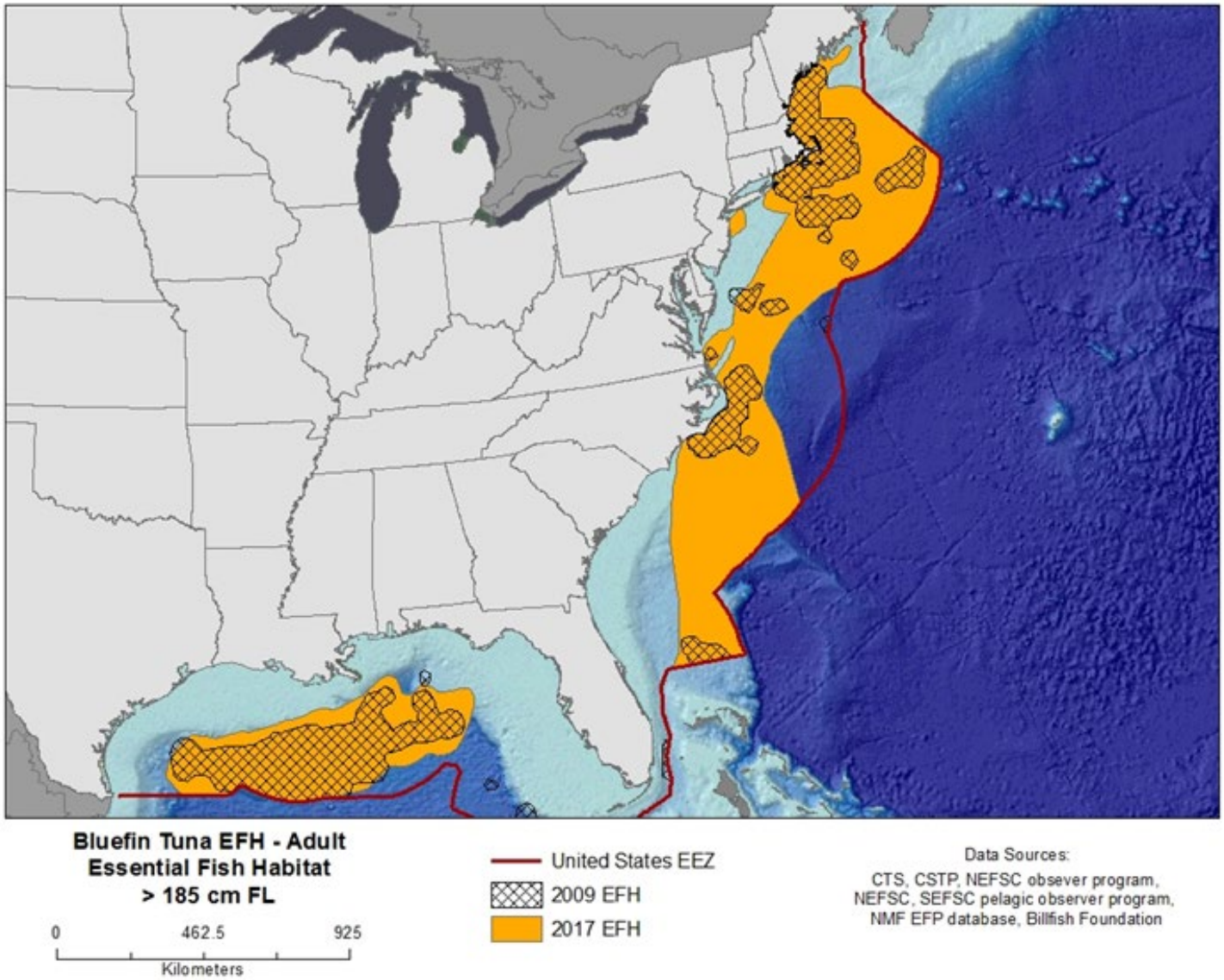

Figure 3.18 Essential Fish Habitat for Adult Bluefin Tuna
Source: NMFS 2017

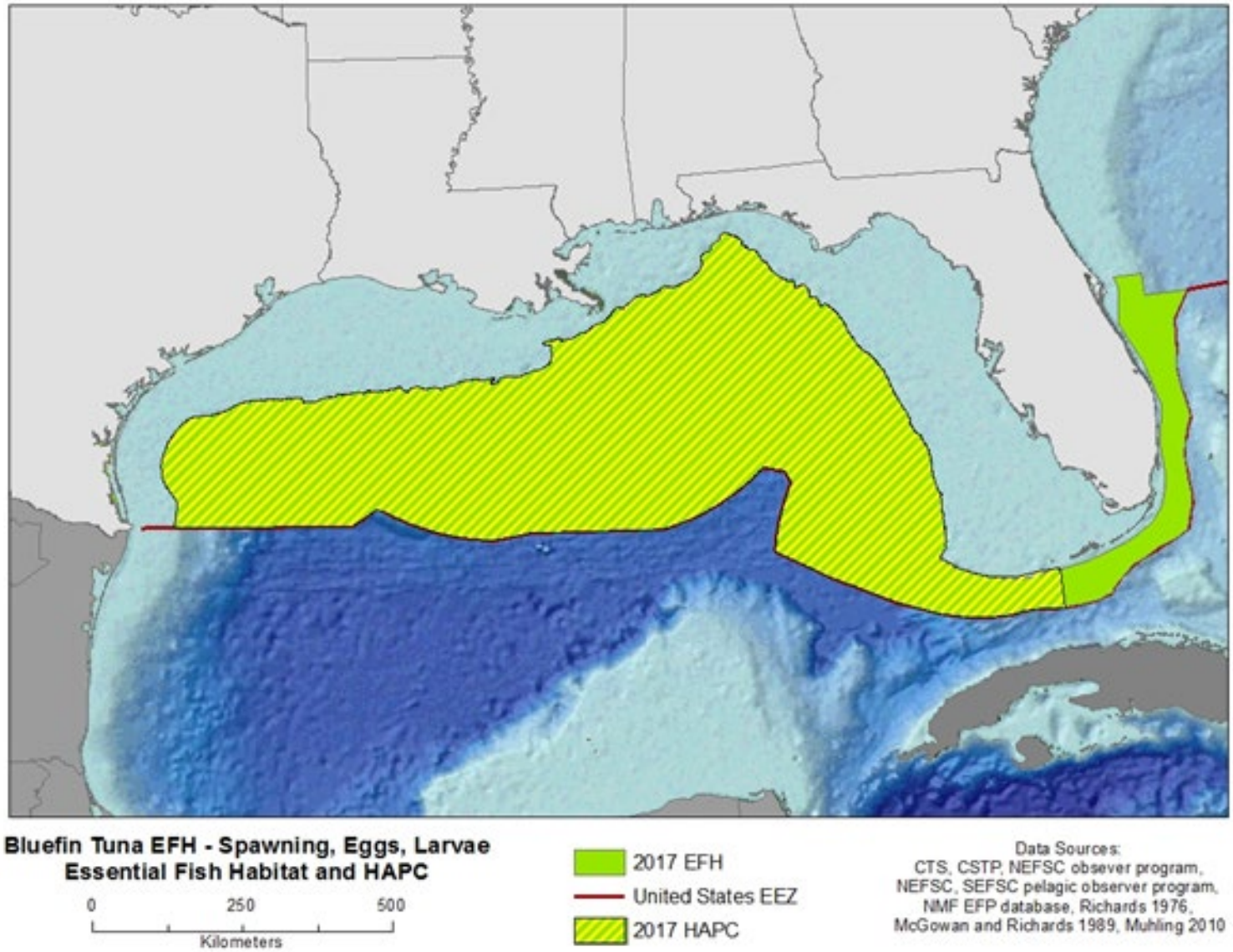

Figure 3.19 Bluefin Tuna Habitat Area of Particular Concern—Spawning, Eggs, Larval Life Stage
Source: NMFS 2017

3.4 Bycatch and Protected Species

This section summarizes information on Atlantic HMS fisheries bycatch, including fish species managed under the Magnuson-Stevens Act and protected species interactions addressed more specifically by other statutes. The HMS SAFE Report provides additional information on species protected under the MMPA, ESA, and the Migratory Bird Treaty Act, including a description of the Pelagic Longline Take Reduction Team, Take Reduction Plan, and measures to address protected species concerns. The interaction of seabirds and longline fisheries are also considered under the United States "National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries" (NPOA-Seabirds). The pelagic observer program, the primary tool used to monitor bycatch, is discussed in further detail in the HMS SAFE Report (e.g., observer coverage).

Bycatch in commercial and recreational fisheries has become an important issue for the fishing industry, resource managers, scientists, and the public. These interactions can result in death or injury to the discarded fish, and it is essential that this component of total fishing-related mortality be incorporated into fish stock assessments and evaluation of management measures. Bycatch precludes other more productive uses of fishery resources and decreases the efficiency of fishing operations. Although not all discarded fish die, bycatch can in some fisheries become a large source of mortality, which can slow the rebuilding of overfished stocks. Bycatch imposes direct and indirect costs on fishing operations by increasing sorting time and decreasing the amount of gear available to catch target species. Incidental catch concerns also apply to populations of marine mammals, sea turtles, seabirds, and other components of ecosystems which may be protected under other applicable laws and for which there are no commercial or recreational uses but for which existence values may be high.

There are benefits associated with the reduction of bycatch, including the reduction of uncertainty concerning total fishing-related mortality, which improves the ability to assess the status of stocks, to determine the appropriate relevant controls, and to ensure that overfishing levels are not exceeded. NOAA Fisheries also has an obligation to ensure that conservation and management measures shall, to the extent practicable, minimize bycatch and, to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

It is also important to consider the bycatch of HMS in fisheries that target other species as a source of mortality for HMS and to work with fishery participants and resource manager partners on an effective bycatch strategy to maintain sustainable fisheries. This strategy may include a combination of management measures in the domestic fishery, and if appropriate, multi-lateral measures recommended by international bodies such as ICCAT or coordination with Regional Fishery Management Councils or States. The bycatch in each fishery and effectiveness of bycatch reduction measures are summarized annually in the SAFE Report for Atlantic HMS fisheries. In 2021, NOAA Fisheries conducted a review of the Standardized Bycatch Reporting Methodology (SBRM) for HMS fisheries (Amendment 12)

to verify continued compliance with the Magnuson-Stevens Act and SBRM regulations (NMFS 2021a).

Bycatch Interactions and the Magnuson-Stevens Act

Under the Magnuson-Stevens Act, "bycatch" has a very specific meaning: "Fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards. Such term does not include fish released alive under a recreational catch and release fishery management program" (16 U.S.C. §1802(2)). Fish is defined as finfish, mollusks, crustaceans, and all other forms of marine animal and plant life other than marine mammals and birds (§1802(12). Birds and marine mammals are therefore not considered bycatch under the Magnuson-Stevens Act.

National Standard 9 of the Magnuson-Stevens Act requires that fishery conservation and management measures shall, to the extent practicable, minimize bycatch and, to the extent bycatch cannot be avoided, minimize the mortality of such bycatch (16 U.S.C. § 1851(a)(9)). For Atlantic HMS, National Standard 9 requirements in this regard have been addressed through conservation and management measure when adopted, in the 2006 Consolidated HMS FMP, and in each subsequent amendment, as appropriate. As explained in those actions, in many fisheries, it is not practicable to eliminate all bycatch and bycatch mortality. There are probably no HMS fisheries in which there is zero bycatch because none of the currently authorized fishing gears are perfectly selective for the target of each fishery (although the swordfish/tuna harpoon fishery and speargun fishery likely come closest due to the capacity for selective harvest).

Some relevant examples of fish caught in Atlantic HMS fisheries as bycatch or incidental catch include sea turtles, Atlantic sturgeon, smalltooth sawfish, some sharks, billfish, and undersized fish; species for which there is little or no market such as blue sharks; species caught and released in excess of a bag limit; and prohibited species including those in the prohibited shark complex. Below is a list some of the methods that are employed to reduce bycatch in the Atlantic HMS fisheries.

Commercial

1. Gear modifications (including hook and bait types).
2. Corrodible (non-stainless steel) circle hooks.
3. Weak hooks.
4. Time/area closures.
5. Performance standards.
6. Education/Outreach.
7. Prohibiting retention of certain fish.
8. Use of de-hooking devices (mortality reduction only).
9. Handling and release requirements (e.g., in the pelagic longline fishery, sharks that are not retained must have less than 3 ft. of trailing gear attached to the hook when released).
10. Fleet communication and relocation protocols (e.g., vessels must move 1 mile and inform other vessels that dusky sharks are in the area after a dusky shark interaction).

Recreational

1. Use of corrodible (non-stainless steel) circle hooks (mortality reduction only).
2. Use of de-hooking devices (mortality reduction only).
3. Prohibiting retention of fish.
4. Catch and release programs.
5. Education/Outreach.

There are benefits associated with the reduction of bycatch, including the reduction of uncertainty concerning total fishing-related mortality, which improves the ability to assess the status of stocks and to determine the appropriate relevant controls. It is also important to consider the bycatch of HMS in fisheries that target other species as a source of mortality for HMS and to work with fishery constituents and resource manager partners on an effective bycatch strategy to maintain sustainable fisheries. This strategy may include a combination of management measures in the domestic fishery and coordination with Regional Fishery Management Councils or States, and if appropriate, consideration of multi-lateral measures at international bodies such as ICCAT.

Pelagic Longline Fishery Bycatch

To minimize bycatch and bycatch mortality in the domestic pelagic longline fishery, NOAA Fisheries implemented regulations to close certain areas to this gear type (see Figure 3.11) and has banned the use of live bait by pelagic longline vessels in the Gulf of Mexico.

In addition to the regulations mentioned above, to protect sea turtles, vessels using pelagic longline gear onboard must, at all times, in all areas open to pelagic longline fishing except the NED, possess onboard and/or use only 16/0 or larger non-offset circle hooks and/or 18/0 or larger circle hooks with an offset not to exceed 10 degrees. Only whole finfish and squid baits may be possessed and/or utilized with allowable hooks. Vessels fishing in the NED are required to use 18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel or squid baits. All pelagic longline vessels must possess and use sea turtle handling and release gear in compliance with NOAA Fisheries careful release protocols. Additionally, all pelagic longline vessel owners and operators must be certified in the use of the protected species handling and release gear. Certification must be renewed every three years and can be obtained by attending a training workshop. Approximately 18 to 24 workshops are conducted annually, and they are held in areas with significant numbers of pelagic longline permit holders.

In 2009, to protect pilot whales and Risso's dolphins, the Pelagic Longline Take Reduction Plan (PLTRP) (74 FR 23349, May 19, 2009) included a requirement that pelagic longline vessel operators fishing in the Cape Hatteras Special Research Area must contact NOAA Fisheries at least 48 hours prior to a trip, and carry observers if requested. The Pelagic Longline Take Reduction Plan (PLTRP) also established a 20-nautical mile upper limit on mainline length for all pelagic longline sets in the Mid-Atlantic Bight, and required that an informational placard be displayed in the wheelhouse and on the working deck of all active pelagic longline vessels in the Atlantic fishery.

NOAA Fisheries scientists and managers continue to consult as necessary on reporting methodology design considerations, including changes in monitoring and reporting technology, to improve the quality of target and non-target catch estimates as needed while considering cost, technical, and operational feasibilities. NOAA Fisheries uses mandatory self-reported logbook data (HMS and Coastal Fisheries Logbook Programs, including a supplemental discard report), at-sea observer data (the Pelagic Longline, Southeast Gillnet, and Bottom Longline Observer Programs), mandatory recreational fish landings reports, online reporting of dead discards of bluefin in the commercial harpoon and hook and line fisheries (Atlantic Catch and Landings Reporting Site), and survey data (recreational fishery dockside intercept and telephone surveys) to produce bycatch estimates for HMS fisheries. The incidental catch of bluefin in the pelagic longline fishery is monitored electronically via camera array, and catch reporting via VMS. Post-release mortality of HMS is considered in stock assessments to the extent that the data allow. Fishing mortality estimates from these sources of information, as incorporated in stock assessments, are critical to understanding the overall status and outlook of a stock as well as helping to understand the available options for conservation and management measures for the stock and potential implications for the ecosystem in which it lives.

Pelagic Longline Bycatch Data

Amendment 12 to the 2006 Consolidated HMS FMP reviewed and summarized the SBRM regarding the pelagic longline fishery. NOAA Fisheries collects data on the disposition (released alive or dead) of bycatch species from logbooks submitted by fishermen in the pelagic longline fishery. Observer reports also include disposition of the catch as well as information on hook location, trailing gear, and injury status of protected species interactions. These data are used to estimate post-release mortality of sea turtles and marine mammals based on guidelines for each (Angliss and DeMaster 1998, Ryder et al., 2006). Bycatch information is summarized extensively in the HMS SAFE Report (see Chapter 8 of the 2017 and 2018 versions). Table 3.29 shows numbers of fish caught in the pelagic longline fishery from 2015 through 2018.

Spatial trends in catch-per-unit effort of HMS bycatch and incidental catch of bluefin and other species for 2015-2018 were mapped (Figure 3.20-Figure 3.27), and are summarized here:

- Most of the bluefin discards occurred in locations near the edge of the continental shelf break, in the NED, and in the central Gulf of Mexico (Figure 3.20).
- Swordfish discard catch-per-unit effort was high primarily along the continental shelf break from Georges Bank to the northern border of the Florida East Coast Closed Area, along the west Florida shelf, and in the central Gulf of Mexico (Figure 3.21).
- Dusky shark discard catch-per-unit effort was highest off North Carolina (Figure 3.22).

- Blue marlin discard catch-per-unit effort was highest along and seaward of the U.S. east coast continental shelf break, off the west Florida shelf, and the U.S. Caribbean (Figure 3.23).
- White marlin discard catch-per-unit effort was highest along and seaward of the U.S. east coast continental shelf, in the high seas east of the Bahamian EEZ, and in the U.S. Caribbean (Figure 3.24).
- Roundscale spearfish discard catch-per-unit effort was greatest in the high seas east of the Bahamian EEZ, and in the U.S. Caribbean (Figure 3.25).
- Sailfish discard catch-per-unit effort was highest in the South Atlantic Bight, in the Gulf of Mexico, and in the U.S. Caribbean (Figure 3.26).
- Shortfin mako discards were highest in the Mid-Atlantic Bight, off Georges Bank, and in the Grand Banks/NED (Figure 3.27).

Table 3.29 Reported Numbers of Fish Discarded in the U.S. Atlantic Pelagic Longline Fishery (2015–2019)

Species	2015	2016	2017	2018	2019
Swordfish discarded	5,382	4,437	7,116	8,004	4,307
Blue marlin discarded	990	1,050	1,562	854	984
White marlin discarded	2,885	2,153	2,221	1,586	1,467
Sailfish discarded	715	855	657	810	402
Bluefin tuna discarded	210	582	229	310	347
Pelagic sharks discarded	45,082	27,900	25,564	14,649	12,733
Large coastal sharks discarded	8,839	9,549	11,533	7,988	4,466

Sources: NOAA Fisheries Logbooks and 2019 SAFE Report.

Table 3.1 in the Three-Year Review (NMFS 2019a) shows bluefin catch, and notes that catch (landings and dead discards) and dead discards in the pelagic longline fishery were reduced substantially during the 2015 to 2018 period compared to the 2012 to 2014 period, principally as a result of the IBQ Program. For example, total bluefin catch from pelagic longline vessels in 2014 was 208.7 mt and was 98.6 mt in 2018, not including the NED. When including the NED catch the change in total bluefin catch was not as dramatic, but never-the-less still substantial (Three-Year Review, Table 3.2). For example, in 2014, the catch was 221.7, and in 2018, the catch was 102.6. Landing of bluefin, including numbers, was fairly consistent from 2014 through 2018, including the NED, because regulatory dead discards prior to the IBQ Program were 'turned into' landings during 2015 to 2018. In other words, during 2015 through 2018, some of the bluefin that might have previously been discarded dead, were retained and landed. Some of the reduction in dead discards (Three-Year Review, Table 3.1) were due to alterations in fishing strategy resulting from the accountability required by the suite of Amendment 7 regulations.

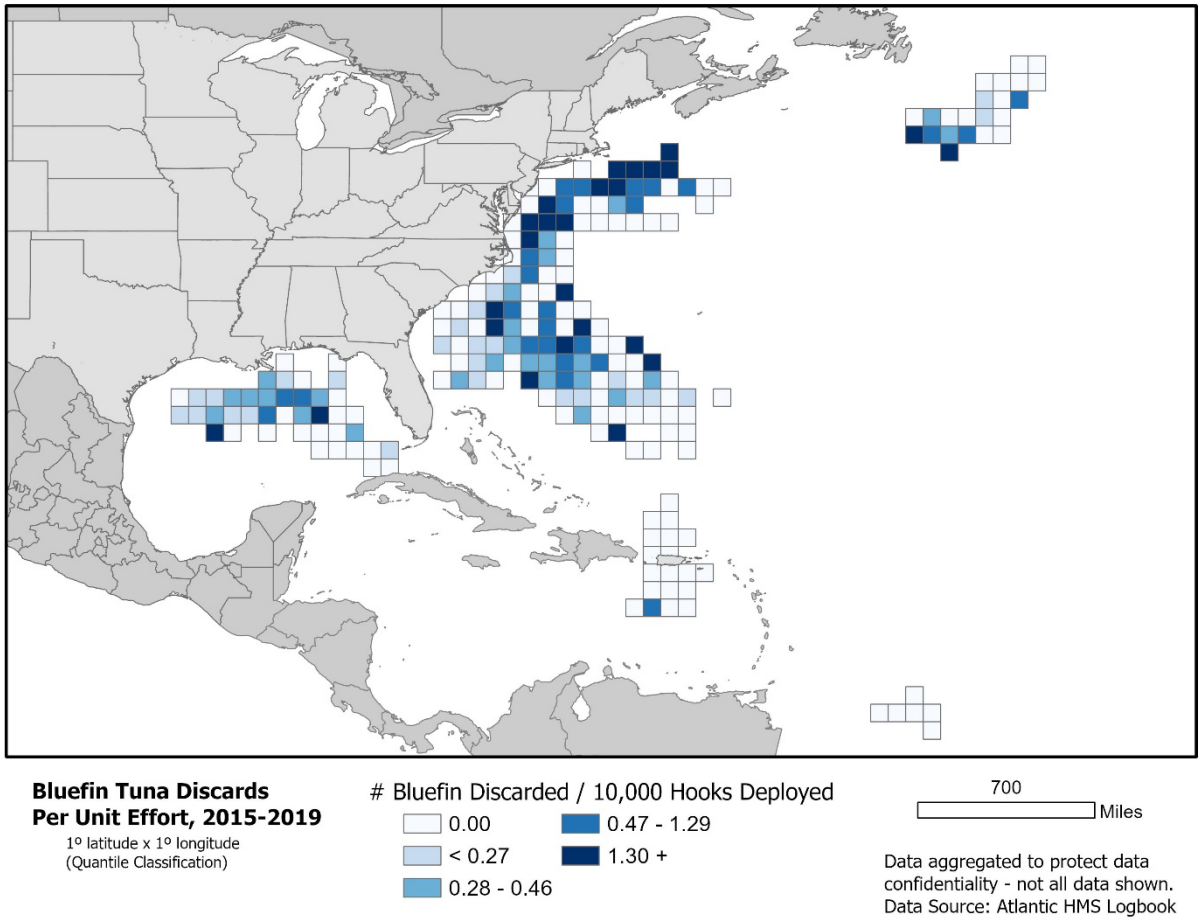

Figure 3.20 Spatial Distribution of Bluefin Discards within the Pelagic Longline Fishery, 2015-2019
Source: NOAA Fisheries Logbooks.

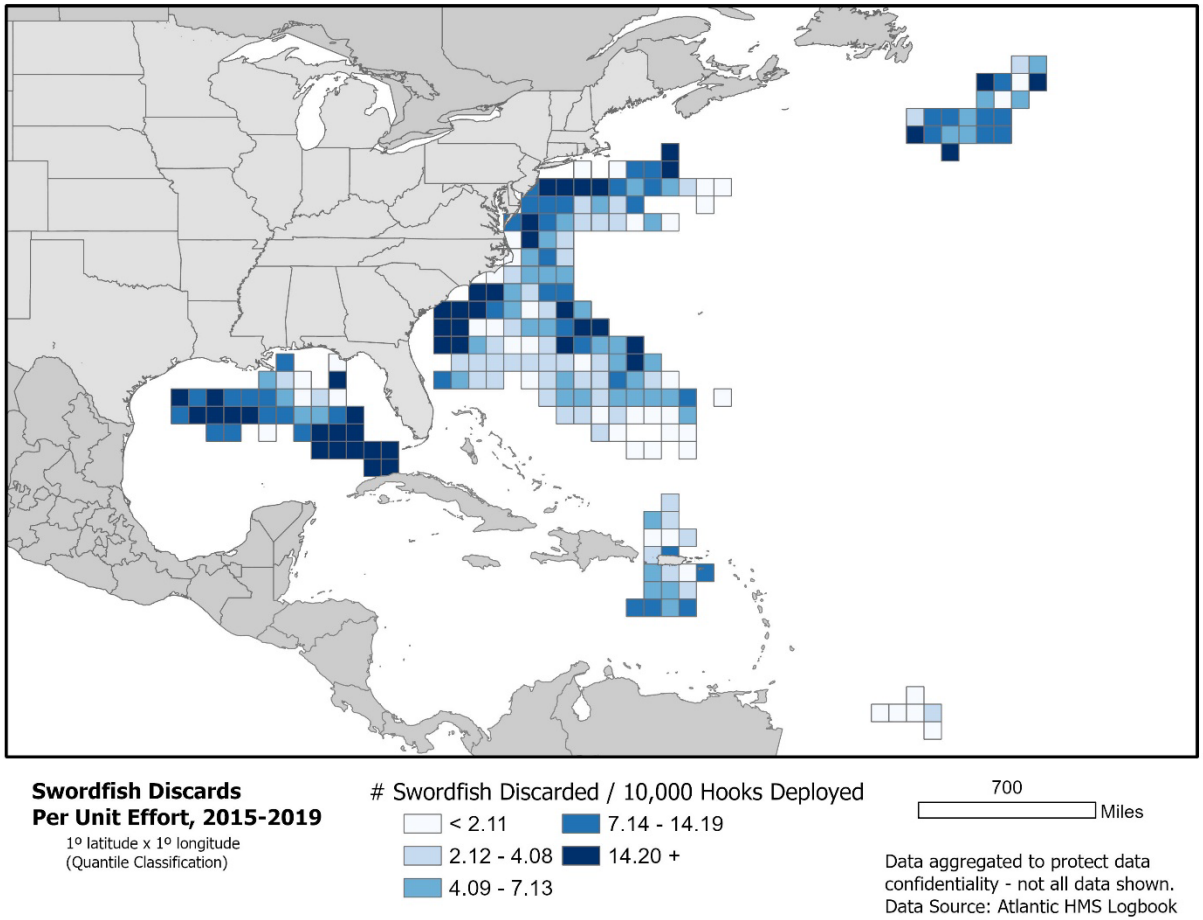

Figure 3.21 Spatial Distribution of Swordfish Discards within the Pelagic Longline Fishery, 2015-2019
Source: NOAA Fisheries Logbooks.

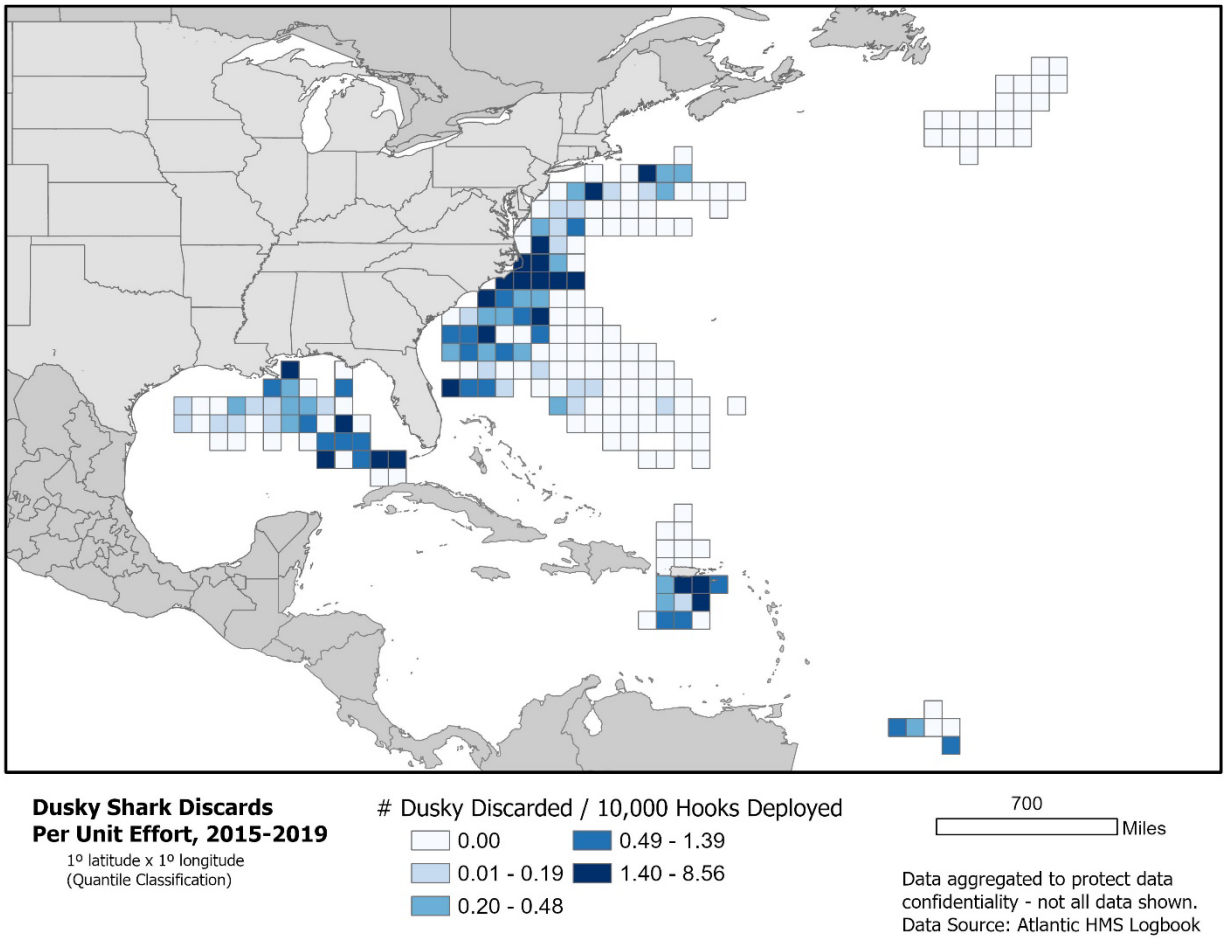

Figure 3.22 Spatial Distribution of Dusky Shark Discards within the Pelagic Longline Fishery, 2015-2019
Source: NOAA Fisheries Logbooks.

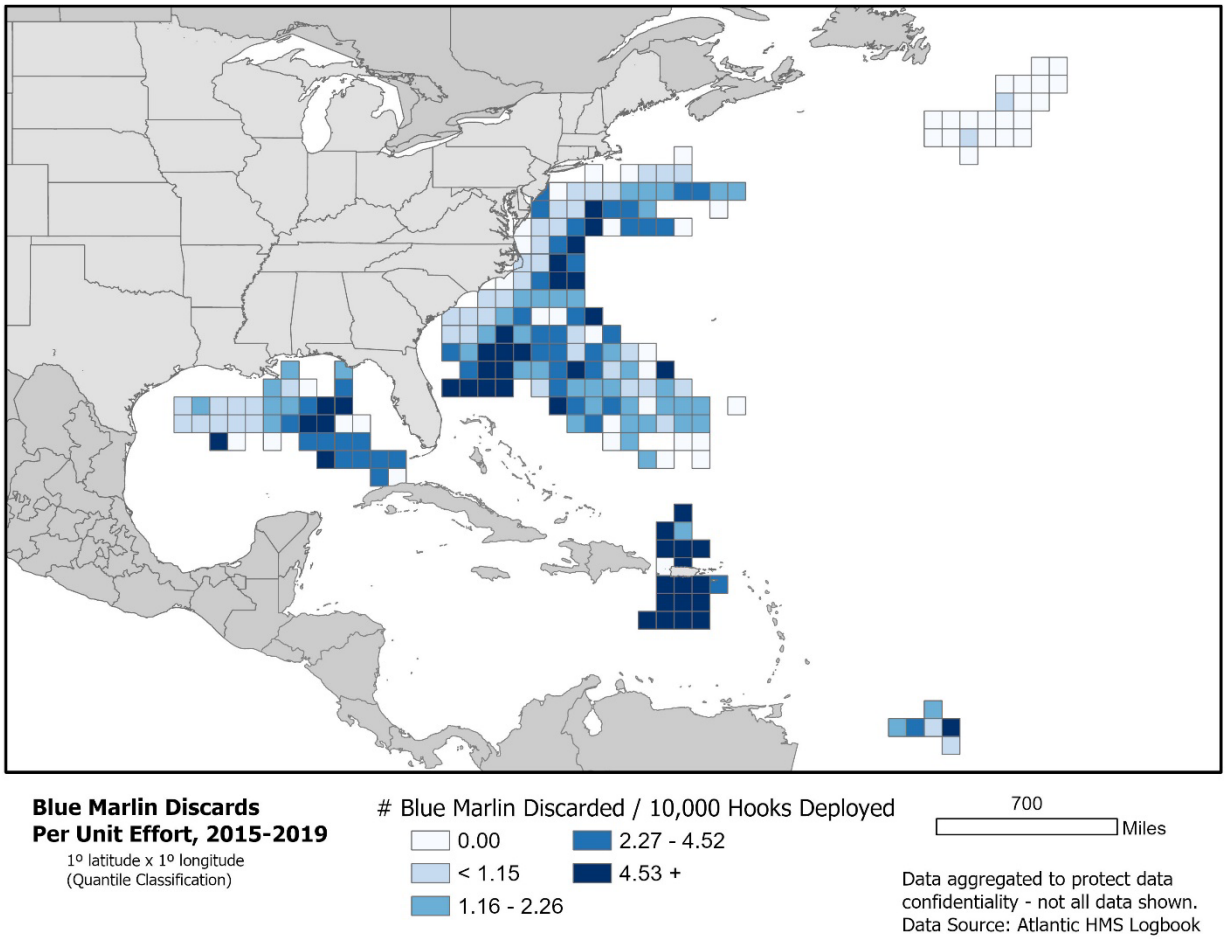

Figure 3.23 Spatial Distribution of Blue Marlin Discards within the Pelagic Longline Fishery, 2015-2019
Source: NOAA Fisheries Logbooks.

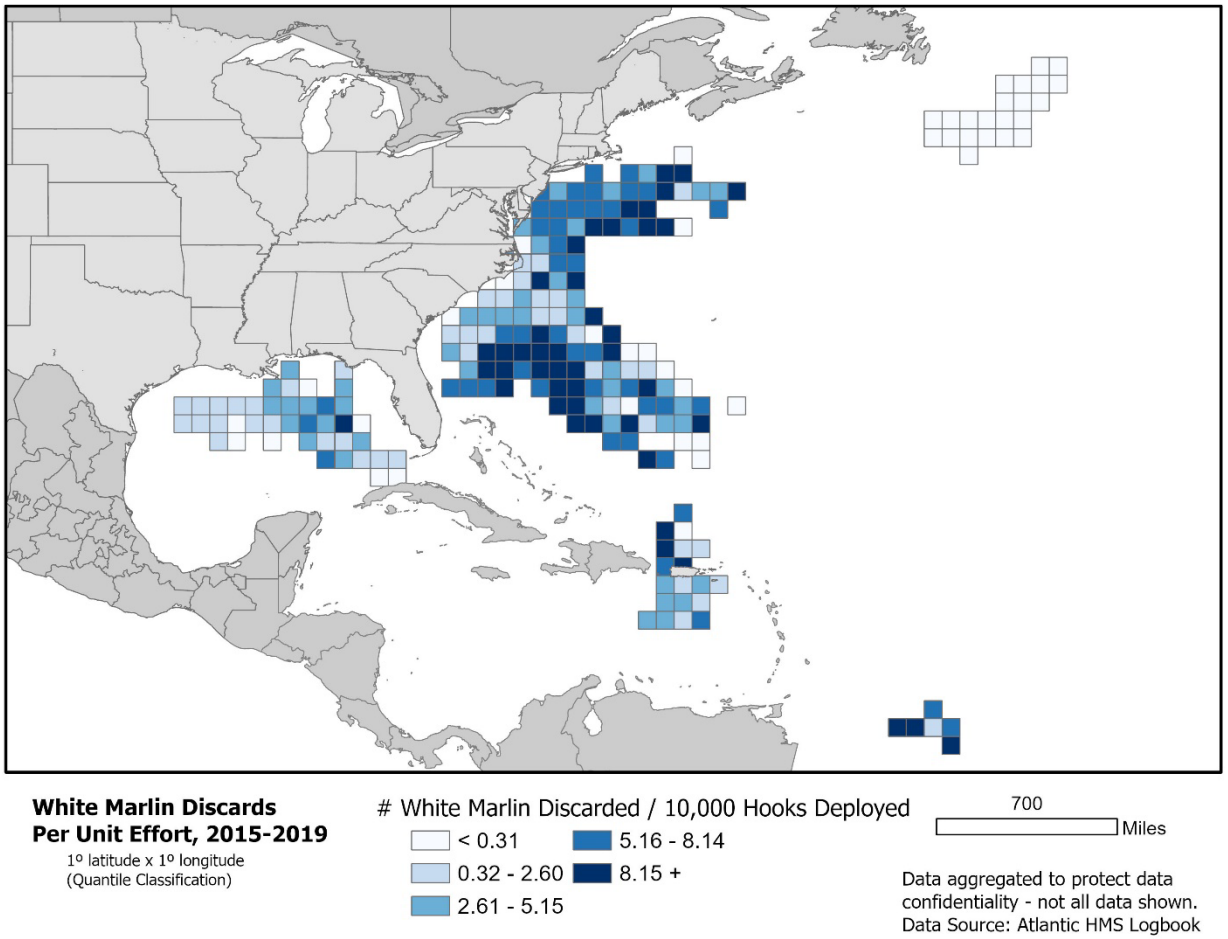

Figure 3.24 Spatial Distribution of White Marlin Discards within the Pelagic Longline Fishery, 2015-2019
Source: NOAA Fisheries Logbooks.

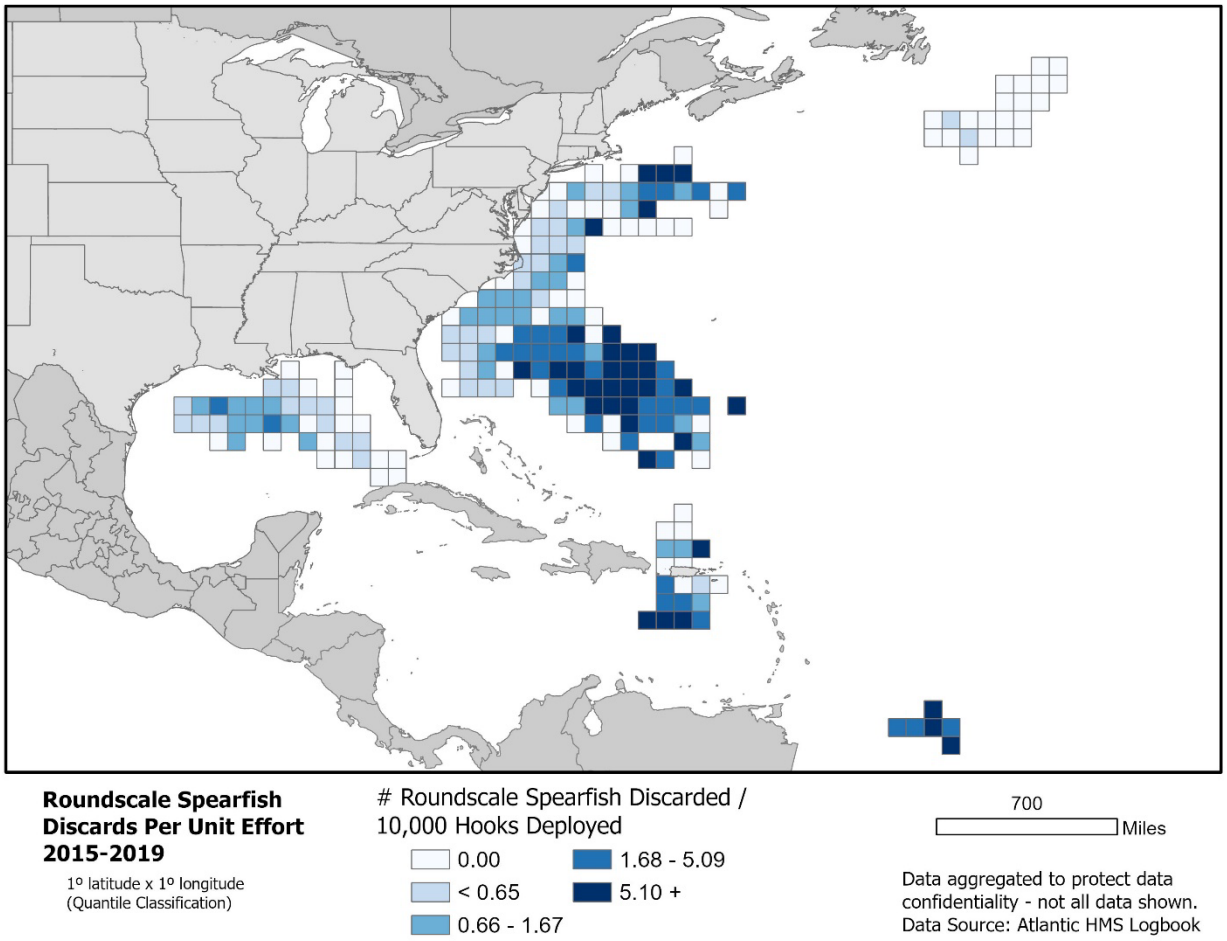

Figure 3.25 Spatial Distribution of Roundscale Spearfish Discards within the Pelagic Longline Fishery, 2015-2019
Source: NOAA Fisheries Logbooks.

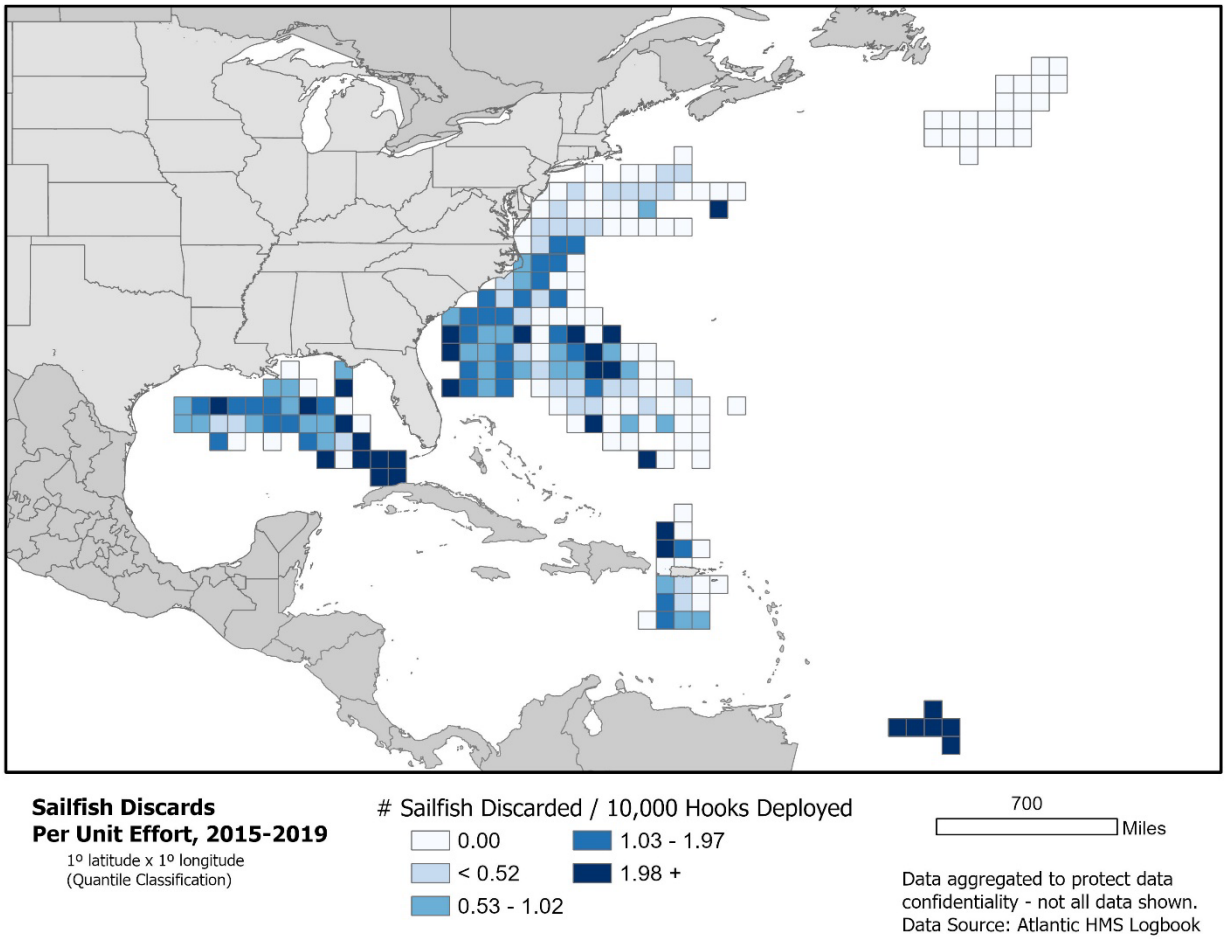

Figure 3.26 Spatial Distribution of Sailfish Discards within the Pelagic Longline Fishery, 2015-2019
Source: NOAA Fisheries Logbooks.

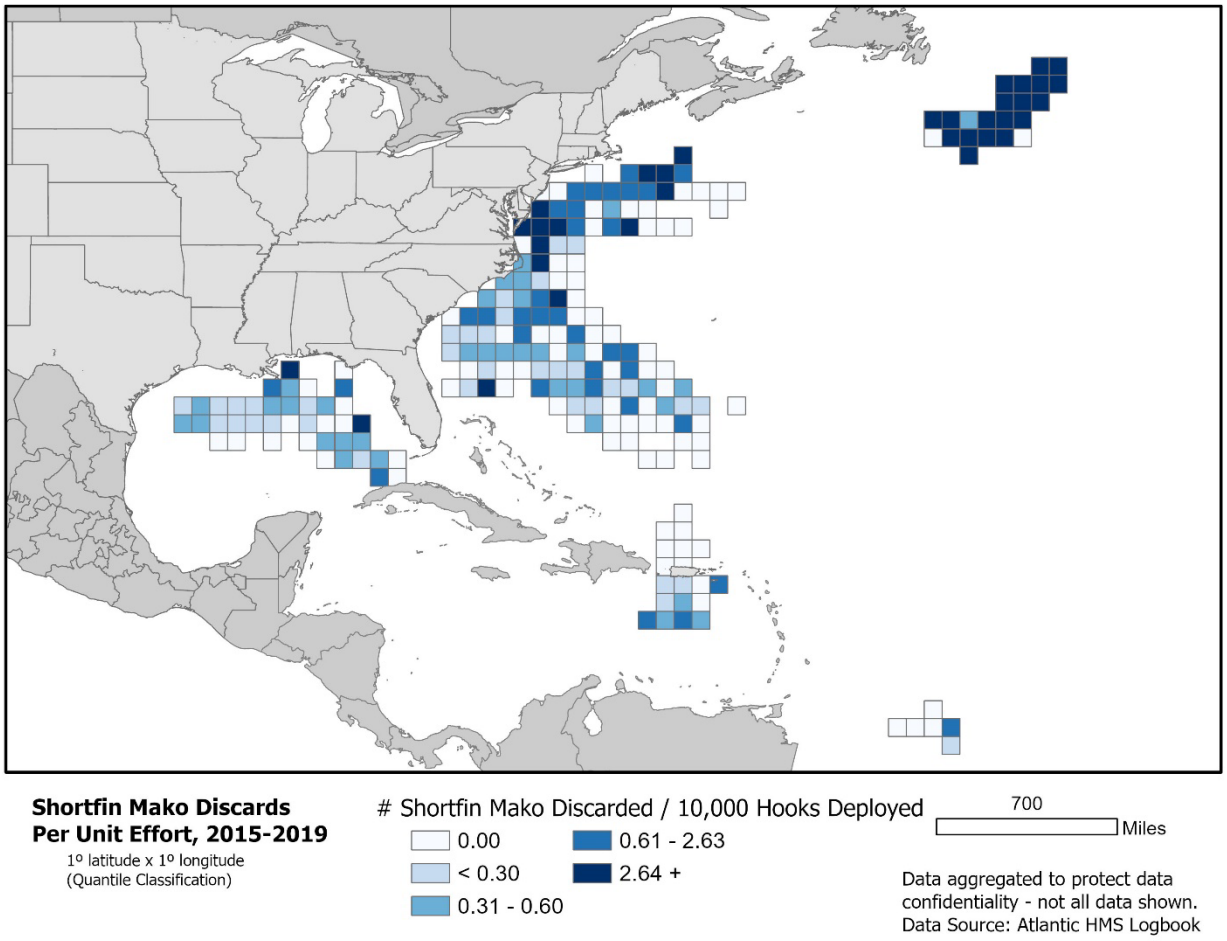

Figure 3.27 Spatial Distribution of Shortfin Mako Discards within the Pelagic Longline Fishery, 2015-2019
Source: NOAA Fisheries Logbooks.

Pelagic Longline Sea Turtle Interactions

NOAA Fisheries has taken several significant steps to reduce sea turtle bycatch and bycatch mortality in domestic longline fisheries, including: the required use of mitigation gear on pelagic longline vessels and handling/release guidelines and protocols (66 FR 17370); On March 30, 2001, NOAA Fisheries implemented via interim final rule requirements for U.S. flagged vessels using pelagic longline gear on board to have line clippers and dipnets to remove gear on incidentally captured sea turtles (66 FR 17370); and additional gear, bait and safe handling regulations for the Atlantic pelagic longline fishery to further reduce the mortality of incidentally caught sea turtles (69 FR 40734). NOAA Fisheries conducts workshops to educate longline and gillnet fishermen on all regulations and safe handling practices.

Internationally, the United States is pursuing sea turtle conservation through international, regional, and bilateral organizations such as ICCAT, the Asia Pacific Fishery Commission, and the United Nation's Food and Agriculture Organization (FAO) Committee on Fisheries (COFI).

Sea turtle bycatch in the U.S. Atlantic pelagic longline fishery has decreased significantly in the last decade. From 1999 through 2003 (NMFS 2019b), the pelagic longline fleet targeting HMS interacted with an average of 772 loggerhead and 1,013 leatherback sea turtles per year, based on observed takes and total reported effort. In 2005, the fleet was estimated to have interacted with 275 loggerhead and 351 leatherback sea turtles outside of experimental fishing operations (Walsh and Garrison, 2006). In 2017, the U.S Atlantic pelagic longline fishery was estimated to have interacted with 78 loggerhead sea turtles and 292 leatherback sea turtles (Garrison, 2018, unpublished data) (Table 3.29). In 2018, the U.S Atlantic pelagic longline fishery was estimated to have interacted with 61 loggerhead sea turtles and 119 leatherback sea turtles (Garrison, 2019, unpublished data) (Table 3.30). Distribution of interactions varies with species, but in general, interactions per unit effort are higher in the high seas seaward of the Bahamian EEZ, off Georges Bank, and off the Grand Banks (Figure 3.28). The grid cell in Figure 3.28 that had the highest number of interactions per unit effort reflects 3 leatherback and 5 loggerhead interactions that occurred over 14 sets deployed (~12,091 hooks). In 2017, the majority of loggerhead sea turtle interactions occurred in the South Atlantic bight and Gulf of Mexico areas (NMFS 2019b). Interactions with leatherback sea turtles were highest in the mid-Atlantic bight, south Atlantic bight, and Gulf of Mexico areas (NMFS 2019b). The total interactions for the 2013–15 Incidental Take Statement, takes the most recent and complete 3-year period, which were below the level established by the statement in the 2004 BiOp for both loggerheads and leatherbacks (Table 3.30). NMFS monitors observed interactions with sea turtles and marine mammals on a quarterly basis and reviews data for additional appropriate action, as necessary.

On May 15, 2020, NOAA Fisheries issued a biological opinion (BiOp) completing consultation under section 7 of the ESA on the effects of the operation of the pelagic longline fishery for Atlantic HMS, carried out under the 2006 Consolidated HMS Fishery Management Plan, as amended. This BiOp analyzed the best available data, the status of the

species, environmental baseline, effects of the proposed action, and cumulative effects. The BiOp concluded that that proposed action (the operation of the Pelagic Longline Fishery for Atlantic HMS, as managed under the 2006 Consolidated HMS FMP, as amended) was not likely to jeopardize the continued existence of the following ESA-listed species or distinct population segments (DPSs): sperm whales; the Northwest Atlantic DPS of loggerhead, Kemp's ridley, the North and South Atlantic DPSs of green, leatherback, hawksbill, or olive ridley sea turtles; giant manta ray; the Central and Southwest Atlantic DPS of scalloped hammerhead shark; and oceanic whitetip shark. Since no critical habitat will be adversely affected, the BiOp also concluded the action is not likely to destroy or adversely modify designated critical habitat.

Under Section 7(b)(4) and Section 7(o)(2) of the ESA, "take" that would otherwise be considered prohibited under Section 9 or Section 4(d) of the ESA, but which is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the reasonable and prudent measures (RPMs) and the terms and conditions of the incidental take statement (ITS) of the Opinion. The BiOp determined that RPMs were necessary or appropriate to minimize the impacts of future takes on sea turtles and other ESA-listed species and to monitor levels of incidental take. There were two RPMs in the BiOp and multiple terms and conditions associated with each. The first RPM addressed sperm whale, sea turtle, giant manta ray, scalloped hammerhead, and oceanic whitetip handling requirements. It requires the HMS Management Division, with the advice of SERO PRD, to ensure that fishermen in the HMS PLL fishery receive relevant outreach materials and provide such materials describing how captured ESA-listed sea turtles and fish should be handled and how gear should be removed from ESA-listed sea turtles, fish, and marine mammals to minimize adverse effects from incidental take and reduce mortality. The HMS Management Division shall provide such training using materials provided by the SERO PRD Division to fishermen. The second RPM requires the HMS Management Division to ensure that any takes of ESA-listed species are monitored and reported, coordinating with the SEFSC as necessary and appropriate. Such reports should allow the agency to: (1) detect any adverse effects resulting from the proposed action; (2) assess the actual level of incidental take in comparison with the anticipated incidental take documented in this Opinion; (3) assess (for sea turtles) the hooking location and gear remaining on every sea turtle released to allow for post-release mortality estimations; and (4) detect when the level of anticipated take (lethal and non-lethal) is exceeded.

As a condition of the incidental take statement, the BiOp requires that the HMS Management Division comply with eleven mandatory terms and conditions, which implement the RPMs described above. The terms and conditions specify the types of outreach materials that must be provided to PLL fishermen, levels of observer coverage, quarterly reporting of the total take and total mortalities (dead-on-retrieval and post-release mortality) of ESA-listed species in the HMS pelagic longline fishery, and an annual report detailing interactions between ESA-listed species and the HMS pelagic longline fishery.

The 2020 HMS PLL BiOp may be found at: HMS PLL BiOp.

Table 3.30 Estimated Sea Turtle Interactions and Sea Turtle Incidental Take Levels in the U.S. Atlantic Pelagic Longline Fishery by Species, 2010–2018

Species	Total 2010 to 2012	2013	2014	2015	Total 2013 to 2015	2016	2017	2018	Total 2016 to 2018	*Total 3-Year ITS Level
Leatherback	1,006	366	279	299	944	339	292	119	750	1,764
Loggerhead	1,463	377	259	243	879	154	78	61	293	1,905
Other/unidentified sea turtles	22	0	6	18	24	3	25	4	32	105

*Applies to all subsequent three-year incidental take statement periods (e.g., 2010–12, 2013–15, 2016–18); 2017 data are preliminary estimates. Sources: Garrison and Stokes 2016, 2017, 2019. Garrison 2018, 2019—unpublished data.

Pelagic Longline Seabird Interactions

The Migratory Bird Treaty Act provides protections for all seabirds, including gannets, gulls, greater shearwaters, and storm petrels. These species are occasionally hooked by Atlantic pelagic longline gear. The majority of longline interactions with seabirds occur as the gear is being set. The birds eat the bait and become hooked on the line. The line then sinks and the birds are subsequently drowned.

The NPOA-Seabirds was released in February 2001, and calls for detailed assessments of longline fisheries, and, if a problem is found to exist within a longline fishery, for measures to reduce seabird bycatch within two years. Because interactions appear to be relatively low in Atlantic HMS fisheries, such measures have not been necessary. The 2014 Report on the Implementation of the United States National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries was submitted to the FAO in June 2014.

Observer data indicate that seabird bycatch is low in the U.S. Atlantic pelagic longline fishery (NMFS 2021). From 2017 through 2020, based on pelagic observer program data, there were a total of 24 seabirds released, of which 16 were dead (67 percent).

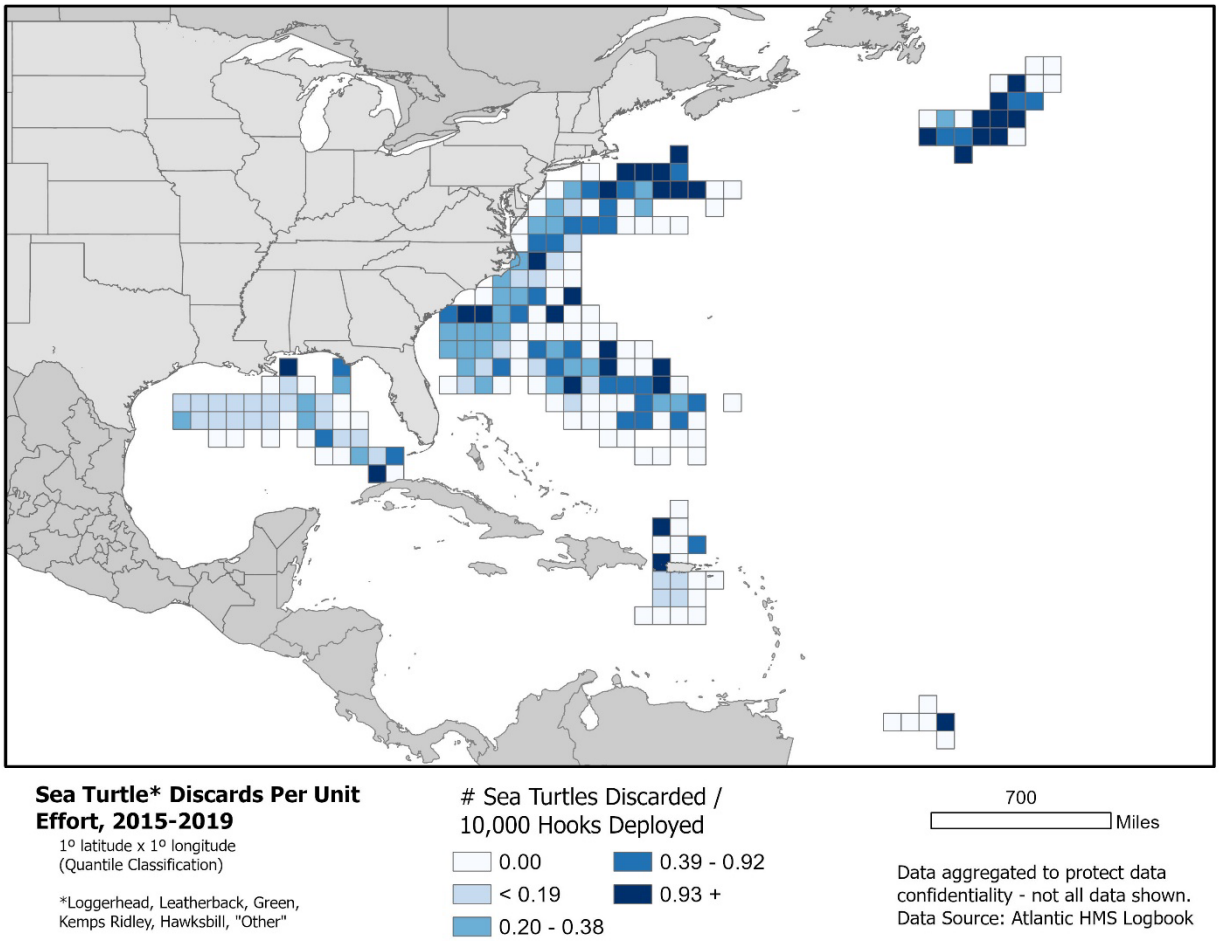

Figure 3.28 Spatial Distribution of Sea Turtle CPUE within the U.S. Pelagic Longline Fishery 2015-2019
Source: NOAA Fisheries Logbooks.

Purse Seine Bycatch, Incidental Catch, and Protected Species

Bluefin purse seine fishery bycatch and incidental catch typically consist of undersized target species and non-target finfish (NMFS 2014). The bluefin purse seine fishery is classified as a Category III fishery under the MMPA, and, when operational, operates under a specified Incidental Take Statement that was issued as part of the June 21, 2001 Biological Opinion (BiOp) on HMS fisheries.

NOAA Fisheries has limited observer data on the bluefin purse seine fishery given the relative limited effort over the past 15 years. There are no recorded instances of non-tuna finfish, other than minimal numbers of blue sharks, caught in Atlantic tuna purse seines. Anecdotal evidence indicates that if a school of bluefin is determined to be composed exclusively of sublegal (<73") bluefin, they can be released from the net. However, if the school consists of mixed size classes (e.g., large mediums and giants), those fish exceeding the large medium tolerance limit will likely be discarded dead. In 2013-2015, observer coverage of purse seine operations fishing under an EFP that allowed increased retention

of 30 percent large medium bluefin found an average dead discard rate of 28.4 percent (Table 4.25).

Non-pelagic longline HMS impacts on Endangered Species

As with the HMS pelagic longline fishery, NOAA Fisheries has taken many actions over the years to reduce sea turtle and other endangered species bycatch and bycatch mortality in HMS non-pelagic longline fisheries. The details of those actions are described in previous SAFE reports and other documents and are not repeated here.

On May 15, 2020, NOAA Fisheries released a BiOp for all Atlantic HMS fisheries except pelagic longline (in addition to a separate BiOp on the same date, addressing consultation over the PLL fishery for Atlantic HMS). This BiOp concluded that these fisheries (including handgear fisheries) were not likely to jeopardize the continued existence of sea turtles, sawfish, Atlantic sturgeon, scalloped hammerhead shark (Caribbean and Central Atlantic DPS), oceanic whitetip shark, and giant manta ray. NOAA Fisheries is implementing the RPMs and Terms and Conditions of this BiOp.

Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that would otherwise be considered prohibited under Section 9 or Section 4(d), but which is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the RPMs and the terms and conditions of the incidental take statement of the BiOp. The BiOp determined that RPMs were necessary or appropriate to minimize the impacts of future takes on sea turtles and other ESA-listed species and to monitor levels of incidental take. There were three RPMs in the BiOp and multiple terms and conditions associated with each. The first RPM addressed sea turtles, smalltooth sawfish, Atlantic sturgeon, scalloped hammerhead sharks, oceanic whitetip shark, and giant manta ray handling requirements. It requires that the HMS Management Division ensure that fishermen in the HMS fisheries that take listed species receive relevant outreach materials describing how captured sea turtles and ESA-listed fish should be handled to minimize adverse effects from incidental take and reduce mortality. The second RPM requires the HMS Management Division to work with the SEFSC and HMS bottom longline fishermen to continue to investigate ways to monitor and limit soak times to minimize sea turtle at-vessel mortalities. The third RPM requires the HMS Management Division to ensure that monitoring and reporting of any sea turtle or ESA-listed fish bycatch: (1) detect any adverse effects resulting from the proposed action; (2) assess the actual level of incidental take in comparison with the anticipated incidental take documented in the BiOp; and (3) detect when the level of anticipated take is exceeded.

As a condition of the incidental take statement, the BiOp requires that the HMS Management Division comply with eleven mandatory terms and conditions, which implement the RPMs described above. The terms and conditions specify the types of outreach materials that must be provided to fishermen, development of safe handling and release guidance, levels of observer coverage, and an annual report detailing interactions between ESA-listed species and the HMS fisheries.

The BiOp on the operation of the Atlantic HMS fisheries other than PLL can be found here: https://www.fisheries.noaa.gov/resource/document/biological-opinion-operation-atlantic-highly-migratory-species-fisheries.

Recreational Fishery Bycatch

Recreational fishery bycatch statistics are summarized in the Atlantic HMS SAFE Reports. Bycatch in the recreational rod and reel fishery is difficult to quantify because many fishermen may be valuing the experience of fishing over the catch of a targeted species, thus making it difficult to distinguish between target species and bycatch species. HMS established a catch-and-release fishery management program for the recreational Atlantic billfish fishery in 1999. Since fish released alive under a recreational catch-and-release fishery management program are exempt from the Magnuson-Stevens Act definition of bycatch, a result of the program is that all Atlantic billfish released alive, regardless of size, are not considered bycatch. The recreational white shark fishery is, by regulation a catch-and-release fishery only (§ 635.26(c)); therefore, white sharks are not considered bycatch. Dead discards of bluefin are counted as bycatch and must be reported online or via phone.

Most evidence suggests that circle hooks reduce at-vessel and post-release mortality rates for many HMS compared to J-hooks without reducing the catch of target species, although this varies by species, gear configuration, bait, and other factors. In a meta-analysis of 42 empirical studies, Reinhardt et al., (2017) compared the effects of hook type on catch rate and at-vessel mortality of 43 and 31 species, respectively. Catch rates were statistically significantly higher for a number of sharks, tunas, and sailfish. This study also found statistically significant evidence that at-vessel mortality of fish caught on J-hooks was higher for a number of billfish, swordfish, tunas, and sharks.

NOAA Fisheries initiated an outreach program to address bycatch and educate anglers on the benefits of circle hooks. NOAA Fisheries created a Careful Catch and Release brochure that provides guidelines on how to increase the survival of large pelagic species caught with hook-and-line. NOAA Fisheries has also developed additional resources for recreational fishermen to reduce bycatch of dusky sharks, which are often misidentified in recreational fisheries. A video on the safe handling and release of prohibited Atlantic sharks is available for anyone to view. Fishery participants that elect to add a shark endorsement to their HMS Angling permits must review this video and take a quiz prior to receiving their permit.

Commercial Handgear Bycatch

Commercial handgear fishery catch statistics (green-stick gear, buoy gear) are summarized in the Atlantic HMS SAFE Reports. For this fishery, there is mandatory online reporting of bluefin tuna that are landed dead or discarded. Some of these fisheries are very selective and have minimal bycatch (e.g., harpoon). Table 3.31 shows reported General category bluefin dead discard information for 2019.

Table 3.31 General Category Bluefin Dead Discards by Size Category (by Number) in 2019

Size Category	Total Discarded Dead
>81 inches	14
73 to 81 inches	18
59 to <73 inches	20
47 to <59 inches	0
27 to <47 inches	0
<27 inches	1
Total	53

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4 Ecological and Socioeconomic Consequences of Alternatives

This chapter analyzes the impacts of the alternatives described in Chapter 2. Specifically, this chapter contains qualitative and quantitative analyses of the direct and indirect ecological and socioeconomic impacts of the alternatives. The analyses focus on the ecological impacts of the alternatives on bluefin and on other Atlantic highly migratory species (HMS)(direct impacts), but includes protected species (Section 4.9) and essential fish habitat (EFH)(indirect impacts). Where relevant (i.e., facilitating the understanding of the nature of the impact), the impacts are noted as short term or long term (as defined in Chapter 1). The EFH analysis for all of the alternatives has been combined (Section 4.10) due to the low likelihood of the alternatives having an impact on EFH. The socioeconomic impacts focus on fishing vessels (direct impacts), but also include impacts on seafood dealers (indirect impacts). The impacts described are direct impacts unless otherwise stated.

The relevant sources of data and methods used to analyze the alternatives are described under each alternative. Generally, the data in this chapter of the FEIS are the same as contained in the DEIS, with the exception of the inclusion of 2019 data in this FEIS, where available and most relevant to the consideration of alternatives. As a result, most of the relevant data analyzed are for the time period 2015 through 2019, and not 2020 or 2021. Individual analyses may have specific time periods that are relevant, and/or data availability limitations. Furthermore, 2020 and 2021 may have been anomalous years due to the COVID 19 pandemic and resultant disruptions to social and economical aspects of U.S. society, including HMS fisheries. The analyses generally use data starting in 2015, because the wide-ranging regulatory changes implemented by Amendment 7 took effect at that time. Any regulations affecting participants of the bluefin fisheries since 2015 have been fairly consistent, which means that starting in 2015 should provide a good analytical basis. Typically data such as logbook or observer data, must undergo a process of quality control after it is received by the Agency, and therefore, data may not be 'finalized' and ready for use by managers until weeks or months after receipt.

None of the alternatives in this FMP amendment propose or prefer modifying the annual bluefin quota allocated to the United States by the International Commission for the Conservation of Atlantic Tunas (ICCAT), since that action is the subject of a separate, ongoing rulemaking action. The bluefin quotas analyzed are the U.S. quota and subquotas in effect at the time of the drafting of the DEIS and FEIS, which were based on the baseline quota implemented in October 2018 (83 FR 5139, October 11, 2018), consistent with the quota adopted by ICCAT in Rec. 17-06. That recommendation established interim conservation and management measures for 2018 through 2020 for the western Atlantic bluefin stock, including establishing a total allowable catch (TAC) of 2,350 mt. In 2020, ICCAT adopted Rec. 20-06, which rolled over the existing 2020 TAC into 2021. On March 7,

2022, NOAA Fisheries published a proposed rule that included a 2022 bluefin TAC of 2,726 mt based on a recommendation at ICCAT's November 2021 meeting (Rec. 21-07)(87 FR 12648). *See* 87 FR 12648 (March 7, 2022) and HMS website at Proposed changes to Atlantic Bluefin Tuna and North Albacore Quotas. Although NOAA Fisheries proposed a slightly higher TAC for 2022, that rule has not been finalized. This FEIS utilized the existing bluefin quota for analyses as that in the DEIS in order to facilitate effective comparisons between the DEIS and FEIS. For the purpose of comparison of alternatives, relatively small changes in the size of the total western Atlantic bluefin quota have no effect on the resultant conclusions. NOAA Fisheries will implement the Amendment 13 final rule measures based on the current U.S. bluefin TAC.

4.1 'A' Alternatives: Modifications to Individual Bluefin Quota (IBQ) Share Eligibility, Distribution, and Allocation Methods

These alternatives analyze modifications to the IBQ Program. Specifically, the method of determining eligibility for IBQ shares, the method of distributing IBQ shares (expressed as percentage of the Longline category quota), and the method of IBQ allocation (expressed as pounds). Closely related rules regarding the IBQ Program are analyzed in another section.

The ecological impacts of each of the allocation alternatives are discussed briefly below. Overall, the ecological impacts of the IBQ share and allocation alternatives on bluefin would be neutral. Any action considered in the alternatives would manage the bluefin stock within the already-established total allowable catch (TAC) level and U.S. quota, which NOAA Fisheries previously implemented through rulemaking with the appropriate environmental analyses of the effects of quota implementation (NMFS, Sept 2018). By distributing IBQ shares only to active vessels, vessels may not have to lease as much quota. This could have a minor effect on a vessel's fishing strategy (i.e., where and when they fish, or the amount of fishing effort), but is not anticipated to substantively impact either HMS target or incidental catch species or bycatch species.

The socioeconomic impacts of the allocation alternatives are also discussed below. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. The principal communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may be most vulnerable to socioeconomic impacts are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.1.1 Alternative A1: No Change to IBQ Share Eligibility, Distribution, and Allocation Method - No Action

This alternative would make no changes to the current method of determining IBQ share eligibility and the distribution of IBQ allocation, including regional designations. The No

Action Alternative (current methods) described below are those in the 2006 Consolidated HMS Fishery Management Plan (FMP), as amended by Amendment 7, and modified by subsequent actions.

Ecological Impacts

This No Action alternative would not modify the annual International Commission for the Conservation of Atlantic Tunas (ICCAT) recommended bluefin quota, nor the U.S. portion of that quota. As explained in Section 3.1.1 of this document, based on a 2021 stock assessment, the SCRS recommended that a moderate increase to the TAC was allowable and provided additional advice on alternative approaches to assist in determining the level of an appropriate moderate increase in TAC. Considering this advice, ICCAT adopted a TAC of 2,726 mt at its November 2021 meeting (Rec. 21-07), which is a 16-percent increase from the prior TAC of 2,350 mt. The Recommendation describes the adopted TAC as a precautionary TAC that prevents overfishing with a high probability, prioritizes continued stock growth, including into the long-term, and ensures relative stability by avoiding a large fluctuation in catches. Based on this Recommendation, on March 7, 2022, NOAA Fisheries proposed increasing the U.S. bluefin quota from 1,247.86 to 1,316.14 mt (not including the 25 mt to account for bycatch related to pelagic longline fisheries in the Northeast Distant gear restricted area) (87 FR 12650). Furthermore, over the past several years, the United States has underharvested its available quota. Chapter 3 provides additional information on the relevant bluefin quotas and recent landings. This alternative does not modify the maximum amount of IBQ allocation that may be caught from the Gulf of Mexico, which is 35 percent of the quota (based on the amount of IBQ allocation designated as Gulf of Mexico (GOM) under Amendment 7).

The No Action alternative would continue the current IBQ shareholders and method of annual IBQ allocation. The ecological impacts of the No Action alternative on bluefin would be neutral, because the method of defining eligible shareholders and the distribution of IBQ allocation would not affect the amount of overall Longline category quota that may be caught. Provided the IBQ Program continues to ensure individual vessel accountability for bluefin incidental catch, the specific allocation method would have a neutral ecological impact, presuming that the overall, codified quota is adhered to. The Three-Year Review concluded that under the IBQ Program (which included the No Action method of IBQ allocation) bluefin catch was reduced substantially compared to the time period prior to the implementation of the IBQ Program. The ecological impacts on other HMS species and on protected species would also be neutral, because fishing strategies for target species are likely to remain similar under the same quota allocation methods, with anticipated continuation of the same impacts.

Socioeconomic Impacts

The socioeconomic impacts of the No Action alternative on fishery participants and supporting industries would be neutral in that this alternative would continue the current system of IBQ share designation and allocation and represent no change to the amount of effort that could occur. Short-term costs associated with the current level of leasing of IBQ

allocation would continue and the relatively high amount of IBQ shares associated with vessels that are not active would remain.

Based on the data presented in the Three-Year Review, under the current regulations vessels were able to account for bluefin catch using a combination of annual and leased IBQ allocation (Three-Year Review, Table 3.8 and Table 3.9). The shareholder tier and resulting amount of IBQ allocation (high, medium, or low) available to a vessel mattered, as evidenced by the different metrics associated with the three tiers (e.g., amount of bluefin landed by each tier, numbers of vessels leasing, percent of total leased IBQ allocation, percent of total quota debt (Three-Year Review, Table 3.10, Table 6.11, and Table 6.12)). For example, the ratio of the percent of the total leases to the percent of total quota debt was notably greater for vessels in the high tier (Three-Year Review, Table 6.14).

The socioeconomic impacts that would continue under the No Action Alternative result from: (1) The definition of eligible shareholders based on the time period of 2006 through 2012, and (2) the method of distribution of IBQ allocation, which is static and based on fishing effort and bluefin interactions. Shares are in proportion to a vessel's historical fishing effort, and inversely proportional to the vessel's amount of bluefin interactions relative to its target catch (i.e., with more historical bluefin interactions, less shares).

Based on the Three-Year Review, the current regulations, which largely reflect the methods adopted in Amendment 7, resulted in a lower number of vessels being distributed IBQ allocation than the number of eligible shareholders due to permits that were not associated with vessels, or non-renewed permits. For example, of the 136 defined shareholders only 122 and 112 vessels were distributed IBQ allocation in 2017 and 2018, respectively (Three-Year Review; Table 4.1). Of the vessels distributed IBQ allocation, only a portion actively fished. For example, of the 122 vessels distributed IBQ allocation in 2017, only 86 fished with pelagic longline gear (Table 4.3). The net result is that only a portion of the overall quota associated with the Longline category is distributed to vessels that are active.

While the No Action alternative would not be expected to result in any changes in socioeconomic impacts, other alternatives would more effectively address current constraints and costs associated with curent method of IBQ share determination and subsequent IBQ allocations. Under the No Action alternative, there would continue to be dissatisfaction among fishery participants that results from the fact that a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel).

Under the No Action alternative, there would continue to be inefficiency associated with annual IBQ allocations that are neither used to account for bluefin catch nor leased to other shareholders. During 2015, 2016 and 2017, only 77 percent, 63 percent, and 63 percent of shareholders were active, respectively. The constraints and costs associated with the amount of IBQ allocations can be measured by using the IBQ leasing data. To comply with the IBQ quarterly accounting rules, account for catch of bluefin, and maintain a balance of IBQ allocation that reduces risk (i.e., risk associated with the potential need to account for

future bluefin catch), vessels leased IBQ allocation in the past, and would likely continue to do so under the No Action alternative. To estimate the costs associated with a hypothetical future leasing market under the No Action alternative, NOAA Fisheries chose both an estimated cost per pound for leased quota and an estimated number of pounds leased.

Based on the weighted average price per pound of leased IBQ allocation from 2017, 2018, and 2019, the overall average cost of leasing IBQ allocation is $1.70 per pound (Table 3.15 in Chapter 3). In 2019, a total of 180,756 pounds of IBQ allocation was leased (including leased allocation from Purse Seine participants). If the amount leased in the future were 180,000 pounds, the total cost of leasing IBQ allocation would be $306,000. The costs associated with leasing IBQ allocation would also include time spent by leasing market participants communicating with other participants when they are trying to find potential lessors or lessees, and the time spent by lessors online executing the transactions.

4.1.2 Alternative Suite A2: Dynamic Determination of IBQ Shares: Eliminate existing designations of IBQ shareholders and distribute IBQ shares only to currently active vessels

Under this alternative and its sub-alternatives, shareholders would be determined annually, based on the application of eligibility criteria intended to define a pool of recently active vessels. Therefore, elements of each of the sub-alternatives include a definition/criterion for determining the pool of vessels that have recently fished (i.e., defining what an "active" vessel is). In other words, these sub-alternatives would include designation of a specific time period and metric to be analyzed to determine which vessels have been recently active (i.e., most recent 3 year period for which NOAA Fisheries has data on fishing effort). The second aspect of eligibility is vessel permit status at the time the eligibility is determinied. In the DEIS, the dynamic share determination alternatives included a requirement that vessels must have a currently valid Atlantic Tunas Longline category permit (i.e., current at the time eligibility is assessed by NOAA Fisheries). In other words, if a vessel had been actively fishing at some time during the previous three years, but did not have had a valid permit at the time NOAA Fisheries conducted its annual determination of shareholders, the vessel would *not* have been determined to be a shareholder. In contrast, in this FEIS, due in part to public comment on the proposed rule, the requirement that a shareholder have a valid permit when NOAA Fisheries conducts its annual determination of shareholders is no longer preferred in the dynamic allocation alternatives. In other words, if a vessel has been active (with a valid permit at the time it was active) during the relevant three-year period, the permit holder would be defined as a shareholder even if *at the time of annual determination* the permit had expired or had been put in NOVESID status. A requirement that a shareholder have a valid permit at the time of the annual determination was overly restrictive in that it would have excluded a vessel that had been active within the previous three years, but did not have a valid permit during the narrow time window during which NOAA Fisheries conducts the annual determination of shareholders. Reasons for not having the valid permit can include (but are not limited to) issues such as: 1) The permit expired prior to the time of the annual determination, but the vessel owner had not yet completed the annual permit renewal and issuance; 2) the vessel

owner is in the process of transferring the permit from one vessel to another; or 3) The permit is currently in NOVESID status. This change to the IBQ shareholder eligibility requirements represents a minor change from what was analyzed in the Amendment 13 DEIS, and responds to public comments. Public comments included those that stressed the importance of flexibility in the IBQ Program, and therefore NOAA Fisheries ispreferring this approach within the dynamic determination alternatives in this FEIS.

Under this alternative, the Amendment 7 determination of shareholders would no longer exist or be relevant. The outcome of assessing those criteria would result in the annual determination of eligible shareholders, and subsequent distribution of IBQ allocation to permitted vessels that recently fished with pelagic longline gear.

Deepwater Horizon (DWH) Oceanic Fish Restoration Project (OFRP) Participants, who voluntarily took time out of the pelagic longline fishery for set periods of time would not be disadvantaged under these dynamic allocation alternatives. As described in each alternative below, a proxy amount of effort would be utilized for such vessels during the years they participated in the OFRP. A condition of the contract participants signed stated that participants would not be disadvantaged by their participation. The ecological impacts of the use of proxy fishing effort for some vessels effort is neutral because it would not alter the total amount of IBQ allocation. The socioeconomic impacts of the DWH proxy would be minor positive for participating vessels. There were a small number of fishing vessels participating in the DWH OFRP between 2017 and 2019 (between 7 and 11 vessels) and relative small adjustments in fishing effort (less than 3 percent of total effort; approximately 10 percent of Gulf of Mexico effort). Although in conjunction with the increase in IBQ share percentage for participating vessels there is a corresponding decrease in IBQ share percentages for non-participating vessels, such changes are very small due to the large number of vessels. Minor changes in IBQ share percentages have relatively small effect on subsequent IBQ allocations, so the amount of decrease in IBQ allocations for non-participant vessels and therefore the socioeconomic impacts are *de-minimis*.

4.1.2.1 Sub-Alternative A2a: Dynamic determination of IBQ shares based on hooks as the measure of fishing effort

Alternative A2a would define IBQ shareholders annually based on hooks as the measure of fishing effort. The time period used for determination of eligible permitted vessels (active vessels) would be the three most recent years of available data. Vessel Monitoring System (VMS) bluefin reports would be the basis for defining IBQ shares (due to the timing of NOAA Fisheries' receipt of the data versus logbooks), based upon each individual vessel's fishing effort using pelagic longline gear, relative to the total amount of pelagic longline fishing effort. Based on the share percentages and the Longline category quota, IBQ allocation would be distributed annually to permitted vessels.

Methods

As noted above, this alternative would use the three most recent years of available VMS bluefin reports. For purposes of this Final Amendment 13/FEIS, NOAA Fisheries used VMS bluefin reports from 2017 through 2019, updating analyses in the Draft Amendment 13/DEIS that used 2016 through 2018 reports. There was no major difference between the analyses that would affect the agency's conclusions regarding impacts of the alternative. Based on VMS data, from 2017 through 2019, there were a total of 91 vessels that were active in at least one year. VMS data from 2017 through 2019 were used to calculate the total number of hooks fished by vessel, and the total number of hooks for all vessels for the three years calculated. The total number of hooks per vessel for the three years was then put in numeric order, and then expressed as a percentage of the total number of hooks for the fleet. The percentages associated with an individual vessel ranged from a maximum value of 3.8 percent to a minimum value of .002 percent. The data set (percent values that had been put in order from lowest to highest) was then divided into quarters. Quartile values were then determined (i.e., the first, second, third, and fourth quartiles at the 25th percentile, 50th percentile, 75th percentile, and 100th percentile (the highest), respectively) from the range of values of percents. For each of the four quartile ranges (*see* Table 4.1), the percentages for each vessel were summed (sum per quartile). The sum per quartile range was divided by the number of vessels in each quartile range to derive the percent per vessel. The percent per vessel (share percentage) was then multiplied by the total pelagic longline quota (360,656 pounds) to derive the IBQ allocation (pounds) for each vessel. For example, a vessel that had a total of 256,054 hooks set during 2017 through 2019 represented a total of 2.0 percent of the total fishing effort expressed as hooks (12,500,861 total hooks, including the proxies for OFRP as described below). This percentage (2.0 percent) is in the fourth quartile range (i.e., between the 3rd quartile and 4th quartile; from 3.8 to 1.6 percent). Each of the 19 vessels in the fourth quartile range were assigned an IBQ share percentage of 2.32 percent of the total Longline category quota. Based on the 2019 Longline quota of 360,656 pounds, the IBQ allocation for a shareholder in the fourth quartile would be 8,379 pounds (2.32 percent X 360,656 pounds). Table 4.1 shows the key metrics used in the derivation of individual shares.

For this sub-alternative, we (NOAA Fisheries) assigned individual vessels to one of four quartiles, rather than assign each vessel a 'customized' percentage. This system of four distinct share percentages would be relatively easy to implement accurately and would facilitate communication with the fishery. Additionally, designation of shares using quartiles would reduce the amount of annual variability in share percentages of individual shareholders, and would eliminate both very large and very small percentage shares, which can be problematic. Specifically, if the percentage is too large, the incentives associated with IBQ allocations and the IBQ Program may be eroded (i.e., the incentives for fishing strategies that reduce the likelihood of bluefin interactions). Similarly, if the percentages are too small, a shareholder could be distributed less than the requisite amount of IBQ allocation under quarterly accountability (e.g., 551 of GOM designated IBQ allocation). Under the quartiles, the largest percentage share is 3.8 percent (associated with vessels in the fourth quartile) and the smallest is 0.002 percent (associated with vessels in the first quartile). Twelve vessels had individual percentage values that are higher than the largest quartile share percentage (2.32 percent) and 15 vessels had individual percentage values that are lower than the smallest quartile share percentage (0.17 percent).

For vessels that fished in the Gulf of Mexico and voluntarily participated in the DWH OFRP (Project participants), the calculation methods considered the fact that such vessels had time periods during which they were prohibited from using pelagic longline gear (i.e., March through June 2017; January through June for both 2018 and 2019). Therefore, NOAA Fisheries developed a proxy amount of fishing effort that was used in the calculation of allocations for this alternative. The average number of hooks per vessel set in the Gulf of Mexico by non-participants, during the time period of the Project was used as the proxy number of hooks for participants. There were 7 participants during 2017, 10 participants during 2018, and 11 participants in 2019. The relevant information used in the derivation of the proxy values are in the Appendix (Table 11.11).

Ecological Impacts

The ecological impacts of Sub-Alternative A2a on bluefin would be neutral, because the method of defining eligible shareholders and the distribution of IBQ allocation do not affect the amount of overall longline quota that may be caught. The method of share determination would not affect the overall U.S. bluefin TAC, which prevents overfishing, is based on the best scientific information available, and is consistent with the ICCAT recommended quota. As with the No Action Alternative, this sub-alternative would not modify the annual ICCAT recommended bluefin quota, nor the U.S. portion of that quota. Modifications to the ICCAT recommended quota would not alter the ecological impacts of the IBQ Program. Provided the IBQ Program continues to ensure individual vessel accountability for bluefin catch, the specific allocation methods would have a neutral direct ecological impact compared to the overall Longline category quota. The maximum amount of IBQ that may be caught from the Gulf of Mexico would be limited under Alternatives B1, B2, or B3. The Three-Year Review concluded that under the IBQ Program bluefin catch was reduced substantially compared to the time period prior to the implementation of the IBQ Program. If the IBQ Program did not function optimally, the amount of bluefin catch may increase, but it is very unlikely that the Longline category bluefin quota would be exceeded because NOAA Fisheries would close the pelagic longline fishery to prevent such an occurrence (consistent with its current authorities). However, it is anticipated that the IBQ Program would continue to function successfully as designed and that amount of bluefin incidental catch would be at levels similar to that in recent years, which is a substantial reduction compared to the time period prior to the implemenation of the IBQ Program. The ecological impacts on other HMS species (as well as protected species) would also be neutral. By distributing IBQ shares only to active vessels, vessels may not have to lease as much IBQ allocation. This could have a minor effect on a vessel's fishing strategy (i.e., where and when they fish, or the amount of fishing effort), but is not anticipated to substantively impact either HMS target or incidental catch species or bycatch species. Substantial changes in the distribution of fishing effort or total fishing effort in the Gulf of Mexico or Atlantic are not anticipated.

Socioeconomic Impacts

Overall, the socioeconomic impacts of this sub-alternative on fishery participants would be minor and beneficial. Current shareholders and active vessels that are not shareholders would be directly impacted by changes to their share percentages under this sub-alternative, and such changes would be short-term for individual permitholders because the set of shareholders would be determined by NOAA Fisheries on an annual basis. As explained in detail below and summarized in Table 4.3, some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this sub-alternative. Vessels that are not currently shareholders based on the Amendment 7 regulations could become shareholders under this sub-alternative, if they are active during the relevant three year period. One adverse impact for shareholders may be a slightly reduced ability for business planning due to the potential annual variability in share percentages. Shareholders should be aware that changes in their share percentage may occur from one year to the next based on changes in fishing effort in the most recent three-year period for which NOAA Fisheries has data. Adverse impacts on a shareholder could be partially mitigated through leasing IBQ allocation. Such adverse impacts would only be partially mitigated because of the cost of leasing IBQ allocation.

There may be indirect, beneficial, socioeconomic impacts on dealers and other supporting shoreside businesses resulting from increased target catch, if dynamic share determination facilitates the fishing operations of active vessels (through increassed availability of IBQ allocation). Table 4.1 contains data on various metrics used in the determination of IBQ share percentages. For example, in the fourth quartile that was defined, there were a total of 19 vessels in the quartile, with a combined percentage of the total fishing effort (expressed as number of hooks) of 44.14 percent. Each of the 19 shareholders in the fourth quartile would receive an IBQ share of 2.32 percent, and an annual IBQ allocation of 8,379 pounds (based on an annual Longline category quota of 360,656 pounds). There would be a total of 91 defined shareholders based on the total number of vessels that submitted VMS bluefin reports from 2017 through 2019 (6 less than the number of shareholders based on 2016-2018 data).

Table 4.1 Values used in the Calculation of IBQ Share percentages based on Number of Hooks

Quartile	Quartile Value (%)	Count of Vessels per Quartile	Sum per Quartile (%)	Quartile Share Percent per Vessel* (%)	IBQ Allocation per Vessel (lb)
4	3.78	19	44.14	2.32	8,379
3	1.56	26	35.28	1.36	4,894
2	0.0101	22	16.1	0.73	2,639
1	0.0042	24	4.45	0.19	669
Totals	na	91	100	na	na

Source: VMS data

The percent per vessel is a slightly larger percentage. The percentage displayed in Table 4.1 is rounded to two decimal places. The IBQ allocation per vessel (pounds) shown is based on the larger (unrounded) percentage value.

Some shareholders (and permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease (Table 4.2). The number of shareholders with an increase would be greater than the number of shareholders with a decrease, with a net increase in IBQ share/allocation value as explained below.

Based on the data in Table 4.2 below, 65 vessels would have IBQ allocations larger than the IBQ allocations they would have under the No Action alternative, and be in a better short-term situation with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). Twenty-six vessels would have IBQ allocations smaller when compared to the No Action alternative, and would be in a worse short-term situation with respect to the amount of IBQ allocation they have. The DEIS had indicated thirty-one vessels would be in this situation, based on 2016-2018 information. It should be noted that all active vessels would be allocated IBQ shares and subsequent IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, any economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations.

To estimate the economic impacts of the changes in IBQ share determination and resulting IBQ allocation amounts compared to the No Action alternative, the average cost of leasing IBQ allocation was used as a measure of how costly it would be for vessels to lease IBQ allocation in order to make up for reductions in IBQ allocations resulting from revised Amendment 13 allocations. Specifically, the weighted average costs per pound for leased IBQ allocation from 2017 through 2019 ($1.67, $2.02, $1.40, respectively) were used to derive an overall average ($1.70 per pound). 2015 and 2016 data were not included in the overall average due to the notable downward trend in average leasing costs since 2015 (2015: $3.46; 2016: $2.42). Inclusion of 2015 and 2016 data would not result in an overall average that would be representative of recent trends or likely future average leasing costs. The information differs from the information in the DEIS, which was based on the years 2016 through 2018. There is annual variability in the number of active vessels and the amount of fishing effort by each vessel, and therefore differences in the values between the DEIS and FEIS are expected. The consistent underlying principle is that there is a range in the amount of individual vessel fishing effort that is reflected in the range of percentage IBQ shares, amount of IBQ allocation, and the equivalent monetary value of the IBQ allocation expressed as the cost of leased IBQ allocation. Vessels with more fishing effort will have larger share percentages, and associated economic benefits.

Table 4.2 Gains and Losses associated with Dynamic Allocation based on number of hooks compared to the No Action Alternative

Metric (based on Longline category allocation of 360,656 pounds)	Gains	Losses
Number of vessels gaining and losing IBQ allocation	65 vessels	26 vessels
Range in IBQ allocation gained or lost (per vessel) (lb)	482 - 7,049	1,535 - 3,695
Average pounds of IBQ allocation gained or lost (lb)	2,604	2,137
Average of lease value of IBQ allocation gained or lost*	$4428	$3,633
Sum of lease value of IBQ allocation gained or lost*	$287,790	$94,464

*based on a lease price of $1.70 per pound (pound x price = value)
Source: VMS data; NMFS SERO Catch Shares Online System.

Note, the scope of Table 4.2 is only active vessels, and does not include permits that were defined as shareholders under Amendment 7, but not active between 2017 and 2019. In other words Table 4.2 compares only active vessels from 2017 to 2019 to the shares they would receive under No Action. An additional impact of the alternative is on current shareholders that would not be shareholders based on dynamic allocation (i.e., vessels that have been inactive from 2017 through 2019). It should be noted that the loss in leased value associated with inactive shareholders is not highly relevant to the consideration of the overall impacts and merits of the alternative. Shareholders that are not fishing with pelagic longline gear do not need IBQ allocation to account for bluefin catch. Further discussion and data on this type of impact are under sub-Alterative A2b (Table 4.7).

The following figure (Figure 4.1) shows distribution of IBQ allocation. Specifically, the distribution shows the amount of IBQ allocation (expressed as numbers of bluefin), in various ranges (based on an annual Longline category quota of 360,656 pounds), and the numbers of vessels with that amount of allocation. The figure compares sub-Alternative A2a, allocation of shares based on hooks as the metric for fishing effort, to the No Action Alternative (A1). The IBQ allocations in pounds were converted into numbers of bluefin based on a conversion of 551 pounds per bluefin for GOM-designated bluefin, and 276 pounds per bluefin for Atlantic (ATL)-designated bluefin. The range of the number of bluefin allocated based on hooks is larger than under the No Action Alternative. Under the No Action Alternative, no vessels would be allocated higher numbers of bluefin and relatively more vessels would be allocated fewer bluefin. For example, under this alternative (basing a vessel's IBQ share percentage of the percentage of hooks the vessel fished), based on a Longline category quota of 360,656 pounds, 17 vessels (4 more vessels than in DEIS) would be distributed an amount of IBQ allocation that equates to between 26 and 30 bluefin. In contrast, under the No Action Alternative, the largest amount of IBQ allocation distributed to a vessel ranged from 16 to 20 bluefin (i.e., 24 vessels would be distributed the equivalent of between 16 and 20 bluefin under the No Action Alternative).

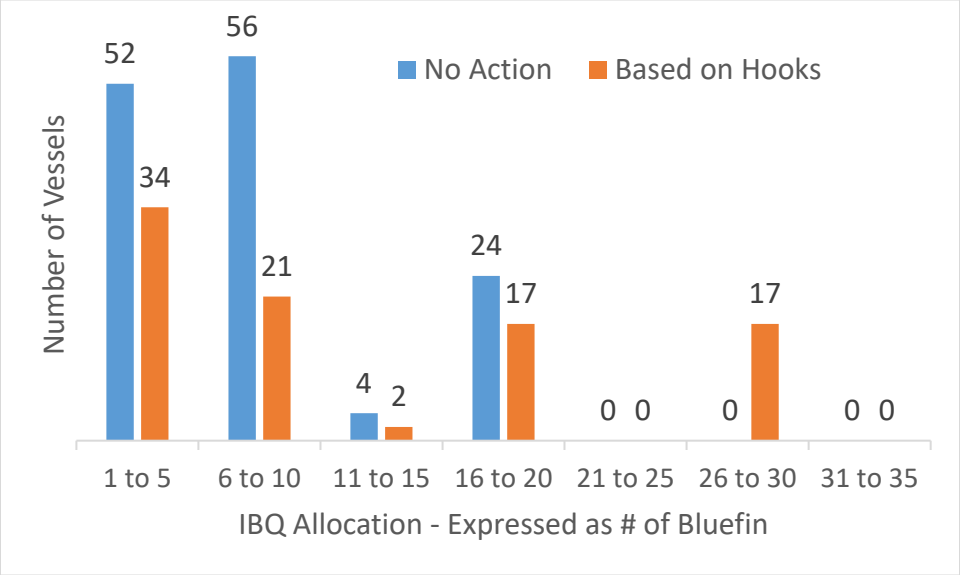

Figure 4.1 Distribution of IBQ Shares based on Fishing Effort measured by Hooks Compared to No Action
Source: VMS data

Table 4.3 compares various metrics between the No Action alternative and the alternative that would determine IBQ shares based on hooks. For the latter, the DEIS indicated 24 shareholders in quartile 4, and a difference of 1-2 shareholders in the other quartiles from what is included in Table 4.3 The most notable trend is that under dynamic share determination based on hooks, vessels are generally distributed more IBQ allocation than under the No Action alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 91 (based on the three years of fishing activity analyzed). This approach would reduce dissatisfaction among fishery participants that actively fish, and may receive a larger annual IBQ allocation through redistribution of IBQ shares and allocation. It may increase dissatisfaction among fishery participants who receive a smaller IBQ allocation, or no IBQ allocation (due to inactivity).

Table 4.3 Metrics Comparing No Action to Dynamic distribution of IBQ shares based on number of hooks

No Action			Dynamic Allocation based on Number of Hooks		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Quartile	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
High	4,317 (1.2)	43	4	8,379 (2.32)	19

No Action			Dynamic Allocation based on Number of Hooks		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Quartile	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
Medium	2,157 (0.6)	62	3	4,894 (1.36)	26
Low	1,330 (0.37)	31	2	2,639 (0.73)	22
			1	669 (0.19)	24
		Total: 136			Total: 91

All allocations based on an Atlantic Tunas Longline category quota of 360,656 pounds
Source: VMS data

The regional designations associated with dynamic allocation based on the number of hooks are shown in Section 4.2.3.

4.1.2.2 Preferred Sub-Alternative A2b: Dynamic determination of IBQ shares based on pelagic longline sets as the measure of fishing effort

Sub-Alternative A2b would define IBQ shareholders annually based upon each individual permitted vessel's fishing effort using the number of pelagic longline sets, relative to the total amount of pelagic longline sets, as the measure of fishing effort. The time period used for determination of active vessels eligible for IBQ shares would be the three most recent years of available data. VMS bluefin reports would be the source of data used for documenting fishing activity to determine IBQ shares, based upon each individual vessel's fishing effort using pelagic longline gear, relative to the total amount of fishery-wide pelagic longline fishing effort, using the number of sets fished as the measure of fishing effort. Only one pelagic longline set per day will be counted towards the determination of IBQ shares. While draft Amendment 13 and the DEIS included all sets, the limitation is needed for this preferred alternative to minimize the extent to which a vessel operator might deploy short sets for the purposed of influencing their annual IBQ share determination. Based on the share percentages and the Longline category quota, IBQ allocation would be distributed annually to permitted vessels. In addition, in this Final Amendment 13/FEIS, this sub-alternative would not assign IBQ shares through four quartiles with different share levels, but would assign each vessel a 'customized' percentage share. Draft Amendment 13/DEIS proposed the quartile system to eliminate the largest and smallest shares, reduce annual variability in shares, and facilitate communication and administration. Under that approach, NOAA Fisheries first calculated a percentage for each individual permitted vessel based on its number of pelagic longline sets relative to the total amount of pelagic longline sets fishery-wide, then second, assigned vessels to one of four quartiles of share percentages. Commenters were concerned that the

quartiles were not fair given that by assigning vessels to quartiles some vessels would receive either a larger or smaller share than they would under a customized system. Further, the commenters stated that there is a strong incentive for some vessels (those that have a level of catch near the threshold to the next higher quartile) to fish more to increase their share percentage and 'jump' to the adjacent higher quartile, because the difference between tier share percentages is substantial. Notwithstanding the reasons for which NOAA Fisheries proposed four quartiles, NOAA Fisheries agrees that the public comments have merit and therefore is modifying sub-alternative A2b to simplify the process: assign each vessel a customized percentage share and eliminate the second step. NOAA Fisheries can effectively communicate with permit holders about customized shares and administer this method of determining shares.

Methods

As noted above, this alternative would use the three most recent years of available VMS bluefin reports. For purposes of this Final Amendment 13/FEIS, NOAA Fisheries used VMS bluefin reports from 2017 through 2019, updating analyses in the Draft Amendment 13/DEIS that used 2016 through 2018 reports. There was no major difference between the analyses that would affect the agency's conclusions regarding impacts of the alternative. Active vessels from 2017 through 2019 were determined based on submission of VMS bluefin reports. From 2017 through 2019 there were a total of 93 vessels that were active in at least one year. VMS data from 2017 through 2019 were used to calculate the total number of pelagic longline sets fished by vessel, and then the total number of sets for all vessels for the three years calculated. The total number of sets per vessel for the three years was then put in numeric order, and then expressed as a percentage of the total number of sets. The percentages associated with an individual vessel ranged from a maximum value of 2.4 percent to a minimum value of .01 percent. Table 4.4 shows the range in the pounds of IBQ that would be distributed based on a Longline category quota of 360,656 pounds.

For vessels that fished in the Gulf of Mexico and voluntarily participated in the DWH OFRP (Project participants), the calculation methods considered the fact that such vessels had time periods during which they were prohibited from using pelagic longline gear (i.e., March through June 2017; January through June 2018 and 2019). Therefore, NOAA Fisheries developed a proxy amount of fishing effort that was used in the calculation of allocations for this alternative. The average number of sets per vessel set in the Gulf of Mexico by non-participants, during the time period of the Project was used as the proxy number of hooks for participants. There were seven Project participants during 2017, 10 Project participants during 2018, and 11 Project participants during 2019. The relevant information used in the derivation of the proxy values are in the Appendix (Table 11.12)

Ecological Impacts

The ecological impacts of Sub-Alternative A2b on bluefin are neutral for the same reasons provided under Sub-Alternative A2a (dynamic determination of shares based on hooks).

Socioeconomic Impacts

Overall, the socioeconomic impacts of this alternative would be minor and beneficial for the same reasons provided under Sub-Alternative A2a, Socioeconomic Impacts paragraph 1. As explained in detail below and shown in Table 4.5, some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. If this alternative results in net beneficial economic impacts to IBQ shareholders, then there may be indirect, beneficial socioeconomic impacts on dealers and other supporting shoreside businesses resulting from increased target catch. Table 4.4 contains data on various metrics used in the determination of IBQ share percentages. For example, there would be 11 vessels that have a share percentage of less than 0.13 percent, which would result in IBQ allocations of less than 500 pounds. There would be 91 defined shareholders based on the total number of vessels that submitted VMS bluefin reports from 2017 through 2019. Note, these values illustrate the impacts based on 2017 to 2019 date, and would change annually based on the relevant three year period used to determine annual shares. To the extent that the number of vessels fishing and their fishing effort are similar to 2017 to 2019, the impacts would be similar.

Table 4.4 Range of shares (percents) and IBQ allocations* and number of vessels (dynamic allocation; sets)

Share Percent Range	IBQ Allocation (lb)	Number of Vessels
<0.13%	<500	10
0.14 to 0.24%	500 to <1,000	9
0.29 to 0.55%	1,000 to<2,000	8
0.57 to 0.82%	2,000 to <3,000	9
0.92 to 1.0%	3,000 to <4,000	4
1.11 to 1.37%	4,000 to <5,000	15
1.41 to 1.66%	5,000 to <6,000	15
1.67to 1.92%	6,000 to <7,000	9
1.95 to 2.2%	7,000 to <8,000	8
2.24 to 2.25%	8,000 to <9,000	3
2.67%	9,000 to <10,000	1
		Total 91

*Allocations based on a Longline category bluefin quota of 360,656 lb (not including the NED).The percentage displayed here is rounded to two decimal places. Source: VMS data

The socioeconomic impacts of this alternative would be minor and beneficial overall across fishery participants, but the individual impact would vary by participant. Such impacts would be short term. Some shareholders (and permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease (Table 4.5). The number of active shareholders with an increase would be greater than the number of active shareholders with a decrease, with a net increase in IBQ share/allocation

value as explained below. Sixty-one vessels would have IBQ allocations larger than compared to the No Action alternative, and be in a better situation with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). Thirty vessels would have IBQ allocations smaller when compared to the No Action alternative, and would be in a worse situation with respect to the amount of IBQ allocation they have. There are few vessels with either very high or low percentage IBQ shares, that would result is high or low IBQ allocations (Figure 4.2). The range in the amount of IBQ allocation gained or lost in Table 4.5 are larger than in the DEIS (i.e., larger high end of ranges and smaller low end of ranges) in part due to the elimination of the use of quartiles, which eliminated the highest and the lowest value shares. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, any economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The average cost of leasing IBQ allocation was used to estimate economic impacts, as explained under Sub-Alternative A2a, Socioeconomic Impacts paragraph 5.

Table 4.5 Gains and Losses associated with Dynamic Allocation based on number of sets compared to the No Action Alternative

Metric (based on Longline category allocation of 360,656 pounds)	Gains	Losses
Number of vessels gaining and losing IBQ allocation	61 vessels	30 vessels
Range in IBQ allocation gained or lost (per vessel) (lb)	43 - 7,490	51 – 4,295
Average pounds of IBQ allocation gained or lost (lb)	2,696	1,799
Range in lease value of IBQ allocation gained or lost*	$74 - $12,732	$87 - $7,302
Average of lease value of IBQ allocation gained or lost*	$4,582	$3,492
Sum of lease value of IBQ allocation gained or lost*	$279,532	$90,273

*based on a lease price of $1.70 per pound (pounds x price = value)
Source: VMS data; NMFS SERO Catch Shares Online System

Figure 4.2 shows the amount of IBQ allocation (expressed as numbers of bluefin), in various ranges, and the numbers of vessels with that amount of allocation. Under this alternative, more vessels would be allocated the equivalent of a higher number of bluefin than under the No Action alternative. For example, under this alternative (basing a vessel's IBQ share percentage of the percentage of sets the vessel fished), based on a Longline category quota of 360,656 pounds, 15 vessels would be distributed an amount of IBQ

allocation that equates to between 21 and 25 bluefin. In contrast, under the No Action Alternative, the largest amount of IBQ allocated to a vessel ranged from 16 to 20 bluefin (i.e., 24 vessels would be distributed between 16 and 20 bluefin under the No Action).

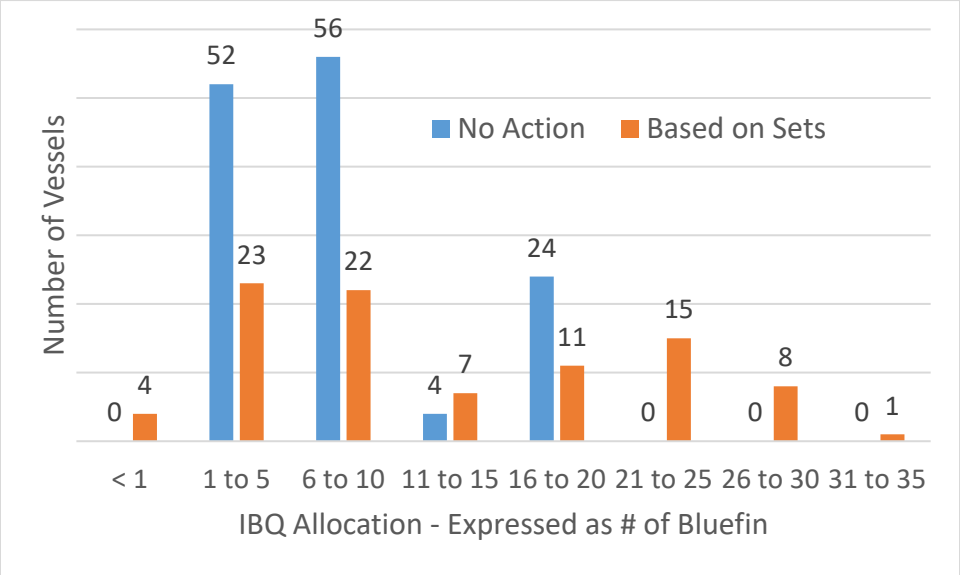

Figure 4.2 Distribution of IBQ Allocation Based on Sets Compared to No Action
Source: VMS data

Table 4.6 compares the range of share percentages and corresponding amount of IBQ allocations between the No Action and the Dynamic Allocation based on sets.

Table 4.6 Metrics Comparing No Action to Dynamic allocation based on number of sets

No Action			Dynamic Allocation based on Number of Sets		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders		Ranges of IBQ Allocations and Shares (lb) & (share %)	Number of shareholders
High	4,317 (1.2)	43	No Tiers	5,000 to < 10,000 lb (1.41% to 2.67%)	27
Medium	2,157 (0.6)	62		2,000 to < 5,000 lb (0.57 % to 1.37%)	28
Low	1,330 (0.37)	31		< 500 to <2,000 lb (< 0.55%)	36
		Total: 136			Total: 91

All allocations based on an Atlantic Tunas Longline category quota of 360,656 pounds
Source: VMS data

The most notable trend is that under dynamic allocation based on sets, approximately two thirds of the active vessels would have a larger share (and be distributed more IBQ allocation) than under the No Action alternative (Table 4.5, Table 4.6). Based on the underlying vessel specific data (not shown) 45 permit holders would have an IBQ share percentage larger than the Amendment 7 'high' tier (1.2%), and 21 permit holders would have an IBQ share percentage smaller than the Amendment 7 'low' tier (0.37%). The number of IBQ shareholders would be reduced from 136 to 91, which would reduce dissatisfaction among many fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel). It should be noted that Table 4.5 compares only active vessels from 2017 through 2019 to the shares they would received under No Action.

Table 4.7 shows information on the value of 'lost' IBQ shares for Amendment 7 shareholders that have not been active recently. This represents the value that would no longer exist for a given permit under dynamic allocation.

Table 4.7 Amendment 7 Shareholders that would not receive shares based on Dynamic allocation (2017 through 2019)

Tier (lb/shareholder)	Number vessels	Total Allocation (lb) Amendment 7	Lease Value
High (4,317)	14	18,620	$31,654
Medium (2,157)	7	30,219	$51,372
Low (1,330)	24	51,768	$88,006
Totals	45	100,607	$171,032

It should be noted that the loss in leased value associated with inactive shareholders is not highly relevant to the consideration of the overall impacts and merits of the alternative. Shareholders that are not fishing with pelagic longline gear do not need IBQ to account for bluefin catch. Although shareholders with valid Atlantic Tunas Longline permits have been able to obtain revenue by leasing IBQ to active vessels, the intent of the leasing program is not to enable inactive vessels to earn revenue. The intent of the leasing program is to enable the redistribution of IBQ shares and allocation among active vessels to align the distribution of IBQ shares and allocations with the need for IBQ. Similarly, there may be a reduction in the market value of an Atlantic Tunas Longline permit that was qualified for shares under Amendment 7 (in 2015) and does not receive shares under this alternative. Increasing or maintaining the market value of an Atlantic Tunas Longline permit is not one of the objectives of the IBQ Program.

More importantly, the Preferred Alternative would have the net effect of distributing the equivalent of 28 percent of the IBQ (100,607 lb; Table 4.7) to active vessels that would otherwise be distributed to inactive vessels under the Amendment 7 static shares currently in place (i.e., the No Action Alternative). Active vessels would realize a corresponding gain in leased value ($171,032; Table 4.7).

Impact of only counting one set per day towards IBQ share determination:

Pelagic longline vessels are allowed to deploy as many sets per day as they wish, consistent with applicable regulations. However, only one set per day would count toward the IBQ share determination. The reason for this limitation is to minimize the extent to which a vessel operator might deploy short sets for the purpose of influencing their annual IBQ share determination. The socioeconomic impact of this restriction is likely to be low. For example, NOAA Fisheries analyzed 2019 VMS data to determine the number of instances where two sets were made on a single day (as indicated by the same haul date and two distinct set numbers in VMS). The occurrence rate was 2 percent of sets in the Gulf of Mexico and 3 percent in the Atlantic, affecting 6 vessels in the Gulf of Mexico and 35 vessels in the Atlantic. Most of the vessels with more than one set in a day had few instances of such fishing behavior. For example, in the Atlantic there was a single vessel that had 11 instances of multiple sets in a day, and 5 vessels with between 5 and 7 instances. In the Gulf of Mexico there was a single vessel with 5 instances of multiple sets per day.

The Regional Designations associated with dynamic allocation based on the number of sets are discussed in Section 4.2.3.

4.1.2.3 Sub-Alternative A2c: Dynamic determination of IBQ shares based upon designated species landings as the measure of fishing effort

Alternative A2c would define IBQ shareholders annually based upon the total amount by weight, of each individual permitted vessel's designated species landings relative to the total amount of designated species landings by pelagic longline fleet, as the measure of fishing effort. Most, but not all landings would count, with the relevant species termed 'designated species'. Designated species would be defined as swordfish and yellowfin, bigeye, albacore, and skipjack tunas. The time period used for determination of eligible vessels would be the three most recent years of available data. A quartile system would be used to assign share percentages to individual vessels for the reasons provided under Sub-Alternative A2a, Methods paragraph 2.

For vessels that fished in the Gulf of Mexico and voluntarily participated in the Deepwater Horizon OFRP (Project participants), the calculation methods considered the fact that such vessels had time periods during which they were prohibited from using pelagic longline gear (i.e., March through June 2017; January through June 2018; January through June 2019). Therefore, NOAA Fisheries developed a proxy amount of fishing effort that was used in the calculation of allocations for this alternative. The proxy level of fishing effort would be the average pound of designated species landings by a pelagic longline vessel in the Gulf of Mexico during the months of January through June (the months of the Repose) during the relevant year. There were 7 Project participants during 2017; 10 Project participants during 2018, and 11 participants during 2019. The relevant information used in the derivation of the proxy values are in the Appendix (Table 11.13).

While this alternative was the preferred alternative in the Draft Amendment/DEIS, based in part on public comment, this alternative is no longer preferred. More information on the

reasons why this alternative is not longer preferred is in section 2.1.2.3 (Chapter 2 – Summar of the Alternatives).

Ecological Impacts

The ecological impacts of Alternative A2c on bluefin are neutral for the same reasons provided under Sub-Alternative A2a.

Socioeconomic Impacts

Overall socioeconomic impacts of this alternative would be minor and beneficial for the same reasons provided under Sub-Alternative A2a, Socioeconomic Impacts paragraph 1. As shown in Table 4.8, some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. Table 4.8 contains data on various metrics used in the determination of IBQ share percentages. For example, in the fourth quartile that was defined, there were a total of 22 vessels in the quartile, with a combined percentage of the total fishing effort (expressed as landings) of 49.5 percent. Each of the 22 shareholders in the fourth quartile would receive an IBQ share of 2.2 percent, and an annual IBQ allocation of 8,110 pounds (based on an annual Longline category quota of 360,656 pounds (in effect in 2019)).

Table 4.8 Values use in the Calculation of IBQ Allocations based on Designated Species Landings

Quartile	Quartile Value (%)	Count of Vessels per Quartile	Sum per Quartile (%)	Quartile Share Percent per Vessel* (%)	IBQ Allocation per Vessel (lb)
4	4.6	22	49.5	2.2	8,110
3	1.62	23	30.66	1.3	4,808
2	1.09	22	16.37	0.7	2,684
1	0.41	24	3.5	0.1	525
Totals	na	91	100	na	na

Source: eDealer and VMS data

The socioeconomic impacts of this alternative would be short-term minor and beneficial overall across fishery participants, but the individual impact does vary by participant. Some shareholders (and permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease (Table 4.9). The number of shareholders with an increase would be greater than the number of shareholders with a decrease, with a net increase in IBQ value as explained below. If this alternative results in

net beneficial economic impacts to IBQ shareholders, then there may be indirect, beneficial, socioeconomic impacts on dealers and other supporting shoreside businesses resulting from increased target catch.

Based on the data in Table 4.9 below, 63 vessels would have IBQ allocations larger than under the No Action alternative, and be in a better situation with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). Twenty-eight vessels would have IBQ allocations smaller than under the No Action alternative, and would be in a worse situation with respect to the amount of IBQ allocation they have. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, any economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The exclusion of dolphin and wahoo from the list of designated species affected the IBQ share percentages of eight vessels. Compared to the IBQ share percentages that they would have received if the dolphin and wahoo were included, four vessels increased in share percentage and four vessels decreased. The difference in percentage shares was relatively minor, with vessel shares moving from one quartile to an adjacent quartile.

The average cost of leasing IBQ allocation was used to estimate economic impacts, as explained under Sub-Alternative A2a, Socioeconomic Impacts paragraph 5.

Table 4.9 Gains and Losses associated with Dynamic Allocation based on Designated Species Landings compared to the No Action Alternative

Metric (based on Longline category allocation of 360,656 pounds)	Gains	Losses
Number of vessels gaining and losing IBQ allocation	63 vessels	28 vessels
Range in IBQ allocationgained or lost (per vessel) (lb)	491 - 8,110	805 - 3,792
Average pounds of IBQ allocation gained or lost (lb)	2,819	2,238
Range in lease value of IBQ allocation gained or lost*	$835 - $13,787	$1,369 - $6,446
Average of lease value of IBQ allocation gained or lost*	$4,792	$3,805
Sum of lease value of IBQ allocation gained or lost*	$301,925	$106,529

*based on a lease price of $1.70 per pound (pounds x price = value)
.Source: VMS data; NMFS SERO Catch Shares Online System

Under dynamic allocation based on designated species landings, and excluding any vessels that did not report through VMS, 91 active vessels would be defined based on this three-year period. The following chart (Figure 4.3) shows the amount of IBQ allocation

(expressed as numbers of bluefin), in various ranges, and the numbers of vessels with that amount of allocation. Under this alternative, more vessels would be allocated a higher range of allocation than under the No Action Alternative. For example, under this alternative (basing a vessel's IBQ share percentage of the percentage of sets the vessel fished), based on a Longline category quota of 360,656 pounds, 21 vessels would be distributed an amount of IBQ allocation that equates to between 26 and 30 bluefin. In contrast, under the No Action Alternative, the largest amount of IBQ allocationdistributed to a vessel ranged from 16 to 20 bluefin (i.e., 24 vessels would be distributed between 16 and 20 bluefin under the No Action).

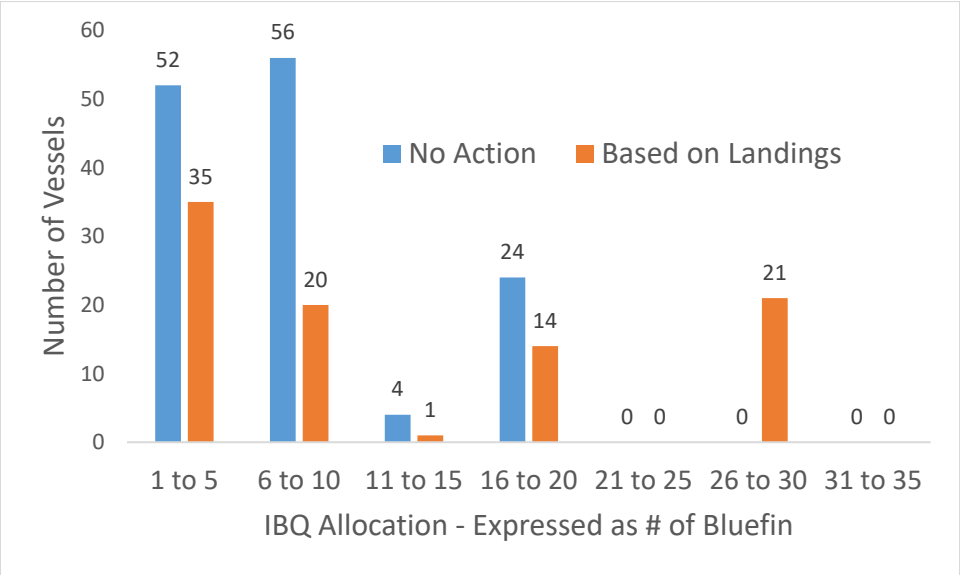

Figure 4.3 Distribution of IBQ Allocation based on Landings Compared to No Action
Source: eDealer data

Table 4.10 compares this alternative to the No Action alternative. The most notable trend is that under dynamic allocation based on designated species landings, active vessels are generally distributed more IBQ allocation than under the No Action alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 91 (based on 2017 to 2019), which would reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel). See Table 4.7 for information on Amendment 7 shareholders that would not receive shares based on dynamic allocation.

Table 4.10 Metrics Comparing No Action to Dynamic allocation based on Designated Species Landings

No Action			Dynamic Allocation based on Designated Species		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Quartile	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
High	4,317 (1.2)	43	4	8,110 (2.2)	22
Medium	2,157 (0.6)	62	3	4,808 (1.3)	23
Low	1,330 (0.37)	31	2	2,684 (0.7)	22
			1	525 (0.1)	24
		Total: 136			Total: 91

All allocations based on an Atlantic Tunas Longline category quota of 360,656 pounds

4.1.2.4 Sub-Alternative A2d: Dynamic determination of IBQ shares and distribution of IBQ allocation in equal amounts to active vessels

Sub-Alternative A2d would define IBQ shareholders annually, and distribute IBQ allocation in equal amounts to eligible permitted vessels. An eligible vessel would be any vessel that landed designed species during recent years (i.e., at least one of the three most recent years of available data). The total Longline category bluefin quota would be divided evenly among eligible vessels with valid Atlantic tunas longline permits. DWH OFRP participants would be considered to be active during the relevant years of participation.

Ecological Impacts

The ecological impacts of Alternative A2d on bluefin are neutral for the same reasons provided under Sub-Alternative A2a (dynamic determination of shares based on hooks).

Socioeconomic Impacts

Overall socioeconomic impacts of this alternative would be minor and beneficial for the same reasons provided under Sub-Alternative A2a, Socioeconomic Impacts paragraph 1. As explained in detail below and shown in Table 4.11, some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. Active Amendment 7 shareholders with low- or medium-tier shares would have an increased share percentage under a method of equal shares for all active vessels (as would active

permit holders without shares currently) compared to the No Action (Amendment 7) method of distributing IBQ shares. Active Amendment 7 shareholders with high-tier shares would have a decreased share percentage (Table 4.11). The number of active shareholders with an increase would be greater than the number of shareholders with a decrease, with a net increase in IBQ share/allocation value as explained below. Table 4.11 compares various metrics of the No Action Alternative and the Dynamic Allocation Alternative based on equal allocation. Specifically, under the Dynamic Allocation Alternative based on equal allocation, active vessels currently in the medium and low tiers (93 vessels combined) (i.e., under the No Action Alternative, that have 2,157 pounds and 1,330 pounds, respectively) would have a larger IBQ share percentage and be distributed more IBQ allocation under this alternative based on equal allocation (3,963 pounds)(if active), while active vessels currently in the high tier (43 vessels) (with 4,317 pounds) would have a lower IBQ share percentage and be distributed less IBQ allocation (3,963 pounds) under this alternative. The number of IBQ shareholders would be reduced from 136 to 91 (based on 2017 to 2019 active vessels), which would reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel). If this alternative results in net beneficial economic impacts to IBQ shareholders, then there may be indirect, beneficial, socioeconomic impacts on dealers and other supporting shoreside businesses resulting from increased target catch. See Table 4.7 for information on Amendment 7 shareholders that would not receive shares based on dynamic allocation.

Table 4.11 Metrics Comparing No Action to Dynamic Allocation based on Equal Allocation

No Action			Dynamic Allocation based on Equal Allocation		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Quartile	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
High	4,317 (1.2)	43	NA	3,963 (1.1)	91
Medium	2,157 (0.6)	62			
Low	1,330 (0.37)	31			
		Total: 136			Total: 91

All allocations based on an Atlantic Tunas Longline category quota of 360,656 pounds
Source: eDealer data

Figure 4.4 shows the distribution of IBQ allocation among vessels, based on the Equal Allocation Alternative, compared to the No Action Alternative. Under the Equal Allocation Alternative, the distribution is narrow. Although all vessels would be allocated the same number of pounds of IBQ allocation (under the Equal Allocation Alternative), when the allocations are expressed as number of fish, taking into consideration the different average sizes of bluefin in the Gulf of Mexico and Atlantic, vessels that have ATL designated IBQ

allocation are allocated more fish than vessels with GOM designated IBQ allocation. The weight values used as proxies for the average weight of bluefin in the Atlantic and Gulf of Mexico were 276 pounds and 551 pounds, respectively. Under existing regulations, these weights also correspond to the minimum allocation requirements for vessel trips with quarterly accountability.

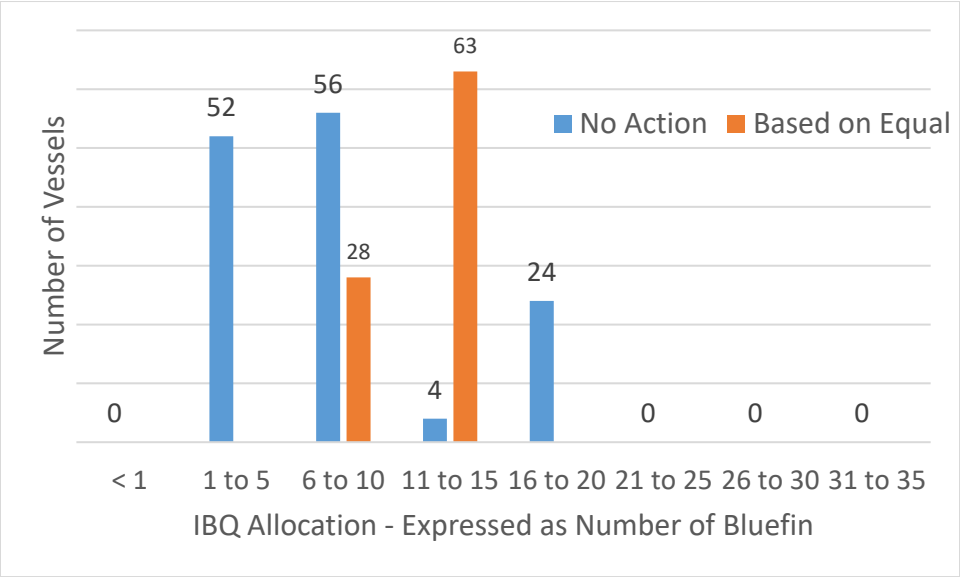

Figure 4.4 Distribution of IBQ Allocation based on Equal Allocation Compared to No Action

The average cost of leasing IBQ allocation was used to estimate economic impacts, as explained under Sub-Alternative A2a, Socioeconomic Impacts paragraph 5. Based on the data in Table 4.12 below, 56 vessels would have IBQ allocations larger than compared to the No Action alternative, and be in a better situation with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). Thirty-five vessels would have smaller IBQ allocations when compared to the No Action alternative, and would be in a worse situation with respect to the amount of IBQ allocation they have. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel's share-related allocations would increase and they would need to lease less IBQ allocation in order to account for bluefin catch. Furthermore, any economic costs associated with reduced IBQ allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their share-related distributions of IBQ allocation.

Table 4.12 Gains and Losses associated with Dynamic Allocation based on equal allocation compared to the No Action Alternative

Metric (based on Longline category allocation of 360,656 pounds)	Gains	Losses
Number of vessels gaining and losing IBQ allocation	56 vessels	35 vessels
Range in IBQ allocation gained or lost (per vessel) (lb)	1,806 - 3,963	354
Average pounds of IBQ allocation gained or lost (lb)	2,196	354
Range in lease value of IBQ allocation gained or lost*	$3,070 - $6,737	$602
Average of lease value of IBQ allocation gained or lost*	$3,734	$602
Sum of lease value of IBQ allocation gained or lost*	$209,093	$21,063

* Based on a lease price of $1.70 per pound (pounds x price = value)
Source: eDealer data; NMFS SERO Catch Shares Online System

Potential Impact of a New Entrant IBQ Set-Aside, if Established:

Section 11.2 of the 2006 Consolidated HMS FMP and 50 CFR 635.34 specify actions that can be amended or modified via regulatory framework adjustments. Final Amendment 13 adds to those framework provisions the authority to set aside a *de minimis* amount of the Longline category bluefin quota for new entrants. This additional flexibility lays the groundwork for the potential development of such a program, establishing a specific quota set-aside amount and rules for access to that quota in the future, through a separate regulatory action, if necessary should the changes to IBQ share and allocation distribution finalized in this action do not facilitate new entrants once implemented. Amendment 13 does not itself set aside any quota, and has no effect on the amount of Longline quota allocated to pelagic longline vessels in the absence of additional regulations. Neither Draft Amendment 13/ DEIS nor this Final Amendment 13/FEIS analyze a full set-aside program. The details of a set-aside program and the precise amount of quota to be set aside would be implemented through future rulemaking. However, HOAA Fisheries does not anticipate ecological impacts from setting aside a small amount of quota. Such an action would not affect the annual ICCAT recommended bluefin quota, the U.S. portion of that quota, or the amount of overall Longline category quota that may be caught.

NOAA Fisheries also anticipates negligible socioeconomic impacts due to the low amount of IBQ allocation that could be set aside, and in light of the effects of the Preferred Alternative. The low impact of authorizing an IBQ set aside is best illustrated by comparing the size of a hypothetical set aside amount (approximately three percent of the Longline category quota) to the amount of IBQ that was associated with inactive vessels from 2017 through

2019 (28 percent of the Longline category quota). As a group, under this Preferred Alternative, active vessels would be the recipient of 28 percent of the Longline category quota that would otherwise be distributed to inactive vessels. This benefit of a larger share percentage that the majority of active vessels would accrue from the Preferred Alternative would not be meaningfully diminished by the IBQ set aside due the relatively small size of the set aside.

Discussion of Dynamic Allocation Based on Fishing Effort

As stated in Chapter 2, several of the dynamic allocation alternatives are based on the premise that a vessel's fishing effort is an important determinant of the number of its bluefin interactions. Specifically, the premise that greater fishing effort is associated with a greater need for IBQ allocation. Therefore, allocation based on effort may be a logical and effective method of determining which permitted vessels should receive IBQ shares, consistent with the Amendment 7 objective of allocating quota to active vessels (and not to inactive vessels). Vessels with more fishing activity are generally more likely to interact with more bluefin, and therefore may need larger amounts of IBQ allocation to account for bluefin retained or discarded dead.

When considering how to best distribute shares among shareholders, one of the underlying questions is: are there meaningful differences among the measures of effort? It is useful to determine whether a relationship between effort and bluefin catch can be demonstrated. Correlation analyses measure the strength of the potential relationship between two factors. The second underlying and closely related question is: what numeric metric best reflects the associated need for IBQ allocation? Clearly, landings of bluefin represent a need for IBQ allocation. Secondly, pounds of IBQ allocation leased by lessees and pounds of quota debt are metrics that represent the need for bluefin IBQ allocation, which is logical, but also, when analyzed on an individual vessel level, the relationship between the landings of bluefin and these IBQ allocation metrics can also be demonstrated. There is a moderate correlation between the amount of bluefin landed by vessels (2016 through 2018, eDealer data) and the pounds of IBQ allocation leased and the pounds of quota debt (correlation coefficients of 0.6 and 0.54, respectively). There is a strong correlation between the pounds of IBQ allocation leased and the pounds of quota debt (correlation coefficient of 0.72).

Table 4.13 contains correlation coefficients among various metrics that may logically have some type of relationship. The data in Table 4.13 is intended to explore the question of which alternative is likely to result in an allocation that addresses vessel needs for IBQ allocation, where the need for IBQ allocation is represented by bluefin landings, pounds of IBQ allocation leased by lessees, and pounds of quota debt. The largest correlation coefficients are those calculated with the percentage of designated species landings, potentially indicating a stronger relationship between the amount of designated species landings that a vessel has and the amount of IBQ allocation the vessel may need, than the other metrics of fishing effort such as hooks and sets. None of the correlation coefficients in the table should be characterized as strong. Although fishing effort is a factor in how likely a vessel is to interact with bluefin, other factors such as the spatial and temporal aspects of

fishing and fishing strategy are also important determinants in whether a vessel interacts with bluefin.

Table 4.13 Correlation Coefficients between Effort Metrics and IBQ Program Data (2016-2018)

Metrics used in Correlation Analysis with columns "A", "B", and "C"	(A) Total Bluefin Landings by vessel (lb)	(B) IBQ Leased by Lessees (lb)	(C) Quota Debt (lb)
No Action (A7 share percentages)	0.17	-0.03	-0.13
Percent of Total Hooks	0.34	0.37	0.43
Percent of Total Sets	0.28	0.33	0.36
Percent of Total Designated Species Landings	0.42	0.55	0.59

Sources: VMS data; eDealer data; NMFS SERO Catch Shares Online System

4.1.3 Alternative A3: Amendment 7 allocation formula, using 2016-2018 data

Alternative A3 would distribute IBQ allocation using the same formula used in Amendment 7, but instead of using data during the period from 2006 through 2012, the alternative would define eligible vessels as those that reported making at least one set using pelagic longline gear (based on logbook data, as in Amendment 7) from 2016 through 2018, and the relevant catch data used to designate IBQ shareholders to one of three tiers would also be based on 2016 through 2018. In contrast to the dynamic allocation alternatives, this alternative represents a static method of determining shares, and the analysis does not include 2019.

For vessels that fished in the Gulf of Mexico and voluntarily participated in the Deepwater Horizon OFRP, the calculation methods considered the fact that such vessels had time periods during which they were prohibited from using pelagic longline gear (i.e., March through June 2017; January through June 2018). Therefore, NOAA Fisheries developed a proxy amount of fishing effort that was used in the calculation of allocations for this alternative. The proxy level of fishing effort would be the average pounds of designated species landings by a pelagic longline vessel in the Gulf of Mexico during the months of January through June (the months of the Repose) during the relevant year. There were seven participants during 2017, and ten participants during 2018, including four vessels that participated in both years. The relevant information used in the derivation of the proxy values are in the Appendix (Table 11.14).

Ecological Impacts

The ecological impacts of Alternative A3 on bluefin would be neutral for the same reasons provided under Sub-Alternative A2a (dynamic determination of shares based on hooks).

Socioeconomic Impacts

Table 4.14 compares data on various IBQ share metrics between the No Action Alternative and the Revised Amendment 7 Alternative (A3). The number of tiers (three) would remain the same (high, medium, and low), but the IBQ share percentages would be higher for all tiers. For example, the low-tier share percentage under the Revised Amendment 7 formula alternative would be 0.5 percent instead of 0.37 percent and result in a larger annual IBQ allocation for the permit holder. Although the defined IBQ share percentages would all be larger, because the alternative entails recalculation of the complex Amendment 7 formula based on more recent data (i.e., 2016 through 2018), for all vessels, some permit holders change tiers, going either 'up' or 'down' with the net result that under this alternative, some permit holders would have a larger IBQ share percentage and other permit holders would have a smaller IBQ share percentage when compared to the No Action Alternative. The number of IBQ shareholders would be reduced from 136 to 99. This decrease in the number of shareholders could reduce dissatisfaction among fishery participants concerned about the relatively large number of inactive permit holders that receive annual IBQ allocation under current regulations.

Table 4.14 Comparing IBQ Share Metrics of No Action to Revised Amendment 7 Formula

No Action			Revised Amendment 7		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Tier	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
High	4,317 (1.2)	43	High	5,933 (1.65)	31
Medium	2,157 (0.6)	62	Medium	3,030 (0.84)	24
Low	1,330 (0.37)	31	Low	1,803 (0.5)	44
		Total: 136			Total: 99

Source: eDealer data

The socioeconomic impacts of this alternative would be minor and beneficial overall across fishery participants, but the individual impact does vary by participant. Some shareholders (and active permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease (Table 4.15). The number of active shareholders with an increase would be greater than the number of active shareholders

with a decrease, with a net increase in IBQ share/allocation value as explained below. If this alternative results in net beneficial economic impacts to IBQ shareholders, then there may be indirect, beneficial, socioeconomic impacts on dealers and other supporting shoreside businesses resulting from increased target catch.

The average cost of leasing IBQ allocation was used to estimate economic impacts, as explained under Sub-Alternative A2a, Socioeconomic Impacts paragraph 5.

Seventy-one active vessels would have IBQ allocations larger than compared to the No Action alternative, and be in a better economic position with respect to the amount of IBQ allocation they have (expressed in terms of potential leasing costs avoided, or leasing benefits accrued). Twenty-eight active vessels would have smaller IBQ allocations when compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they have. It should be noted that the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations.

Table 4.15 Gains and Losses associated with Revised Amendment 7 Formula compared to the No Action Alternative

Metric (based on Longline category allocation of 360,656 pounds)	Gains	Losses
Number of vessels gaining and losing IBQ allocation	71 vessels	28 vessels
Range in IBQ allocation gained or lost (per vessel) (lb)	473 - 5,933	354 - 2,514
Average pounds of IBQ allocation gained or lost (lb)	1,871	1,404
Range in lease value of IBQ allocation gained or lost*	$805 - $10,086	$601 - $4,273
Average of lease value of IBQ allocation gained or lost*	$3,181	$2,387
Sum of lease value of IBQ allocation gained or lost*	$225,848	$66,849

* Based on a lease price of $1.70 per pound (pounds x price = value)
Source: eDealer; NMFS SERO Catch Shares Online System

Figure 4.5 compares the distribution of IBQ allocation among vessels based on the revised Amendment 7 share distribution method to the No Action Alternative. The distribution of allocation among vessels is similar for the two alternatives, but for the revised Amendment 7 alternative, there are a higher number of vessels that receive larger allocations. For example, under the No Action alternative, 56 vessels would be allocated the equivalent of between 6 and 10 bluefin, whereas under the revised Amendment 7 alternative, 42 vessels would be allocated the equivalent of between 11 and 15 bluefin.

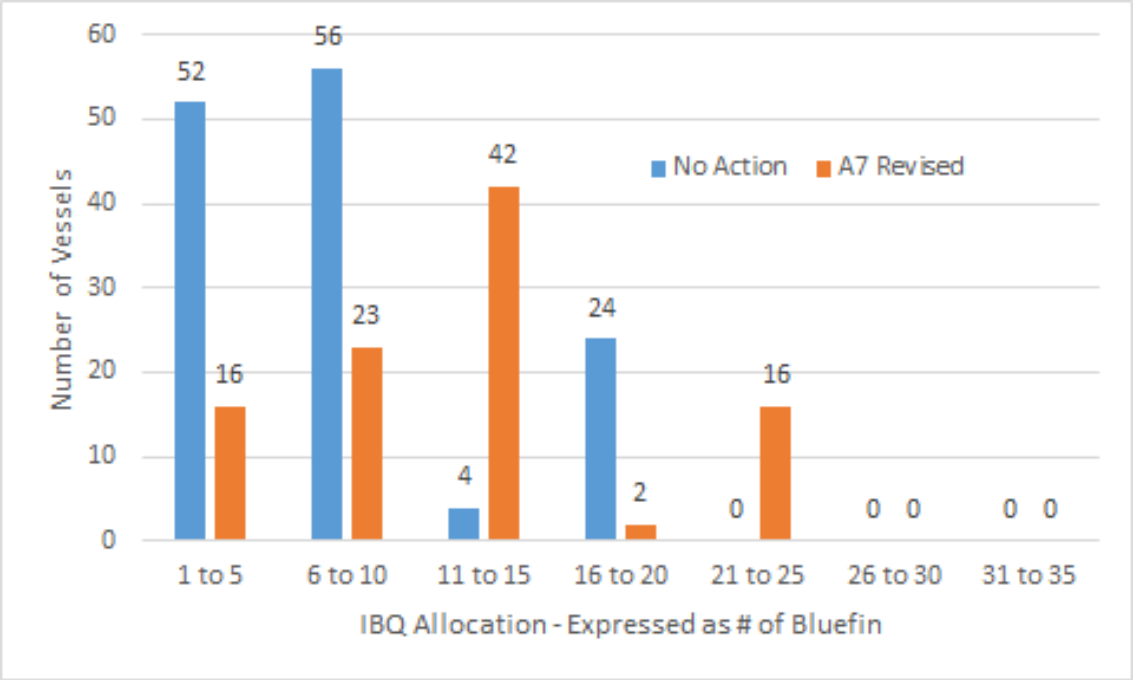

Figure 4.5 Distribution of IBQ Allocation based on Revised Amendment 7 Method
Source: eDealer data

Comparison of Allocation Alternatives

Table 4.16 compares the gains and losses associated with the various allocation alternatives to the No Action alternative. Note that this comparison uses static data and does not consider what would happen if new entrants join the fishery or if vessels that have been active become inactive. Overall, the comparison shows that the number of vessels that would have an increase in their share percentage is greatest under the revised Amendment 7 alternative (71 vessels; Alternative A3) and least under the dynamic allocation with equal allocation (56 vessels; Alternative A2d). The number of vessels that would have an increase in their share percentage is similar among the three alternatives for dynamic allocation based on fishing effort (Alternatives A2a, A2b, and A2c). In contrast, the greatest amount of increase in the total lease value (associated with the amount of increased IBQ allocation resulting from increased share percentages) would be greatest under the dynamic allocation based on designated species landings ($301,925; Alternative A2c). The lease value is a relevant metric because it represents the value of the IBQ allocation, and potential cost savings to vessels that would accrue to shareholders as a result of being allocated IBQ shares instead of needing to lease the IBQ allocation from another shareholder in order to account for bluefin catch. The amount of increase in the total lease value of two of the other dynamic allocation alternatives, however are similar for dynamic allocation based on sets ($279,532; Alternative A2b) and hooks ($287,790; Alternative A2a), respectively.

Table 4.16 Gains and Losses of Allocation Alternatives compared to No Action

	Number of Vessels		Total Lease Value	
Allocation Alternative	Share increase	Share decrease	Gains	Losses
Dynamic Allocation Based on Hooks (sub-Alternative A2a)	65	26	$287,790	$94,464
Dynamic Allocation Based on Sets (*Preferred sub-Alternative A2b*)	61	30	$279,532	$90,273
Dynamic Allocation Based on Designated Species Landings (sub-Alternative A2c)	63	28	$301,925	$106,529
Dynamic Allocation Equal Allocation (sub-Alternative A2d)	56	35	$209,093	$21,063
Revised Amendment 7 (Alternative A3)	71	28	$225,848	$66,849

Source: VMS data; eDealer data; NMFS SERO Catch Shares Online System

Figure 4.6 is a box-whisker plot that shows the shape of the distributions of share percentages for the allocation alternatives ("A7", Alternative A3, Amendment 7 formula using 2016-2018 data; "Equal", Alternative A2d, Dynamic distribution of IBQ allocation in equal amounts to active vessels; "Hooks", Alternative A2a, Dynamic allocation based of hooks as the measure of fishing effort; "Landings", Alternative A2c, Dynamic allocation based on designated species landings as the measure of fishing effort; "No Action"; and "Sets", Alternative A2b, Dynamic allocation based on sets as the measure of fishing effort). For each alternative the figure shows the median, upper and lower quartiles, and the lower and upper extremes of the share percentages, illustrating how the alternatives compare to one another.

For example, under Alternative A2c (Dynamic Allocation based on Landings) the box indicates the range in percentage shares is wider than the range of all the other alternatives, with a minimum share that is 0.1 percent, and a maximum share percentage that is higher (3.0 percent share). Not shown on the graph for the landings based shares, is a single value of a share of 4.6 percent. This value was not shown on the graph to improve the proportions of elements in the graph so they are clear. In contrast, the No Action alternative has a much narrower range of percentage shares (maximum of 1.2 percent

share and minimum share of 0.37 percent share), and Alternative A2d (Dynamic distribution in equal amounts to active vessels) is a single point, with no box shown because all the percentage shares are the same (1.02 percent). "A7" refers to the Revised A7 alternative and should not be confused with the No Action Alternative. The Preferred Alternative (Alternative A2b) – dynamic allocation based on sets- has a similar distribution as designated species landings, but the top percentage shares are not as large as those based on designated species landings.

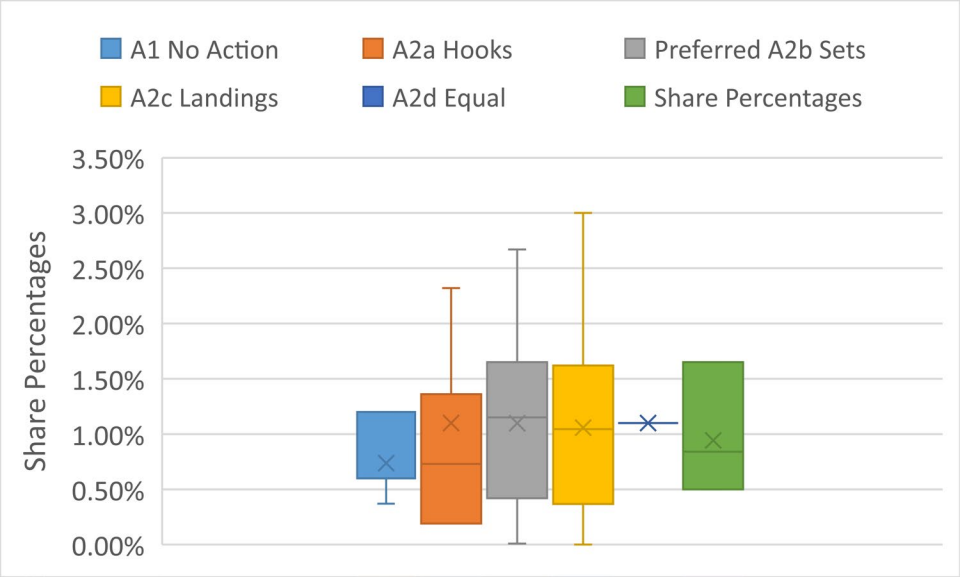

Figure 4.6 Distribution of Share Percentages by allocation alternative

4.1.4 Conclusion – 'A' Alternatives

Both the ecological and socioeconomic impacts of the Preferred Sub-Alternative A2b are consistent with the objectives of this Amendment. Sub-Alternative A2b would not alter the ICCAT-adopted quota or U.S. portion of the quota; would manage the fishery consistent with the IBQ Program objectives (e.g., reducing dead discards of bluefin); and would modify management of the pelagic longline fishery in response to the Three-Year Review. Sub-Alternative A2b is preferred for several reasons. The alternative would have neutral ecological impacts. It would not undermine the accountability inherent in the IBQ Program. This alternative is responsive to the recommendations of the Three-Year Review with respect to consideration of a new distribution method for IBQ shares to ensure that use of quota is optimized, as well as to address new entrants to the fishery. The Three-Year Review of the IBQ Program (Section 4.1) discussed IBQ shares in detail. The Amendment 7 method of determining shares allocated bluefin in proportion to a vessel's historical fishing effort, and inversely proportional to the vessel's amount of bluefin interactions relative to its target catch. It was intended to incentivize avoidance of bluefin. However, the Three-Year Review found that there were many factors influencing relevant trends among the

different share tiers, including vessel characteristics such as size. The Three-Year Review concluded that the formula used in Amendment 7 may not necessarily be functioning as an incentive to reduce interactions with blue in the IBQ Program, as evidenced by bluefin landings patterns among the three share tiers, and stated: "The distribution of allocation my not be aligned with the need for quota, given the fact that bluefin catch and the need for quota may be concentrated, and bluefin comprises only a fraction of the total catch of the fishery. Distribution of shares based on the ratio of bluefin to designated species may be overly restrictive in the way it translates into the share percentage. The success of the IBQ Program in reducing dead discards likely related more to the other elements of the IBQ Program than the precise method of allocation and incentives associate with the distinct amounts of annual allocation".

The relatively small amount of IBQ allocation that shareholders would be distributed and the requirement that all bluefin landings and dead discards must be accounted for using IBQ allocation, would continue to provide a strong incentive for vessels to modify their fishing behavior to avoid and reduce interactions with bluefin.

The amount of IBQ associated with inactive Amendment 7 shareholders (No Action Alternative), represents 28 percent of the Longline category quota, based on vessel activity from 2017 through 2019 (VMS data). The Preferred Alternative would address the objective of providing IBQ shares and allocation to active vessels by determining only active vessels to be shareholders, and having the effect of distributing the equivalent of 28 percent of the IBQ (100,607 lb; Table 4.7) to active vessels that would otherwise be distributed to inactive vessels (under the No Action Alternative).

While Draft Amendment 13/DEIS preferred Sub-Alternative A2c, NOAA Fisheries is not preferring that alternative in this FEIS in light of issues raised in public comments (see section 2.1.2.3 and Appendix A). The Preferred Sub-Alternative in this FEIS (A2b) does not have the issues associated with basing IBQ shares on landings. Further, the use of sets as a metric can be determined using a single data source (VMS or logbooks), and if necessary verified using electronic monitoring data. In light of the fact that the pelagic longline fleet is geographically diverse, as well as including a range of vessels sizes and fishing strategies, the use of sets represents a more standardized, uniform method of determining IBQ shares compared to the other methods explored in the other sub-alternatives. The economic impacts of this alternative are similar in scope to the impacts of dynamic allocation based on hooks. For example, based on 2017-2019 information, the total amount of the gains in leasing value ($287,790) is three percent greater for dynamic allocation based on hooks than sets ($279,532), while the total losses in leasing value is four percent less for dynamic allocation based on sets ($90,273) than based on hooks ($94,464). For those vessels that would have smaller shares under dynamic allocation, the average amount of pounds lost per vessel would be 1,799 lb based on sets, versus 2,187 lb lost based on hooks, which is a difference of 388 lb. In other words, dynamic allocation based on sets minimizes the negative economic impacts compared to dynamic allocation based on hooks.

When compared to dynamic allocation based on designated species landings, the differences are slightly greater. Although the total increase in lease value of dynamic

allocation based on sets ($279,532) is 7 percent less than that based on designated species landings ($301,925), the total decrease in lease value based on sets ($90,273) is 15 percent less than the total reduction in lease value based on designated species landings ($106,529). In other words, basing shares on sets minimizes the total economic losses ($90,273) when compared to designated species landings ($106,529) or hooks ($94,464).

The Preferred Sub-Alternative is responsive to public comments that urged that shares reflect individual vessel fishing effort, and not be based on quartiles, for the reasons explained in section 4.1.2.2. Determination of IBQ shares based on sets would result in an equitable method of allocation. NOAA Fisheries' annual process of determining shares would be facilitated by using sets as the basis for shares, because VMS data is more easily and accurately compiled than landings data. As shown in Table 4.16, this alternative is associated with the smallest reduction in the total lease value compared to the dynamic allocation alternatives based on hooks or designated species. The preferred alternative would achieve a reasonable balance of costs and benefits, while addressing the objective to provide IBQ to active vessels. Vessels that would receive a lower share percentage under the preferred alternative than under the No Action alternative, or a different alternative, would be able to lease IBQ allocation if their IBQ allocation is not sufficient to account for any bluefin catch.

The Preferred Sub-Alternative would be implemented in conjunction with Sub-Alternative F3a, which would reallocate Purse Seine category quota to all bluefin quota categories, including the Longline category. The increase in the relative size of the Longline category quota (as a result of Sub-Alternative F3a) would support continued functioning of a market for leasing IBQ allocation among shareholders. Share determination based on sets may result in closer alignment between vessel IBQ allocations and the need for IBQ allocations, compared to the No Action alternative. The dynamic nature of the preferred alternative would facilitate new entrants into the fishery and enable vessels that increase fishing effort from one year to the next to receive a corresponding increase in IBQ shares.

4.2 'B' Alternatives: Modifications to Rules Closely Linked to IBQ Allocations

4.2.1 Alternative B1: Regional Designations - No Action

The Gulf of Mexico is recognized as the primary spawning ground for the western Atlantic bluefin tuna stock., Amendment 7 included a regional designation approach for IBQ shares and allocations, in order to prevent potential increases in bluefin catch in the Gulf of Mexico. As established in Amendment 7, IBQ shares and subsequent associated allocation were designated as either GOM or ATL based on the geographic location of sets used in the determination of allocations, and the relative amount of GOM and ATL shares do not change over time. Only Gulf of Mexico IBQ allocation can be used to account for bluefin caught in the Gulf of Mexico, while either Atlantic or Gulf of Mexico IBQ allocation can be used to account for bluefin caught in the Atlantic. Under the quarterly accountability rules, vessels are required to have a minimum amount of IBQ allocation in order to depart on the first pelagic longline trip in each calendar quarter, and they must resolve quota debt prior to fishing in the subsequent quarter. The Amendment 7 share determination resulted in 35 percent of the total Longline category quota designated as GOM IBQ shares and subsequent allocation, and 65 percent designated as ATL shares and subsequent allocation. In other words, 35 percent of the total IBQ allocation could be caught in the Gulf of Mexico. The maximum amount is based upon the proportion of total pelagic longline sets in the Gulf of Mexico during the period 2006 through 2012.

Ecological Impacts

The ecological impacts would be neutral, continuing the level of current limitation on bluefin catch from the Gulf of Mexico (i.e., 35 percent of the overall IBQ allocation is designated as GOM and therefore 35 percent of the total IBQ allocation could be caught from the Gulf of Mexico). Vessels can currently fish in the Gulf of Mexico, provided they have the minimum amount of GOM designated IBQ allocation, so the current rules do not pose a substantial challenge for vessels with little or no GOM designated IBQ allocation. Such vessels may lease GOM designated IBQ allocation to fish in the Gulf of Mexico. Other factors in addition to having GOM designated IBQ allocation (such as home port location, fish availability and markets) are important determinants to fishing in the Gulf of Mexico. Similarly, since this alternative is not anticipated to change the amount or distribution of fishing effort the indirect short- and long-term ecological impacts on other species (including protected resources) are also expected to be neutral.

Socioeconomic Impacts

The socioeconomic impacts of the No Action would be neutral, continuing the current approach of regional designations. Vessels that currently do not have GOM designated IBQ allocation but would like to fish in the Gulf of Mexico would need to lease GOM IBQ allocation. These total leasing costs are low because there are very few vessels that fish in the Gulf of Mexico that need to lease GOM designated IBQ allocation (typically four or fewer

vessels). However, the costs associated with vessels leasing GOM designated IBQ allocation would continue, and negatively affect the finances of individual vessels. Because this alternative would not result in meaningful changes to the distribution or amount of target species landings within the fishery, the indirect socioeconomic impacts of the No Action alternative on dealers and other shoreside supporting businesses would be neutral. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Communities in the Gulf of Mexico and east coast of Florida associated with the pelagic longline fishery are most likely to be impacted by this alternative. For example, Dulac, LA, Panama City, FL, and Fort Pierce, FL. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8.

4.2.2 Alternative B2: Eliminate the Regional IBQ Designations and Cap Bluefin Catch from the GOM

This alternative would eliminate the regional IBQ share and allocation designations (GOM and ATL), and instead distribute IBQ allocation with no associated regional restrictions on use. IBQ allocation could be used to account for bluefin caught in either the Gulf of Mexico or Atlantic, but there would be a maximum amount of IBQ allocation that could be used to account for landings and dead discards from the Gulf of Mexico. The maximum amount of catch from the Gulf of Mexico would be capped at 35 percent of the total Longline category quota, which is consistent with the 35 percent GOM-designated shares approach under the current regulations established by Amendment 7. NOAA Fisheries would monitor the catch from the Gulf of Mexico and close the pelagic longline fishery in the Gulf of Mexico when 35-percent of the total Longline category quota is reached. In addition, this alternative would provide a regulatory mechanism for NOAA Fisheries to modify the 35 percent cap based upon specific considerations such as new scientific data, fishery or stock status information; or changes in the fishery; provided those changes resulted in a cap of 35 percent being inconsistent with the FMP objectives, MSA requirements, or ICCAT recommendations. *See* Section 2.2.3 (explaining adjustment of cap based on determination criteria under 50 C.F.R. § 635.27(a)(8)).

Ecological Impacts

Elimination of the regional designations while establishing a maximum amount of bluefin catch from the Gulf of Mexico (cap of 35 percent of the Longline category quota) would result in the same maximum amount of bluefin catch from the Gulf of Mexico allowed under Amendment 7. Thus, this would afford continued protections for spawning bluefin and neutral ecological impacts on bluefin tuna. The current maximum amount of bluefin catch by pelagic longline vessels from the Gulf of Mexico is 35 percent of the Longline category quota, based on the Amendment 7 regional designations. Specifically, under the Amendment 7 allocations, 35 percent of the IBQ allocations have a regional designation of GOM, which has the effect of capping the amount of bluefin that can be caught from the Gulf of Mexico at 35 percent. If the regional designations were removed to provide more flexibility for vessels, but a 35-percent cap is set on the amount of bluefin that can be

incidentally caught from the Gulf of Mexico, then the maximum amount of bluefin that could be caught would be the same as the No Action Alternative. Although providing increased flexibility for vessels to fish in the Gulf of Mexico could result in a slight increase in fishing effort in the Gulf of Mexico, and result in more bluefin incidental catch than during recent years, the 35-percent cap would provide the same ceiling on the amount of possible bluefin incidental catch. Vessels can currently fish in the Gulf of Mexico, provided they have the minimum amount of GOM designated IBQ allocation, so the current rules do not pose a substantial challenge for vessels with little or no GOM designated IBQ allocation. Such vessels may lease GOM designated IBQ allocation to fish in the Gulf of Mexico. Both the Longline category bluefin quota and the portion allowed to be caught in the Gulf of Mexico would remain at relatively low levels that balance the need for low levels of bluefin incidental catch with the requirement for the fishery to account for incidental bluefin catch. If the U.S. bluefin quota were increased, the relative size of the cap on Gulf of Mexico bluefin catch by pelagic longline vessels would remain at 35 percent, but the amount in pounds allowed to be caught would increase. If such an increase is a concern based for example upon the fishing mortality and stock status, NOAA Fisheries would have a regulatory mechanism (50 C.F.R. § 635.27(a)(8)) for reducing the 35 percent to a level designed to address any relevant stock status concerns. The ecological impacts on other HMS species (as well as protected species) would also be neutral, because fishing strategies for target species are likely to remain similar under this alternative. Substantial changes in the distribution of fishing effort or total fishing effort in the Gulf of Mexico or Atlantic are not anticipated, because the method of determining IBQ shares, and in this case the GOM shares, is just one of the many factors that determine whether a vessel will fish in the Gulf of Mexico or the Atlantic.

Socioeconomic Impacts

This alternative may have minor beneficial and minor adverse socioeconomic impacts. There may be a minor beneficial socioeconomic impact on vessels that under the current regulations (No Action Alternative) have only ATL designated IBQ allocation, and currently must lease GOM designated IBQ allocation in order to fish in the Gulf of Mexico. Such vessels would be able to fish in the Gulf of Mexico without the need to lease, which may reduce or eliminate the costs associated with leasing IBQ allocation by such vessels. Although other factors in addition to having GOM designated IBQ allocation (such as home port location, fish availability and markets) are important determinants to fishing in the Gulf of Mexico, facilitation of fishing opportunities in the Gulf of Mexico may result in increased revenue for such vessels. If the elimination of regional designations increases the number of vessels that fish in the Gulf of Mexico, and there are increased landings of target species, there would be minor beneficial economic benefits to dealers in the Gulf of Mexico. For vessels that already fish exclusively in the Gulf of Mexico, with all or most of their IBQ allocation designated as GOM, this alternative may have socioeconomic impacts that are minor and adverse. Such vessels that currently have GOM designated IBQ allocation may experience increased competition for fishing grounds or markets due to any increased fishing effort in the Gulf of Mexico, or face a smaller market for leasing their GOM IBQ allocation to other vessels. Such impacts would be short term. One of the reasons that the impacts are minor is that there are relatively few vessels that need to lease GOM

designated IBQ in order to fish there. Substantial changes in the distribution of fishing effort or total fishing effort in the Gulf of Mexico or Atlantic are not anticipated, because the method of determining IBQ shares, and in this case the GOM shares is just one of the many factors that determine whether a vessel will fish in the Gulf of Mexico or the Atlantic. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Communities in the Gulf of Mexico and east coast of Florida associated with the pelagic longline fishery are most likely to be impacted by this alternative. For example, Dulac, LA, Panama City, FL, and Fort Pierce, FL. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8.

4.2.3 Preferred Alternative B3: Modify Regional GOM and ATL Designations for a Dynamic Allocation System and Cap Bluefin Catch from the Gulf of Mexico

This alternative would be implemented in conjunction with the dynamic allocation alternatives (A2a (hooks), A2b (sets) or A2c (designated species landings)). Regional designations (GOM and ATL) would be determined on an annual basis as part of the annual dynamic allocation process; a maximum amount of bluefin incidental catch from the Gulf of Mexico would be set but could be adjusted downward, as needed, using the criteria at 50 C.F.R. § 635.27(a)(8); and accounting rules for the regional IBQ allocations would remain in place (unless a GOM low shares threshold if triggered, as described below). Regional designations would be based on the location of vessels' pelagic longline fishing activity using the most recent three years of data available. There would be a default cap on GOM IBQ shares of 35 percent of the Longline category quota (same as Amendment 7). However, annually, that cap would reflect the relative amount of fishing effort in the Gulf of Mexico. For example, if under Alternative A2b, 30 percent of sets analyzed for the determination of annual IBQ allocations was in the Gulf of Mexico, then 30 percent of the IBQ shares (and resultant IBQ allocation) would be designated as GOM. Under a dynamic allocation, the percentage of IBQ shares designated as GOM and ATL would vary, depending upon the location of where vessels fished during the previous three years.

During the process of the annual calculation of IBQ shares, if NOAA Fisheries determines that the total amount of IBQ shares (based on the relative amount of fishing effort in the Gulf of Mexico) would be greater than the cap, NOAA Fisheries would reduce the GOM-designated IBQ shares to equal the GOM IBQ share cap in effect. The reduction in total GOM share percentage would be achieved through equal reductions among IBQ shareholders with GOM designated IBQ shares, as explained in Chapter 2. As another example, if a vessel under Alternative A2b does not have sets from the Gulf of Mexico during the previous three years, but wishes to fish in the Gulf of Mexico, the vessel would need to lease GOM designated IBQ allocation initially, and then could receive GOM designated IBQ shares and resulting allocation for the following year.

This alternative would provide a regulatory mechanism for NOAA Fisheries to reduce the 35-percent cap, (at the beginning of a year, or inseason) if fishery conditions change and it was no longer consistent with the FMP objectives, MSA requirements, or ICCAT

recommendations. Specifically, such a determination in the Gulf of Mexico would be based upon the considerations listed in the regulations for inseason bluefin quota adjustments (§ 635.27(a)(8)), such as "Effects of the adjustment on bluefin rebuilding and overfishing"; "Effects of the adjustment on accomplishing the objectives of the fishery management plan"; and "Variations in seasonal distribution, abundance, or migration patterns of bluefin". *See* section 2.2.3 for further explanation of Modification of Cap.

This alternative includes an additional provision that was not included in the DEIS. Public comments expressed concern that future low levels of effort in the Gulf of Mexico could result in a very low percentage of shares being designated as GOM shares during the annual regional designation process. Reductions in the number of vessels fishing in the Gulf of Mexico or in the amount of fishing effort per vessel in the Gulf of Mexico would reduce the amount of IBQ shares designated for use in the Gulf of Mexico. Under conditions where very low amounts of GOM shares and IBQ allocation were made available in the annual designation process, vessels likely would be more reluctant to lease IBQ allocation to other vessels. If vessels are unable to lease GOM IBQ allocation, prospective new entrants to the fishery (who do not have access to IBQ shares) or vessels with only ATL designated shares would be unable to meet the minimum IBQ allocation requirement for departing on a fishing trip in the Gulf of Mexico (551 lb), and thus, would be unable to fish in the Gulf of Mexico. Similarly, vessels with GOM-designated IBQ allocation who are able to depart on a trip may find themselves unable to lease additional IBQ allocation to cover all catch that occurs during a trip and find themselves in quota debt and unable to fish in the next quarter. In this scenario, all of this would occur with Gulf of Mexico incidental catch of bluefin tuna still well below the limits established in Amendment 7. Such serious constraints could result in poor functioning or disruption of the IBQ Program and result in further declines in fishing effort or participation in the pelagic longline fishery, or prevent utilization of available IBQ allocation conistent with fishery management objectives.

In response to public comments, in order to prevent serious constraints in the functioning of the IBQ Program in the Gulf of Mexico under such circumstances,NOAA Fisheries has modified this alternative from what was described in Draft Amendment 13/DEIS as follows: The preferred alternative includes a threshold that triggers a change in the IBQ designation and accounting rules. The threshold is when annual GOM designated shares are at five percent or less of total IBQ shares (ATL plus GOM designated shares). If this threshold is met, the requirement to account for bluefin caught in the Gulf of Mexico with GOM IBQ allocation and to use only GOM IBQ allocation to satisfy the minimum IBQ requirement needed to depart on the first fishing trip of each calendar quarter (551 lb) would not apply in that year. Rather, vessels would be able to use ATL IBQ allocation or GOM IBQ allocation to either account for bluefin catch (landings or dead discards) and to satisfy the minimum IBQ allocation requirements for in the Gulf of Mexico. In the Gulf of Mexico, the minimum amount of pounds to satisfy the minimum quarterly requirement (i.e., at least one fish equivalent in weight of IBQ required to depart on the first fishing trip of each calendar quarter) would still be 551 lb due to the larger average size of bluefin in the Gulf of Mexico.

In addition, there would be an annual cap on the maximum amount of bluefin that may be caught in the Gulf of Mexico. When NOAA Fisheries provides information to shareholders regarding their annual shares and allocations, the agency will also provide notice regarding the use of GOM IBQ shares and allocation. To preserve the intent of the GOM designated shares and allocation, as first articulated in Amendment 7 regarding the level of effort in the Gulf of Mexico, when this low GOM share threshold provision is in effect, the maximum allowable bluefin catch from the Gulf of Mexico will be the catch weight equivalent of the otherwise applicable 35 percent cap (or lower if NOAA Fisheries modifies the level consistent with other provisions in this Amendment). This cap will be measured by weight of bluefin catch (landings and dead discards)(i.e., the default level of 35 percent,). If this level of bluefin catch (landings and dead discards) were reached in the Gulf of Mexico, NOAA Fisheries would prohibit vessels from fishing with pelagic longline gear in the Gulf of Mexico for the remainder of that year. For example, assuming the default cap of 35 percent is in effect and the Longline category bluefin quota is 360,656 lb, then the maximum amount of bluefin catch allowed in the Gulf of Mexico would be 126,230 lb (35 percent of 360,656 lb). The specific bluefin catch cap, in pounds, associated with the low GOM share threshold provision would be communicated to shareholders as described above. If this level of incidental bluefin catch (landings and dead discards) were reached in the Gulf of Mexico, NOAA Fisheries would prohibit vessels from fishing with pelagic longline gear in the Gulf of Mexico for the remainder of that year.

Ecological Impacts

Preferred alternative B3 would have neutral ecological impacts on bluefin tuna: it would cap incidental catch in the Gulf of Mexico at its current (Amendment 7) level of 35 percent, but would also provide NOAA Fisheries the regulatory flexibility to reduce the cap if necessary to strengthen the limits on bluefin catch. This alternative regarding regional designations, in conjunction with the preferred alternative for dynamic allocation (based on sets) would have a lower percentage of GOM designated IBQ allocation than under the No Action Alternative, based on 2017 through 2019 data. In conjunction with the Preferred Alternative A2b, GOM designated shares would be 29 percent (Table 4.17). This regional designation alternative would not modify the annual ICCAT recommended bluefin quota, nor the U.S. portion of that quota. The overall amount of allowable bluefin catch would remain within already established limits, including the ICCAT adopted quota for the western Atlantic bluefin stock, and the U.S. portion of that quota. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years.

While the alternative would affect the distribution of regional designations of IBQ shares and allocation among vessels, and may facilitate additional fishing opportunity for active vessels, the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. The ecological impacts on other HMS species (as well as protected species) would also be neutral, because fishing strategies for target species are likely to remain similar under this alternative. Substantial changes in the distribution of

fishing effort or total fishing effort in the Gulf of Mexico or Atlantic are not anticipated, because of the method of determining IBQ shares, and in this case receiving GOM shares is just one of the many factors that determine whether a vessel will fish in the Gulf of Mexico or the Atlantic. Table 4.17 shows the percentage split of regional designations between the Atlantic and Gulf of Mexico for the dynamic allocation alternatives, based on data from 2017 through 2019 for active vessels, and the location of the sets. Note that these regional designations for shares and allocations are, as a practical matter, the maximum percentage of bluefin that could be caught in the Gulf of Mexico by pelagic longline vessels, based on the specific methodologies (and for the dynamic allocations, a specific three year period). The percentages associated with the dynamic allocation methods would vary annually depending upon the location of catch but would be capped, at a maximum percentage of 35 percent designated as GOM shares, with the associated regulatory mechanism for reducing the cap if necessary.

Table 4.17 Comparison of Regional Designations Expressed As Percentage of Total Allocation - by Allocation Alternative

Regional Designation	No Action (%)	Dynamic Allocation based on Hooks (%)	Dynamic Allocation based on Sets *(Preferred)* (%)	Dynamic Allocation based on Landings* (%)	Dynamic and Equal Allocation* (%)	Updated Amendment 7 (%)
GOM	35	28	29	27	29	35
ATL	65	72	71	73	71	65

* Based on location of designated species landings
Source: VMS data; eDealer data

Under all of the dynamic allocation alternatives, the maximum amount of bluefin allocated to the Gulf of Mexico based on data from 2017 through 2019 would be between 27 and 29 percent of the Longline category quota, slightly less than the 35 percent under the No Action alternative.

It is likely that only a few vessels that do not have any GOM designated IBQ shares will chose to fish in the Gulf of Mexico, based on past fishing patterns. For example, in 2019 there were seven vessels that were not shareholders of GOM designated IBQ shares, that leased GOM IBQ, but only two of those vessels fished in the Gulf of Mexico.

The aspect of the alternative that provides NOAA Fisheries the authority to reduce the maximum amount of IBQ allocation that could be caught from the Gulf of Mexico, would enable NOAA Fisheries to respond to new scientific data, fishery or stock status information, or other changes in the fishery, and maintain a maximum level of bluefin catch from the Gulf of Mexico for the long term that is consistent with the FMP objectives and

ICCAT recommendations. The alternative would result in regulations that are more flexible and responsive to potential future changes in circumstances.

A five percent GOM IBQ share threshold, which would trigger relief from the requirement to account for bluefin caught in the Gulf of Mexico with GOM IBQ allocation , and use GOM IBQ allocation to satisfy the minimum IBQ requirement for departing on a trip in the Gulf of Mexico, would not result in adverse ecological impacts. The situation that would trigger the modification of these rules would be very low levels of fishing effort in the Gulf of Mexico. Very low levels of pelagic longline fishing effort would have neutral ecological impacts. A cap on bluefin catch from the Gulf of Mexico would remain in effect despite the fact that regional designation of IBQ allocations would no longer be in effect (at GOM share percentages of 5 percent or less) as a management tool. Regional designations of IBQ shares and allocations serve to both cap bluefin catch in the Gulf of Mexico and serve as a mechanism to ensure only incremental increases in fishing effort in the Gulf of Mexico.

Socioeconomic impacts

The overall socioeconomic impacts of this alternative would be minor and beneficial. Although other factors in addition to having GOM designated IBQ allocation (such as home port location, fish availability, and markets) are important determinants to fishing in the Gulf of Mexico, this alternative would provide increased flexibility for vessels that currently have ATL designated IBQ shares because the dynamic annual definition of shares and regional designations would enable a vessel to receive annual shares with a GOM regional designation as a result of fishing with pelagic longline gear in the Gulf of Mexico during the previous year (instead of needing to lease GOM designated IBQ allocation annually). Such vessels likely have home ports in the Atlantic. Increased flexibility to catch target species could result in additional revenue for dealers and supporting shoreside businesses as a result of increased landings of target species; therefore, the indirect socioeconomic impacts are expected to be minor and beneficial.

Historical fishery participants in the Gulf of Mexico (likely with home ports in the Gulf of Mexico) would continue to receive GOM designated IBQ share based on their level of activity (in the Gulf of Mexico). Under this system, if a vessel had no designated species landings from the Gulf of Mexico during the previous three years, but wishes to fish in the Gulf of Mexico, the vessel would need to lease GOM designated IBQ allocation initially, and then could receive GOM designated IBQ shares and resulting allocation for the following year. If the number of vessels fishing in the Gulf of Mexico increased, there may be minor, short-term adverse impacts due to increased competition. However, based on the few vessels with home ports in the Atlantic that have fished in the Gulf of Mexico during the past few years, the potential for any adverse socioeconomic impact on vessels with home ports in the Gulf of Mexico is very low.

If the amount of GOM designated IBQ shares and allocation were five percent or less, vessels interested in fishing in the GOM would be able to do so using ATL designated IBQ, and thus not be constrained by limitations in the availability of GOM designated IBQ likely

to exist under such conditions. Vessels could be contrained by the cap on the amount of bluefin catch from the Gulf of Mexico, if catch of bluefin were to increase over recent levels.

If NOAA Fisheries were to exercise its authority to reduce the maximum percentage of GOM designated shares from its current level of 35 percent, and reduce the percentage of total IBQ shares that are designated GOM (e.g., down to 25 percent of the total IBQ shares), there would likely be no practical impact because the recent levels of catch of bluefin from the Gulf of Mexico have been very low (i.e., between 3 and 7 percent of the total IBQ). If the amount of GOM shares needed to be reduced in order to not exceed the cap (as described in Chapter 2), the impact is likely to be small at the level of individual vessels. Furthermore, based on recent data, it is unlikely that fishing effort would increase to a level that would result in the amount of GOM shares that would exceed the cap. Table 4.18 contains data on the total IBQ allocations, GOM designated IBQ allocations, and relevant catch information. The bluefin catch in the Gulf of Mexico as a percentage of total IBQ allocation has been between three and six percent, much lower than the maximum allowable of 35 percent.

Table 4.18 Gulf of Mexico Designated IBQ and Bluefin Catch in the Gulf of Mexico (2015-2019)

Year	Total Allocation* (mt)	GOM Designated IBQ (35% of total allocation) (mt)	Bluefin Catch in Gulf of Mexico (mt)	Bluefin Catch in the Gulf of Mexico, as a Percent of Total Allocation (%)	Bluefin Catch in the Gulf of Mexico as a Percent of GOM Designated Allocation (%)
2015	182.3	63.8	9.3	5	15
2016	182.3	63.8	10.7	6	17
2017	193.3	67.7	12.2	6	18
2018	208.1	72.8	7.3	4	10
2019	163.6	57.2	4.6	3	5

* IBQ allocation resulting from Longline category baseline quota and inseason transfers.
Source: NMFS SERO Catch Shares Online System; SEFCS (dead discard data)

In summary, the socioeconomic impacts are expected to be minor and beneficial, because of the increased flexibility for vessels that currently do not have GOM designated IBQ allocation, and the flexibility that would occur for any vessel interested in fishing in the Gulf of Mexico under the situation where the GOM designated IBQ were five percent or less. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Communities in the Gulf of Mexico and east coast of Florida associated with the pelagic longline fishery are most likely to be impacted by this alternative. For example, Dulac, LA, Panama City, FL, and Fort Pierce, FL. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8.

4.2.4 Preferred Alternative B4: Maintain Current NED Rules - No Action

This alternative would maintain the current method of inclusion of data from the geographic area comprising the Northeast Distant gear restricted area (NED), in any of the alternatives that define IBQ shares and continue the current IBQ catch accounting rules for fishing in the NED. Vessels do not have to use IBQ allocation to account for bluefin catch from the NED until after the ICCAT-designated 25 mt of bluefin have been caught.

Ecological Impacts

The ecological impacts of continuing with the current IBQ Program's rules regarding the NED would be neutral for bluefin. This alternative would not affect the overall level of bluefin catch. Bluefin catch in the NED would be accounted for under the U.S. bluefin quota. There have been few vessels that fish in the NED, and the associated catch of bluefin has been within the 25-mt NED quota specified by ICCAT (and accounted for with IBQ allocation as required, when the 25-mt NED quota has been caught). Since this alternative would not change current fishing practices, the ecological impacts on other fish species and protected species would also be neutral.

S*ocioeconomic Impacts*

The socioeconomic impacts of the No Action alternative on fishery participants, with respect to the NED rules, would also be neutral. Data associated with vessels fishing in the NED is included as part of the formula defining IBQ shares, and vessels fishing in the NED do not have to use IBQ allocation to account for bluefin catch until after the 25-mt NED quota is utilized. Vessels that fish in the NED would continue to be able to fish there with no impact on the associated IBQ shares. Socioeconomic impacts of the No Action alternative on dealers and supporting shoreside businesses would be neutral because this alternative would not change fishing practices. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Based on where the home or principal port of vessels that fished in the NED in the past, communities from the mid-Atlantic north to Maine associated with the pelagic longline fishery are most likely to be impacted by this alternative. For example, Barnegat Light, NJ, Fairhaven, MA, and New Bedford, MA (as well as Canadian shippers). A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8.

4.2.5 Alternative B5: Do not include NED fishing activity as part of the data used in calculating IBQ Allocations

This alternative would not include fishing activity in the NED as part of an allocation formula. Specifically, fishing effort in the NED or designated species landings from longline sets in that area would be excluded from the formulas used to establish IBQ shares, unless the 25-mt NED bluefin quota has been caught.

Ecological Impacts

The ecological impacts of this alternative would be neutral for bluefin for the same reasons discussed under Alternative B4, Ecological Impacts. This alternative would not affect the amount of total IBQ allocation, but would only affect the distribution of IBQ allocation among vessels.

Socioeconomic Impacts

The socioeconomic impacts of this alternative are expected to be minor and adverse overall, and affect vessels that fish in the NED because their fishing effort in the NED would not be reflected in their IBQ share percentage. The greater amount of fishing affect a vessel has in the NED, the greater the impact on their IBQ share percentage. Nine vessels fished in the NED during 2016 to 2018. The NED fishery is unique and highly variable, and therefore only a few vessels fish there intermittently. If a vessel fished in the NED during a particular year, their share percentage may be reduced during subsequent years as a result, whether or not any bluefin were caught during that year, and whether or not the vessel choses to fish in the NED during subsequent years.

If NED fishermen receive a lower IBQ share percentage relative to their total fishing effort than other vessels, this may put them at a competitive disadvantage. Disadvantaging vessels that fish in the NED may alter the costs and incentives for vessels to fish in the NED, and have an adverse long-term impact on the fishery as a whole because of underutilization of swordfish. In turn this could result in indirect, short- and long-term socioeconomic impacts on dealers and supporting shoreside industries that are minor and adverse. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Based on where the home or principal port of vessels that fished in the NED in the past, communities from the mid-Atlantic north to Maine associated with the pelagic longline fishery are most likely to be impacted by this alternative. For example, Barnegat Light, NJ, Fairhaven, MA, and New Bedford, MA (as well as Canadian shippers). A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8.

4.2.6 Conclusions – 'B' Alternatives

Both the ecological and socioeconomic impacts of the preferred Alternative B3 are consistent with the objectives of this Amendment. Alternative B3 would maintain a cap on the amount of bluefin caught from the Gulf of Mexico, and provide NOAA Fisheries the authority to reduce the maximum amount of IBQ allocation that could be caught from the Gulf of Mexico, which would enable NOAA Fisheries to respond to new scientific data, fishery or stock status information, or changes in the fishery, and maintain a maximum level of bluefin catch from the Gulf of Mexico that is consistent with the FMP objectives and ICCAT recommendations. This alternative would increase flexibility for vessels that currently have ATL designated IBQ shares because the dynamic annual definition of shares and regional designations would enable a vessel to receive annual shares with a GOM

regional designation as a result of fishing with pelagic longline gear in the Gulf of Mexico during the previous year (instead of needing to lease GOM designated IBQ allocation annually). In conjunction with the preferred alternative for dynamic allocation (based on sets), a lower percentage of IBQ shares would initially be designated as GOM, yet there would be flexibility for the GOM IBQ share percent to increase (up to the cap), in conjunction with fishing effort, in a limited and restrained manner.

Both the ecological and socioeconomic impacts of Preferred Alternative B4 are consistent with the objectives of this Amendment. Vessels that fish in the NED would continue to be able to fish there with no impact on the associated IBQ shares. In contrast, Alternative B5 would result in adverse economic impacts.

4.3 'C' Alternatives: Sale of IBQ Shares

4.3.1 Preferred Alternative C1: No Sale Allowed - No Action

This alternative would continue the current regulations under which no sale of IBQ shares are allowed. Amendment 7 (2015) implemented the current rules, which prohibit sale of IBQ shares, yet allow temporary (annual) leasing of IBQ allocation among Atlantic Tunas Longline category permit holders. IBQ shares are linked to, and non-severable from Atlantic Tunas Longline category permits and may not be sold (Atlantic Tunas Longline category permits may be sold however). Sale of shares is a separate and distinct type of transaction from temporary leasing of IBQ allocation. Atlantic Tunas Longline category permit holders may lease IBQ allocation at any time during a calendar year to another permit holder, but the leased IBQ allocation does not carry over from one year to the next.

Ecological Impacts

The Three-Year Review concluded that, under the IBQ Program, bluefin catch was reduced substantially compared to the time period prior to the implementation of the IBQ Program. The ecological impacts of Alternative C1 on bluefin are expected to be neutral because allowing or not allowing sale of IBQ shares would not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-recommended quota for the western Atlantic bluefin stock and the U.S. portion of that quota. The maximum amount of bluefin that may be caught from the Gulf of Mexico would remain limited as described under Alternatives B1a, B2, or B3. The ecological impacts of Alternative C1 on other Atlantic HMS and on protected species are also expected to be neutral because allowing or not allowing sale of IBQ shares does not affect analyzed quotas for target species, where applicable, and is not likely to affect fishing strategies.

Socioeconomic Impacts

The socio economic impacts of Alternative C1 on fishery participants are expected to be neutral because there would be no change to the current regulations. Further, there is little

need for Atlantic Tunas Longline category permit holders to accumulate additional IBQ shares, because for most permit holders, annual allocations (under the A allocation alternatives) combined with a minimal amount of leasing is likely to be sufficient for permit holders to account for incidental bluefin catch. In contrast to many catch share programs where the catch share is associated with a targeted species, bluefin is an incidental catch species in the longline fishery. Continued prohibition on sale of IBQ shares would prevent uncertainty in the IBQ allocation leasing market in both the short term and long term, which would be beneficial to the IBQ Program overall. In addition, prohibition of sale would reduce the likelihood of accumulation of IBQ shares by individual entities. Similarly, reduced uncertainty in the market would likely also result in indirect socioeconomic impacts on dealers and supporting shoreside businesses that are minor and beneficial. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.3.2 Alternative C2: Allow Sale of IBQ Shares

This alternative would allow sale of IBQ shares. The activity under consideration via this alternative is the purchase of IBQ shares (not to be confused with the annual leasing of IBQ allocation). Specifically, holders of valid Atlantic Tunas Longline category permits would be able to purchase IBQ shares from each other and retain them for the duration of the IBQ Program. IBQ shares would no longer be linked to specific Atlantic Tunas Longline category permits, as established in Amendment 7. Permit holders would be able to increase or decrease their IBQ share via sale. These sales would be conducted through the online IBQ System, similar to the manner in which IBQ leasing transactions are completed, including a requirement that the price paid for the IBQ shares is reported. Accumulation of shares is addressed in the D alternatives below. Sale of IBQ shares to entities who are not holders of valid Atlantic Tunas Longline category permits (such as seafood dealers, non-governmental organizations, or business speculators) would not be allowed. More specifically, buyers of IBQ shares must be holders of valid Atlantic Tunas Longline category permits issued to a vessel, while a seller of IBQ shares may be the holder of a permit in NOVESID status (not associated with a vessel), or an expired permit. The IBQ allocation leasing rules would apply concurrently. Both the sale of IBQ shares and the IBQ leasing program would have associated conditions on the eligible participants that relate to permit status. Therefore, there are a number of specific scenarios under which vessels may be restricted from selling IBQ shares or leasing IBQ allocation. For example, if the owner of a permitted vessel purchased IBQ shares, but then sold the vessel and retained the Atlantic Tunas Longline permit in NOVESID status, they would be able to sell the IBQ shares, but not participate in the IBQ leasing market. This alternative would not be consistent with the dynamic allocation alternatives, given that shareholders would be redefined on an annual basis.

Ecological Impacts

The ecological impacts of Alternative C2 are expected to be neutral because allowing sale of IBQ shares would not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-recommended quota for the western Atlantic bluefin stock and the U.S. portion of that quota.

Socioeconomic Impacts

Alternative C2 is expected to have minor adverse socioeconomic impacts. Sale of IBQ shares provides Atlantic Tunas Longline category permit holders a means of acquiring shares (and associated allocation) instead of participating in the IBQ allocation leasing market, which enables management of their IBQ allocation and business planning on a longer time scale than a single year. Permit holders may be able to save money through a single IBQ share transaction instead of via annual IBQ allocation lease transactions, a beneficial impact. On the other hand, allowing sale of IBQ shares would introduce uncertainty in the IBQ allocation leasing market, which is otherwise robust as described in the Three-Year Review, and that uncertainty could have an adverse impact on the IBQ Program overall in the short and long term. Increased uncertainty would likely also result in indirect socioeconomic impacts on dealers and supporting shoreside businesses. Sale of IBQ shares may result in IBQ shares being associated with vessels that are not active, and there is likely to be concern in the fishery about the potential for accumulation of shares by an entity that may be relatively well funded compared to the average fishery participant. As described above, there is little need for Atlantic Tunas Longline category permit holders to accumulate additional IBQ shares, because for most permit holders, annual allocations (under the A allocation alternatives) combined with a minimal amount of leasing is likely to be sufficient for permit holders to account for bluefin catch. Lastly, this alternative is inconsistent with the dynamic allocation alternatives, because they would redefine shareholders on an annual basis. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.3.3 Conclusions – 'C' Alternatives

In conclusion, to maintain stability in the IBQ allocation leasing market and in light of the beneficial socioeconomic impacts and neutral ecological impacts, no action regarding the sale of IBQ shares (Alternative C1) is preferred. Some of the reasons why a catch share program may adopt sale of individual quota shares (NOAA Catch Share Policy, 2010) are not applicable to the IBQ Program. For example, there is neither the need to reduce overcapacity in the Atlantic pelagic longline fishery, nor the need to control entry into the fishery as it is already a limited access fishery.

4.4 'D' Alternatives: Cap on IBQ Shareholder Percentage or IBQ Allocation Use

The following management alternatives would place a cap on the amount of IBQ shares an entity may hold or acquire; and/or place a cap on the amount of IBQ allocation an entity may lease or use. Existing permit regulations limit the ownership/control of HMS permits to no more than five percent of vessels for which limited access permits have been issued (§ 635.4(l)(2)(iii)). The management alternatives described below are intended to limit IBQ share acquisition/holdings ,and/or leasing, or use of IBQ allocation quota through the IBQ System, and therefore include references to who or what is limited. In this context, limitations are placed on "entities" because the permit holder may be an individual, corporation, or other type of legal party. In these alternatives, a single entity if defined as the Atlantic Tunas Longline category permit holder where that holder is an individual, corporation, partnership, or other entity.

The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.4.1 Alternatives Suite D1: Cap Accumulated Sum of IBQ Shares

4.4.1.1 Sub-Alternative D1a: No Action

This alternative would maintain the current regulations under which vessels may not sell IBQ shares, but may temporarily lease IBQ allocation, with the limit on the amount of quota allocation an individual vessel (longline or purse seine) can lease annually as the combined Longline and Purse Seine category allocations. Under this alternative, an entity would continue to be able to accumulate IBQ shares through the purchase of Atlantic Tunas Longline category permits (allowed currently). Existing permit regulations limit the ownership/control of HMS permits to no more than five percent of vessels for which limited access permits have been issued (§ 635.4(l)(2)(iii)), which in effect establishes a maximum share of total limited access privileges that a privilege holder is permitted to hold, acquire, or use.

Ecological Impacts

The ecological impacts of Alternative D1a are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A limited access privilege accumulation cap does not affect the amount of overall Longline category bluefin quota that may be caught.

Socioeconomic Impacts

Based on data from 2015 through 2019, Alternative D1a is expected to have neutral socioeconomic impacts. The IBQ Program has been functioning under these regulations since 2015, and there have been no reported or observed issues relating to excessive accumulation of IBQ shares. However, it is possible that some vessel owners may be concerned about the accumulation of excessive IBQ shares, given the economic diversity of the pelagic longline fleet. Although most vessel owners only own one vessel, some own, or have interest in multiple vessels. In 2015-2019, the highest level of IBQ shares held by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. This has been fairly stable over time (Figure 4.7). In addition, the preferred alternatives under the IBQ allocation alternatives (A alternatives) are designed to update and more closely align the distribution of IBQ shares with the current fishing activity and need for IBQ allocation of the pelagic longline fleet, which could reduce the likelihood that entities would seek to buy additional Atlantic Tunas Longline category permits with IBQ shares, or buy additional IBQ shares if allowed under this Amendment.

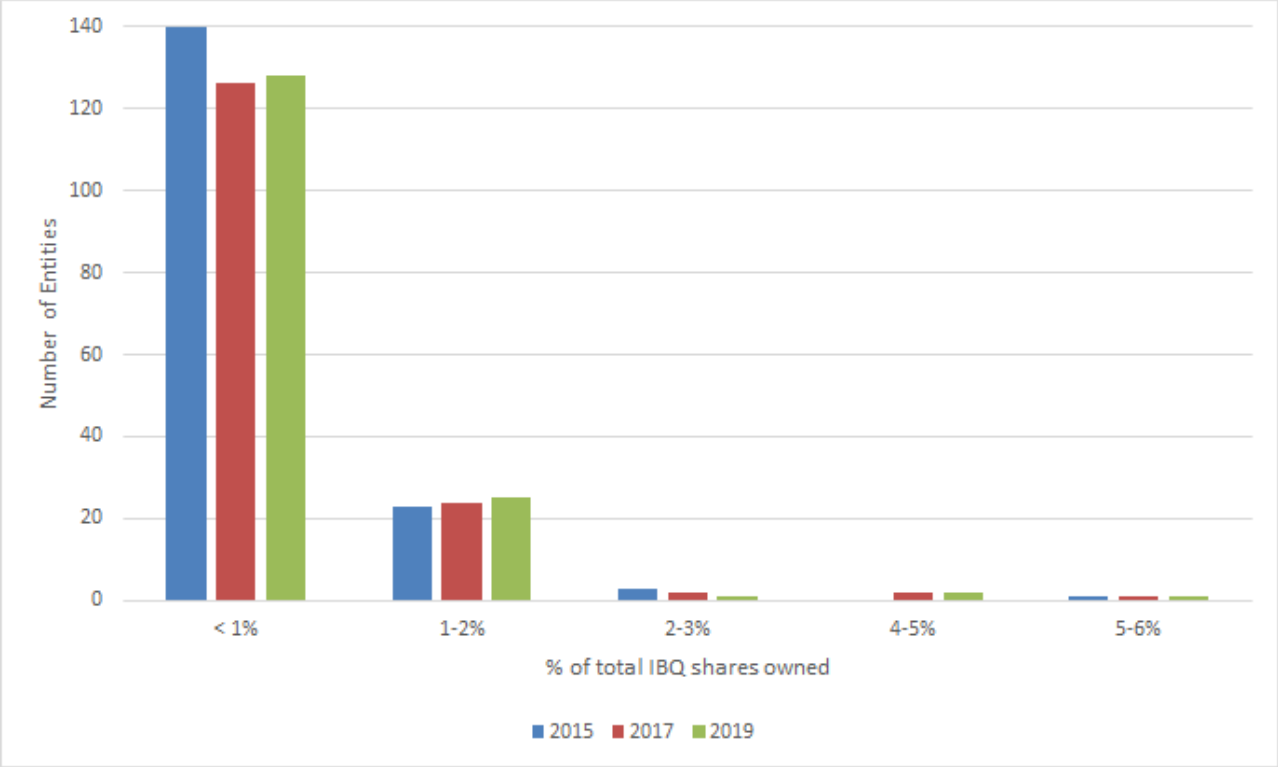

Figure 4.7 Percent of total IBQ shares held by entities holding Atlantic Tunas Longline category permits with IBQ shares, on January 1 of 2015, 2017, and 2019
Source: SERO Permits Information Management System and NMFS SERO Catch Shares Online System

It is possible in the future, under the No Action Alternative, that there would be adverse socioeconomic impacts if one entity was to buy Atlantic Tunas Longline category permits with IBQ shares, or buy IBQ shares if allowed under Alternative C2, and control an excessive portion of the market. Even though there is a limit on the percentage of permits

that may be acquired by a single entity under current regulations, that does not necessarily mean that there would be a corresponding limit on excessive shares. For example, an entity could purchase permits up to the five percent limit and those permits could be associated with a large amount of IBQ shares. Regarding potential influence over the market, U.S. landings of Atlantic bluefin with pelagic longline gear are a very small percentage of western Atlantic bluefin landings. In 2019, U.S. pelagic longline landings of Atlantic bluefin were 3.9 percent of total western Atlantic bluefin landings (92 mt out of 2,306 mt), based on ICCAT Task I catch data. Combining this with bluefin landings from other oceans, neither the U.S. industry under the IBQ Program nor a single entity participating in the IBQ Program exert an influence over the global bluefin market.

4.4.1.2 Sub-Alternative D1b: Cap amount of IBQ shares held at seven percent

This alternative would cap the percentage of IBQ shares that an entity may hold or acquire, at seven percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

Ecological Impacts

The ecological impacts of Alternative D1b are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A limited access privilege accumulation cap does not affect the amount of overall Longline category bluefin quota that may be caught.

Socioeconomic Impacts

Alternative D1b is expected to have direct minor adverse socioeconomic impacts if vessel owners are interested in purchasing additional permits in order to increase their IBQ shares, (or purchase IBQ shares if allowed under Alternative C2). In 2015-2019, the highest level of IBQ shares held by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would receive on an annual basis would be between six and seven percent of total shares. If the IBQ shareholding trend from 2015-2019 continues, implementing a cap at seven percent may not impact most of the fleet. However, there could be minor adverse economic impacts, if entities have business plans to acquire additional shares through the purchase or permits (or sale of shares if allowed under Alternative C2) that would result in shares exceeding a seven-percent cap. In the long term, if an entity has business plans to acquire additional Atlantic Tunas Longline category permits, it would need to consider its existing IBQ shares and would be limited to buying a permit(s) that does not cause it to exceed the seven percent cap. The entity could also buy a permit with no IBQ shares. Another impact could occur if, under the preferred 'A' alternatives, the number of active

vessels decreases and therefore the relative IBQ share percentage associated with each vessel owner/entity increases. At a seven-percent cap, an entity could have to forgo a portion of the IBQ shares they would otherwise receive to stay at or below the cap. The seven-percent cap – along with the existing limit on Atlantic Tunas Longline category permits (§ 635.4(l)(2)(iii) explained under Alternative D1a) and prohibition on sale of IBQ shares (preferred Alternative C1) – could conceivably limit the amount of fishing activity and target species landings. However, limitation of fishing activity due to a limit on IBQ shares is not likely, because of the high likelihood of a successful IBQ leasing market and the availability of affordable IBQ allocation for lease. For these reasons, Alternative D1b could have only minor adverse socioeconomic impacts on fishery participants and on dealers and supporting businesses.

4.4.1.3 Preferred Sub-Alternative D1c: Cap amount of IBQ shares held at 25 percent

This alternative would cap the percentage of IBQ shares that an entity could hold or acquire at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

Ecological Impacts

The ecological impacts of Alternative D1c are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A limited access privilege accumulation cap does not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota.

Socioeconomic Impacts

Based on data from 2015 to 2019, Preferred Sub-Alternative D1c is expected to have neutral socioeconomic impacts on fishery participants. If an entity acquired 25 percent of the IBQ shares, it is likely that other shareholders would still be able to sustain an IBQ leasing market, and vessels would be able to account for bluefin catch using IBQ allocations. In 2015-2019, the highest level of IBQ shares held by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the share determination method described in the preferred 'A' alternative, the maximum amount of IBQ shares that a single entity would receive on an annual basis would be less than three percent of total shares. If the IBQ shareholding trend from 2015-2019 continues, implementing a cap at 25 percent would not impact the fleet. This cap level would not preclude an entity from having several Atlantic Tunas Longline category permits, and being a shareholder of up to 25 percent of the shares, based on substantial

fishing effort, under Preferred Alternative A2c. This cap level would allow flexibility in entities' business planning to increase fishing effort, or acquire more shares, by acquiring additional Atlantic Tunas Longline category permits or under Alternative C2. Based on the data described above, it seems unlikely that entities would seek to acquire additional permits that would result in shares that would exceed a 25-percent cap.

Implementing a cap to prevent acquisition of excessive IBQ shares would prevent a single entity from controlling an excessive portion of the market, would address potential concerns among vessel owners, and accumulation of shares by a single entity and reduce any associated uncertainty, which would be a minor, beneficial socioeconomic impact. Overall, however, given the above minor conflicting potential impacts, a share cap percentage is anticipated to have a neutral socioeconomic impact on vessel owners. In addition, this share cap is anticipated to have a neutral socioeconomic impact on dealers or supporting shoreside businesses because this alternative mainly affects the business practices of fishery participants.

4.4.1.4 Sub-Alternative D1d: Cap amount of IBQ shares held at 50 percent

This alternative would cap the percentage of IBQ shares that an entity could hold or acquire, at 50 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

Ecological Impacts

The ecological impacts of Alternative D1d are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A limited access privilege accumulation cap does not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota.

Socioeconomic Impacts

Sub-Alternative D1d is expected to have neutral socioeconomic impacts on fishery participants. Based on data from 2015 through 2019, there is a low likelihood that such a cap would affect any fishery participants. In 2015-2019, the highest level of IBQ share ownership by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would own on an annual basis would be between six and seven percent of total shares. If the IBQ shareholding trend from 2015-2019 continues, implementing a cap at 50

percent would not impact the fleet. This cap level would allow flexibility in entities' business planning to acquire more shares, by acquiring additional Atlantic Tunas Longline category permits or under Alternative C2. Based on the data described above, it seems unlikely that entities would seek to acquire additional shares that would exceed a 50-percent cap. Therefore, impacts would be neutral.

However, if conditions changed and an entity held shares that approached 50 percent (through acquisition or decline in the number of entities in the fishery), under this alternative the type of impacts on the fishery as a whole could be adverse. If a single entity could control 50 percent of the IBQ shares / IBQ allocation market, those entities not in control of the shares may have inadequate IBQ shares / IBQ allocations to account for bluefin catch.

A share cap percentage is anticipated to have indirect neutral socioeconomic impacts on dealers or supporting shoreside businesses because this alternative mainly affects the business practices of fishery participants.

4.4.2 Alternatives Suite D2: Establish a Cap on the Amount of IBQ Allocation an Entity may Lease or Use

4.4.2.1 Preferred Sub-Alternative D2a: No Cap on Amount of IBQ Allocation Leased or Used - No Action

This alternative would maintain the Amendment 7 limit on the amount of quota allocation an individual vessel (longline or purse seine) can lease annually as the combined Longline and Purse Seine category allocations on an annual basis. Long-term control of IBQ allocation by an entity through leasing is not possible, because leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year. The amount of IBQ an entity may use is limited by the amount of IBQ they are allocated and the amount they lease from other vessels. The amount of IBQ allocated is limited by the shares associated with the permit, which is capped under Alternative D1c. Investment in leasing large amounts of IBQ is not likely to occur because the IBQ would not carry over from one year to the next and therefore the investment in IBQ would not likely be a good investment, due to the short-term nature of the lease. The likely reason a vessel might need to lease a lot of IBQ would be to account for an unusually large catch of bluefin, which is consistent with the objectives of the IBQ Program. In contrast to catch share programs where the catch share is a target species, there are not strong incentives to accumulate large amounts of IBQ allocation. Since the inception of the IBQ Program in 2015, no evidence of accumulation of IBQ allocation through leasing in order to target bluefin has been observed. This is likely due to a combination of factors, including the market for bluefin, the availability and cost of leasing IBQ, the variability of bluefin distribution, and the common fishing strategies that target swordfish and non-bluefin tunas.

Ecological Impacts

The ecological impacts of Alternative D2a are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A cap on IBQ allocations used does not

affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. The IBQ Program restrictions, in conjunction with market constraints serve as incentives that are likely to maintain bluefin catch below the total IBQ allocation (fishery-wide).

Socioeconomic Impacts

Preferred Sub-Alternative D2a is expected to have neutral socioeconomic impacts on fishery participants. The IBQ Program has been functioning under these regulations since 2015, and there have been no reported or observed issues relating to excessive accumulation of IBQ allocation. The highest amount of IBQ allocation that a single entity held in a given year, including leased allocation, was 6.5 percent, 12.3 percent, and 8.8 percent of the total annual allocation (i.e., the Longline category bluefin quota) in 2015, 2017, and 2019, respectively. The IBQ Program was designed to provide ample flexibility for vessel owners to lease IBQ allocation in the amounts that they need to account for bluefin catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin. Preferred Alternative D1c would set a cap on IBQ shares, thus limiting accumulation of annual IBQ allocations resulting from those shares. Leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year, therefore there is no long-term concern about excessive accumulation of allocations. In addition, the preferred alternatives under the IBQ allocation alternatives (A alternatives) are designed to update and more closely align the distribution of IBQ shares and resulting allocation with the current fishing activity and need for IBQ allocation of the pelagic longline fleet, which could reduce the likelihood that entities would seek to lease additional allocation.

Leasing of IBQ allocation from one entity to another requires both entities to agree upon the transaction. Therefore, short-term control of IBQ allocation by an entity through leasing that would result in negative impacts (i.e., excessive control of IBQ allocation) is unlikely. Furthermore, long-term control of IBQ allocation by an entity through leasing is not possible, because leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year. As noted above, the IBQ Program has been functioning under the current regulations (without a cap on the amount of IBQ allocation that may be leased by an entity) since 2015, and there have been no issues relating to excessive accumulation of IBQ allocation. To maximize flexibility in the IBQ Program for entities to lease IBQ allocation in amounts they need, while not resulting in any adverse ecological or socioeconomic impacts, no action (Alternative D2a) is preferred at this time.

4.4.2.2 Sub-Alternative D2b: Establish a Cap on the amount of IBQ Allocation an Entity may lease or use

This alternative would cap the amount of IBQ allocation a single entity could lease or use during a year at 25 percent of the total annual allocation (i.e., the Longline category bluefin quota).

Ecological Impacts

The ecological impacts of Alternative D2b are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A cap on IBQ allocations does not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota.

Socioeconomic Impacts

Sub-Alternative D2b is expected to have neutral socioeconomic impacts on fishery participants given prior years' information on leased allocations and due to the design of the preferred A alternatives, cap on IBQ shares, and annual leasing of IBQ allocation. *See* explanation under Sub-Alternative D2a, Socioeconomic Impacts paragraph 1. If a similar level of IBQ allocation leasing continues as in prior years, a 25-percent allocation cap would not impact the fleet. In addition, it is not likely that an entity would reach a 25-percent cap through the annual IBQ allocation they would receive under the A alternatives. This cap level would likely allow flexibility in entities' short-term business planning to lease IBQ allocation to account for bluefin catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin.

Based on prior years' leasing information (*see* Sub-Alternative D2a, Socioeconomic Impacts paragraph 1), it seems unlikely that entities would seek to acquire additional shares that would exceed a 25-percent cap. Therefore, impacts would be neutral.

4.4.3 Conclusions – 'D' Alternatives

Both the ecological and socioeconomic impacts of the Preferred Alternative D1c (25 percent cap on amount of shares held) are consistent with the objectives of this Amendment. All of the cap alternatives have neutral ecological impacts. Preferred Alternative D1c has neutral socioeconomic impacts and is a cap level that balances conflicting criteria (i.e., a need to provide flexibility for entities to have shares in an amount that facilitates the operation of their business, and the need to set a share cap at a level that prevents excessive accumulation of shares by an entity). The 25-percent cap would balance the need to address the Magnuson-Stevens Act requirement to cap shares and address concerns about consolidation, which may not be fully addressed with a higher cap, with the need to provide flexibility for the fishery participants to operate in a manner that allows bluefin bycatch to be accounted for, and allows for various business models, including cooperatives and limited consolidation that enable efficiencies to remain profitable and competitive in the international seafood market. A cap of 25 percent is a reasonable level well above the maximum amount of shares held by an entity in the fishery to date, and allows flexibility for an entity to accumulate shares at a level higher than has been observed in the past.

Some accumulation of shares by a single entity may be sought in order to gain efficiencies, facilitate cooperative organizations, or as a source of revenue through leasing to others. Further, some accumulation of shares may enable management of their IBQ allocation and business planning on a longer time scale than a single year. Incentives to accumulate shares are limited by the fact that bluefin may not be targeted, and contribute relatively little to total revenue in the fishery. In contrast to the Preferred Alternative, Alternative D1b is expected to have minor, adverse socioeconomic impacts, if vessel owners are interested in purchasing additional permits in order to increase their IBQ shares. While Alternative D1a (no action) provides a limit on shares by limiting the ownership/control of HMS permits, having an explicit cap on shares is preferred. Although Alternative D1d, described below would in all likelihood have a neutral impact, the cap (50%) is not a level that is warranted (for reasons described in below). For this reason, Alternative D1c is the preferred alternative at this time.

Sub-Alternative D2a (no cap on the amount of IBQ leased or used) is also preferred. Preferred Sub-Alternative D2a is expected to have neutral socioeconomic impacts on fishery participants. The IBQ Program was designed to provide ample flexibility for vessel owners to lease IBQ allocation in the amounts that they need to account for bluefin catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin. Long-term control of IBQ allocation by a single entity through leasing is not possible, because leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year. The amount of IBQ allocation an entity may use is limited only by the amount of IBQ allocation they receive through shares and/or the amount they lease from other vessels. The amount of IBQ allocation received through IBQ shares is limited because such shares are associated with the permit and would be capped under Alternative D1c. Investment in leasing large amounts of IBQ allocation is not likely to occur because the IBQ allocation would not carry over from one year to the next and therefore an investment in IBQ allocation would not likely be a sound investment, due to the short-term nature of the lease. Typically, the likely reason a vessel might need to lease a large amount of IBQ allocation would be to account for an unusually large incidental catch of bluefin, which is consistent with the objectives of the IBQ Program. In contrast to catch share programs where the catch share is a target species, the limited amount of IBQ allocation available through annual distribution to shareholders, and the limited amount of IBQ allocation available via leasing (as well as the associated costs), provide strong incentives to avoid bluefin. Furthermore, there are other potential challenges associated with the incidental catch of bluefin by pelagic longline vessels including bluefin weighing down longline gear (which typically catch lighter species) and bluefin market limitations and volatility. Provided the IBQ Program elements continue to function in a manner consistent with its objectives, with individual vessel accountability for bluefin catch, the IBQ Program should maintain design aspects that provide ample flexibility for vessel owners to lease IBQ allocation in the amounts that they need. Such needs include the ability to account for bluefin incidental catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin. During 2015-2019, the highest amount of IBQ allocation that a single entity held in one year, including leased

allocation, was 12.3 percent of the total annual allocation (i.e., the Longline category bluefin quota) in 2017. That single entity used 3.8 percent of the total annual allocation in 2017 to account for bluefin incidental catch. The overall IBQ allocation leasing market has been robust, with the accountability rules of the IBQ Program providing incentives, described above, to avoid bluefin. The flexibility for vessels to lease IBQ allocation as needed to account for bluefin catch does not affect the amount of overall longline quota that may be caught.

4.5 'E' Alternatives: Adjustments to Other Aspects of the IBQ Program

The alternatives described below are relatively minor aspects of the IBQ Program, including modifications to monitoring or reporting requirements, and cost recovery. The underlying objectives for such adjustments (with the exception of cost recovery) is to reduce regulatory burden, increase efficiency, or optimize the effectiveness of existing regulations without erosion of the key functional elements of the IBQ Program. Maintaining the current regulations (No Action) are also being considered.

4.5.1 Alternatives Suite E1: Dealer Reporting Requirements

4.5.1.1 Sub-Alternative E1a: Maintain Current Dealer Reporting Requirement for IBQ Program - No Action

This alternative would make no changes to the current dealer reporting requirements that were implemented by Amendment 7 in support of the IBQ Program (§ 635.15(b)(4)(iii)). Vessel owner/operators are currently required to coordinate with dealers to enter data on bluefin landings and discarded dead bluefin into the IBQ System via the dealer's account, when a dealer is entering data on bluefin purchased from the vessel owner/operator, at the end of a fishing trip. This requirement was instituted to ensure accurate dead discard data is collected and entered into the IBQ accounting system, and associated with the correct vessel account. Secondly, vessel operators are required to provide their vessel PIN to the dealer in order for the dealer to be able to enter relevant data on bluefin dead discards or landings into the IBQ System. Separate from the above regulation, vessel operators are also required to submit bluefin catch information via VMS.

Ecological Impacts

The ecological impacts on bluefin, other Atlantic HMS, and protected species are expected to be neutral because this report is an administrative requirement and does not affect fishing practices or catch.

Socioeconomic Impacts

This alternative would have minor, adverse socioeconomic impacts because it would continue to require vessel operators and dealers to collaborate in submitting dead discard information that is also supplied independently by the vessel operators by way of VMS. The requirement to submit the same dead discard information in two different reporting

systems can be frustrating for fishermen due to the additional reporting burden. During the time-period when NOAA Fisheries was collecting two data streams, we were able to verify information that was collected, and determine that compliance with the VMS reporting requirement was substantially better than compliance with the dealer reporting of bluefin dead discard data. The second aspect of this alternative, the requirement for fishermen to submit a PIN when dealers entered landings data, was also frustrating for fishermen and dealers alike since fishermen were frequently either not available when dealers entered the data, or did not have access to their PIN. Fishermen chose to provide their PIN to dealers which allowed the data to be entered, but did not provide the data verification that was the objective of the original requirement. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.5.1.2 Preferred Sub-Alternative E1b: Modify Dealer Reporting Requirements for IBQ Program.

This preferred alternative would maintain VMS reporting requirements and modify two aspects of the dealer reporting requirements for the IBQ Program. First, this alternative would eliminate the reporting of dead discards by the dealer. Secondly, this alternative would eliminate the requirement that vessel operators or owners confirm the landing information entered into the IBQ system by the dealer is accurate by entering the PIN associated with the vessel account.(described in Sub-Alternative E1a). Instead, this alternative would use email notification by NOAA Fisheries via the IBQ System (or a message within the IBQ System) that would inform the vessel owner when a dealer conducts a transaction with that vessel's IBQ account to provide a means of vessel operator oversight of dealer transactions with their IBQ vessel account. The source of real-time dead discard data would be the VMS data regarding dead discards, entered by the vessel operator via the bluefin set report, from sea. The requirement that the dealer enter the data on bluefin *landings* into the online IBQ System via the dealer account would continue.

Ecological Impacts

The ecological impacts of this alternative are expected to be neutral. This alternative removes the redundant requirement for dealers to submit dead discard reports (which vessel operators report through VMS), and removes an administrative requirement (entering vessel PIN) that is not fulfilling its intended objective. Fishing practices of participants would not change in such a way that catch of bluefin, other HMS, or protected resources would increase or decrease as a result of modifications to dealer reporting requirements.

Socioeconomic Impacts

This alternative is expected to have minor, beneficial impacts for dealers and fishery participants because they are relieved of reporting requirements (dead discards via the Catch Shares Online System) and are no longer required to collaborate with fishermen for landings data entry. The removal of the PIN collaboration will reduce frustration for both fishermen and dealers. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.5.2 Alternatives Suite E2: Requirements for Mailing Electronic Monitoring (EM) Hard Drives

4.5.2.1 Sub-Alternative E2a: Maintain Current Requirement for Mailing Electronic Monitoring Hard Drives - No Action

This alternative would continue the current requirement that EM hard drives be submitted after each trip using pelagic longline gear, according to the instructions provided by NOAA Fisheries. Specifically, vessel operators are required to mail in the computer hard drive from the EM System at the end of each pelagic longline trip, regardless of how full the hard drive is (how much memory is left on the hard drive). The following, associated instructions would remain unchanged: The vessel operator must remove both hard drives from the EM System, put them in a padded envelope, with a pre-paid, self-addressed mailer or label, and send to the third-party contractor (address and information provided by NOAA Fisheries). The vessel operator must provide a pre-paid, self-addressed mailer or label to receive their replacement drives. The computer hard drives (and mailer or label) should be sent via United States Postal Service (USPS) or FedEx (or another traceable method) to the address as instructed by NOAA Fisheries. Subsequently, the replacement hard drives for the vessel will be sent to the address provided by the vessel operator. The vessel operator is responsible for providing the pre-paid mailer or label (to enable mailing of the replacement hard drives). The vessel operator is also responsible for obtaining padded mailers for shipping the hard drives to the third party contractor.

Ecological impacts

The ecological impacts on bluefin, other Atlantic HMS, and protected species would be neutral since this alternative does not modify the frequency of data submitted to NOAA Fisheries. Maintaining the current shipping frequency would not impact the subsequent logistics conducted by the NOAA Fisheries contractor (e.g., tracking hard drives, downloading data, reviewing and storing data), and therefore would not impact the programmatic goals of the EM Program which is to validate the self-reported bluefin set reports. The ecological benefits of the EM Program as determined in Amendment 7 (79 FR 71510; December 2, 2014) would not be impacted by this alternative, therefore this alternative has neutral ecological impacts.

Socioeconomic Impacts

Alternative E2a would have neutral socioeconomic impacts on fishery participants when compared to the preferred alternative. Currently vessel owners or operators must mail hard drives to NOAA Fisheries after each fishing trip. When compared to the preferred alternative, this would maintain the current cost burden by requiring transactions after each trip. This would also maintain the current burden in terms of time. Operators would have to spend time pulling, packaging, and shipping hard drives after each trip, instead of after every other trip.

4.5.2.2 Preferred Sub-Alternative E2b: Modify Requirement for Mailing Electronic Monitoring Hard Drives.

This alternative would require that the vessel operator mail the hard drives at the completion of every two trips, instead of after *each* pelagic longline fishing trip.

Ecological impacts

The ecological impacts on bluefin, other Atlantic HMS and protected species would be neutral since this alternative is administrative in nature, and only modifies the rate at which data is submitted to NOAA Fisheries. The reduction in shipping frequency would not impact the subsequent logistics conducted by the NOAA Fisheries contractor (e.g., tracking hard drives, downloading data, reviewing and storing data) therefore would not impact the programmatic goals of the EM Program, which is to validate the self-reported bluefin set reports. The ecological benefits of the EM Program as determined in Amendment 7 (Amendment 7; 79 FR 71510, December 2, 2014) would not be impacted by this alternative, therefore this alternative has neutral ecological impacts.

Socioeconomic Impacts

This alternative would have minor beneficial socioeconomic impacts for fishery participants by reducing the costs and time associated with mailing EM hard drives. Table 4.19 shows the highest, lowest and average number of hard drive transactions (a transaction is a complete shipment to and from NOAA Fisheries) by vessel between 2016 and 2019. Alternative E2b would reduce the frequency of hard drive shipments in half by allowing vessels to send hard drives in after every second trip (i.e., from 34 shipments per year to 17). Each active vessel is expected to ship at least 1 hard drive per year, as NOAA Fisheries would require any data recorded in a given year be submitted to NOAA Fisheries prior to the next fishing year. Assuming a shipping cost of $20 per transaction. This reduction in shipping frequency would save operators an average of $120 per year. Reducing shipping frequency also saves vessel operators additional time and logistics, by only having to pull, package and ship hard drives after every other trip. The time-savings provided by this alternative are difficult to quantify, as vessel operators shipping methods will influence the amount of time saved, however this would provide a minor beneficial impact by providing time-savings to the vessel operators. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with

varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

Table 4.19 High, average, and lowest numbers of hard drives shipped per year from 2016-2019 by vessels in the EM Program

	2019	2018	2017	2016	Average
High	34	34	34	32	34
Mean	12	12	12	11	12
Low	1	1	1	1	1
Total	847	892	1019	1011	942

Source: NMFS HMS Electronic Monitoring Program.

4.5.3 Alternatives Suites E3: Electronic Monitoring - Camera Installation

4.5.3.1 Sub-Alternative E3a: Maintain Current Regulations for Camera Installation - No Action

This alternative would retain the current regulations regarding EM camera installation. Current EM Systems have a minimum of two cameras, one facing the processing area of the deck where the retained fish are processed, and the other facing the rail where fish are brought on board. This current camera configuration allows for a full view of the processing area and a limited view of the rail. Under this alternative, NOAA Fisheries would continue to install video cameras in similar manners and locations as under current procedures. Specifically, 'rail cameras' do not require vessels to install boom-mounted cameras.

Ecological impacts

The ecological impacts of the No Action Alternative on bluefin would be indirect, minor and adverse due to the continuation of the current level of management uncertainty. This alternative would continue the current regulations for installation of cameras, which does not include explicit NOAA Fisheries authority to require the rail camera to be mounted with a boom. Cameras are currently mounted on vessel structures (such as wheelhouse) which limits the installation options, and in the case of the rail camera may limit the field of view. This limited point of view may reduce the number of discard events detected by the cameras because the camera may be blocked by structures on the vessel or the camera angle may not be sufficient to catch the fishing activity that occurs by the rail. The underestimation of discarding events results in less accurate data from the EM Systems. The EM system is not the only source of bluefin dead discard information. Although the utility of the EM data is diminished, the ecological impacts are minor because NOAA

Fisheries currently utilizes observer data to estimate dead discards. For the same reasons that this sub-alternative may not provide a camera angle that is suffient to catch fishing activities by the rail, the impacts of this alternative on shortfin mako are also minor and adverse because it may be difficult to determine if the shortfin mako is alive or dead. Since EM is not currently used to monitor other stocks of Atlantic HMS or protected species, the ecological impacts of this alternative on other species are neutral.

Socioeconomic impacts

The socioeconomic impacts of Alternative E3a would be neutral compared to the preferred alternative. This alternative would not cause any behavioral changes for the fleet: vessel operators would continue to operate as they have since implementation of the EM Program during Amendment 7 (Amendment 7; 79 FR 71510, December 2, 2014). The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.5.3.2 Preferred Sub-Alternative E3b: Clarify and expand regulations for installation of cameras

This alternative would clarify the current regulations regarding camera installations to explicitly authorize for NOAA Fisheries to require installation of permanent or semi-permanent hardware in order to mount and install video cameras at locations on vessels as necessary to obtain optimal views, and for NOAA Fisheries, working in conjunction with the vessel owner/operator, to make relatively minor modifications to the vessel structure to mount cameras in locations that provide required views of the vessel and adjacent areas. For example, installation of a boom or telescoping arm may be required to enable a camera angle that provides an optimal view of the rail and outboard area. This view would be a wide angle that would capture the entire hauling activity of the fish while coming on board the vessel over the rail. The boom would likely be a customized piece of hardware that is fixed or movable (e.g., extended or lowered prior to fishing activities starting) to provide the optimal view of the area of the water surface and outboard of the rail, down to the water surface, where the hooked fish emerge from the water. This alternative would result in more substantial mounting systems for rail cameras that may include new permanent or semi-permanent structures and/or current vessel structures such as booms or stabilizers as mounts for cameras. Figure 4.8 shows a diagram of camera configurations in the Hawaiian longline fleet, that includes a camera mounted on a boom (green dot), and depicts the field of view of the camera as a blue triangle.

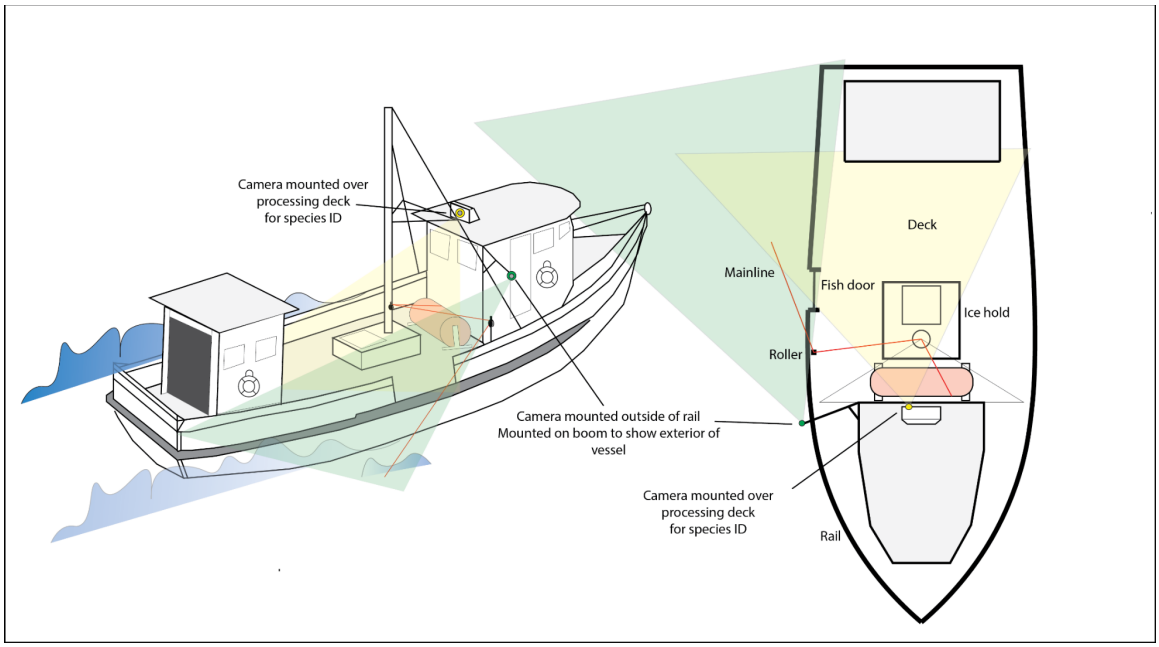

Figure 4.8 Diagram of EM camera configurations in the Hawai'i longline fleet, this configuration would be implemented by the preferred Alternative E3b (Hawai'i)
Source: NMFS

Ecological impacts

Preferred Alternative E3b is expected to have indirect, ecological impacts that are minor and beneficial. Augmenting NOAA Fisheries authority to require installation of permanent or semi-permanent hardware in order to mount and install video cameras at locations on vessels as necessary to obtain optimal views, may improve accuracy of the discard data derived from the EM Program. Adding a camera mounted to a boom would provide a better view of the hauling area as shown in Figure 4.8 above. The current EM System has the camera mounted on the vessel usually around the wheelhouse or forward of the hauler. This angle looks across the rail and out starboard to the vessel, when compared to the view in Figure 4.8 that views down the rail to the stern. Fish are typically haul from the stern to the fish door and brought on board, this modified view would likely increase the probability that a discard event that occurs in the water would be detected by review staff. These vessels typically cut the gangion as close to the discarded fish as possible without taking a discarded fish out of the water. The length at which the gangion is cut could affect where and if that fish appears in the rail camera field of view. By changing the camera placement, the angle shifts to one that would provide a greater probability that discarded fish in the water are detected and recorded by the rail camera.

Vessel operators are required to submit bluefin set reports after each fishing set with discard information to support the IBQ System. The EM Program was designed to validate the self-reported bluefin set reports. Modifying the camera array to mount the rail camera on the boom would likely result in increased detection of discard events that occur while the fish remains in the water. Better detection of the discard events would improve validation of the bluefin set reports and incentivize accurate reporting. Accurate reporting

and monitoring would reduce management uncertainty in the fishery. The impacts are minor because the EM system is not the only source of bluefin dead discard information. Although the utility of the EM data would be enhanced, the ecological impacts are minor because NOAA Fisheries currently utilizes observer data to estimate dead discards. Reducing the management uncertainty would result in an indirect, minor beneficial ecological impact. Similarly, because under this sub-alternative the camera angles would be improved, the impacts on shortfin mako could also minor and beneficial. Data that is more robust is likely to provide ecological benefits in the long-term.

Socioeconomic impacts

The socioeconomic impacts of modifying the camera installation and placement are minor and adverse. Vessel owners would be required to pay for installation of a boom or telescoping type mount for the rail camera, and vessel crews would be required to extend, lower, or raise the boom mounted camera during fishing activities, if needed. Further, it is possible that the process of docking vessels could be more complex if the boom may come in contact with dock pilings. These additional logistics may represent an increased time burden and a slight increase in the complexity of their fishing operation. However, this time burden would only be a couple of minutes to extend, lower or raise at the start and end of each fishing trip. Crew may also be required to access the camera during the trip in order to clean the lens. The process of cleaning the lens may be more or less difficult if the camera is mounted on a boom.

The cost associated with the installation of booms would be paid by vessel owners (approximately $1,000 or less). Note, the DEIS stated that NOAA Fisheries would pay the costs of boom installation as funds are available. At this time, appropriated funds are not available. As a result, in this FEIS, NOAA Fisheries has determined that boom installation should be paid for by individual vessel owners. While this would be an additional cost, the cost of the boom can be a relatively low one-time cost, although depending on wear-and-tear, may be needed again over time. This approach to industry funded implementation is consistent with NOAA Fisheries Procedure 04-115-02: Cost Allocation in Electronic Monitoring Programs for Federally Managed U.S. Fisheries, which generally specifies the transition of certain costs to the fishing industry.

To evaluate the impact of the cost of installation of booms, relevant economic information contained in the Three-Year Review of the IBQ Program is described below (Tables 3.22, 3.23, and 3.24). The average trip costs for a vessel in 2017 ranged from $6,628 (for vessels <45 ft in length) to $25,524 (for vessels >75 ft in length). The overall average trip cost per vessel (for all sizes) was $13,298. The average trip operating revenue (trip revenue minus trip costs) ranged from $9,908 to $17,357 (<45 ft and >75 ft in length, respectively), with an overall average trip operating revenue of $11,984. The average annual operating income ranged from $97,424 to $184,188(>75 ft and 65≤75 ft in length, respectively) with an overall average of $144,351. The estimated cost of boom installation represents 0.7 percent of the overall average annual operating income for a vessel. Further, the $1,000 cost of installation is a one-time cost, which compared to the average trip costs per vessel (for

each trip) of $13,298, supports the conclusion that the impact of the cost of boom installation is minor.

Installation of booms would be phased in over time, with installations scheduled concurrently with service provider visits for routine maintenance. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.5.4 Alternatives Suite E4: Specify Additional Fish Handling Protocols for Electronic Monitoring

4.5.4.1 Sub-Alternative E4a: Maintain Current Fish Handling Protocols for Electronic Monitoring - No Action

This alternative would make no changes to the current EM fish handling procedures. The regulations require that the vessel operator handles all fish in a manner that enables the video system to record such fish, and there are no additional specific requirements how fish or gear must be handled. NOAA Fisheries -contractors provide vessel operators with vessel-specific instructions regarding alterations of camera placement or gear placement on deck if required to obtain unobstructed camera views. EM video analysts currently use items on deck (e.g., fish boxes, baskets, poly balls) as a reference to estimate relative size of fish on deck.

Ecological impacts

The ecological impacts of the No Action Alternative would be minor adverse. Under the current regulations, it is likely that some fish brought on board may not be processed in view of the camera. Secondly, depending upon the distance of the fish from the camera and angle to the camera, analysis of the video may not be able to determine species or estimate total length. Although the data to date indicate that the EM System is robust at detecting retained bluefin, the size estimation is less accurate, based on comparisons with other data such as VMS, logbook, and observer. Size information may be relevant to the identification of tuna species in addition to morphological characteristics. Less accurate EM information increases reporting and monitoring uncertainty, and therefore this alternative may have minor adverse impacts. The EM system is not the only source of bluefin dead discard information. Although the utility of the EM data is diminished, the ecological impacts are minor because NOAA Fisheries currently utilizes observer data to estimate dead discards. Similarly, because under this Sub-Alternative improved size data would not be obtained, the impacts on shortfin mako are also minor and adverse. Data that is less robust are likely to provide less ecological benefits in the long-term.

Socioeconomic impacts

The socioeconomic impacts of this alternative are neutral. No additional handling requirements or measurement tools would be required under this alternative, and therefore there would be no additional labor or equipment costs to vessel operators. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.5.4.2 Preferred Sub-Alternative E4b: Specify Additional Fish Handling Protocols for Electronic Monitoring

This alternative would require more specific fish handling procedures and the installation/placement of a measuring grid on deck, in view of one of the cameras. Specifically, this alternative would require more specific fish handling procedures and the installation/placement of a measuring grid on deck, in view of one of the cameras. The vessel crew would be required to place retained fish on a mat with grid lines or a grid painted on deck in view of the processing camera, so the video recording included images of the fish. The grid may be customized to an individual vessel while also having lines of standard intervals.

Ecological impacts

This alternative would have minor beneficial impacts as a result of potential improvements to bluefin data. Depending upon the distance of the fish from the camera and angle to the camera, analysis of the video may not be able to determine species or estimate total length. Although the data to date indicate that the EM System is robust at detecting retained bluefin, the size estimation is less accurate, based on comparisons with other data such as VMS, logbook, and observer. More accurate size information would result from placement of the retained fish on a standardized reference grid. Size information may be relevant to the identification of tuna species in addition to morphological characteristics. More accurate fish identification and sizing would decrease reporting and monitoring uncertainty, and therefore this alternative would have minor beneficial long-term impacts. The impacts are minor because the EM system is not the only source of bluefin dead discard information. Although the utility of the EM data would be enhanced, the ecological impacts are minor because NOAA Fisheries currently utilizes observer data to estimate dead discards. Similarly, under this sub-alternative, because there would be improved size data, the impacts on shortfin mako are also minor and beneficial. A more robust data set is likely to provide ecological benefits in the long-term.

Socioeconomic impacts

The installation of measuring grids would be paid for by vessel owners. The costs associated with a mat (e.g., a 4 by 8 foot, all weather, non-skid mat, with a printed grid), or a painted measuring grid would be up to approximately $225 (estimate based on internet

market research). Nonskid deck paint costs between about $35 and $85 per gallon. A 4 foot by 8 foot all weather mat, custom printed with a grid may cost approximately $225 per mat. The use of a measuring grid may also have minor costs in terms of any additional time that may be required to process fish on a measuring grid, although the additional time is anticipated to be minimal, depending upon where the grid is located on the deck and the location(s) where the fish are normally processed.

The sociological impacts in the short term would be minor and adverse as the crew would need to modify their fish handling procedures to place all fish on the grid. The impacts would likely decrease over time as crew practiced the new handling procedures, and therefore would have neutral long-term impacts on operations. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.5.5 Alternatives Suite E5: Cost Recovery Program

Cost recovery is a required element of limited access privilege programs under the Magnuson-Stevens Act. Under the Magnuson-Stevens Act, NOAA Fisheries has authority to provide for a program of fees paid by limited access privilege holders that will cover the costs of management, data collection and analysis, and enforcement that are directly related to and in support of the program (i.e., incremental costs of the program). 16 U.S.C. § 1853a(e). A fee shall not exceed three percent of the ex-vessel value of fish harvested under the limited access privilege program. 16 U.S.C. § 1854(d)(2)(B).

4.5.5.1 Sub-Alternative E5a: Not Implement a Cost Recovery Program - No Action

This alternative would make no changes to the current regulations, under which there is not a cost recovery program in place. A cost recovery program is a program designed for NOAA Fisheries to recover a portion of the costs required to administer, monitor, and enforce a catch share program.

Ecological Impacts

The ecological impacts of the No Action alternative, which would not implement a cost recovery program, would be neutral. Not instituting a cost recovery program would not have any ecological impacts because the IBQ Program would continue operating under its current scope regardless of any cost recovery.

Socioeconomic Impacts

Currently, there is no cost recovery program in place for the IBQ Program. NOAA Fisheries currently covers the costs of the IBQ program. Alternative E5a, the No Action Alternative,

would not result in any change. Therefore, there would not be any socioeconomic impacts associated with the no action alternative.

4.5.5.2 Preferred Sub-Alternative E5b: Implement a Cost Recovery Program

This alternative would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by dealers for a particular year is warranted. Annually, NOAA Fisheries will estimate its incremental costs associated with the IBQ Program (including costs associated with the cost recovery program) and the total ex-vessel value of bluefin sold (caught incidentally) from the pelagic longline fishery on an annual basis; and notify the public whether a cost recovery fee will be charged for the year. If NOAA Fisheries determines the annual cost recovery fee is warranted, NOAA Fisheries will mail bills to dealers that purchased bluefin from pelagic longline vessels (based upon dealer landings data). Dealers would be billed based on the ex-vessel value of the bluefin purchased from pelagic longline vessels. Dealers would pay the cost recovery fee through the online IBQ Program website and the associated pay.gov link.

Estimation of Recoverable Costs

Based on fiscal year 2020 budget numbers, NOAA Fisheries allocated $1,576,930 in catch share funds for staff labor, $733,360 for EM data storage and review, and $805,460 for EM installation and maintenance. The combined budget allocation to the IBQ Program was $3,115,750 for fiscal year 2020. Based on this number, NOAA Fisheries estimates future IBQ Program cost to be approximately $3.1 million per year.

Estimation of Ex-Vessel Value of Catch Share Species

In the case of the IBQ Program, the relevant ex-vessel value is solely the value of bluefin landed, not including the ex-vessel value of the target species that are not managed under the IBQ Program, such as the swordfish, yellowfin tuna, etc., which comprise the majority of the value of the fishery. NOAA Fisheries will calculate the average ex-vessel price per pound (price paid by the dealer to the vessel) for pelagic longline bluefin on an annual basis using dealer data, and derive a total ex-vessel value of bluefin for the pelagic longline fishery as a whole (total pounds of bluefin sold to dealers). Table 4.20 provides the total annual bluefin sales by Atlantic Tunas Longline category permit holders. The average annual bluefin sales were $791,876 between 2016 and 2019. If landings from bluefin caught in the NED area are excluded (IBQ allocation is not required for bluefin landings for the first 25 mt in the NED), average annual sales were just $669,710 between 2016 and 2019.

Table 4.20 Annual bluefin tuna sales for the Atlantic Tunas Longline category 2016-2019

	2016	2017	2018	2019	Average
Longline Bluefin Tuna Sales	$752,235	$892,492	$873,101	$649,678	$791,876
Excluding NED	$594,468	$633,579	$840,173	$610,621	$669,710

Source: Standardized Atlantic Fishery Information System (SAFIS)

Under the Magnuson-Stevens Act, recoverable costs are capped at three percent of the ex-vessel value of the catch share species. Given the value of bluefin ex-vessel landings between 2016 and 2019, NOAA Fisheries estimates an annual average of $20,091 (or $23,756 if NED bluefin sales are included) in cost could be recovered for the IBQ Program. See Table 4.21 below.

Table 4.21 Three Percent of Annual bluefin tuna sales for the Atlantic Tunas Longline category 2016-2018

	2016	2017	2018	2019	Average
3 percent of Longline Bluefin Tuna Sales	$22,567	$26,775	$26,193	$19,490	$23,756
Excluding NED	$17,834	$19,007	$25,205	$18,319	$20,091

Source: SAFIS

Comparison of Incremental Costs to Ex-Vessel Value to Determine Recoverable Costs

Annually, NOAA Fisheries will compare its incremental costs associated with the IBQ Program to the estimate of total ex-vessel value of bluefin sold from the pelagic longline fishery to determine recoverable costs. It is likely that the recoverable costs will be limited to three percent of the ex-vessel value of the bluefin sold given that it is estimated that the program's incremental costs are approximately $3.1 million per year and the maximum potential costs recovery based on three percent of ex-vessel value would average $20,091 (or $23,756 if NED bluefin sales are included). If the recoverable costs were $23,756, and the total pounds of bluefin landed were 164,252 (SAFIS data), then permit holders would be charged $0.15 per pound of bluefin landed.

Determination of Cost Recovery Fee

NOAA Fisheries would make an annual determination whether a cost recovery fee for dealers for the previous year is warranted, publish a notice in the Federal Register, notify permit holders, and provide relevant information on the amount owed, and instructions for payment through the online IBQ System. The determination of whether to impose a cost recovery fee would be based on consideration of the cost of the recovery program itself: the

administrative/operational cost to NOAA Fisheries associated with implementing and administering the cost recovery program (as distinct from the operational costs associated with the routine administration of the IBQ Program). Specifically, NOAA Fisheries would need to annually calculate the ex-vessel value of bluefin, calculate individual fees, develop a Federal Register document providing formal public notification, develop the annual report, communicate with individuals in the fishery to educate them about the process and assess the fees, and conduct oversight of collection of fees including follow-up and enforcement, oversight of cost recovery program, and database/computer costs. If the total funds to be recovered (estimated recoverable costs) are similar to or less than the cost of the Cost Recovery Program, no cost recovery fee would be levied for individual permit holders. Permit holders not paying the fee, or delinquent in payment would be subject to relevant enforcement penalties, including permit revocation.

Collecting the cost recovery fee would incur costs for staff labor associated with calculating the fee, tracking payments, pursuing delinquent payments, and preparing annual reports. There would also be some information technology costs to develop a cost recovery data and billing system. There are no additional payment transaction costs to NOAA Fisheries for the transaction made via Pay.gov. Therefore, NOAA Fisheries estimates that this cost would be limited to labor and information technology costs.

Annual Report

Given the potential economic impacts of annual cost recovery fees, and the importance of transparency, NOAA Fisheries would prepare an annual report that summarizes relevant information including the estimation of recoverable costs, estimation of ex-vessel value of bluefin, comparison of incremental costs to ex-vessel value to determine recoverable costs, and the determination of cost recovery fees. This report would be made available to the public on-line or as part of the annual SAFE Report.

Ecological Impacts

The cost recovery program or the cost recovery report would have neutral ecological impacts. This alternative is administrative in nature, and therefore, the ecological impacts are neutral.

There could be some indirect ecological impacts associated with the collection of cost recovery fees from IBQ Program participants if that occurs. A fee of up to three percent of bluefin landings could further increase the cost of landing bluefin in addition to the cost associated with using IBQ allocation (or leasing allocation) to account for that landing. This increase in cost could further disincentivize the landing of bluefin and could further encourage pelagic longline vessel operators to avoid interactions with bluefin. This could result in some minor long-term beneficial ecological impacts resulting from potentially reduced bluefin mortality.

Socioeconomic Impacts

A cost recovery fee, if implemented, would have a minor adverse economic impact on permit holders that land bluefin. They would incur up to a three percent fee on any sale of bluefin to dealers. The long-term impacts are uncertain given that the fee may stop in the future if the collection program costs exceed estimated recovered costs. It is likely that the number of vessels that would be affected by this requirement, would not be larger than 60 vessels. Since 2017, no more than 58 unique pelagic longline vessels have landed bluefin tuna.

NOAA Fisheries would incur costs annually as a result of the time required to determine whether a cost recovery fee will be charged, and as a result of the process of charging a cost recovery fee if NOAA Fisheries makes a determination that a fee for a particular year is warranted. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

4.5.6 Conclusions – 'E' Alternatives

Preferred Sub-Alternative E1b is preferred because this alternative would streamline the reporting process, while maintaining consistent data on bluefin landings and dead discards. Dead discard data will continue to be submitted by the vessel operators through VMS reports. Both the ecological and socioeconomic impacts of this alternative would be consistent with the objectives of this Amendment. The no action alternative would maintain the more cumbersome current process, and is therefore not preferred.

Preferred Sub-Alternative E2b is preferred because it would reduce the frequency of hard drive shipments in half by allowing vessels to send hard drives in after every second trip. This reduction in shipping frequency would save operators an average of $120 per year. Reducing shipping frequency also saves vessel operators additional time and logistics, by only having to pull, package and ship hard drives after every other trip. The no action alternative would maintain the more expense and labor-intensive requirements and is therefore not preferred.

Preferred Sub-Alternative E3b is preferred because this alternative would enhance installation of video cameras where necessary, and increase the likelihood of detection of discard events, and therefore improve validation of the bluefin set reports, and incentivize accurate reporting. NOAA Fisheries' budget contraints and national policy regarding cost allocation in EM programs are considerations in the determination that vessels owners must pay the associated costs. Both the ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. The No Action alternative would not make improvements to the EM systems and associated data quality and is therefore not preferred.

Preferred Sub-Alternative E4b is preferred because more accurate size information would result from placement of the retained fish on a standardized reference grid. Size information may be relevant to the identification of tuna species in addition to morphological characteristics. More accurate fish identification and sizing would decrease reporting and monitoring uncertainty, and therefore this alternative would have minor beneficial long-term impacts as a result of potential improvements to bluefin data. The no action alternative would not make improvements to the EM procedures and associated data quality and is therefore not preferred.

Preferred Alternative E5b is the preferred Sub-Alternative due to the relevant requirements and the unique characteristics of the IBQ Program. The Magnuson-Stevens Act requires implementation of cost recovery programs for catch share programs. The preferred alternative would comply with the Magnuson-Stevens Act requirement, and provide the flexibility to determine on an annual basis whether charging a cost recovery fee is warranted, and result in a regulation that enables NOAA Fisheries to reasonably consider net costs and benefits. Given the fact that the IBQ Program manages a bycatch species, with a relatively low ex-vessel value, such flexibility is important. The no action alternative would not address cost recovery in the fishery and is therefore not preferred.

4.6 'F' Alternatives: Modifications to the Purse Seine Category Management Measures and Other Category Quota Allocations

These alternatives continue the process that began with Amendment 7 to address quota allocations in a changing fishery. The alternatives analyze potential changes to the current management of the Atlantic Tunas Purse Seine category fishery, and adjustments to other category quota allocations. The purse seine fishery was last active in 2015, and there are currently no vessels with Purse Seine category permits. During the past 15 years, the fishery has operated at a de-minimis level of activity. Between 2010 and 2019, only one Purse Seine category participant fished, sporadically, making only a few sets between 2012-2015, and accounting for only a small percentage of total annual bluefin landings each year (6, 5, and 4 percent, in 2013, 2014, and 2015, respectively). The alternatives in this section propose ending the Purse Seine category, and redistributing the Purse Seine category quota to other fishing categories. These alternatives include ending the fishery immediately, or at a sunset date two years after the implementation of Amendment 13. Alternative F1b also proposes to formalize the redistribution of a dead discard allowance to the Longline category.

Overall ecological impacts for Alternatives F1-F4

The quota allocation alternatives considered here build upon an extensive regulatory framework for management of the domestic bluefin fishery, as described in Chapter 3. None of the allocation alternatives considered here would change the overall authorized bluefin harvest levels. Rather, the allocation alternatives would affect the time, place, and

manner in which U.S. fisheries may harvest the U.S. bluefin quota and the relative volumes of fish that may be caught by each of the categories. As such, the overall impact to bluefin is neutral for each alternative, unless otherwise described below. There may be minor indirect impacts on pelagic longline target species if the fishing strategies of pelagic longline vessels are modified as a result of potential changes to bluefin allocation. Such impacts are likely to be neutral because minor changes to the time and place of catch are unlikely to affect the overall level of catch of target species. The preferred Purse Seine category alternatives (F2b and F4) promote conservation by optimizing yield through allocation of quota to active bluefin categories (both directed and indirect fisheries) and by encouraging a rational, more easily managed use of the resource through discontinuation of an inactive category.

Overall socioeconomic impacts for Alternatives F1-F4

As described above, none of the allocation alternatives considered here change the overall authorized bluefin harvest levels. Rather, the allocation alternatives would affect the time, place, and manner in which U.S. fisheries may harvest the U.S. bluefin quota and the relative volumes of fish that may be caught by each of the categories. These changes can have both beneficial and adverse socioeconomic impacts to individual fishermen in different bluefin categories.

Below we describe the gross socioeconomic impacts of each alternative and sub-alternative. Alternative F1b is a preferred alternative with minor economic impacts that are integrated into the analyses for Alternatives F3-4. Alternatives F2a-c address the timing of terminating the Purse Seine category, which would release its quota allocation for redistribution to the other categories. The analyses for Alternatives F2a-c focus on the impacts to the Purse Seine category for loss of quota.

The redistribution of Purse Seine category quota is analyzed in Alternatives F3-4. These alternatives are all expected to have a direct beneficial impact to the categories receiving quota, since these alternatives would provide more certainty about how the Purse Seine category quota would be redistributed than the status quo does. Beneficial impacts for the Angling category (recreational) are likely to be less than the commercial categories since the Angling category has not landed its full quota for the last five years (Table 11.3 in Appendix B), and does not appear to be quota limited. Since the Angling category does not generate revenue directly from bluefin landings, this qualitative description serves as the impact analysis for the Angling category. The affected Atlantic Tunas Longline permit holders and potential participants in the purse seine fishery, and businesses related to these fisheries are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL, and Wanchese, NC.

Analytical Methods

The approaches used for quantitative analysis in this section have several common principles:

1) The quantitative analyses assume that increases in quota result in proportional increases in revenue for each directed commercial category receiving quota. It is important to note that there may be other unquantified factors that could affect this assumption (and result in reduced revenue), such as product quality, and the amount of product on the market at any given time. This assumption is not appied to the Longline category, where the relationship between revenue and bluefin quota is more complex due to the IBQ Program.
2) Alternatives F3-4 also compare the economic impacts for F alternative combinations, in order to describe the net impacts of these alternatives. The analyses for Alternatives F3-4 include the combinations in the matrix in Table 4.22 below. The method for calculating quota allocations that constitutes preferred Alternative F1b is included in each combination, but since the impacts from F1b are mostly neutral (except for long term hypothetical impacts under an ICCAT quota change), they are not re-iterated in the discussion of impacts for each combination. Likewise, the No Action Alternative F1a is not discussed in these combinations. The No Action Alternative F2a is not included in this matrix of analyses because there would be no reallocation of quota under that alternative.

Table 4.22 Matrix of Analyses of Alternatives F3a, F3b, and F4 with other F Alternatives

F3a combinations	F3a + F1b + F2b	F3a + F1b + F2c1	F3a + F1b + F2c2
F3b combinations	F3b + F1b + F2b	F3b + F1b + F2c1	F3b + F1b + F2c2
F4 combinations	F4 + F1b + F2b	F4 + F1b + F2c1	F4 + F1b + F2c2

4.6.1 Alternatives Suite F1: Modify codified quota allocation percentages to reflect the annual 68-mt allocation to the Longline category

4.6.1.1 Sub-Alternative F1a: Current Method of Deriving 68 mt for Allocation to Longline Category - No Action

Under this alternative, NOAA Fisheries would continue to use the current mathematical method of applying the annual adjustment to account for dead discards by the Longline category. The annual subtraction of 68 mt (from the U.S. baseline quota) was established by Amendment 7 as an initial means of resolving the change in ICCAT recommendation that removed the United States' separate annual allowance for pelagic longline fishery dead discards of 68 mt. NOAA Fisheries now provides this allowance domestically by subtracting 68 mt from the U.S. quota of 1,247.9 mt. NOAA Fisheries then applies the corresponding category percentage allocations to the remaining 1,179.9 mt, and adds the 68-mt discard allowance into the Longline category quota.

Ecological Impacts

The ecological impacts of this alternative are neutral because this is a mathematical method: it does not change the ICCAT quota allocation, distribution of quota to the domestic fishing categories, or fishing activity. Thus, there would be no change in impacts to target or incidental catch species or protected species.

Socioeconomic Impacts

The socioeconomic impacts for this alternative would also be neutral because this is a mathematical method. There would be no change to economic value of current fisheries (Table 4.23), nor would there be any sociological impacts from maintaining the status quo.

Table 4.23 Ex-vessel gross revenues ($) in the U.S. Atlantic Bluefin fishery by commercial fishing category, 2015-2019

Category	2015	2016	2017	2018	2019	Average 2015-2019
General	7,426,294	9,660,993	8,154,882	9,749,452	8,280,104	8,654,345
Harpoon	465,853	379,034	511,380	319,867	968,153	528,857
Incidental	603,101	752,235	892,492	908,809	650,343	761,396
Purse Seine	238,712	N/A	N/A	N/A	N/A	0

Source: SAFIS

Revenues contained in the table reflect calendar year summaries. Source: dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System Bluefin Dealer Report Database.

4.6.1.2 Preferred Sub-Alternative F1b: Modify codified quota allocation percentages to reflect the annual 68-mt allocation to the Longline category

This alternative simplifies the annual quota allocation process. Specifically, this alternative makes a change to the mathematical method used in the annual quota allocation process in order to achieve a similar result through simpler means. Instead of a two-step process of subtracting the 68 mt from the U.S. baseline quota and then applying the respective quota category percentages, there would be a one-step process. The current process was put in place by Amendment 7 as an initial means of resolving the change in ICCAT recommendation that no longer provided an allowance of 68 mt to the United States for pelagic longline fishery dead discards. The proposed new percentages for each category are given in Table 4.24. For example, the base allocation for the Longline category is changed

from 8.1 percent to 13.1 percent, while the base allocation for the General category is changed from 47.1 percent to 44.5 percent.

Under the current quota allocation method implemented by Amendment 7, NOAA Fisheries subtracts 68 mt from the U.S. baseline bluefin quota and allocates the 68 mt to the Longline category. In other words, under the current method all categories, including Longline, 'contribute' towards a total of 68 mt that goes to the Longline category. This subtraction occurs prior to the allocation according to the relevant percentages (i.e., under current regulations the Longline category receives 8.1 percent after subtraction of 68 mt from the U.S. baseline quota). Specifically, in current practice, NOAA Fisheries subtracts 68 mt from the U.S. quota of 1,247.9 mt, and then applies the corresponding percentage allocations to the remaining 1,179.9, and adds the 68 mt to the Longline category. This alternative would recognize the additional 68 mt provided to the Longline category as a part of its annual baseline percent allocation.

Table 4.24 Comparison of Annual U.S. Bluefin Category Quotas (in %, and mt) under Sub-Alternatives F1a (No Action) and F1b (Preferred)

	Sub-Alternative F1a (No Action)		Sub-Alternative F1b (Preferred)		
Category	U.S. Base quota minus 68 mt (%)	U.S. Base quota minus 68 mt (mt)	For calculation of *actual %* of U.S. Base Quota – plus 68 m t Longline category allocation	Calculated Effective Allocation (Percent of U.S. Base Quota 1,247.9 mt) (%)	Current codified allocation (mt)
General	47.1	555.7		44.5	555.7
Harpoon	3.9	46		3.7	46
Purse Seine	18.6	219.5		17.6	219.5
Longline	8.1	95.6[1]	+ 68	13.1	163.6[1]
Trap	0.1	1.2		0.1	1.2
Angling	19.7	232.4		18.6	232.4
Reserve	2.5	29.5		2.4	29.5
Total	100	1,179.9		100	1,247.9

[1]The current Longline category allocation in metric tons is 163.6 mt, including the 68-mt allocation described above, i.e., 95.6 mt + 68 mt = 163.6 mt. This table does not reflect the 25-mt allocation for the NED.

The percentages are calculated by determining what percent each category's base allocation is of 1,247.9 mt after the 68-mt reallocation to the Longline category has occurred. For example, the base allocation for the Longline category is changed from 95.6 mt to 95.6 mt + 68.0 mt = 163.6 mt or 13.1 percent of 1,247.9.

Combining this alternative with other alternatives affecting IBQ allocations

Table 4.47 (located in the section containing the analysis of Preferred Alternative H2), shows the allocations for each category, expressed as a percentage and metric tons, that would be implemented based on the combination of the preferred quota alternatives (F1b, F2b, F3a, and H2): F1b (modification of the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category); F2b (discontinuation of the Purse Seine category and reallocation of the quota without a time delay); F3a (reallocation of the Purse Seine category quota to all quota categories); and H2 (modification of the Angling category allocations). Section 1.6.3 is a conclusions section that describes the rationale for selection of the preferred alternatives based on their impacts.

Ecological Impacts

For similar reasons explained in the No Action (F1a) alternative, the ecological impacts are expected to be neutral because the overall U.S. quota and the amount of quota in metric tons (mt) currently distributed to each quota category would not change from the status quo, and would be consistent with the ICCAT recommended bluefin quota, and the U.S. portion of the quota.

If ICCAT increases the U.S. quota in the future, the amount of quota (in metric tons) that would be allocated to the Longline category domestically would increase slightly more than it would under the No Action Alternative (F1a) alternative. This is because this alternative would increase the Longline category percentage allocation to 13.1 percent in this alternative, whereas it would be 8.1 percent (plus 68 mt) under the No Action Alternative. If the future ICCAT quota were to decrease, then under Alternative F1b the amount of quota the Longline category received would be less than the No Action Alternative (F1a).

Table 4.25 uses an example to illustrate the difference between the two alternatives for future hypothetical increased and decreased ICCAT quota amounts. Under the No Action Alternative (F1a), the Longline category would receive an allocation of 184 mt under an increased hypothetical ICCAT quota of 1,500 mt, while the Preferred Alternative F1b would result in a Longline category quota of 196.5 mt, a relatively small increase of 12.5 mt. Direct impacts from this small increase in quota would be neutral because it would be accounted for under the ICCAT quota. Indirect impacts to restricted and protected species are also expected to be neutral because the small increase in quota under this scenario is not expected to contribute to any changes in Longline category fishing behavior such as increased fishing effort. Conversely, a hypothetical future decrease in ICCAT quota under this alternative would result in a decreased allocation to the Longline category compared to the No Action Alternative (F1a). As shown in Table 4.25, under a hypothetically decreased

900-mt ICCAT quota, this alternative would result in a smaller allocation to the Longline category (decreased by 17.4 mt) compared to the No Action Alternative (F1a).

Table 4.25 Example illustrating effect of Sub-Alternative F1b from hypothetical increase or decrease to the annual U.S. bluefin quota from ICCAT

Comparison of ICCAT Quota	Calculation of Longline Quota Amount	Current ICCAT quota 1,247.9 mt	Hypothetical Future ICCAT quota of 1,500 mt	Hypothetical Future ICCAT quota of 900 mt
No Action Alternative F1a	(Quota - 68) X 8.1% + 68 mt	163.6 1,247.9 - 68 = 1179.9 (8.1%X1,179.9) + 68 =163.6	184.0 1,500 - 68 = 1,432 (8.1% X 1,432) + 68 = 184.0	135.4 900 - 68 = 832 8.1% X 832) + 68 = 135.4
Alternative F1b	Quota * 13.1%	163.6	196.5	118

Socioeconomic Impacts

Alternative F1b would have neutral socioeconomic impacts for the same reasons explained in the No Action (F1a) alternative. However, if ICCAT increases the U.S. quota in the future, this alternative would have minor positive long term socioeconomic impacts for Longline category participants when compared to the status quo because the category would be allocated slightly more quota than under the No Action Alternative (see Table 4.25). Conversely, in the event of an ICCAT quota decrease, the impacts for the Longline category would be minor negative. Socioeconomic impacts for the other categories would be minor negative in an ICCAT quota increase scenario, and minor positive for a quota decrease.

4.6.2 Alternatives Suites F2, F3, F4: Purse Seine category and quota allocation

4.6.2.1 Sub-Alternative F2a: Continue Purse Seine Category - No Action

This sub-alternative would maintain all aspects of the current quota allocation (with the exception of other quota allocation alternatives considered in Sections G, H, and I, regarding the General and Harpoon categories) and Purse Seine category regulations. NOAA Fisheries would continue to reallocate a portion of the baseline Purse Seine category quota annually to the Reserve category based on prior-year landings. NOAA Fisheries would then use its authority for inseason actions to redistribute Reserve category quota as appropriate, using the criteria listed in Table 3.2.

Ecological Impacts

The ecological impacts of alternative would be neutral because it does change the ICCAT recommended bluefin quota, the U.S. portion of the quota, or the distribution of quota to

the domestic fishing categories, or fishing activity. Thus, there would be no change in impacts to target or incidental catch species or protected species.

Socioeconomic Impacts

The socioeconomic impacts for the No Action Alternative would be neutral. The current economic costs associated with the status quo would continue. The revenue for each commercial bluefin categories over the last five years is given in Table 4.23. The last column of this table gives the 2015-2019 average revenue. For example, the average amount of bluefin revenue from the General category was $8,654,345. By keeping the current Purse Seine category and quota intact and under the same rule, there would be opportunity costs associated with the unused Purse Seine category quota that would not be reallocated to the other quota categories, and uncertainty about how much Purse Seine category quota will be reallocated and how it will be reallocated. Additional investment in the other bluefin directed fisheries may be negatively affected because of the availability of a large amount of Reserve quota and uncertainty associated with the inseason quota distributions. The Purse Seine category would continue to receive quota based on activity level, and could either fish or lease that quota via the IBQ system. Based on the average amount of IBQ leasing Alternative F2b, the likely benefits of the no action to Purse Seine participants would be $38,391 category-wide (or $7,678 for an individual participant). Those positive benefits to the Purse Seine category participants would continue. There would likely continue to be a large annual transfer of Purse Seine category quota to the Reserve category, which could be redistributed via inseason action. For example, the General category has recently been the recipient of much transferred quota, as indicated in Table 11.3 in Appendix B, which shows the percentage of the base quota caught for each category from 2015-2019. The General category caught between 131.7 to 161 percent of their base quota during these years; the quota beyond 100 percent was a result of inseason actions. As discussed in Chapter 3, the inseason distribution of quota is based on seasonal determinations following the criteria listed in Table 3.2.

4.6.2.2 Preferred Sub-Alternative F2b: Discontinue Purse Seine category and reallocate quota upon implementation of Amendment 13

This sub-alternative would discontinue the Purse Seine category through redistribution of Purse Seine category quota effective upon implementation of the Amendment 13 final rule. The ability of vessels to obtain an Atlantic Tunas Purse Seine category permit would also end. NOAA Fisheries would remove purse seine from the list of authorized gear and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants. This alternative could be implemented in conjunction with one of the methods of reallocation described under Alternatives F3 (reallocation to all other quota categories; F3a (preferred) and F3b) and F4 (reallocated to only directed quota categories), and is intended only to address the timing of the discontinuation of the Purse Seine category. The impacts associated with discontinuing the Purse Seine category will be discussed under this alternative, while the

impacts associated with quota reallocation will be discussed under the reallocation alternatives. Therefore the full socioeconomic impacts are discussed under the "Conclusions" section (The impacts from each set of alternatives for discontinuance and reallocation (e.g., F2b (this alternative, discontinue 'immediately') + F3 (reallocation to all other quota categories)) are considered additive and as discussed previously, will be considered in conjunction with preferred alternative F1b (regarding the 68-mt math and simplifying the quota process).

Combining this alternative with other alternatives affecting IBQ allocations

Table 4.47 (located in the section containing the analysis of Preferred Alternative H2), shows the allocations for each category, expressed as a percentage and metric tons, that would be implemented based on the combination of the preferred quota alternatives (F1b, F2b, F3a, and H2; i.e. F1b (modification of the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category); F2b (discontinuation of the Purse Seine category and reallocation of the quota without a time delay); F3a (reallocation of the Purse Seine category quota to all quota categories); and H2 (modification of the Angling category allocations)).

Ecological Impacts

The ecological impacts associated with the discontinuation of the Purse Seine category upon Amendment 13 implementation compared with the No Action Alternative would be neutral. Impacts of reallocating Purse Seine category quota are analyzed in other alternatives below.

Socioeconomic Impacts

This alternative would have moderate adverse socioeconomic impacts to Purse Seine category participants compared to the No Action Alternative (F2a). Under this alternative, quota allocations would no longer be distributed to Purse Seine category participants, so neither fishing for bluefin or leasing as part of the IBQ Program would be allowed after the effective date of Amendment 13. The analysis of socioeconomic impacts is therefore described according to the potential revenue loss because of the loss of opportunity to lease IBQ allocation, and the potential revenue loss as a result of the loss of opportunity to land bluefin.

A limited entry permit system with non-transferable individual vessel quotas for purse seining was established in 1982, resulting in five qualified participants and excluding new entrants. These historical participants have sold the fishing vessels they used to fish for bluefin, but have continued to be authorized to lease their annual quota distribution through the IBQ system to pelagic longline vessels. The direct impacts on the historical Purse Seine category participants would be the loss of potential revenue associated with leasing bluefin quota to pelagic longline vessels participating in the IBQ Program. The vessel that was most recently active in the fishery was sold to a new owner, so this alternative would not impact the value of the vessel that was most recently used in the

purse seine fishery. Because the purse seine fishery is restricted to historical participants under current regulations, this alternative would have no impact on any other vessel owner (i.e., non-historical participants) that may desire to participate in the purse seine fishery.

Estimation of Potential Revenue Loss from Leasing Bluefin Quota

Revenue from leasing bluefin quota is estimated in this analysis of socioeconomic impacts, because Purse Seine category participants have not fished since 2015, but have been actively leasing quota to pelagic longline vessels through 2019. Table 3.15 shows the actual value of Purse Seine category quota leases that took place over the last five years (2015-2019). The potential annual value of purse seine-related leases using this leasing data can be estimated. The weighted price per pound for purse seine-related leases shows a declining trend over the last five years, so the most recent cost of $1.25 per pound was used to estimate a maximum annual loss of $151,568 (121,254 pounds x $1.25 per pound) category-wide (i.e., 55 mt) or $30,314 per participant, assuming all allocated Purse Seine category quota would be leased. However, since the greatest amount of purse-seine related quota leased was 47.7 percent in 2019 and not 100 percent, a more likely estimate of revenue lost was generated by using the average amount of quota leased each year over the time series (30,713 pounds) multiplied by $1.25 per pound to estimate a loss of $38,391 per year category-wide or $7,678 per participant. The average amount of quota leased was used as a basis for this estimate instead of the most recent year because the time series for the amount of purse seine-related quota leased shows no discernible trend (Table 3.17 and Table 3.18).

Estimation of Potential Revenue Loss from Bluefin Landings

The other impacts of this alternative are indirect adverse impacts, specifically, the loss of potential future fishing revenue, as described below. The historical Purse Seine category participants have not fish for bluefin or derived any revenue from bluefin landings for many years. These participants last landed fish during the 2013-2015 seasons (Table 3.3). It is unlikely that historical Purse Seine category participants would choose to fish again because of such limited activity over the last 15 years. Furthermore, the historical participants have sold the vessels that historical fishery participants used to fish for bluefin to new owners outside of those participants.

The estimation of potential revenue loss from bluefin landings from this alternative as described below includes multiple components: 1) Estimation of dead discards (because dead discards are relevant to the catch totals used in determining potential Purse Seine category quotas), Table 4.26; 2) Estimation of the value of bluefin to the Purse Seine category fishery; and 3) Calculation of potential losses based on range of potential Purse Seine category quotas (Table 4.27). Four quota scenarios are used to estimate the range of potential economic losses because under the current regulations the size of the Purse Seine category quota is variable. Specifically, there are four potential quota amounts possible, based upon the amount of catch during the previous year. Because the relevant catch includes both landings and dead discards, a value for potential future dead discards was

derived using the observer data collected during the 2013-2015 seasons (Table 4.26). One purse seine vessel fished in 2014-2015 under an exempted fishing permit (EFP)(to obtain information on bluefin discard rates) that allowed an additional 15 percent tolerance for a total retention of 30 percent large medium bluefin (measuring 73 to less than 81 inches). Specifically, the intent of the EFP was to determine if modification to the retention limit of large medium bluefin (smaller than the target size range, i.e., giant bluefin, measuring 81 inches or greater) would result in the reduction of discarded large medium bluefin. While fishing under the EFP, the vessel owner reported that the relative amount of smaller fish had been increasing in recent years and it had become more difficult to locate schools of bluefin that were composed of predominantly the larger size classes.

An analysis was performed to estimate the amount of dead discards that would have occurred under the regulations (only 15 percent allowed to be retained). In the analysis, shown in Table 4.26, the status quo regulations that allow retention of large medium bluefin in an amount equivalent to 15 percent of the total bluefin catch, was applied to the observer data to estimate the amount of discards that would have occurred (Table 4.26). The average annual dead discard estimate is 28.4 percent of catch (see row "k"; (32.2 + 21.0+31.9)/3), or conversely, Landings = Catch x 71.6 %. At an adjusted quota of 55 mt, the Purse Seine category could potentially land up to 39.4 mt and discard up to 15.6 mt, depending upon the number of participants fishing. Catch of 55 mt equates to 11 mt per vessel, which is 25 percent of the 43.9 mt annual allocation, and would result in the 50 percent quota level for each vessel (Table 11.2, Appendix) in the following year.

Table 4.26 Calculation of annual dead discard estimate for Purse Seine category fishery

Data type or calculation	2013	2014	2015
a) Landings Total	28.8	37.6	34.0
b) Landings Giant	26.99	28.07	22.5
c) Landings Large Medium	1.85	9.57	11.5
d) Discards	13.7	4.2	4.9
f) Total Catch	42.5	28.07	22.5
g) Large medium landings + Discards	15.55	13.77	16.40
h) 15% Large medium tolerance (calculated)		4.95	3.97
i) Dead Discards (calculated)		13.77-4.95 = 8.82	16.4-3.97=12.43

Data type or calculation	2013	2014	2015
j) Landings (calculated)		28.07 + 4.95 = 33.02	22.5+3.97 = 26.47
k) Dead Discards (%)	32.2	21.1	31.9
l) Data type or calculation	2013	2014	2015
m) Landings Total	28.8	37.6	34.0

With respect to the estimated value of potential bluefin landings by purse seine vessels, Figure 4.9 shows the annual average price of bluefin category landings since 2009. The average price for Purse Seine category landings for the three most recent years of activity (2013-2015) was $4.66 per pound round weight. Although these data are from several years ago, the value of bluefin per pound in recent years has ranged between approximately $4 and $6 per pound for categories with landings, and the values for 2013-2015 for all categories are in line with recent prices.

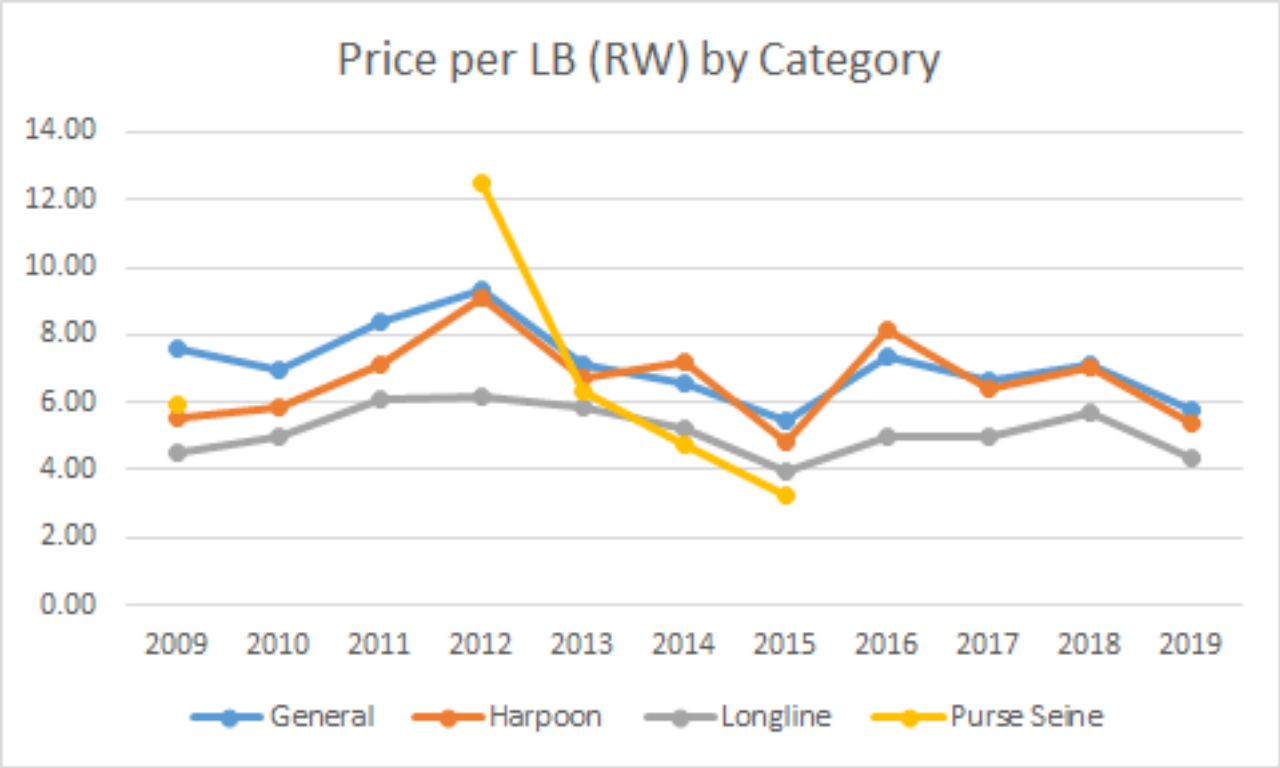

Figure 4.9 **Average price per pound (round weight) for bluefin landings by category (2009-2019)**
Source: SAFIS

An analysis of the range of estimated potential annual revenues for Purse Seine category landings for a range of four different annual quota amounts is shown in Table 4.27. A hypothetical range of four quotas is used to reflect the various potential quotas that may be relevant, as well include the scenario of the sunset provision in Alternative F4 (discontinue in the future). The most likely estimate of future Purse Seine category fishing activity is zero landings, because the category has not fished since 2015, and there are currently no vessels issued a Purse Seine category permit. Therefore, the most likely scenario of lost revenue from bluefin landings resulting from this alternative is zero. However, the maximum possible amount of landings and annual revenue is also provided in Table 4.26 to provide a possible range for the analysis of potential impacts. The range of potential annual revenue losses from landings represents the highest possible range, because it is based on five purse seine vessels. Under the current regulations in which the annual allocation to Purse Seine category vessels is based on the previous year's catch, the allocation to the Purse Seine category could be 25, 50, 75, or 100 percent of the Purse Seine category quota. The amount of potential annual bluefin revenue loss from a single vessel, based on the lowest level of quota was estimated at $80,916. The maximum amount of annual revenue the Purse Seine category could derive, if all five historical permits were used, and taking into consideration dead discards, is estimated to be $1.61 million (based on 100 percent of the Purse Seine category quota).

Table 4.27 Estimated annual revenues for Purse Seine category landings over a range of quotas

Quota Scenario	Quota allocation (% / mt / lb)	Landings (Catch x 71.6%)	Revenue per vessel fishing ($4.66 per pound)	Revenue for category fishing (5 vessels)
Scenario A	25 / 11 / 24,251	17,364	$80,916	$404,581
Scenario B	50 / 22 / 48,502	34,727	$161,828	$809,139
Scenario C	75 / 32.9 / 72,532	51,933	$242,008	$1,210,039
Scenario D	100 / 43.9 / 96,782	69,295	$322,915	$1,614,574

4.6.2.3 Sub-Alternative F2c: Discontinue Purse Seine category and reallocate quota at a future date (i.e., "sunset" date)

These alternatives (F2c1 and F2c2) would discontinue the Purse Seine category and redistribute the Purse Seine category quota two years after implementation of Amendment 13 (i.e., Year 3). There are two sub-alternatives that vary with respect to what activity (i.e., leasing and/or fishing) would be allowed prior to the sunset date. The ability of vessels to obtain an Atlantic Tunas Purse Seine category permit would also end. NOAA Fisheries

would remove purse seine from the list of authorized gear and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants.

These alternatives could be implemented in conjunction with any of the methods of reallocation described under Alternatives F3 (a (preferred) and b; proportionally to all categories) and F4 (proportionally only to directed categories), and is intended only to address the timing of the discontinuation of the Purse Seine category. The impacts from discontinuing the Purse Seine category will be discussed under this alternative, while the impacts associated with quota reallocation will be discussed under the reallocation alternatives. The impacts from the set of alternatives for discontinuance and reallocation (e.g., F2b (discontinue immediately) and F3a (proportionally to all categories, with no Longline category restrictions)) are considered additive.

4.6.2.4 Sub-Alternative F2c1: Partially reallocate Purse Seine category quota and allow current Purse Seine category participants to lease quota and fish until sunset date (two years after implementation of Amendment 13)

This alternative is one of two sub-alternatives that would discontinue the Purse Seine category after two years. Prior to the sunset date, the Purse Seine category quota would be reduced to 25 percent of its current amount. This alternative, in conjunction with preferred Alternative F1b, would result in a quota reduction from the current level of 17.6 percent to a new level of 4.4 percent. The remaining portion of Purse Seine category quota (i.e., the other 75 percent) would be reallocated to the other bluefin quota categories in accordance with one of the reallocation alternatives described below. This alternative would result in a set quota percentage, in contrast to the No Action Alternative, which considers the previous year's catch by Purse Seine category participants in determining the amount of quota available to each participant in the current year. This alternative would allow current Purse Seine category participants to receive their annual allocation and lease it (via the IBQ System) to and from other Purse Seine category participants or Atlantic Tunas Longline permit holders through the end of Year 2. It also would allow them to fish for Atlantic tunas, including bluefin, with purse seine gear if the vessel is issued a valid Purse Seine category fishing permit until this date. After two years, there would be no Purse Seine category quota.

Ecological Impacts

All ecological impacts associated with the sub-alternatives for discontinuation of the purse seine fishery two years after Amendment 13 implementation (end of Year 2), compared with the No Action Alternative, would be neutral. Impacts of reallocating Purse Seine category quota are analyzed in other alternatives below. The overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-

recommended U.S. quota, the United States has underharvested its overall quota over the past several years.

Socioeconomic Impacts

Socioeconomic impacts are described after sunsetting and for the two-year period prior to sunsetting. Upon sunsetting in year 2, socioeconomic impacts for Alternative F2c1 are the same as Alternative F2b (discontinue Purse Seine category upon implementation of Amendment 13). There would be the direct adverse impact from the loss of leasing revenue and the indirect adverse impact of the loss of potential revenue from the sale of bluefin. Historical participants are not currently reliant on revenue from the sale of bluefin because the fishery is not active.

The range of potential annual fishing revenue losses are the same as those shown in Table 4.27. The amount of potential annual bluefin revenue loss from a single vessel, based on the lowest level of quota was estimated at $80,916. The maximum amount of annual revenue the Purse Seine category could derive, if all five historical permits were used, and taking into consideration dead discards, is estimated to be $1.61 million (based on 100 percent of the Purse Seine category quota being allocated). As discussed previously, this is characterized as loss of potential revenue because it is likely that no fishing will occur based on recent inactivity, in which case there would be no actual loss of revenue (but a loss of potential revenue). The likely loss in leasing revenue is the same as noted in Alternative F2b, which estimates the annual category-wide and individual participant losses of revenue associated with leasing in the IBQ system to be $38,391 and $7,678, respectively, based on the average amount of quota leased since 2015.

During the two year period prior to sunsetting there would be the loss of some potential landings revenue because of the lower quota for the Purse Seine category. There would be the potential loss of 75 percent of the Purse Seine category quota, because it would be allocated only 25 percent of the current level (Table 4.27, Scenario C). The potential loss in landings revenue associate with 75 percent of the quota is $1.2 million. It should be noted however that this alternative would result in a level of allocation the same as in recent years (i.e., 25 percent). Furthermore, it is highly unlikely that the Purse Seine category will have any future fishing activity (based on recent inactivity and no fishing vessels with requisite permits). The possible impacts described not likely, because a high level of catch over sequential years would be required for the full quota (100 percent) to be allocated. Given that leasing could continue until year 2, and the level of allocation would be similar to what it has been, there is not likely to be any loss of revenue associated with leasing.

Table 4.28 summarizes the potential annual revenue losses associated with alternatives F2b, F2c1 and F2c2. Explanation of these losses are described in the text, but this table is intended to augment the text by summarizing the types of losses during the relevant time periods.

Table 4.28 Summary of potential annual revenue loss to Purse Seine category associated with alternative F2b, F2c1, F2c2

Alternative	Upon Implementation of Amendment 13	Upon Sunsetting - Two Years After Implementation of Amendment 13
F2b *(no Purse Seine category quota)*	Range of leasing revenue loss: $7,678 (1 participant) - $38,391 (category-wide) Range of landings revenue loss: $80,916 (1 vessel, low quota) – $1.61 M (5 vessels, max. quota)	N/A
F2c1 *(25% of current Purse Seine category quota; leasing and landing allowed)*	No leasing revenue loss Range of landings revenue loss: Up to 75% of F2b values	See F2b (Upon implementation of Amendment 13)
F2c2 *(25% of current Purse Seine category quota; only leasing allowed)*	No leasing revenue loss Range of landings revenue loss: F2b values	See F2b (Upon implementation of Amendment 13)

4.6.2.5 Sub-Alternative F2c2: Partially reallocate Purse Seine category quota and allow current Purse Seine category participants to lease but not fish until sunset date (two years after implementation of Amendment 13)

This alternative is similar to Alternative F2c1 (i.e., a reduction in the size of the quota to 4.4 percent of the bluefin quota for 2 years until sunset date) but would only allow Purse Seine category participants to *lease* (not fish) their quota allocations.

Ecological Impacts

This sub-alternative would be neutral. The overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years.

Socioeconomic Impacts

Socioeconomic impacts are described for the two-year period prior to sunsetting and for the period after sunsetting. Socioeconomic impacts for Alternative F2c2 are similar to Alternative F2c1 (moderate adverse), but with the added limitation that Purse Seine

category participants could not fish their quota (during the two-year period prior to sunsetting). Only leasing activity would be allowed under this alternative until the end of Year 2.

During years 1 and 2 when leasing is allowed, the likely loss in leasing revenue is the same as noted in Alternative F2c1. Given that leasing could continue until year 2, and the level of allocation would be similar to what it has been, there is not likely to be any loss of revenue associated with leasing.

The reduction of the size of the Purse Seine quota under this alternative would not affect the estimated loss in leasing revenue, because the estimate is based on the average amount of leasing that has actually occurred, which has been under conditions of a reduced Purse Seine quota (due to zero annual catches).

The loss of potential fishing revenue both prior to and as of sunsetting, is similar to that estimated for Alternative F2b, since fishing would not be allowed under this alternative. The most likely estimate of future Purse Seine category fishing activity is for zero landings since the category has not fished since 2015. Historical participants are not currently reliant on revenue from the sale of bluefin because the fishery is not active. However, similar to Alternative F2b, the amount of potential annual bluefin revenue loss from a single vessel, based on the lowest level of quota was estimated at $80,916. The maximum amount of annual revenue the Purse Seine category could derive, if all five historical permits were used, and taking into consideration dead discards, is estimated to be $1.61 million (based on 100 percent of the Purse Seine category quota).

4.6.2.6 Alternatives Suite F3: Reallocate Purse Seine category quota proportionally to all other quota categories

These alternatives (F3a and F3b) would reallocate the Purse Seine category quota proportionally to all other quota categories (i.e., based on the current percentages associated with each quota category) and result in revised allocations and quotas as shown in Table 4.29. These alternative would be combined with Alternative F1b (change in percentage allocations to reflect 68 mt), and either F2b (discontinue Purse Seine category upon implementation of Amendment 13) or F2c1 or F2c2 (discontinue Purse Seine category after 2-year period). The latter three alternatives give a range of options for when the Purse Seine category would be discontinued and the quota would be available for distribution to the other categories. Alternative F2b would make the quota available upon implementation of Amendment 13, while alternatives F2c1 or F2c2 would make the quota available beginning in Year 3.

Table 4.29 Revised allocations (% and mt) for each category based on reallocation of the Purse Seine category quota for Sub-Alternatives F2c1 and F2c2 (and underlying calculations) and estimated annual revenue associated with the allocation increase

	General	Angling	Purse Seine	Longline	Harpoon	Reserve	Trap	TOTAL
Allocations under Alternative F1b (%) (*converting 68 mt to %*)	44.5	18.6	17.6	13.1	3.7	2.4	0.1	100
Quota (mt)	555.7	232.4	219.5	163.5	46	29.5	1.2	1,247.9
Redistribution calculation	(44.5/82.4) x 17.6	(18.6/82.4) x 17.6	N/A	(13.1/82.4) x 17.6	(3.7/82/4) x 17.6	(2.4/82.4) x 17.6	(0.1/82.4) x 17.6	-17.6
Additional amount (%)	9.5	4.0	N/A	2.8	0.8	0.5	<0.1	17.6
Additional amount (mt)	118.1	49.6	N/A	34.9	10.2	6.7	0.0	219.5
New allocation (%)	**54**	**22.6**	**0**	**15.9**	**4.5**	**2.9**	**0.0**	**100**
New allocation (mt)	673.8	282.0	0	198.4	56.2	36.2	0.0	1,247.8
Average price per pound (2017-2019)*	6.49	N/A	N/A	5.02	5.85	6.31	6.31	NA
Estimated annual revenue for additional amount (Alternative F3a)	1,689,758	N/A	N/A	386,516	131,548	93,204	N/A	2,301,026
Estimated annual revenue for additional amount (alternative F3b)	1,689,758	N/A	N/A	386,242	131,548	93,204	N/A	2,300,751

* Overall average price per pound for all categories was used for calculation of Reserve and Trap category revenues. Note; Sum of columns do not equal total column due to rounding.

4.6.2.7 Preferred Sub-Alternative F3a: Reallocate Purse Seine category quota proportionally to all other quota categories, and apply Longline category increase to all areas

This alternative would result in the amount of quota reallocated from the Purse Seine category to the Longline category shown in Table 4.29 (as in Alternative F3, proportionally to all categories), and would include allocation of both ATL and GOM area designations.

Specifically, the additional quota would be designated as ATL or GOM IBQ allocation, consistent with the relevant method of calculating regional IBQ shares and distributing IBQ allocation.

Ecological Impacts

The impact of this alternative is evaluated in combination with alternatives that would reallocate Purse Seine category quota upon implementation of Amendment 13 (Sub-Alternative F2b) or after a two-year period (Sub-Alternatives F2c1 or F2c2). Impacts to bluefin under this alternative would be neutral because the amount of bluefin catch would be at or below the U.S. portion of the ICCAT recommended bluefin quota quota. In the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. In addition, reallocating Purse Seine category quota is not expected to result in increases in fishing effort. Over the past years, most of the Purse Seine category quota has been reallocated annually for use by the other bluefin categories (75 percent reallocated with 25 percent remaining for potential leasing to pelagic longline vessels). *See* Final Amendment 7 to the 2006 Consolidated HMS FMP at 23-24 (explaining preferred Alternative A3a: Annual Reallocation of Bluefin Quota from Purse Seine Category). Most of the bluefin quota categories that would receive redistributed Purse Seine category quota target bluefin with rod and reel or harpoon gear, and have minimal indirect impacts on non-bluefin species. For the Longline category, the regional designation of GOM IBQ allocation would remain (i.e., one of the relevant alternatives B1, B2, or B3 - modifications to rules closely linked to IBQ allocations - would be in effect in combination with this alternative). This alternative could have slightly adverse indirect impacts for pelagic longline bycatch species that may not be retained such as white and blue marlin, roundscale spearfish, Atlantic sailfish, dusky sharks and sea turtles, if the additional bluefin quota results in an increase in pelagic longline vessel fishing effort beyond that which is currently occurring. However, such an increase in effort is unlikely. The Three-Year Review noted that the IBQ Program may have been a contributing factor in declining effort, but did not describe a strong relationship between IBQ allocation and fishing effort. Further, the Longline category overall has not been quota limited (i.e., annual landings plus discards have not been greater than annual quota) since Amendment 7 was implemented. In combination with Sub-Alternative F2c1 or F2c2, this alternative would have neutral impacts during the two-year transition period, prior to discontinuation of the fishery for the reasons described above.

Socioeconomic Impacts

Socioeconomic impacts for Sub-Alternative F3a would be moderately beneficial for the commercial quota categories that would receive redistributed quota after the Purse Seine category was terminated. There would also be indirect benefits for seafood dealers because of increased bluefin landings from the directed fishery.

Annual revenue for each category is calculated in Table 4.29. Total revenue that could accrue due to bluefin quota associated with the Reserve category was also estimated

because quota from the Reserve can be transferred to other quota categories via inseason action during the fishing year. Inseason actions are developed pursuant to the criteria listed in Table 3.2.

As shown in Table 4.29, the estimated annual increase in revenue for commercial quota categories receiving redistributed Purse Seine quota totals $2.30 million. Estimated annual revenue loss to the Purse Seine category is described under Sub-Alternative F2b, Socioeconomic Impacts. Looking at all of the categories combined, net impacts of this alternative are beneficial: it would result in an increase in revenue of approximately $2.3 million annually.

The Longline category requires bluefin quota to account for bluefin catch (landings and dead discards), satisfy the requirement to have a minimum amount of IBQ on the first trip in each calendar quarter, and to enable a successful IBQ leasing market. A successful leasing market is essential to the IBQ Program. Due to the highly variable nature of bluefin bycatch, the need for bluefin IBQ among vessels (to account for bluefin catch) does fully align with the distibution of bluefin shares among vessels. Invariably some shareholders will be allocated more IBQ than they need to account for bluefin catch and some shareholders will be allocated less. The leasing of IBQ among shareholders enables the redistribution of IBQ to those vessels that need IBQ.

The amount of bluefin quota that the Longline category requires as a whole, reflects individual vessel owner needs for IBQ. Vessel owners must satisfy the minimum IBQ requirements and account for bluefin catch. The total amount of IBQ needed to satisfy these requirements can be determined based on past bluefin catch patterns and the number of active vessels. However, the total amount of bluefin quota required must also reflect the fact that vessel owners tend to keep some IBQ as 'insurance' against potential future catches of bluefin. The concern that future fishing trips may result in bluefin catch that must be accounted for creates an incentive for the vessel owner to hold onto IBQ rather than lease it. Therefore, a vessel owner's willingness to participate in the leasing market and act as a lessor (leasing IBQ to another vessel) may depend upon their having IBQ in *excess* of what they anticipate needing to satisfy the minimum amount and for potential future catch. The total amount of IBQ for the Longline category should reflect this incentive of the individual vessel owner and the resultant influence on the IBQ leasing market.

The consideration of Purse Seine category reallocation is related to the change in the method of allocation to longline vessels that would occur under dynamic allocation, which would reallocate IBQ among a smaller pool of active vessels, effectively making more quota available to most active vessels (preferred Alternative A2b). The selection of the preferred Purse Seine category reallocation alternative in the DEIS (Alternative F4, which does not reallocate to the Longline category) relied upon the conclusion that the net amount of increase in IBQ that active vessels in the Longline category would derive from dynamic allocation would 'compensate' for the loss of Purse Seine category quota as a source for leasing quota.

After considering public comment, NOAA Fisheries re-analyzed data regarding the leasing program. Whereas the analysis of the leasing program in the DEIS compared the portion of leases from the Purse Seine category participants to the portion of leases from pelagic longline vessels, the revised analysis also explored the source of pelagic longline leases from either active or inactive vessels. NOAA Fisheries concluded that if Purse Seine category quota is not reallocated to the Longline category, the net amount of increase in IBQ that active vessels in the Longline category would derive from dynamic allocation would not fully 'compensate' for the loss of Purse Seine category quota as a source for leasing quota. As shown in Figure 4.11 below, longline vessels have been increasingly reliant upon both the Purse Seine category quota and inactive vessels as sources for bluefin quota leases. With the reallocation of Purse Seine category quota *and* the elimination of inactive vessels as sources for leasing bluefin quota, the IBQ leasing market would be substantially altered. Because of the incentive for active vessels to maintain an amount of IBQ as insurance against future catches of bluefin, the reallocation of IBQ from inactive to active vessels is not likely to result in the same amount of IBQ being available to the leasing market under dynamic allocation. In order to increase the likelihood of maintaining a successful IBQ leasing market in the future (including new entrants), the Longline category should be included in the reallocation of Purse Seine category bluefin quota. Based on the current U.S. baseline quota, the amount of additional bluefin quota that would be reallocated from the Purse Seine category to the Longline category (34.9 mt) under preferred Sub-Alternative F3a would be more than the average amount of Purse Seine category-leased IBQ allocation in recent years (average of 23.9 mt from 2016 through 2019). Lastly, there may be some cost savings for vessels if the reallocation reduces the need for leasing by some vessels.

Figure 4.10 shows the source of leases to pelagic longline vessels ("PLL" in the figure), including leases from Purse Seine category participants ("PS" in the figure). For leases among pelagic longline vessels, the graph distinguishes between leases from inactive pelagic longline vessels (those with IBQ but that did not fish) and leases from active pelagic longline vessels. The relative size of each of these three types of leases (i.e., at least 20 percent of total leases) suggest that each type of leases are meaningful or important in the IBQ market. There is an increase in the relative portion of leases from Purse Seine category participants and inactive pelagic longline vessels over time.

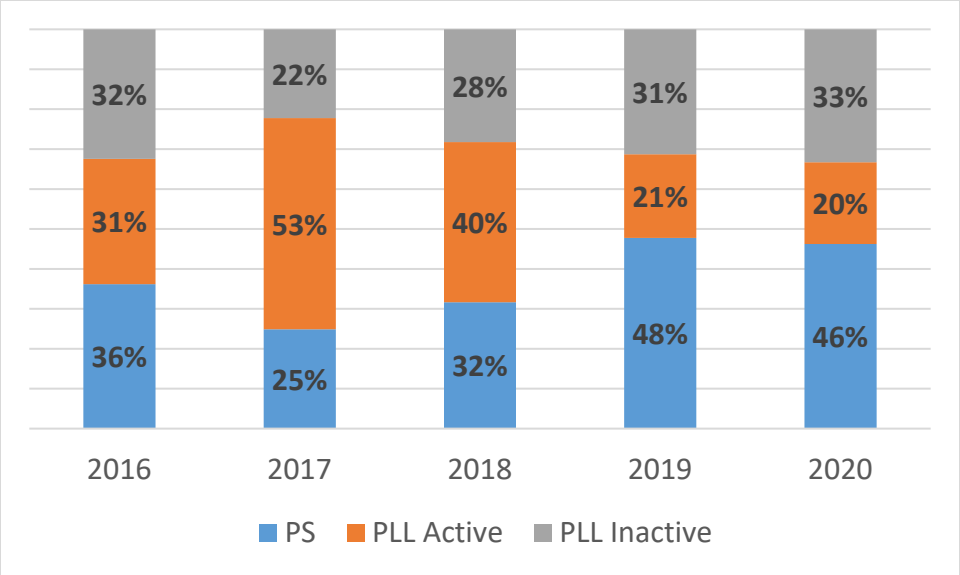

Figure 4.10 Source of Leased IBQ as a Percentage of Total IBQ Leased (based on pounds)

4.6.2.8 Sub-Alternative F3b: Reallocate Purse Seine category quota proportionally to all other quota categories, but do not allow an increase in Longline category quota that could be used in the Gulf of Mexico

This alternative would result in the same amount of quota reallocated from the Purse Seine category to the Longline category (as discussed under Sub-Alternative F3a), but would place a restriction on the regional use of such quota by the Longline category, which lands bluefin under the context of the IBQ Program. Specifically, all of the additional quota would be designated as ATL IBQ allocation, which could not be used to account for bluefin caught in the Gulf of Mexico.

Ecological Impacts

In combination with alternatives that would reallocate Purse Seine category quota upon implementation of Amendment 13 (Sub-Alternative F2b) or after a two-year period (Sub-Alternatives F2c1 or F2c2), this alternative is expected to have neutral impacts to bluefin, and could have slightly adverse indirect impacts for pelagic longline bycatch species that are prohibited such as white and blue marlin, roundscale spearfish, Atlantic sailfish, dusky sharks and sea turtles, if the additional bluefin quota results in an increase in pelagic longline vessel fishing effort beyond that which is currently occurring. However, such an increase in effort is unlikely, for the reasons provided under Sub-Alternative F3a, Ecological Impacts. Impacts to bluefin under this alternative would be neutral because all bluefin catch would be within the U.S. portion of the ICCAT recommended quota. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. The directed categories that would receive redistributed Purse Seine category quota have minimal indirect impacts on bycatch species due to the fishing

gear and techniques used. In combination with Sub-Alternative Fc1 or F2c, this alternative would have neutral impacts during the two-year transition period.

Socioeconomic Impacts

For the same reasons provided under Sub-Alternative F3a, socioeconomic impacts for Sub-Alternative F3b would be moderately beneficial for most of the commercial quota categories that would receive redistributed quota after the Purse Seine category was terminated. There would also be indirect benefits for seafood dealers because of increased bluefin landings (s*ee second through fourth paragraphs of Sub-Alternative F3a, Socioeconomic impacts (explaining calculation of annual revenue for each category, net impacts for Purse Seine and other categories, and neutral impacts of Sub-Alternative F3b when combined with Sub-Alternative F2c)).*

For the Longline category, this alternative would have negligible impacts compared to Sub-Alternative F3a, because pelagic longline vessels fishing in the Gulf of Mexico with GOM designated IBQ shares have utilized a low percentage of GOM designated IBQ (e.g., eight percent of GOM designated IBQ, three percent of total IBQ, in 2019). The fact that the additional bluefin quota from the Purse Seine category would not be redistributed to vessels with fishing history in the Gulf of Mexico would not represent a loss in potential target species or bluefin revenue. The average price per pound of Longline category fish purchased during 2017-2019 in the Gulf of Mexico ($5.11) was slightly higher than Atlantic fish ($5.02); however only a total of 14.5 mt of bluefin was landed in the Gulf, out of 365.8 mt landed in total (3.9 percent of total landings) during this time period (Table 3.21). The reduction in revenue if all bluefin were landed in the Atlantic at the lower price is approximately $274 per year (Table 4.29).

4.6.2.9 Alternative F4: Reallocate Purse Seine category quota proportionally but only to directed bluefin categories, including Reserve (not Longline or Trap)

This alternative was the preferred alternative in the DEIS, but based on public comments and revised analysis, this alternative is no longer preferrred. The information under Alternative F3a, which is the preferred alternative in this FEIS, incorporates the reasons why Alternative F4 is not preferred. As shown in Table 4.30, this alternative would result in additional quota for the directed categories in slightly greater amounts than alternative F3 (where the quota is redistributed to directed and non-directed categories) for status quo amounts for the Longline and Trap categories. Note that Alternative G3c relates to this alternative and is specifically about allocating quota among General category subquota time periods.

Table 4.30 The new allocations (% and mt) for each category based on reallocation of the Purse Seine category quota for Alternatives F4 (reallocate to directed categories only) and underlying calculations

	General category	Angling category	Purse Seine category	Longline category	Harpoon category	Reserve category	Trap category	Total
Allocations under Alternative F1b (%)(*converting 68 mt to %*)	44.5	18.6	17.6	13.1	3.7	2.4	0.1	100
Quota (mt)	555.7	232.4	219.5	163.5	46	29.5	1.2	1,247.9
Redistribution calculation	(44.5/69.2) x 17.6	(18.6/69.2) x 17.6	N/A	N/A	(3.7/69.2) x 17.6	(2.4/69.2) x 17.6	N/A	17.6
Additional amounts (%)	11.3	4.7	N/A	N/A	0.9	0.6	N/A	17.6
Additional amount (mt)	140.6	58.4	NA	NA	11.4	7.9	NA	218.3
New allocation percentages (%)	55.8	23.3	0	13.1	4.6	3.0	0.1	99.9
New allocation totals (mt)	696.3	290.8	0	163.5	57.4	37.4	1.2	1,247.9
Average price per pound (2017-2019)*	6.49	NA	NA	NA	5.85	6.31	NA	NA
Estimated Annual Revenue for Additional Amount, under Alternative F4	2,011,768	NA	NA	NA	147,044	110,395	NA	2,269,208

Note: Sum of columns do not equal "Total" column due to rounding

Combining this alternative with other alternatives affecting IBQ allocations

Table 4.47 (located in the section containing the analysis of Preferred Alternative H2), shows the allocations for each category, expressed as a percentage and metric tons, that would be implemented based on the combination of the preferred quota alternatives (F1b, F2b, F3a, and H2): F1b (modification of the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category); F2b (discontinuation of the Purse Seine category and reallocation of the quota upon implementation of Amendment 13); F3a

(reallocation of the Purse Seine category quota to all quota categories); and H2 (modification of the Angling category allocations).

Ecological Impacts

The ecological impacts of Alternative F4 would be neutral because the overall quota amount would not change from the status quo, ICCAT-recommended U.S. bluefin quota and the categories receiving increased quota have little to no bycatch. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Impacts to bluefin would not change because the bluefin quota would not change. These impacts would be the same in combination with both Alternatives F2b and F2c (1 & 2). Since the impacts are neutral, the sunset period in F4 alternatives would not cause any difference in impact.

Socioeconomic Impacts

Socioeconomic impacts for Alternative F4 would include estimated increases in revenue for the commercial quota categories that received the redistributed quota after the Purse Seine category was terminated. Annual revenue increases for each directed category are calculated in Table 4.30. Revenue for the Reserve category was also calculated, because quota from the Reserve can be transferred to other commercial categories or the Angling category via inseason action during the fishing year. Inseason actions are developed pursuant to the criteria listed in Table 3.2.

When combined with Sub-Alternative F2b (immediate disbursement), the socioeconomic impacts for Alternative F4 would be moderately beneficial for directed category participants and infrastructure associated with the directed categories receiving quota. As shown in Table 4.30, the estimated annual increase in revenue for these categories totals $2.26 million. Net impacts are also beneficial, since the estimated annual revenue loss for the Purse Seine category is small relative to the annual benefits for the non-Purse Seine directed categories. See Sub-Alternative F2b, Socioeconomic Impacts paragraph 2. Increases in the amount of bluefin quota for the Angling category may result in increased recreational opportunities and angler satisfaction, as well as indirect economic benefits. Table 4.30 above shows that these annual gains would be approximately $2.26 million.

4.6.3 Conclusions – 'F' Alternatives

This section discusses the rationale for the selection of the preferred 'F' alternatives, which include: F1b (modification of the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category); F2b (discontinuation of the Purse Seine category and reallocation of the quota without a time delay); and F3a (reallocation of the Purse Seine category quota to all quota categories). Both the ecological and socioeconomic impacts of these alternatives are consistent with the objectives of this Amendment.

Modification of the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category would simplify the process of annual allocation (Alternative F1b). The combined effect of Alternatives F2b and F3b would be the reallocation of bluefin quota from an inactive fishery to create opportunities for active, directed bluefin fisheries and facilitate the IBQ Program in the active pelagic longline fishery for swordfish and yellowfin, bigeye, albacore, and skipjack tunas, and have neutral ecological impacts. Reallocation of the Purse Seine category quota from an inactive quota category to active, directed bluefin categories would maximize the overall benefits for the fishery. Specifically, it would create opportunities for other active fisheries and have neutral ecological impacts. Although there would be indirect adverse economic impacts on the historical participants of the fishery due to a loss in potential income from leasing IBQ allocation, the historical Purse Seine category participants are not currently economically dependent upon bluefin landings. The use of bluefin quota solely as a means of profit by non-fishing vessel owners (i.e., Purse Seine category participants leasing to pelagic longline vessels) is not as consistent with the Amendment 7 design objective that the focus of the leasing program is to provide flexibility for active pelagic longline vessels to obtain bluefin quota in order to account for bluefin catch). Since 1982, the Purse Seine category has been managed with non-transferrable limited entry permits, and limited to five participants who historically were financially dependent on the fishery. The dependence upon the purse seine fishery by the historical participants, which was the reason for the creation of the Purse Seine category in 1982 and continued until 2005, no longer exists. The purse seine participants last landed fish in 2015 (Table 3.3). It is unlikely that historical Purse Seine category participants would choose to fish again because of such limited activity over the last 15 years. Furthermore, the historical participants have sold the vessels that were used to fish for bluefin to new owners. The opportunity afforded the original participants in the fishery in 1982 through the creation of the Purse Seine category, and subsequent opportunity to continue participation in fishery provided by Amendment 7 in 2015 provided fair consideration of the interests of the historical participants.

Although in the DEIS alternative F3a was not preferred, based on public comments and a revised analysis, NOAA Fisheries prefers this alternative. For the reasons described above (under the socioeconomic impacts of Alternative F3a), NOAA Fisheries determined that the Longline category should be allocated a portion of the Purse Seine category quota to meet its needs. Specifically, additional analyses show that longline vessels have been increasingly reliant upon both the Purse Seine category quota and inactive vessels as sources for bluefin quota leases. With the reallocation of Purse Seine category quota *and* the elimination of inactive vessels as sources for leasing bluefin quota, the IBQ leasing market would be substantially altered. Because of the incentive for active vessels to maintain an amount of IBQ as insurance against future catches of bluefin, the reallocation of IBQ from inactive to active vessels is not likely to result in the same amount of IBQ being available to the leasing market under dynamic allocation. Therefore, in order to increase the likelihood of maintaining a successful IBQ leasing market in the future (including new entrants), the Longline category should be included in the reallocation of Purse Seine category bluefin quota. The combined socioeconomic impacts of Alternatives F1b, F2b, and F3a are moderate and beneficial.

4.7 'G' Alternatives: Modifications to General Category Subquota Periods and/or Allocations

Under the regulations at § 635.27(a)(1), the General category quota is divided into five subquotas for the following five time periods: January through March (the "January" subquota period), June through August, September, October through November and December). (For the January through March period, the subquota category is currently named the "January" subquota period but specifies that the quota may be used from January 1 through March 31 or until the subquota is used, whichever occurs first. This FEIS hereafter refers to the "January through March" to refer to the "January' subquota period.). Based on the regulations, Table 4.31 shows the time period percentage of the General category quota, plus the current baseline subquota, and Figure 4.11 shows the percentage in a pie chart. Below in this introductory section, there are data on the General category fishery that are relevant to the consideration of Alternatives G1, G2, and G3. This information focuses on patterns of bluefin landings, and metrics intended to enable standardized comparison of fishing opportunity and catch among subquota periods. The relevant permit holders are those with either General or Charter/Headboat category permits, and the landings are all commercial landings, based on dealer reported information (SAFIS). Additional relevant information is provided in each subsection below. Lastly, Appendix B contains a summarized history of General category quota and subquota management for 2015 to 2019.

Table 4.31 General category subquota time periods, base subquota allocation (%), with current baseline subquota (mt)

Subquota time period	Percent of General category baseline quota (%)	Current baseline subquota (mt)
January-March	5.3	29.5
June-August	50	277.9
September	26.5	147.3
October-November	13	72.2
December	5.2	28.9
Total	100	555.7

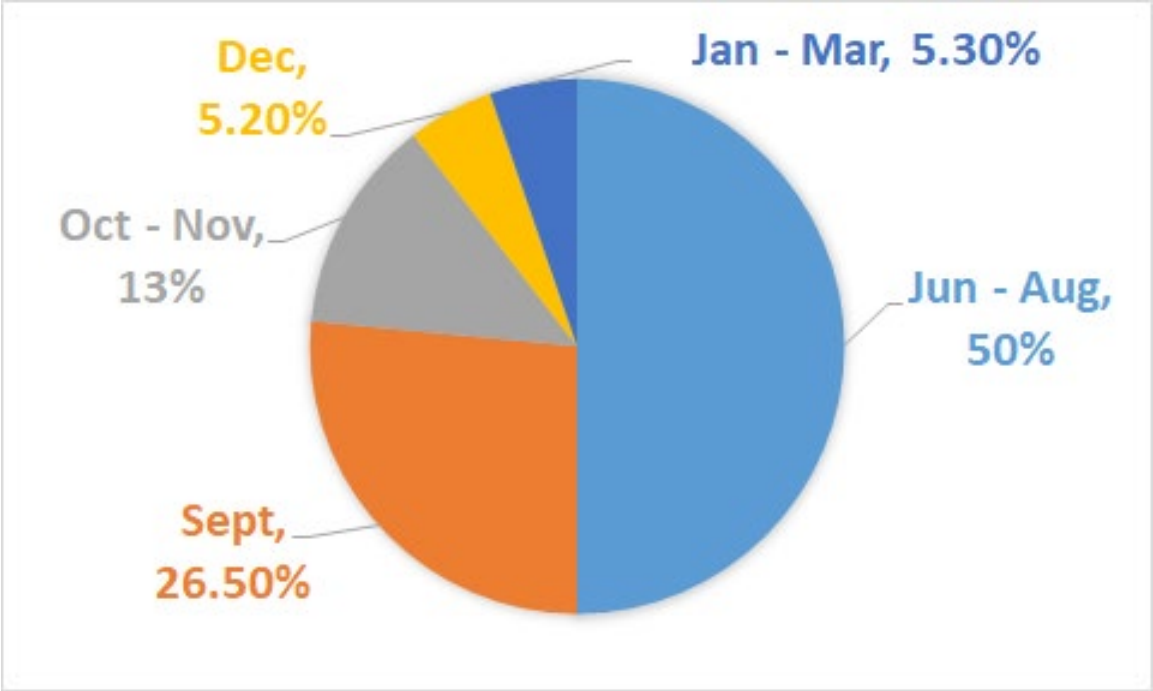

Figure 4.11 General category subquota time periods and base subquota allocation percentages

NOAA Fisheries may adjust each period's subquota based on overharvest or underharvest in the prior subquota period. Therefore, unused General category quota may be available for use in subsequent time periods (e.g., unused quota from June through August may be available for use in the September period; unused quota from September may be available for use in the October through November period). In addition, NOAA Fisheries may decide, through an inseason action, to transfer quota from one subquota period to another, whether earlier or later in the calendar year. *See* § 635.27(a)(8) for inseason criteria. For example, NOAA Fisheries may transfer quota allocated for December of a particular year to January through March of that year, to further fishing opportunities early in the calendar year. Table 4.32 show commercial bluefin landings information by General and Charter/Headboat category vessels from 2016 through 2019. Specifically it shows the number of unique vessels that landed at least one bluefin. The pattern is an increasing number of vessels landing bluefin over this time period. Also of note is the proportion of permit holders that are landing bluefin. For example, in 2019, there were 2,721 General category permits (Chapter 3, Table 3.4) and 3,868 Charter/Headboat permits (Chapter 3, Table 3.5) issued but only 1,022 vessels that landed bluefin.

Table 4.32 Number of unique vessels landing at least one bluefin (commercial*), 2016 to 2019

Year	Number of Vessels
2016	698
2017	878
2018	939
2019	1,022

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

Table 4.33 shows the number of unique vessels that landed bluefin by subquota period, which is one of several metrics used to compare the subquota periods and analyze the alternatives. The number of vessels that landed bluefin vary by year and subquota period, with the greatest number during the June through August, September, and October through November subquota periods. Note that in 2016 the December time period was closed (81 FR 76874; November 4, 2016).

Table 4.33 Number of unique vessels landing at least one bluefin (commercial*), by subquota period, 2016 to 2019

Subquota Period	2016	2017	2018	2019
Jan-Mar	50	90	58	84
Jun-Aug	361	493	545	539
Sept	346	461	533	557
Oct-Nov	403	302	358	460
Dec	0	72	52	75

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

Table 4.34 shows the number of days the fishery was open by subquota period, which is one of several metrics used to compare the subquota periods and analyze the alternatives. The number of days open varies by year and subquota period, with the largest number of open days the January through March and June through August subquota periods. The overall pattern is declining number of days open.

Table 4.34 Number of days the fishery was open

Subquota Period (and number of days in subquota period)	2016	2017	2018	2019
Jan-Mar (93 days in subquota period)	91	88	60	59
Jun-Aug (92 days in subquota period)	92	77	92	69
Sept (30 days in subquota period)	31	17	23	13
Oct-Nov (61 days in subquota period)	35	5	13	13
Dec (31 days in subquota period)	0	6	31	31

Table 4.35 shows the weight in metric tons of landed bluefin by subquota period, which is one of several metrics used to compare the subquota periods and analyze the alternatives. The metric tons of bluefin landed varies by year and by subquota period. The overall pattern is increasing landings in recent years. Note, in 2016, the December time period was closed (81 FR 76874; November 4, 2016).

Table 4.35 Commercial* bluefin (metric tons) landed by subquota period, 2016 to 2019

Subquota Period	2016	2017	2018	2019
Jan-Mar	51.3	108.1	59.3	108.9
Jun-Aug	232.2	332.3	328.6	277.5
Sept	191.7	164.1	238.5	226.2
Oct-Nov	275.2	73.7	143.6	178.8
Dec	0	18.1	14.6	22.9

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

Table 4.36 shows the weight in metric tons of landed bluefin per day the fishery was open, by subquota period, which is one of several metrics used to compare the subquota periods and analyze the alternatives. This metric is a means of standardizing among quota periods. Standardized metrics are used to compare among quota periods because the quota periods are allocated different amounts of bluefin, and are of different duration. The metric tons of bluefin landed per day open varies by year and by subquota period. The highest amount of bluefin (in weight) per day open was during the September and October through November subquota periods. Note that in 2016, the December time period was closed (81 FR 76874; November 4, 2016).

Table 4.36 Commercial* bluefin (metric tons) landed per day open by subquota period, 2016 to 2019

Subquota Period	2016	2017	2018	2019
Jan-Mar	0.6	1.2	1.0	1.8
Jun-Aug	2.5	4.3	3.6	4.0
Sept	6.2	9.7	10.4	17.4
Oct-Nov	7.9	14.7	11.0	13.8
Dec	0	3.0	0.5	0.7

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

Table 4.37 shows the weight in metric tons of landed bluefin per unique vessel (that landed bluefin) by subquota period, which is one of several metrics used to compare the subquota periods and analyze the alternatives. Standardized metrics are used here as well. The amount of bluefin landed per vessel varies annually, and among subquota periods. Consistently, the highest landings per vessel (that landed bluefin) were during the January through March subquota period. Note that in 2016, the December time period was closed (81 FR 76874; November 4, 2016).

Table 4.37 Commercial bluefin (metric tons) landed per unique vessel that landed bluefin, 2016 to 2019

Subquota Period	2016	2017	2018	2019
Jan-Mar	1.0	1.2	1.0	1.3
Jun-Aug	0.6	0.7	0.6	0.5
Sept	0.6	0.4	0.4	0.4
Oct-Nov	0.7	0.2	0.4	0.4
Dec	0	0.3	0.3	0.3

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

4.7.1 Preferred Alternative G1: No Modifications to General category subquota periods and/or allocations - No Action

This alternative would make no changes to the current regulations regarding suballocation of the General category bluefin quota into time-period subquotas. The conclusions

regarding this alternative and why it is the preferred alternative are found in Section 4.7.4 below ("Conclusions of 'G' Alternatives").

Ecological Impacts

If no action is taken to modify the General category subquota allocations, ecological impacts would be neutral. This alternative would have a neutral ecological impact because it would not modify the ICCAT-recommended quota for bluefin, nor the U.S. portion of that quota. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Chapter 3 provides additional information on the relevant bluefin quotas.

Socioeconomic Impacts

If no action is taken to modify the General category subquota allocations, socioeconomic impacts would be neutral. Recent annual bluefin landings under the General category quota have approached or exceeded the base and adjusted General category quotas (i.e., they were 149 and 101 percent of base and adjusted quotas, respectively, for 2017; 168 and 96 percent of base and adjusted quotas for 2018; and 147 and 104 percent of base and adjusted quotas for 2019). Exceedances of base quotas reflect inseason quota transfers from the Reserve and Harpoon categories. As implemented in Amendment 7, NOAA Fisheries may proactively transfer quota from one or more of the subquotas following the January subquota to the January or other subquotas, through inseason action. In other words, NOAA Fisheries has the authority to transfer quota from one subquota period to another, earlier in the calendar year. In recent years, NOAA Fisheries has proactively transferred quota from the December subquota period to the January subquota period in order to maximize the fishing opportunities on an annual basis ('front-loading' the quota).

To have more opportunity earlier in the season, some January through March fishery participants have expressed interest in a larger January subquota. Some October through November period and December period participants have expressed concerns regarding the uncertainty of whether General category quota will remain for the times when commercial-sized bluefin are available in their areas. Some General category participants would prefer to see more opportunities available when market prices are perceived as being generally higher, such as in the fall months (but this varies with market volume). In recent years, some of the subquotas have been reached and the General category has been closed while fishing opportunities remain and while other subquotas are not reached.

Ex-vessel average prices (nominal values) from recorded sales of bluefin in all commercial categories for a recent five-year period are presented in Table 4.38. Although ex-vessel prices have been variable over the last several years, high landings relative to quota have led to a modest total increase in ex-vessel gross revenues in 2016 through 2019. Revenues for the General category were $9.7 million in 2016 and 2018, at the highest level since 2002. Of the status quo alternative (G1) and the ones that modify the time-period subquotas (G2a, G3a, and G3b), this one (G1) would result in the lowest potential annual

gross revenues, but the amount is less than 0.2 to 3.6 percent less than for the other alternatives.

Table 4.38 Ex-vessel average price (per pound, round weight) for bluefin by commercial fishing category, 2015-2019

Category	2015	2016	2017	2018	2019	2017-2019 Average
General	5.46	7.38	6.61	7.13	5.78	6.49
Harpoon	4.84	8.14	6.43	7.04	5.36	5.85
Longline	4.01	4.95	4.98	5.76	4.32	5.02
Purse Seine	3.21*	N/A	N/A	N/A	N/A	N/A

* Price likely reflects relatively small amount of purse seine-caught bluefin on market.
Source: dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System.

There were no Purse Seine category landings in 2016 through 2019. Table 4.39 shows bluefin landings (mt) by year and category from 2015 through 2019.

Table 4.39 Bluefin landings (mt) by year and category, 2015-2019

Category	2015	2016	2017	2018	2019	Average 2017-2019
General	614.7	750.5	695	784.3	814.1	764.5
Harpoon	43.7	26.4	43.1	26.5	102.4	57.3
Incidental	71.4	86.2	103.8	88	83.6	91.8
Purse Seine	33.7	N/A	N/A	N/A	N/A	0

Source: Dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System. Note: Sum of columns do not equal total column due to rounding.

Specifically, the No Action alternative provides a higher amount of quota to some subquota periods, which reflects the general seasonality, historical availability and relative sizes of the historical seasonal fisheries for bluefin. For example, the June through August subquota period has 50 percent of the subquota because historically the bluefin have been in high abundance during that period, and during that time period the fishery had a large numbers of participants. Data on the geographic distribution of permit holders during 2019 shows the large numbers of permit holders in the New England states and North Carolina (Table 3.4, Chapter 3). The states of Massachusetts, Maine, and New Hampshire comprise 66 percent of General category permit holders (in 2019). Bluefin tend to be present in large

numbers in the waters off New England during the late spring and summer months. The states of North and South Carolina comprise 10 percent of General category permit holders (in 2019). A cost/earnings study conducted by HMS economists in 2018 included effort data (Figure 3.4), and showed that among survey respondents, two geographic areas (off New England and North Carolina) were the location of most of the fishing effort, with greater fishing effort occurring off New England. Fishing effort data for all handgear vessels is not required to be reported, so more comprehensive fishing effort data by either General category or Charter/Headboat vessels data is not available (but would be very useful for future analyses, if available).

An increasing percentage of the General category quota has been caught in recent years. The high-level structure of the fishery is equitable in that fishing permits are open access, and permit holders may fish in any geographic location they chose.

With respect to how the subquota is divided up among subquota periods, discussion of the two subquota periods with the smallest amount of allocation illustrate how the current subquota allocations are equitable, and reflect both fishing opportunity and fish availability. Although the January to March subquota period is allocated 5.3 percent of the General category quota, bluefin landings from the January to March subquota period represented 8 percent and 13 percent of the annual General category landings during 2018 and 2019, respectively (Table 4.35). The amount of bluefin landed per vessel that landed bluefin was highest during the January to March subquota period (Table 4.37). Based on this information, NOAA Fisheries concludes that the January to March subquota period is provided equitable fishing opportunity under the No Action Alternative. The current subquota periods and allocations, in conjunction with the inseason flexiblity in the system have resulted in an equitable distribution. The December subquota period is allocated 5.2 percent of the General category quota, but during 2018 and 2019 caught two percent and three percent of the annual general category landings, respectively (based on the data in Table 4.35). That low catch likely reflects the likelihood that bluefin are migrating during December and are located in neither of the two geographic locations where most of the fishing effort occurs. The bluefin landings per day open (during the December subquota period) is relatively low, which may reflect the relatively low availability, or worsening seasonal weather conditions (Table 4.36). The bluefin landings per vessel (that landed bluefin) is only slightly lower than that metric for the other subquota periods, which supports the contention that the fishing opportunity is equitable.

Further, it is important to note that the sub-quotas work in concert with several regulatory mechanisms that provide flexibility in how the amount of quota is divided among the sub-quota periods. NOAA Fisheries may transfer unused quota from one quota period to a subsequent quota period in the year such that the quota allocated to subquota periods may increase. Unused quota may eventually all be transferred into the December subquota period. NOAA Fisheries may allocate quota from the December subquota period to the January through March subquota period; NOAA Fisheries may allocate additional quota from the reserve, and NOAA Fisheries may utilize changes in retention limits to modify the rate of catch to facilitate the attainment of subquotas and the annual quota. The data from recent years suggests that the flexibility in the quota system provided by these regulatory

mechanisms is working. Landings (as a percentage of quota) have been increasing in recent years. Subquota periods that have lower percentage allocations associated with them have not necessarily been limited (in quota availability) by those allocation percentages. For example, as described above, during 2018 and 2019, the January through March subquota period caught 8 percent and 13 percent (respectively) of the total General category bluefin landings, despite having an initial allocation of 5.3 percent of the General category quota. Similarly, during 2018 and 2019, the October through November subquota period caught 18 percent and 22 percent of the total General category bluefin landings, despite having an initial allocation of 13 percent (Figure 3.3).

The affected General and Charter/Headboat category permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC. Other communities not analyzed in Chapter 8, that may be impacted include small coastal communities between South Carolina and Massachusetts. Examples of communities included in the vulnerability analysis that may be more vulnerable are Portland, ME and Wanchese, NC.

4.7.2 Alternatives Suite G2: Modify General category subquota time periods

This alternative would modify the current General category time periods as defined at § 635.27(a)(1). It is important to note that changes to the General category time periods would also result in changes to the subquota allocations (see G3). The current regulations regarding NOAA Fisheries authority to transfer quota inseason would remain.

4.7.2.1 Sub-Alternative G2a: Modify General category subquota time periods: 12 equal months

This alternative would divide the General category quota into 12 monthly time periods, including April and May. This alternative was considered, but not selected, in the 2011 Environmental Assessment for a Rule to Adjust the Atlantic Bluefin Tuna General and Harpoon Category Regulations (76 FR 74003, November 20, 2011) as well as in Amendment 7. Table 4.40 shows the number of unique vessels landing commercial bluefin by month from 2016 to 2019 to show the seasonal pattern of landings.

Table 4.40 Number of Unique Vessels Landing Commercial* Bluefin by Month, 2016 through 2019

Month	2016	2017	2018	2019
January	4	35	13	45
February	24	51	56	79
March	43	51	22	-

Month	2016	2017	2018	2019
June	97	26	28	98
July	176	340	305	424
August	247	339	418	266
September	346	461	533	557
October	375	302	308	460
November	121	-	126	-
December	-	72	52	75

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

Ecological Impacts

The ecological impacts of this alternative would be neutral, because it would not change the overall bluefin quota, and for reasons described under Alternative G1. Under this alternative, the current General category quota of 555.7 mt would be divided into monthly subquotas of 8.3 percent of the General category base quota, or 46.3 mt per month. NOAA Fisheries would continue to carry forward unharvested General category quota from one time period to the next time period and may need to close the fishery each month if the available subquota is caught. This alternative could result in a shift in annual bluefin landings, both temporally (to earlier and later in the season, which corresponds to the calendar year) and geographically to the South (i.e., off the mid- and south Atlantic states of North Carolina, South Carolina, Georgia, and the Florida East Coast).

For instance, the January through March subquota would increase from 5.3 percent to 24.9 percent (equivalent to 8.3 percent for each of the months January, February, and March; 46.3 mt for each month for a total of 138.9 mt). The amount available for the current June through August subperiod would decrease from 50 percent (277.9 mt) to 24.9 percent (138.9 mt). The September subquota would decrease from 147.3 mt to 46.3 mt. The October through November subquota would increase from 72.2 mt to 92.6 mt. Lastly, the December subquota would increase from 28.9 mt to 46.3 mt. These changes are summarized in Table 4.41.

Alternative G2a could result in increased catch in the earlier and later portions of the General category bluefin season, with a corresponding decrease in catch in the middle portions of the season. However, the number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment and overall the ecological impacts are expected to be neutral. This alternative would be expected to broaden the range of data available for scientific research, although the scope may be relatively small. Because there would be a dedicated quota for

each month of the year, Alternative G2a could provide commercial fisheries data for times (i.e., April and May) when the fishery has traditionally been closed.

Table 4.41 Comparison of General category quota amounts (mt) available by time period, under the No Action and the Other Alternatives

Alternative	Time Periods and Allocations											
Under No Action (Alternative G1)	Jan-Mar 29.5			Apr-May 0		Jun-Aug 277.9			Sep 147.3	Oct-Nov 72.2		Dec 28.9
12 equal monthly subquotas (Alternative G2a)	Jan 46.3	Feb 46.3	Mar 46.3	Apr 46.3	May 46.3	Jun 46.3	Jul 46.3	Aug 46.3	Sep 46.3	Oct 46.3	Nov 46.3	Dec 46.3
For comparison purposes, Alternative G2a under current time periods	Jan-Mar 46.3×3 = 138.9		Apr 46.3	May 46.3		Jun-Aug 46.3×3 = 138.9			Sep 46.3	Oct-Nov 46.3×2=92.6		Dec 46.3
Extend the January through March subquota time period through April 30 (Alternative G2b)	Jan-Apr 29.5			May 0		Jun-Aug 277.9			Sept 147.3	Oct-Nov 72.2		Dec 28.9
Increase the January through March amount (Alternative G3a)	Jan-Mar 83.4		Apr-May 0			Jun-Aug 249.4			Sep 132.2	Oct-Nov 64.8		Dec 25.9
Increase the September and the October through November amounts (Alternative G3b)	Jan-Mar 29.5		Apr-May 0			Jun-Aug 138.9			Sep 239.5	Oct-Nov 118.9		Dec 28.9

Socioeconomic Impacts

Although this alternative would create the potential for more of a "year-round" fishery, it is not likely that patterns of fish availability, weather, or location of fishery participants will align with 12 equal monthly quotas. It is possible that NOAA Fisheries would close the fishery within a period when it is projected that the available subquota has been reached. This could mean multiple closures and automatic re-openings on the first of the month throughout the year, and increased uncertainty for fishermen or dealers.

To calculate potential changes in revenues, the amount of potential landings and the value of those landings per current time period can be examined (assuming full catch). For example, for the current January period (which continues until the available subquota is taken, or March 31, whichever comes first), the base quota is 29.5 mt. Under a 12 equal months allocation method, 46.3 mt would be available per month, so the total base quota available for January through March is 138.9 mt. Table 4.42 and Table 4.43 show current and potential annual gross revenues per time period under the No Action alternative and Alternative G2a, respectively. Because 2019 prices were somewhat anomalous (due to a combination of factors including fish quality and dealer agreements to not purchase fish for market purposes, among others), NOAA Fisheries is using average 2017-2019 price data, by subquota time period, to calculate potential gross revenues. For early season (January-March) General category participants, an additional 109.4 mt would be available (i.e., 138.9-29.5 mt). At $6.93 per pound, this represents a potential revenue increase of approximately $1.6 million overall during this time period, nearly four times the current amount. Using $6.93 per pound as an estimate for the ex-vessel prices for the early season, potential revenues for each of those months would be $707,365 (i.e., 46.3 mt × $6.93 per pound). Potential revenues for the current June-August and September periods would decrease by approximately $1.9 million (50 percent) and $1.5 million (69 percent), given recent average price ($6.41 and $6.66, respectively). For October-November and for December, potential revenues would increase by approximately $309,000 (28 percent) and $404,000 (60 percent) at $6.89 per pound and $10.54 per pound, respectively. Relative to the No Action alternative (G1), there would generally be substantially increased revenues for January through May and October through December and substantially decreased revenues for June through September, and the net annual revenues would increase by approximately $303,000 (3.6 percent). When comparing to the no action alternative, the increase in total annual revenue estimate is the result of the price differences between the affected subquota periods (i.e., the subquota periods gaining quota generally have higher prices than those subquota periods losing quota).

Thus, impacts are expected to be moderate, and beneficial or adverse, depending on quota and fish availability in the various time periods, as well as the price of bluefin during each month. The changes in revenues in these General category subquota allocation alternatives is strongly subject to availability of fish and fishing conditions, and price of bluefin during these time periods. Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish (2018 HMS Cost/Earnings Study; Chapter 3). It is important to note that it is highly unlikely that the availability of bluefin will be evenly distributed seasonally among the 12 months of the year, and therefore the availability of bluefin is not likely to align with the distribution (availability) of bluefin quota under a system of 12 equal monthly quotas. Under this alternative there would likely be increased uncertainty regarding the availability of quota for each subquota period, and increased disruptions in the fishery due to the potential for more frequent closures associated with the higher number of subquota periods (i.e., 12 instead of 5 subquota periods). The net gains in annual revenue (3.6 percent) would be less if the seasonal differences in price is less. Of the No Action alternative (G1, status quo) and the ones that modify the time-period subquotas (G2a, G3a, and G3b), this one (G2a) would result in the highest potential annual gross revenues (in the highly unlikely event that

bluefin tuna availability was evenly distributed among months), but the amount is less than 4 percent greater than for the Preferred No Action Alternative G1. Lastly, the alternative may increase the risk that the full General category quota would not be caught, because of the increase in the relative amount of quota that would be allocated to later months in the year. The objective of catching the full General category quota may be facilitated by allocating relatively more quota to the first three quarters of the year, so that if there is limited availability of bluefin, any unused quota may be adjusted (added) into the subsequent quota period(s).

Table 4.42 Potential General Category Gross Revenues from Base Quotas under Current Subquota Allocation Percentages

Time Period	General Category Quota (%)	Current Annual Base Quota Equivalent (mt)	Current Annual Base Quota Equivalent (lb)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Jan-Mar	5.3	29.5	64,930	$6.93	$449,964
Apr-May	N/A	N/A	N/A	N/A	N/A
Jun-Aug	50.0	277.9	612,548	$6.41	$3,926,432
Sept	26.5	147.3	324,650	$6.66	$2,162,169
Oct-Nov	13.0	72.2	159,263	$6.89	$1,097,322
Dec	5.2	28.9	63,705	$10.54	$671,450
TOTAL	100.0	555.7			$8,307,337

Source: Dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System. Note; Totals do not equal the sums of relevant columns due to rounding

Table 4.43 Potential General Category Gross Revenues from Base Quotas under Alternative G2a (12 Equal Monthly Subquotas)

Time Period	General Category Quota (%)	Current Annual Base Quota Equivalent (mt)	Current Annual Base Quota Equivalent (lb)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Jan-Mar	25	138.9	306,274	$6.93	$2,122,478
Apr-May	16.7	92.6	204,183	$6.67*	$1,361,900
Jun-Aug	25	138.9	306,274	$6.41	$1,963,216

Time Period	General Category Quota (%)	Current Annual Base Quota Equivalent (mt)	Current Annual Base Quota Equivalent (lb)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Sept	8.3	46.3	102,091	$6.66	$679,926
Oct-Nov	16.7	92.6	204,183	$6.89	$1,406,820
Dec	8.3	46.3	102,091	$10.54	$1,076,039
TOTAL	100.0	555.7			$8,610,379

* Assumed, based on Jan-Mar and Jun-Aug average prices.

Source: Dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System. Note; Totals do not equal the sums of relevant columns due to rounding

4.7.2.2 Sub-Alternative G2b: Modify General category subquota time periods: Extend the January through March subquota time period through April 30

This alternative would allow landings in the January through March time period to continue until the subquota is reached, or until April 30, whichever comes first. This alternative is similar to an alternative that was considered, but not selected, in the 2011 Environmental Assessment for a Rule to Adjust the Atlantic Bluefin Tuna General and Harpoon Category, i.e., to extend the "January" subquota time period through May 31 rather than through January 31st, which was the end date of that subperiod at the time. Table 4.44 shows the January through March subquotas, landings, and closure dates from 2015 through 2019. During three of those five years, the fishery closed prior to March 31, and the adjusted quota was higher than the base quotas (via inseason adjustments to increase the quota and provide additional fishing opportunity).

Table 4.44 General category January through March fishery subquotas, landings, and closure dates

Metric	2015	2016	2017	2018	2019
Base quota (mt)	24.7	24.7	24.7	24.7	29.5
Adjusted quota (mt)	42.4	49	81	49	100
Landings (mt)	31.4	51.3	108.1	59.3	108.9

Metric	2015	2016	2017	2018	2019
Closure date	March 31	March 31	March 29	March 2	February 28

Source: NOAA Fisheries and SAFIS

Ecological Impacts

The ecological impacts of this alternative would be neutral because it would not modify the ICCAT-recommended quota for bluefin quota, nor the U.S. portion of that quota. The impacts on other finfish species would be minimal (e.g., other tuna species). Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Chapter 3 provides additional information on the relevant bluefin quotas. Alternative G2b may result in a shift in annual bluefin landings, both temporally (into April) and geographically to the South (i.e., off the mid- and south Atlantic states of North Carolina, South Carolina, Georgia, and the Florida East Coast). However, the number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment. These temporal and spatial shifts in landings could result in a slight decrease or increase in discards, or the incidental catch of other finfish. However, given the limited amount of bycatch of other finfish in the fishery, NOAA Fisheries does not expect any adverse ecological impacts. In the past, when a similar management alternative was proposed, a member of the public expressed concerns about the impacts on pre-spawning bluefin aggregations, but no adverse impacts were noted in the impacts analysis (NMFS, December 2011).

See Table 11.6 in Appendix B, for General category January-March fishery quotas, landings, and closure dates. Although it would depend greatly on the adjusted subquota, weather conditions and bluefin availability, NOAA Fisheries estimates that the General category fishery would remain open less than two weeks beyond the current March 31 default closure date, based on recent and expected bluefin catch rates. For further information/analyses regarding commercial handgear interactions with other finfish, see Section 3.5 of this EIS and Sections 3.8 and 3.9.9 of the 2006 Consolidated HMS FMP. Alternative G2b would be expected to broaden the range of data available for scientific research, although the scope by which data would broaden may be relatively small, depending on availability of large medium and giant bluefin beyond March 31 of each year.

Socioeconomic Impacts

Alternative G2b would increase the likelihood of winter General category participants and Charter/Headboat participants, when fishing commercially, being able to catch the full January subquota, particularly if the NOAA Fisheries increases the January-March subquota via an inseason transfer. Thus, impacts would be neutral or minor and beneficial for General category participants fishing in the January through March period. To the extent

that less unused quota might be adjusted to later periods, impacts for General category participants fishing in the later time periods would be neutral or minor and adverse.

Potential annual gross revenues would be $449,964 (Table 4.42), the same as for the No Action Alternative, but in the context of this alternative would be applicable for fishing that takes place from January 1 until April 30 or until the available quota for that period is met, whichever happens first.

A potential increase in the geographic and temporal distribution of landings may facilitate approaching optimum yield. However, increases in positive socioeconomic impacts would depend on the availability of bluefin to the fishery from the beginning of April until the available subquota (base or adjusted, as applicable) is reached. Price per pound is also influenced by the amount of bluefin on the market. Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish (2018 HMS Cost/Earnings Study; Chapter 3). NOAA Fisheries estimates the value of an unused metric tons of January-March subquota, using the January-March 2019 average price per pound of $6.93, at $15,277. To the extent that this alternative would increase the likelihood that the full January subquota will be caught, it would increase the likelihood of increased revenue for the January subquota period. As shown in Table 4.42 the value of the 2019 January-March base subquota is estimated at $449,964 assuming full catch.

The likelihood of the economic benefits described above being realized may not be high. Depending on how quickly the available January subquota is used (based on closure dates in the last few years: no closure in 2015 or 2016; closure on March 29, 2017, March 2, 2018, and February 28, 2019), there may not be General category fishing activity in part or all of March or in April due to catch of the subquota (Table 4.44). During the months of January through May, bluefin tend to be located off the mid- and south Atlantic states of North Carolina, South Carolina, Georgia, and the Florida East Coast.

4.7.3 Alternatives Suite G3: Modify General category subquota allocation percentages

This alternative would modify the current bluefin category quota allocations outlined at § 635.27(a)(1). Sub-alternatives would increase the January through March and/or the fall subquotas (September, October through November) amounts and decrease the June through August amount. In addition to the data below under each sub-alternative, there is relevant data on the General category fishery presented in the introduction to Alternative G1. Appendix B also contains summarized historical data on the General category fishery.

4.7.3.1 Sub-Alternative G3a: Modify General category subquota allocation percentages: Increase the January through March amount

This alternative would increase the January through March suballocation from 5.3 percent to up to 15 percent and decrease all the other suballocations for the remainder of the year proportionally (to achieve the corresponding increase for the January through March

subquota period). For example, the proportional decreases would be as follows: the June through August suballocation from 50 to as low as 44.9 percent; the September suballocation from 26.5 to as low as 23.8 percent; the October through November suballocation from 13 to as low as 11.7 percent; and the December suballocation from 5.2 to as low as 4.7 percent. Table 4.45 shows potential annual gross revenues per time period under Alternative G3a.

Ecological Impacts

The ecological impacts of this alternative would be neutral because it would not modify the ICCAT-recommended quota for bluefin, nor the U.S. portion of that quota. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Chapter 3 provides additional information on the relevant bluefin quotas. Alternative G3a may result in a shift in annual bluefin landings, both temporally (to the first quota subperiod) and geographically to the South (i.e., off the mid- and south Atlantic states of North Carolina, South Carolina, Georgia, and the Florida East Coast). However, the number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment. These temporal and spatial shifts in landings could result in a slight decrease or increase in discards, and incidental catch of other finfish. However, given the limited nature of this alternative, which would effectively provide less quota to the January through March period than the amount of adjusted quota available (following inseason quota transfers from the Reserve category) for this time period over the last three years, NOAA Fisheries does not expect any adverse ecological impacts. Under this alternative, there would continue to be no General category activity during the months of April and May on an annual basis.

Socioeconomic Impacts

For the purpose of illustration, Table 4.45 shows data associated with the high ends of the possible ranges (i.e., 15 percent for a January quota allocation of "up to 15%," etc.) In 2015 and 2016, June through August subperiod landings were less than the base subquota. For the years 2017, 2018, and 2019, June through August subperiod landings exceeded the available base subquota quota (following accounting for all landings) and NOAA Fisheries did not transfer any additional quota from the Reserve category to the General category for use in that subperiod. If there is a future pattern of underutilization of the June through August subquota, and that quota is made available to January through March period (and bluefin are landed against the January through March subquota), it would potentially result in improved and fuller use of the General category quota. Also, because bluefin price per pound is often higher in the January period than during the summer, shifting quota to this earlier period may result in net minor beneficial impacts to General category participants. It is possible, however, that an increase of bluefin on the market in the January through March period could reduce the average price for that time of year. Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish (2018 HMS Cost/Earnings Study; Chapter 3). Some participants

may have concerns about shifting subquota earlier in the year, given that historical participants in the General category bluefin fishing areas off New England fish during the summer months.

NOAA Fisheries may adjust each period's subquota based on overharvest or underharvest in the prior subquota period. Therefore, unused General category quota may be available for use in subsequent time periods (e.g., unused quota from June through August may be available for use in the September period; unused quota from September may be available for use in the October through November period). Overall, impacts Sub-Alternative G3a would be expected to be neutral-to-minor, beneficial for January through March fishery participants and neutral to minor, adverse for participants in the June through December time periods. Based on the average ex-vessel prices in Table 4.45, the January-March subquota period would have an increased revenue of $ 823,520 (180% increase over current level of $ 449,964). However, the amount of net revenue generated on an annual level by such a shift would be only $18,702 (less than one percent; Table 4.42), because other subquota periods would have reductions in revenue. Each of the subquota periods with reduced quotas would have a reduction in revenue of ten percent. The likelihood of realizing potential net revenue is uncertain, and may result in increased uncertainty in the fishery. This alternative may further increase the amount of bluefin landed per vessel (landing bluefin) for the January to March subquota period, which is already the highest, and thus may be less equitable based on that metric.

Table 4.45 Potential General Category Gross Revenues from Base Quotas under Alternative G3a (Increase January through March amount and Reduce All Others)

Time Period	General Category Quota (%)	Current Annual Base Quota Equivalent (mt*)	Current Annual Base Quota Equivalent (lb*)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Jan-Mar	15	83.4	183,764	$6.93	$1,273,484
Apr-May	N/A	N/A	N/A	N/A	N/A
Jun-Aug	44.9	249.4	549,806	$6.41	$3,524,256
September	23.8	132.2	291,397	$6.66	$1,940,704
Oct-Nov	11.7	64.8	142,949	$6.89	$984,918
December	4.7	25.9	57,180	$10.54	$602,677
TOTAL	100.0	555.7			$8,326,039

Source: Dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System. Note: Totals do not equal the sums of relevant columns due to rounding

4.7.3.2 Sub-Alternative G3b: Modify General category subquota allocation percentages: Increase the September and the October through November amounts and decrease June through August amount

This alternative would decrease the June through August suballocation from 50 to as low as 25 percent of the total quota, and increase the September suballocation from 26.5 to up to 43.1 percent of the total quota and the October through November suballocation from 13 to up to 21.4 percent or the total quota. In other words, the reduction in the June through August suballocation (25 percent of total quota), would result in corresponding increases in two of the other suballocations (16.6 and 8.4 percent of the total quota; 25 = 16.6 + 8.4).

Ecological Impacts

The ecological impacts of this alternative would be neutral, because it would not modify the ICCAT-recommended quota for bluefin, nor the U.S. portion of that quota. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Alternative G3b may result in a shift in annual bluefin landings temporally (to later in the fishing year) but not as much geographically (i.e., summer and fall fishing activity typically take place off New England). The number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment. These temporal shifts in landings could result in a slight decrease or increase in protected resource interactions, discards, and incidental catch of other finfish. However, given the limited nature of this alternative, which would effectively provide less quota to the June through August period and more to the fall periods, NOAA Fisheries does not expect any adverse ecological impacts. Under this alternative, there would continue to be no General category activity during the months of April and May on an annual basis.

Socioeconomic Impacts

Table 4.46 shows potential annual gross revenues per time period under Alternative G3b. For the purpose of illustration, Table 4.46 shows data associated with the high ends of the possible ranges in reductions or increases, i.e., 43.1 percent for a September quota allocation of "up to 43.1%," etc. The June through August subquota period would have a 50-percent decrease in revenue; the September quota period would have a 63-percent increase in revenue and the October-November subquota period would have a 65-percent increase in revenue compared to the No Action Alternative. As shown in Table 11.6 in Appendix B, in 2015 through 2019, September subperiod landings have exceeded the available base or adjusted quotas.

To the extent that quota that is anticipated to be unused in the first part of the summer season is made available to General category participants for the September and October through November periods and bluefin are landed against those subquotas, it would potentially result in improved and fuller use of the General category quota. In the last three years however, the June through August base subquota has been exceeded (following inseason quota transfers from the Reserve), and the fishery for that time period was closed in 2017 and 2019 prior to August 31. Also, because bluefin price per pound is often higher in the September and October through November periods than during the June through August period, shifting quota to these later periods would result in beneficial impacts to fall General category participants. It is possible, however, that an increase of bluefin on the market in the fall periods could reduce the average price for that time of year. Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish (2018 HMS Cost/Earnings Study; Chapter 3). Participants in the summer fishery who may only have access to bluefin at that time may have concerns about shifting subquota into the fall. However, summer and fall participants are largely the same. Additionally, any unused quota from the June through August subperiod may be adjusted (added) to subsequent periods.

Overall, impacts of Sub-Alternative G3b would be expected to be neutral-to slightly beneficial for September through November fishery participants, and neutral to slightly adverse impacts for participants in the June through August time periods. The net increase in revenue compared to the No Action Alternative would be $100,237, which is only one percent ($8,407,574 - $8,307,337). Further, there is a risk in shifting quota allocation to later periods in the fishing year that the full General category quota may not be reached, depending on fishing conditions and bluefin availability on the fishing grounds.

Table 4.46 Potential General Category Gross Revenues from Base Quotas under Alternative G3b (Increase the September and the October through November amounts and Decrease June through August amount)

Time Period	General Category Quota (G3b) (%)	Current Annual Base Quota Equivalent (mt*)	Current Annual Base Quota Equivalent (lb*)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Jan-Mar	5.3	29.5	64,930	$6.93	$449,964
Apr-May	N/A	N/A	N/A	N/A	N/A
Jun-Aug	25	138.9	306,274	$6.41	$1,963,216
September	43.1	239.5	528,016	$6.66	$3,516,586

Time Period	General Category Quota (G3b) (%)	Current Annual Base Quota Equivalent (mt*)	Current Annual Base Quota Equivalent (lb*)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Oct-Nov	21.4	118.9	262,171	$6.89	$1,806,358
December	5.2	28.9	63,705	$10.54	$671,450
TOTAL	100	555.7			$8,407,574

Source: Dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System. Note; Totals do not equal the sums of relevant columns due to rounding

4.7.3.3 Sub-Alternative G3c: Modify General category subquota allocation percentages: If reallocate Purse Seine quota proportionally to all other quota categories, place all quota that is reallocated to the General category to the fall time periods

This alternative is directly associated with Alternatives F5 and F6 - Discontinue Purse Seine category fishery and reallocate quota. Any increases of General category quota resulting from Alternatives F5 and F6 would be applied to the September, and the October through November subquota periods. Based on current relative size of the September and October through November percentages to each other, the quota from the Purse Seine category would be divided proportionally between the September, and the October through November subquota periods, which would result in the September subquota period receiving about twice as much as the October through November subquota period.

This alternative would narrow the scope of any increases applicable to the General category quota to the September and the October through November subquota period Both General category fall fishing activity typically and Purse Seine activity (through 2015) take place off New England.

If the amount reallocated from the Purse Seine category to the General category was 219.5 mt (see Table 4.29, Table 4.30), then a proportional division of the 219.5 mt between the September and the October through November subquota periods (based on current relative size of the September and October through November percentages to each other) would be 147.3 mt and 72.2 mt, respectively. However, if 75 percent of the Purse Seine category quota is reallocated (i.e., 164.6 mt), then the proportional division to the September and to the October through November subquota periods would be 110.4 mt and 54.2 mt, respectively.

Ecological Impacts

The ecological impacts of this alternative would be neutral because it would not modify the ICCAT-recommended quota for bluefin, nor the U.S. portion of that quota. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Chapter 3 provides additional information on the relevant bluefin quotas. Alternative G3c may result in a shift in annual bluefin landings temporally (to later in the fishing year) but not geographically (fishing activity would remain off New England). The number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment since both are directed categories that use commercial quotas. Temporal shifts in landings could result in a slight decrease or increase in incidental catch of other finfish, but the impacts would be neutral. The handgear used within the General category and purse seine gear are both classified as Category III under the Marine Mammal Protection Act, with "remote likelihood of serious injury or known incidental mortality to marine mammals." Therefore, the shift of bluefin quota from the Purse Seine category to the General category would have no change in effect on protected species. It is also important to note that since implementation of Amendment 7, most of the annual Purse Seine quota has been reallocated to the Reserve, where it was available for transfer to other categories. The General category has received the majority of this quota since 2015. Although pelagic longline gear is classified as Category I under the Marine Mammal Protection Act, the amount of bluefin quota increase under this alternative would be very small and not likely to result in any increase in fishing effort or any adverse impact on marine mammals.

Socioeconomic Impacts

Under Alternative G3c, impacts would be neutral to moderate and beneficial. An additional 110.4 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 147.3 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category September period could result in additional potential annual gross revenues of over $1.6 million (110.4 mt x $6.66 per pound) or $2.2 million (147.3 mt x $6.66 per pound), respectively. An additional 54.2 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 72.2 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category October-November period could result in additional potential annual gross revenues of over $823,000 (54.2 mt x $6.89 per pound) or $1.1 million (72.2 mt x $6.89 per pound), respectively. Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish (2018 HMS Cost/Earnings Study; Chapter 3).

4.7.4 Conclusions – 'G' Alternatives

In conclusion, Alternative G1 is preferred. Both the ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. Alternative G1

would have neutral ecological impacts. Regarding the socioeconomic impacts, it would balance the objective of catching, but not exceeding, the General category quota with providing fishing opportunities throughout the fishing year and to broad geographic areas, in the context of the highly variable fishery and weather conditions. Inherent in allocation of bluefin quota among subquota periods is consideration of the risk that the full General category quota may not be reached, depending on fishing conditions and bluefin availability on the fishing grounds. Stated another way, the selection of the preferred alternative involves two important underlying questions regarding the General category subquota periods: 1) Does the system facilitate catch of the bluefin quota?; and 2) does the system provide equitable opportunities for participation and catch of bluefin?

NOAA Fisheries considered a variety of data in its selection of the preferred alternative, including: analysis of potential revenue; the trend in overall bluefin landings by General and Charter/Headboat permit holders; the number and geographic distribution of General and Charter/Headboat permit holders; the trend in the percentage of General category bluefin quota landed; the relative contribution of each subquota period landings to the total annual landings; the number of unique vessels landing bluefin; the number of days the subquota periods were open; the amount of landings per open day; and the amount of landings per vessel that landed bluefin. Given the differences in the attributes of subquota periods, NOAA Fisheries used metrics designed to standardize relevant information. Therefore evaluation of the preferred alternative included the use of metrics designed to compare fishing opportunity among subquota periods such as number of days open, and amount of bluefin landed per vessel that landed bluefin.

Bluefin availability varies geographically and seasonally, but is also highly variable from year to year. The No Action alternative method of dividing up the General category quota into subquota time periods reflects these attributes of bluefin availability, while providing fishing opportunity throughout the year.

4.8 'H' Alternatives: Modifications to the Angling Category Trophy Fishery

4.8.1 Alternative H1: Maintain Angling Category trophy areas and allocations (percentages) - No Action

This alternative would maintain the current Angling category subquota areas and allocations. Currently defined suballocations (percentages) of the Angling category quota for school, large school/small medium, and trophy bluefin would remain (*see* Table 3.8), and there would continue to be equal subdivision of the Trophy category quota for the current North, South, and Gulf of Mexico areas.

Specifically, under the current regulations, no more than 2.3 percent (currently 5.3 mt) of the annual Angling category bluefin quota (currently 232.4 mt) may be large medium (73" - < 81" curved fork length) or giant (81" or greater) ("trophy") bluefin. The trophy subquota is divided equally (i.e., 1.8 mt each) among three geographic areas: North of 39°18′ N. lat. (off Great Egg Inlet, NJ); south of 39°18′ N. lat., and outside of the Gulf of Mexico; and the

Gulf of Mexico. From year to year, the proportion of northern trophy landings varies between New England and the northern mid-Atlantic states (New York and the northern portion of New Jersey). In the last four years (2016 through 2019), the northern area Trophy fishery has closed on August 6, August 11, July 26, and June 27, respectively. Prior to that, the last time the northern area closed was July 29, 2011. In 2018, approximately 58 percent of northern area trophy bluefin were landed in New Jersey or New York, with the remaining 42 percent landed in New England states, and in 2019, all of the northern area trophy bluefin landings occurred in New Jersey.

Ecological Impacts

The ecological impacts of the No Action Alternative would be neutral because it would not modify the annual ICCAT recommended bluefin quota, nor the U.S. portion of that quota. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Also, there would be no expected change in fishing behavior. The number of bluefin impacted by the trophy fishery is small. For example, the current northern trophy subquota (1.8 mt) represents approximately 11 average-weight large medium/giants, based on an average weight of a recreationally caught large medium or giant bluefin in the northern area in 2019 of 350 pounds. Note, there is substantial variability of weight of this size fish depending on age and location and factors involving feeding and reproduction.

Socioeconomic Impacts

The socioeconomic impact of the No Action Alternative H1 is expected to be neutral, or minor adverse, vary by geographic area, and be dependent on availability of trophy-sized bluefin on the fishing grounds. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Communities in the Gulf of Mexico and the Atlantic would be impacted by this alternative. If the pattern of high activity off northern New Jersey and New York continues, fishermen in those states may have greater opportunities to land a bluefin and participants in New England states may have little-to-no opportunity to land a bluefin when the fish are in their area as the northern trophy fishery may already be closed for the year. For Angling and Charter/Headboat fishermen, based on the last two years, there would be direct, short-term, beneficial social impacts in the northern mid-Atlantic states and direct, short-term, adverse impacts for participants north of that area, including New England states. For charter vessels, which sell fishing trips to recreational fishermen, economic impacts are expected to be neutral to beneficial for those in the northern mid-Atlantic states and neutral to adverse for those north of that area, including New England states, as the opportunity to land a trophy bluefin may be diminished (if the fishery is closed when the bluefin are off New England). Although the concern about reduced economic opportunity for Angling category participants is not relevant as there is no sale of tunas by Angling category participants, angler satisfaction could be reduced. There could be minor impacts on businesses associated with the recreational fishery (Angling category) if the number of trips taken by Angling category participants is reduced as a result of a lack

of opportunity to catch trophy bluefin. Given that the current northern area trophy bluefin subquota of 1.8 mt represents approximately 11 individual fish, impacts are expected to be minor. For the Angling category overall, impacts of Alternative H1 would be minor, direct, short-term, and adverse.

4.8.2 Preferred Alternative H2: Modify Angling category trophy areas and allocations (percentages)

This preferred alternative would modify the current Angling category Trophy North subquota areas and allocations specified at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° N. lat. (off Chatham, MA); these newly formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively, as shown in Figure 2.6. The net result would be that the Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each of the four areas would receive the same amount of quota (i.e., the Angling category trophy quota would be divided equally four ways).

To create the new trophy suballocation for the Gulf of Maine trophy area, NOAA Fisheries would increase the portion of the Angling category quota allocated for trophy bluefin from its current level of 2.3 percent to 3.1 percent. Because the amount of school bluefin (27" - < 47") is limited in the codified regulations (and in compliance with ICCAT's binding western Atlantic bluefin recommendation), to no more than 10 percent of the annual U.S. bluefin tuna quota, any increase to the trophy subquota would need to be balanced with an equivalent reduction of the subquota for large school/small medium bluefin subquota (47" - < 73"), which is the remainder of the Angling category quota once the school bluefin subquota and trophy subquotas are subtracted. This shift in the relative amounts of trophy bluefin and large school/small medium bluefin would result in a minor decrease in the amount of allocation for large school/small medium bluefin (measuring 47 - < 73"). Recent Angling category quotas and retention limits are summarized in Table 3.10 and Table 3.11.

Specifically, under the *current* Angling category quota, the trophy quota would increase from 5.4 mt to 7.2 mt, and each area would be allocated 1.8 mt. This would allow annually up to 11 trophy bluefin to be landed in the new zone north of 42° N. lat. (the Gulf of Maine trophy area), using an average weight of approximately 360 pounds. At an average 2018 weight of approximately 132 pounds for large school/small medium bluefin, this represents a reduction of approximately 30 fish from the large school/small medium size class annually. NOAA Fisheries would not expect fishing behavior to change much as a result of this alternative, however there could be a slight increase in the number of trips to target trophy fish. There is already targeted recreational effort in that area for bluefin measuring less than 73".

Combining this alternative with other alternatives affecting IBQ allocations

Table 4.47 below, shows the allocations for each category, expressed as a percentage and metric tons, that would be implemented based on the combination of the preferred quota

alternatives (F1b, F2b, F3a, and H2): F1b (modification of the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category); F2b (discontinuation of the Purse Seine category and reallocation of the quota upon implementation of Amendment 13); F3a (reallocation of the Purse Seine category quota to all quota categories); and H2 (modification of the Angling category allocations).

Table 4.47 The new allocations (% and mt) for each category based on reallocation of the Purse Seine category quota for Alternative F3a (reallocate to all quota categories) and underlying calculations

Category	Annual Baseline Quotas and Subquotas				
	Quotas		Subquotas		
	Allocation (%)	Quota (mt)	Time Period or Other Subdivision and Method	Subquota (mt)	
General	54.0	674.3			
			January-March (5.3% of General category quota)	35.7	
			June-August (50% of General category quota)	337.2	
			September (26.5% of General category quota)	178.7	
			October-November (13% of General category quota)	87.7	
			December (5.2% of General category quota)	35.1	
Harpoon	4.5	55.8			
Longline	15.9	198.5			
Trap	0.1	0.1			
Angling	22.6	282.0			
			School (10% percent of the annual U.S. bluefin tuna quota, including 25 mt for NED)	127.3	
			Reserve (18.5% of school subquota)		23.7
			North of 39°18' N. lat. (47.2% of school subquota minus school reserve subquota)		48.9
			South of 39°18' N. lat. (52.8% of school subquota minus school reserve subquota)		54.7
			Large School/Small Medium (Angling category quota minus Trophy and School subquotas)	146.0	
			North of 39°18' N. lat. (47.2% of large school/small medium subquota)		68.9
			South of 39°18' N. lat. (52.8% of large school/small medium subquota)		77.1
			Trophy (3.1% of Angling category quota)	8.7	

Category	Annual Baseline Quotas and Subquotas				
	Quotas		Subquotas		
			Gulf of Maine, i.e., north of 42° N. lat. (25% of Trophy subquota)		2.2
			Southern New England, i.e., south of 42° N. lat. and north of 39°18' N lat. (25% of Trophy subquota)		2.2
			South, i.e., south of 39°18' N. lat., outside the Gulf of Mexico (25% of Trophy subquota)		2.2
			Gulf of Mexico (25% of Trophy subquota)		2.2
Reserve	2.9	35.8[1]			
U.S. Baseline Quota		1,247.86[2]			
Total U.S. Quota, including 25 mt for NED (Longline)		1,272.86[2]			

1 Baseline amount shown does not reflect the annual quota allocation process (for the Purse Seine and Reserve category quotas) adopted in Amendment 7 and codified in the regulations.
2 Totals subject to imprecision due to rounding

Ecological Impacts

Ecological impacts on bluefin would be expected to be neutral, as the effect of this measure would be to convert a small number of potential discards of large medium and giant bluefin to potential landings, and slightly fewer landings of large school/small medium bluefin. The conversion of this amount of large school/small medium bluefin quota to large medium/giant quota, and the removal of this number of adults is unlikely to have meaningful impact on the stock.

Socioeconomic Impacts

The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Communities in the Gulf of Mexico and the Atlantic would be impacted by this alternative. Under current regulations, the entire northern area trophy subquota could be filled by bluefin caught in the northern mid-Atlantic area, thus precluding any opportunities for the incidental catch and retention of trophy-sized bluefin in New England. This alternative would allow annually up to 11 trophy bluefin to be landed in the new zone north of 42° N. lat. (the Gulf of Maine trophy area), using an average weight of approximately 360 pounds.

Under Alternative H2 there would be minor, beneficial social impacts (and economic impacts for charter vessels) for a few vessels in the new zone north of 42° N. lat. (the Gulf of

Maine trophy area) resulting from the small amount of fish that would be allowed to be landed. HMS Charter/Headboat permit owners and operators have commented over the years that the ability to attract customers with the opportunity to retain a trophy bluefin is important, even if few are ultimately landed. They indicate that the opportunity to catch trophy bluefin is especially important if the General category is closed due to a time-period subquota being met. Their premise is that New England charters are more reliant on bluefin than those that operate further south (such as off the Middle and South Atlantic U.S. coast) where there are more numerous target species. NOAA Fisheries has also received comments about the importance of trophy opportunities for tournaments as well.

There would be neutral to minor, adverse social impacts (and economic impacts for charter vessels) for those fishing for large school/small medium bluefin due to the slight reduction in allocation for those size classes. However, this would depend on whether quota is reallocated from the Purse Seine quota (see F alternatives) and whether or not NOAA Fisheries modifies daily retention limits inseason for large school/small medium bluefin based on available quota. Changes to daily retention limits as a result of this action would be unlikely given the very small amount of quota that would be converted to trophy-sized bluefin and the fact that NOAA Fisheries typically adjusts daily retention limits for 27-<73" bluefin once annually in the spring with no further adjustments inseason. This alternative would make NOAA Fisheries management of the trophy fishery slightly more complex, and likely add an additional inseason closure (i.e., closure of the Gulf of Maine trophy area). Overall, NOAA Fisheries anticipates minor, beneficial social and economic impacts from Alternative H2.

4.8.3 Conclusions – 'H' Alternatives

The ecological and socioeconomic impacts of Alternative H2 are consistent with the objectives of this Amendment. In contrast to the current trophy fishery management system, whereby bluefin caught off either New England or the northern portion of the Mid-Atlantic count towards a single trophy subquota, this alternative would implement a trophy subquota exclusively for bluefin caught off New England (generally north of Cape Cod). Because this alternative would ensure opportunities for the incidental catch and retention of trophy-sized bluefin in New England and continued opportunities elsewhere, Alternative H2 is preferred at this time.

4.9 'I' Alternatives: Modifications to Other Handgear Fishery Regulations

4.9.1 Alternatives Suite I1: Use of harpoon gear on vessels other than Harpoon category-permitted vessels

4.9.1.1 Preferred Sub-Alternative I1a: Maintain the current authorized gears - No Action

This preferred alternative would maintain the current authorized gears applicable to the Atlantic tunas permit categories (§ 635.19(b)). For example, vessels permitted in the HMS Charter/Headboat category would be authorized to use rod and reel, handline, bandit gear,

and green-stick, as well as speargun for authorized recreational catch of non-bluefin tunas, and vessels permitted in the General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. In 2008, NOAA Fisheries proposed authorization of harpoon gear for Atlantic tunas fishing by HMS Charter/Headboat permitted vessels on all trips, but did not finalize it. This decision was based on the relative lack of public support, and the concerns raised by NOAA Fisheries and the public, which included bycatch, enforcement, and safety.

Ecological Impacts

Ecological impacts under Preferred Alternative I1a would be neutral. Harpoon use is currently authorized only for vessels permitted in the Atlantic Tunas General and Harpoon categories. Of the 2,612 fish landed by General category vessels in 2019, 125 (less than 5 percent) were reported as harpooned.

HMS Charter/Headboat permitted vessels may currently fish under the Atlantic Tunas General category regulations and may fill the daily retention limit for either the Atlantic Tunas General or the HMS Angling category. The size category of the first bluefin retained determines the fishing category applicable to the vessel that day. For example, if a charter/headboat catches and retains a school, large school, or small medium bluefin (measuring 27 to less than 73" curved fork length), the vessel may not retain a commercial-sized bluefin (measuring 73" or greater) for sale. HMS Charter/Headboat permitted vessels are allowed one trophy bluefin per year, which cannot be sold, and the vessel operators may sell commercial-sized bluefin only when fishing under the Atlantic Tunas General category regulations. Other than for the Harpoon category, dart harpoon use currently is authorized only as a secondary gear (i.e., as cockpit gear) to assist in subduing, or bringing on board a vessel Atlantic HMS that have been first caught or captured using authorized primary gears.

Impacts of handgear used to fish for Atlantic tunas under the Atlantic Tunas General category and Harpoon categories are described in full in the 2006 Consolidated HMS FMP (NMFS 2006). Harpoon gear is selective gear that is used to capture only one large pelagic fish (primarily bluefin but also swordfish) at a time. Bycatch and bycatch mortality by commercial handgear is considered to be low, particularly for harpoons, which are thrown individually at a fish, determined by the fisherman to be greater than the minimum commercial size. As discussed in Chapter 3, there is no information or evidence of interactions between harpoon users targeting Atlantic tunas and threatened or endangered sea turtles, marine mammals, or other protected resources. The harpoon fishery is a Category III fishery under the Marine Mammal Protection Act, i.e., one with remote likelihood of serious injury or mortality to marine mammals.

Socioeconomic Impacts

As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels (2019 SAFE, 2020). Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there

were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. The affected General and Charter/Headboat permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

Preferred Alternative I1a would have neutral impacts on HMS Charter/Headboat permitted vessels, which could continue to fish under the Atlantic Tunas General and Angling category regulations using existing authorized gear, and neutral impacts on Atlantic Tunas General category permitted vessels. Total Atlantic Tunas General category revenues, which included sale of commercial-sized bluefin by HMS Charter/Headboat permitted vessels, for the 2019 fishing year were approximately $3.7 million. Atlantic Tunas General category revenues for 2019 were approximately $8.3 million.

As shown in Chapter 3 and Table 11.3 in Appendix B, General category annual bluefin base quotas have been reached for the last five years. As a percentage of adjusted General category quota (adjusted for roll-over from previous year and reallocation from Purse Seine category), landings were 95.1 percent in 2015, 110.9 percent in 2016, 101 percent in 2017, and 95.7 percent in 2018, and 99.3 percent in 2019. As discussed above and under Alternative A1c, less than 5 percent of General category landings resulted from harpoon gear use.

4.9.1.2 Sub-Alternative I1b: Allow use of harpoon gear on charter/headboat vessels

This alternative would add harpoon gear as an authorized gear for the HMS Charter/Headboat vessels. The addition of this gear would only apply to vessels with the ability to carry six or fewer passengers for hire. Currently, authorized gears for HMS Charter/Headboat vessels fishing commercially are: rod and reel, handline, bandit gear, and green-stick. Sub-Alternative I1b would authorize harpoon gear for the commercial catch of Atlantic tunas, including bluefin, for HMS Charter/Headboat permitted vessels. While fishing under the rules that apply when filling the Atlantic Tunas General category bluefin retention limit, HMS Charter/Headboat permitted vessels would be able to use harpoon gear to fish for and retain bluefin greater than 73" Curved Fork Length (CFL). These HMS Charter/Headboat permitted vessels may currently fish under the Atlantic Tunas General category regulations and may fill the daily retention limit for either the Atlantic Tunas General or the Angling category.

Since 2007, NOAA Fisheries has received comments from HMS AP members about potential rulemaking to authorize harpoon use for HMS Charter/Headboat permitted vessels. Comments supporting the authorization generally centered on maximizing fishing opportunities within current quotas. Maximizing fishing opportunities is important for harpoon gear because harpoon fishing is limited by the need for good weather conditions, and availability of bluefin in the surface waters. Providing fishermen the flexibility of gear

choice would increase opportunities to fish in response to variable fish behavior and conditions on the water. Landings data and information from fishermen indicate that there are times when the feeding behavior of commercial sized bluefin makes hooking a fish difficult. Authorization of the use of harpoon gear by HMS Charter/Headboat permitted vessels would not significantly increase competition among HMS Charter/Headboat vessels or Harpoon category participants, because very few vessel owners would make the large capital investment to outfit their vessels to use harpoon gear while fishing under an HMS Charter/Headboat permit. Some commenters supported further limiting the number of bluefin that could be landed using harpoon gear and sold, or requiring removal of the pulpit for charter trips. Comments opposing the authorization generally centered around the need for a more precautionary approach in regard to the bluefin fishery. For example, some expressed concern contending that new measures promoting flexibility should not be adopted in the name of quota utilization, given that recent quota utilization has been relatively high; the concern the action could lead to greater effort and thus shorter seasons and lower retention limits for HMS Charter/Headboat permitted vessels; and the concern that the action could lead to disruption by new harpooners of Harpoon category fishing activities, and/or dilution of the historical HMS Charter/Headboat business by historical harpooners (contradicting the rationale NOAA Fisheries used in establishing a separate HMS Charter/Headboat permit).

This alternative could be further split into sub-alternatives that would allow harpoon gear use on all types of charter/headboat trips or limit harpoon use to non-for-hire trips only. As defined at 50 CFR 635.2, "for-hire trip" means a recreational fishing trip taken by a vessel with an Atlantic HMS Charter/Headboat permit during which paying passenger(s) are aboard; or, for uninspected vessels, trips during which there are more than three persons aboard, including operator and crew; or, for vessels that have been issued a Certificate of Inspection by the U.S. Coast Guard to carry passengers for hire, trips during which there are more persons aboard than the number of crew specified on the vessel's Certificate of Inspection. In the 2008 rule on this subject, it was NOAA Fisheries' understanding that, due to safety and liability concerns, only vessel captain and crew would be involved in harpoon fishing, i.e., no other passengers would be offered the opportunity to use the gear. Harpoon gear is not authorized for recreational fishing (i.e., under the Angling category permit or applicable fishing regulations). Therefore, if the authorization were to be restricted to non-for-hire trips only, there should be no incentive to harpoon a recreational sized fish (27" - < 73") as such activity would be illegal and as paid charter passengers, who would seek recreational fishing opportunities, would not be present. With effort focused on commercial-sized bluefin, bycatch of undersized fish and associated fish mortality would be expected to be minimal, particularly as the size of bluefin targeted by for-hire charter/headboat vessels fall within the school and large school bluefin size classes (i.e., 27 - <59").

Ecological Impacts

Overall, ecological impacts are expected to be neutral. However, there continue to be concerns expressed by fishermen about potential increases in bycatch mortality due to selective discarding of legal sized fish, in anticipation of catching larger or higher quality

fish ('high grading'); or if fish under the commercial size are harpooned and released due to size restrictions.

Available data from HMS dealer reports indicate that, for Atlantic tunas fishing, harpoon gear is used almost exclusively to target bluefin. Since 2015, only two BAYS tuna (bigeye, albacore, yellowfin, and skipjack tuna) have been reported and were yellowfin tuna captured on the same trip. This alternative would not change the number or size of bluefin allowed to be retained on a HMS Charter/Headboat permitted vessel, but would provide HMS Charter/Headboat fishermen the opportunity to use harpoon gear in filling the Atlantic Tunas General category daily retention limit.

General category bluefin landings would continue to be restricted through the existing quota and retention limits. This alternative would not be expected to result in an expanded geographic area of harpoon use for bluefin, which has historically been off New England, and primarily on the fishing grounds off Massachusetts, New Hampshire, and Maine. Therefore, authorization of harpoon gear in the HMS Charter/Headboat permitted vessels would not be expected to have ecological impacts beyond those previously analyzed in the 2006 Consolidated HMS FMP and in the 2018 bluefin quota rule EA.

Socioeconomic impacts

As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels (2019 SAFE, 2020). Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. The affected General and Charter/Headboat permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

Sub-Alternative I1b (allow use of harpoon gear on HMS Charter/Headboat permitted vessels) would have minor, beneficial or negative social and economic impacts. Specifically, the impacts may be beneficial for those vessels that have success in harpooning bluefin that may be available at the water's surface. To the extent that a fisherman could harpoon bluefin at the surface when the fish are present at the water surface, Alternative I1b could increase the potential of filling the General category bluefin daily retention limit and of gaining more ex-vessel revenue per trip. However, NOAA Fisheries anticipates that the number of bluefin that would be caught with harpoon gear by HMS Charter/Headboat permitted vessels is very low. Use of harpoon gear typically involves installation of a pulpit to the bow of the vessel (and the associated investment of money to do so) and requires a certain degree of skill. Comments made to NOAA Fisheries since 2007 reinforce the notion that the ability to harpoon a bluefin will not necessarily lead to a substantial increase in incidences of a bluefin being caught with harpoon gear on HMS Charter/Headboat permitted vessels. Alternative I1b may have slightly negative social and economic impacts

for existing HMS Charter/Headboat operators due to the potential for Atlantic Tunas General or Harpoon permit holders to change to the HMS Charter/Headboat permit, potentially increasing competition among HMS Charter/Headboat businesses.

Sub-Alternative I1b would be consistent with a NOAA Fisheries action taken in the 1999 FMP (NMFS 1999), which expanded the list of gear types authorized for HMS Charter/Headboat permitted vessels to include bandit gear (which was already authorized for use by Atlantic Tunas General category permitted vessels) as part of an effort to achieve consistency in HMS regulations. This alternative would provide consistency in the regulations regarding authorized handgear used historically for commercial catch of bluefin, and would increase opportunities for commercial handgear fishermen to attain the bluefin Atlantic Tunas General category quota.

It should be noted that the expanded flexibility for gear use under this alternative and the associated expanded fishing opportunities may be incongruous with the Preferred Alternative I2c, which sets a retention limit for bluefin for Harpoon category vessels. Further, in the context of recent fishery trends expansion of harpoon gear use is not warranted. Specifically, because of various factors, NOAA Fisheries has needed to reduce or maintain a lower retention limit in recent years in order to extend fishing opportunities throughout the General category subquota time periods and season overall. Such contrasting elements in the management system complicate management, and constitute a slightly adverse impact.

4.9.1.3 Sub-Alternative I1c: Remove harpoon gear as an authorized gear for General category permitted vessels

This alternative would eliminate harpoon as gear authorized for use by General category permitted vessels.

Ecological Impacts

Overall, ecological impacts are expected to be neutral. To the extent that there could be lower harpoon effort as a result of Sub-Alternative I1c, there may be reduced mortality particularly of small medium bluefin (measuring 59-<73”), although a substantive change is not likely, due to the selectivity of harpoon gear. Based on anecdotal information, experienced harpoon fishers are able to estimate fish size fairly effectively, so the mortality of bluefin less than legal size (73”) is minimal. Any impacts associated with reduced bycatch mortality would be minor and beneficial. However, this could be reduced by additional entrants into the Harpoon category and greater effort in the Harpoon category. General category bluefin landings would continue to be restricted through the existing quota and retention limits. This alternative would not be expected to result in a reduced geographic area of harpoon use for bluefin, i.e., off New England.

Socioeconomic impacts

As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels (2019 SAFE, 2020). Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. The affected General and Charter/Headboat permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

Sub-Alternative I1c would result in minor, adverse impacts because it would reduce flexibility for harpoon fishermen and could reduce efficiency in catching the General category quota. Although NOAA Fisheries has received comments from General category (quota) participants that harpoon activity fills the available General category quota more quickly, thus reducing opportunities for rod and reel fishermen, an examination of 2019 General category landings data show that 125 fish (less than 5 percent of the 2,612 fish landed by General category vessels) were reported as harpooned. Table 4.48 shows annual landings under the General category quota and participation using harpoon gear for 2015 through 2019.

Table 4.48 Annual bluefin landings under the General category and participation using harpoon gear, 2015 through 2019

Year	General category harpoon landings (mt)	Number of General category vessels participating in fishery with harpoon
2015	33.4	34
2016	26.5	33
2017	37.3	28
2018	17.2	28
2019	16	30

Source: SAFIS

If harpoon gear use in the General category were prohibited and the fish that had been caught by vessels using harpoon gear were instead caught by rod and reel gear, there would be a shift in revenue to General category participants using rod and reel gear. Based on an average June through August ex-vessel General category price per pound of $5.12 and a 366-pounds average General category fish weight for rod-and-reel caught bluefin, the estimate of this potential increase in revenue is $234,240 for the General category (quota) participants using rod-and-reel gear (i.e., including Charter/Headboat permitted vessels

with a commercial sale endorsement landing bluefin commercially). For General category quota participants using harpoon gear, with an average June through August ex-vessel price per pound of $5.84 and a 280-pounds average fish weight, the inability to land this amount of fish could represent a $164,979 loss in revenue. Some of the comments received on this issue point to the fact that harpooners have the ability to fish in the Harpoon category, with its own dedicated quota. To the extent that harpoon vessels instead obtain a Harpoon category permit, (which is allowable under current rules) and fish with harpoon gear in that category, some or all of the revenue loss may be recouped.

4.9.2 Conclusion – 'I1' Alternatives

The ecological and socioeconomic impacts of Alternative I1a, maintenance of the current authorized gears is consistent with the objectives of this Amendment. This alternative would have neutral ecological impacts and maintain the current list of authorized gears for bluefin rather than expanding gear authorizations. The Preferred sub-alternative I1a would be less complex than Alternative I1b, which would involve more complex reporting required to monitoring harpoon-caught bluefin. Further, there has been a lack of public support for this concept due to concerns about safety of the use of harpoon gear in the context of a charter/headboat business and other concerns (see discussion under sub-alternative I1b). Lastly, in recent years the General category has fully caught its quota, which does not support the assertion that there is a need to expand opportunities by authorizing an additional gear. For these reasons, Alternative I1a is preferred at this time.

4.9.3 Alternatives Suite I2: Harpoon category daily retention limit

The current regulations at §635.23(d) allow persons aboard a vessel permitted in the Atlantic Tunas Harpoon category to retain, possess, or land an unlimited number of giant bluefin per day (measuring 81" curved fork length or greater). An incidental catch of two large medium bluefin per vessel per day may be retained, possessed, or landed (the 'default' limit), unless the retention limits are increased by NOAA Fisheries through an inseason adjustment to a maximum of four, large medium bluefin per vessel per day, based upon the criteria under §635.27(a)(8). Harpoon category landings are highly variable within and across years, and depend on access to commercial-sized bluefin and fishing conditions, among other factors.

As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels (2019 SAFE, 2020). Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. The affected General and Charter/Headboat permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

4.9.3.1 Sub-Alternative I2a: Maintain current Harpoon category retention limits - No Action

This alternative would maintain the current Harpoon category retention limit regulations: an unlimited number of giant bluefin per day (measuring 81" curved fork length or greater), and two large medium bluefin per vessel per day (measuring 73 to less than 81" curved fork length), unless the large medium bluefin retention limit is increased by NOAA Fisheries through an inseason adjustment to a maximum of four per vessel per day, based upon the criteria under § 635.27(a)(8).

Ecological Impacts

Sub-Alternative I2a would result in neutral ecological impacts. If no action is taken to restrict the overall number of bluefin that can be retained, possessed, and landed per trip or day, Harpoon category participants would continue to have the ability to retain and land up to two large medium fish per vessel per day (and up to four if set through inseason action), as well as unlimited giants. This alternative would not change the amount of the Harpoon category quota. Table 4.49 shows Harpoon category data for 2018 and 2019, including information that illustrates the relative amount of large medium and giant bluefin landed and on how many trips large medium fish were landed.

Table 4.49 Harpoon category landings and trip information for 2018 and 2019

Metric	2018	2019
Permitted Harpoon category vessels	21	20
Bluefin landed (total)	157	737
Giant bluefin landed	130 (83%)	501 (68%)
Large medium bluefin landed	27 (17%)	236 (32%)
Successful trips (trips landing at least 1 bluefin)	84	251
Trips landing 0 large medium fish	63	56
Trips landing 1 large medium fish	15	73
Trips landing 2 large medium fish	6	111
Total landings	26.6 mt	102.4
Harpoon quota	46 mt	91 mt
Percentage of Harpoon quota landed	58%	113%

Harpoon category participants have commented over the years that it is common for schools to be composed of bluefin of different size classes, so fishing on schools of giant bluefin exclusively is difficult. Under Alternative I2a, NOAA Fisheries anticipates direct, short-term, neutral to minor, adverse biological impacts. The adverse impacts resulting from discarding large medium bluefin is likely very minimal, based on past data. For example, there were only 11 trips in 2019 on which more than two large medium (the default retention limit) were landed, which indicates it was not necessary for most vessels to release a bluefin of that size to stay within the daily retention limit of large mediums.

Socioeconomic Impacts

The economic impact of the No Action Sub-Alternative I2a is expected to be neutral to minor adverse as participants would continue to be limited to the default of two large medium bluefin (and maximum of four if NOAA Fisheries were to make an inseason adjustment) if caught while targeting giant bluefin. In 2019, large medium bluefin comprised 45 percent of Harpoon category landings, with the remaining 55 percent giants. Of the Harpoon category trips on which at least one bluefin was landed, 42 percent landed only large mediums, 35 percent landed large mediums and giants, and 22 percent landed only giants. Twenty-nine percent of 2019 Harpoon category trips landed only 1 bluefin; 28 percent landed 2 fish; 14 percent landed 3 fish; 24 percent landed 4-8 fish; and 5 percent landed 9 or more fish. Harpoon category revenues for 2015-2019 are shown in Table 4.50.

Table 4.50 Annual Harpoon category ex-vessel revenues, 2015-2019

Year	Average Price per Pound Round Weight	Landings (mt)	Annual ex-vessel revenues
2015	$4.84	43.7	$466,527
2016	$8.14	26.4	$474,513
2017	$6.43	44.3	$628,835
2018	$7.05	26.6	$405,545
2019	$5.37	102.4	$1,210,904

Source: SAFIS

4.9.3.2 Sub-Alternative I2b: Set a Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and maintain current retention limit (range) on large medium bluefin

This Sub-Alternative was the Preferred Alternative in the DEIS, but based on public comment, Sub-Alternative I2c is preferred in this FEIS (as explained under Sub-Alternative I2c). This alternative would set an overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip: a combined 10 fish limit of large medium (73” - < 81”) and giant (81” or greater). It would maintain the current regulations regarding retention of large medium bluefin (73” - < 81”): a range of two (default) to four fish, adjustable through inseason action.

Ecological Impacts

If NOAA Fisheries changes the regulations to implement an overall daily limit (a “cap”) of 10 commercial- sized (> 73”) bluefin per day, and if under the default large medium limit, two fish were landed, then operationally the limit on giant bluefin would be eight fish. If no large medium were landed then the vessel could land up to 10 giant bluefin. The impact of

this alternative would be neutral overall, because it would not change the Harpoon category subquota or the U.S. portion of the ICCAT recommended bluefin quota. Availability of large mediums, inseason retention limits, and adjustments to the subquota through inseason transfers are variables that can affect Harpoon category fishing. In 2019, only 2 percent of Harpoon category trips landed 10 or more bluefin. Few trips are likely to be impacted by the imposition of a 10 fish limit. The alternative may result in the removal of a lower number of bluefin than the status quo. To the extent that the implementation of a lower retention limit might decrease effort within the Harpoon category, there could be a slight reduction in the catch of small medium bluefin (measuring 59" - < 73"). Therefore NOAA Fisheries does not expect meaningful changes in fishing effort or behavior as a result of this Harpoon category alternative, or any meaningful impact on the size distribution of bluefin caught or the number of bluefin discarded.

Although few data are available, it is believed that the selective nature of harpoon gear has minimal impact on discards or interactions with non-target species. Harpooners are able to sight fish to recognize bluefin based on their behaviors, size, shape, and coloration, and distinguish them from non-bluefin species.

Socioeconomic Impacts

Sub-Alternative I2b would have minor beneficial impacts as a result of a few trips being constrained by a ten-fish limit (adverse), but also a potentially longer Harpoon category season (beneficial). On a per-trip basis, impacts would depend on several factors including bluefin fishing conditions and availability, the large medium retention limit (two if default but up to four through inseason action), and ex-vessel price, which is subject to numerous factors including fish handling and quality and market saturation. That said, NOAA Fisheries anticipates that some impacts would be direct, short-term, minor, and adverse. Based on the number of successful 2019 trips, NOAA Fisheries can estimate potential impacts of this change by determining the number of trips on which more than 10 bluefin were landed and assuming that those fish would not be able to be landed under this alternative. Using 2019 successful trip data, if the daily limit was set at 10 bluefin, the revenue from up to 10 bluefin would be foregone for the season. Note, in this estimate 10 is the total number of bluefin landed from trips landing over 10 fish (not to be confused with the 10 fish limit). At an average 2019 weight of 306 pounds and an average price of $5.37 per pound for the Harpoon category, a loss of one to 10 fish would be approximately $1,640 to $16,402 for the Harpoon category as a whole for the year. Using average of 2017-2019 price data (an average of $6.28 for the Harpoon category), the range of potential revenue loss would be $1,922 to $19,220 for the year.

Because recent Harpoon category prices have been higher in June than July or August, potentially negative socioeconomic impacts are possible at the beginning of the season by capping landings, but limiting catch could also extend fishing opportunities to a greater number of participants and reduce the need for premature closure of the season. Since 2000 and until 2019, NOAA Fisheries has not needed to close the Harpoon category due to the subquota being met. However, a closure of the Harpoon category happened in 2019 and may happen again, depending on the subquota available (including through inseason

transfers from the Reserve category) and the number of Harpoon category participants (65 FR 40538, June 30, 2000). NOAA Fisheries closed the 2019 Harpoon category fishery effective August 8, 2019, when the adjusted quota of 91 mt was met; Harpoon landings for 2019 totaled approximately 102 mt (84 FR 39208, August 9, 2019). Positive short-term impacts could result from the additional fishing opportunities associated with a longer season.

4.9.3.3 Preferred Sub-Alternative I2c: Set a Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and adjust daily retention limit for large medium and giant bluefin to a range of five to ten fish (combined large medium and giant; adjusted inseason)

This Sub-Alternative was not the Preferred Alternative in the DEIS, but based on public comment, in this FEIS, this alternative is now the preferred Sub-Alternative. In contrast to Sub-Alternative I2b, this Sub-Alternative provides flexibility to adjust the limit to meet the objectives of the fishery management plan, and provides parity with bluefin trip limits applicable to other permit categories, which are adjustable via inseason actions.
This alternative would set an overall daily limit of 10 commercial-sized bluefin per day or trip: a combined 10-fish limit of large medium (73" - < 81") and giant (81" or greater) bluefin. It would allow NOAA Fisheries, through inseason action, to change the daily retention limit over a range of five to ten fish per day or trip (large medium and giant combined). For example, if NOAA Fisheries were to set the Harpoon category limit on large medium bluefin to three and the combined retention limit to nine (via inseason action), then no more than six giant bluefin could be kept in that same day or trip, such that the total does not exceed nine fish.

Ecological Impacts

The impacts of Sub-Alternative I2c would be very similar to those for I2b (neutral). The ability to adjust to a combined retention limit (via inseason action) would enable more options for trip limits and could result in more precise quota management. NOAA Fisheries does not anticipate any meaningful impact on the size distribution of bluefin caught or the number of bluefin discarded.

Socioeconomic Impacts

The impacts of Sub-Alternative I2c would be very similar to those for I2b (minor beneficial). The ability to adjust to a combined retention limit (via inseason action) would enable more options for trip limits and could result in more precise quota management and therefore slightly increased or decreased fishing opportunities, depending upon the situation. For example, under conditions of high bluefin availability in near shore waters, a retention limit may slow the rate of catch and extend fishing opportunities temporally spatially, or among fishery participants. An ancillary benefit in such a situation may be the reduction in market issues associated with high landings during a short period of time.

4.9.4 Conclusion – 'I2' Alternatives

The ecological and socioeconomic impacts of the Preferred Alternative I2c are consistent with the objectives of this Amendment. The ecological impacts would be neutral and this alternative could result in extension of fishing opportunities to a greater number of Harpoon category participants (associated with a longer season), a socioeconomic benefit. This alternative would allow NOAA Fisheries the ability to adjust the retention limit (via inseason action) to avoid premature fishery closure, while taking into consideration the amount of quota likely to be available to the Harpoon category fishery. For these reasons, Alternative I2c is preferred at this time.

4.9.5 Alternatives Suite I3: Harpoon category season

Under §635.27(a)(5), the Harpoon category fishery annually commences on June 1 and closes November 15. As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels (2019 SAFE, 2020). Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. The affected Charter/Headboat permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

4.9.5.1 Preferred Sub-Alternative I3a: Maintain current start and closure dates - No Action

This alternative would maintain the current June 1 start date and November 15 closure date for the Harpoon category season.

Ecological Impacts

If no action is taken to modify the Harpoon category season start dates, ecological impacts would be neutral. There would be no Harpoon category activity prior to June 1 on an annual basis.

Socioeconomic Impacts

This alternative may have both minor beneficial and adverse, social and economic impacts. The net effect would be minor beneficial impacts. The beneficial impacts could be attributed to the Harpoon category season remaining consistent with prior years, i.e., participants would continue to have the potential to catch the same percentage of the quota and earn the equivalent share of total ex-vessel revenues. The Harpoon and General category seasons starting together would facilitate enforcement and business planning, and provide greater certainty to participants regarding opportunities, participation/effort, and potential impact on market prices. To the extent that bluefin may be available to harpoon

gear prior to June 1, there could be adverse impacts due to lost harvesting opportunities and the potential for better ex-vessel prices when there may be fewer fish on the market, particularly from the General category, which would not begin until June 1. To the extent that opportunities could extend deeper into the summer, more Harpoon category participants could benefit. It is possible that the No Action Alternative would have some adverse socioeconomic impacts on fishermen, dealers, and the support industries located in New England, where harpoon use has historically occurred, primarily on the fishing grounds off Massachusetts, New Hampshire, and Maine. Under the No Action alternative, Harpoon category participants have not filled their adjusted quotas in three of the last five years (see Table 11.3 in Appendix B), but, conversely in 2019, NOAA Fisheries closed the Harpoon category relatively early (August 8).

4.9.5.2 Sub-Alternative I3b: Lengthen Harpoon category season

This action would lengthen the season for the Harpoon category by implementing an earlier, May 1 start date for the fishery instead of the current start date of June 1. The November 15 closure date would remain the same.

Ecological Impacts

This alternative would have neutral ecological impacts. Although it would add an additional month to the Harpoon category season, as a practical matter the, it may lengthen the period of Harpoon category activity by less than a few weeks, as Harpoon fishing activity is likely to be limited by weather conditions and availability of large medium and giant bluefin to the fishery (in surface waters) during the month of May.

Sub-Alternative I3b may result in a slight shift in bluefin landings, both temporally (to earlier in the season) and potentially geographically to the South (but still off New England). However, the number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment. If fishing effort were to increase in association with the increase in season length, there could be a slight increase in the number of undersized bluefin (or swordfish) killed. However, given the limited nature of this alternative, which would likely effectively extend the period of time that the Harpoon category would be active by less than a few weeks, NOAA Fisheries does not expect any adverse ecological impacts, the impacts would be neutral. Alternative I3b would be expected to broaden the range of data available for scientific research, although the scope by which data would broaden may be relatively small, depending on availability of large medium and giant bluefin during the month of May each year.

Socioeconomic Impacts

Sub-Alternative I3b would increase the likelihood of Harpoon category participants being able to catch the full Harpoon category quota and thus would have minor, beneficial and adverse impacts. An increase in optimum yield may result from a potential increase in the

geographic and temporal distribution of landings. Increases in positive socioeconomic impacts would depend on the availability of bluefin to the fishery from the beginning of May until the Harpoon category quota (base or adjusted, as applicable) is reached. Recently, the price for Harpoon category bluefin has been higher in June than later in the season, so an earlier start date could be beneficial, although price per pound is also influenced by the amount of bluefin on the market. The value of an unused metric ton of Harpoon category landings is estimated at $11,838 using the 2019 average ex-vessel price of $5.37 per pound, and $13,845 using the average 2017-2019 price ($6.28). While there would be minor, beneficial impacts for the Harpoon category, there may be increased uncertainty in the bluefin market because of the Harpoon category beginning one month earlier than the General category fishery. This uncertainty would be the result of questions that are difficult to answer such as how the presence of harpoon-caught fish on the market during May would impact prices or demand; and if a harpoon fishery during May would affect bluefin availability to the fishery after May.

4.9.6 Conclusions – 'I3' Alternatives

Based on its ecological and socioeconomic impacts, Alternative I3a would best meet the objective of facilitating the ability for the HMS directed permit categories to catch their full bluefin quota allocation (and would be consistent with the other objectives of this Amendment). The ecological impacts would be neutral, and likely lower than for Alternative I3b. There would be a net slightly beneficial impact. Although either adverse or beneficial impacts are anticipated, depending upon bluefin availability, weather, and other variables affecting the Harpoon category fishery, maintaining the Harpoon category and General category both on June 1 may facilitate enforcement and business planning; and provide greater certainty to participants regarding the level of fishing opportunity and effort and their potential impacts on market prices. Lastly, the current length of the Harpoon category season corresponds to the relative size of the bluefin quota likely to be available to the Harpoon category fishery. For these reasons, Alternative I3a is preferred at this time.

4.9.7 Alternatives Suite I4: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed bluefin

NOAA Fisheries regulations stipulate that permit holders may only change the category of their open access permit within 45 days of permit issuance, and only if they have not landed a bluefin. This requirement was put in place to keep permit holders from fishing in more than one Atlantic tunas permit category during the calendar year. NOAA Fisheries received approximately 50 requests from 2017-2019, or an average of 17 per year, for permit holders to change open access permit categories during the fishing (calendar) year. In most cases, these requests appeared to be the result of permit holders selecting the wrong permit during online permit application or renewal, and the majority of requests involve the General, Angling and Charter/Headboat categories. When a user requests a

permit change, NOAA Fisheries personnel query landings and permit data to ensure that the two criteria are met before issuing a new permit.

4.9.7.1 Sub-Alternative I4a: Maintain 45 day permit change restriction - No Action

This alternative would maintain the current requirement that gives permit holders 45 days to change their Atlantic tunas or HMS permit category as long as they have not landed a bluefin.

Ecological Impacts

The ecological impact of this alternative would be neutral, because it is administrative in nature and would not increase or decrease the amount of fishing effort in total outside of the handgear fisheries and does not affect the overall bluefin quota.

Socioeconomic Impacts

The socioeconomic impacts of this alternative are neutral because the number of permit holders impacted is so small, and any impacts of obtaining an annual permit in the wrong category are only for one fishing season. For a subset of these permit holders, the impact can be critically adverse, if an incorrect permit is obtained that prohibits a commercial fisherman from selling fish or a charter/headboat fisherman from taking paying passengers (e.g., a vessel owner mistakenly applying for Angling category permit instead of a General category permit). In these instances, the impact is adverse, but minimal on a fishery-wide basis.

4.9.7.2 Preferred Sub-Alternative I4b: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed a bluefin

This preferred alternative would extend the ability to change permit categories from 45 days to the full fishing year provided the vessel has not landed a bluefin.

Ecological Impacts

The ecological impacts of this alternative would be neutral because it is administrative in nature and would not increase or decrease the amount of fishing effort in total outside of the handgear fisheries and does not affect the overall bluefin quota.

Socioeconomic Impacts

The socioeconomic impacts of this alternative are neutral or slightly beneficial since the number of permit holders impacted is so small, and any impacts of obtaining an annual permit in the wrong category are only for one fishing season. For a subset of these permit holders, the impact of this alternative can be critically beneficial, if an incorrect permit is obtained that prohibits a commercial fisherman from selling fish or a charter/headboat fisherman from taking paying passengers (e.g., a vessel owner mistakenly applying for

Angling category permit instead of a General category permit). In these instances, the impact is beneficial, but minimal on a fishery-wide basis.

4.9.8 Conclusions – 'I4' Alternatives

Preferred Alternative I4b provides flexibility to vessel owners / permit holders to correct a mistakenly requested type of permit, and the ecological and sociological impacts are consistent with the objectives of this Amendment. Vessel owners who make an error by selecting a permit type that they subsequently realized they do not want, are not stuck with their error, but may obtain the desired permit type, with no ecological impact. Further, this alternative reduces the administrative burden to NOAA Fisheries.

4.9.9 Alternatives Suite I5: Clarify Regulations for Retention of Bluefin Caught with Green-stick Gear by Permitted Vessels Authorized to Fish with Pelagic Longline Gear

These alternatives address the need to provide clarification on green-stick gear requirements for vessels authorized to fish with pelagic longline gear.

4.9.9.1 Sub-Alternative I5a: Maintain the current green-stick gear regulations - No Action

This alternative would make no changes to the current regulations concerning green-stick gear. Vessels authorized to fish with pelagic longline gear would not be permitted to retain bluefin caught with green-stick gear.

Ecological Impacts

The no action alternative would have neutral ecological impacts on bluefin, and other managed tuna species. Green-stick gear is not used by many permit holders, and the vast majority of catch by green-stick gear is yellowfin. A 2008 analysis of coastal and pelagic fishery logbooks, incorporated into the rulemaking that authorized green-stick gear, indicated that yellowfin and bluefin comprised 82 and 2 percent, respectively, of green-stick catch by number and weight. In comparison, analysis of more recent pelagic longline HMS logbook data collected from 2016 through 2019 (Table 4.51) indicates that bluefin comprise 1 percent of the reported catch of Atlantic tunas catch (fish retained and discarded dead) from the use of green-stick gear. Yellowfin comprised approximately 94 percent of the self-reported logbook catch. Bigeye comprised approximately one percent and albacore comprised less than one percent of catch. Skipjack comprised 3 percent of Atlantic tunas catch.

Table 4.51 Summary of Atlantic tunas landings (kept, k) and discards (d) attributed to green-stick gear use by pelagic longline vessels, as reported in the HMS logbook (2016-2018)(numbers of fish)

Year	BET (k)	BET (d)	BFT (k)	BFT (d)	YFT (k)	YFT (d)	ALB (k)	ALB (d)	SKJ (k)	SKJ (d)
2016	3	0	0	0	72	13	3	1	0	0
2017	0	0	1	0	189	38	0	0	2	15
2018	3	0	0	1	237	27	0	0	3	1
2019	0	0	2	2	45	50	0	0	0	3
Total	6	0	3	4	543	128	3	1	5	19

Source: HMS Logbook Data; BET: Bigeye, BFT: Bluefin; YFT: Yellowfin; ALB: Albacore; SKJ: Skipjack.).
Source: HMS Logbook Data.

Socioeconomic impacts

The socioeconomic impacts of the No Action Alternative would be minor and adverse, as a result of maintaining the current regulations that preclude a pelagic longline vessel from retaining bluefin caught on green-stick gear. As shown above, very few bluefin tuna are captured on green-stick gear (Table 4.51). An analysis of self-reported logbook data from sets made with green-stick gear suggest that a small number of vessels use this gear (Table 4.52). The number of unique pelagic longline vessels that use green-stick gear has increased with time. There were no sets reported in 2015 that were attributed to the use of this gear type. In 2016, three pelagic longline vessels reported sets made with green-stick gear in the HMS logbook, and in more recent years at least nine vessels each year reported sets (Table 4.52). The majority of green-stick gear fishing effort occurred in the Gulf of Mexico by vessels that participate in the Deepwater Horizon OFRP since 2016. These vessels cannot use pelagic longline gear during part of the year as a condition of the OFRP program, and are prohibited from landing bluefin while participating in the project. Further, they must account for any bluefin dead discards with IBQ allocation. Given the rules of participation in the OFRP, the impact of this alternative on these vessels would likely be neutral. The last year of the OFRP Program is 2022.

Table 4.52 Data summary for pelagic longline vessels using green-stick gear: number of participants, landings data, and effort data (by year and across years)

Year	Total Number of Unique PLL Vessels that Reported Green-stick Set Data	Average Number of Green-Stick Atlantic Tunas* Kept per Vessel	Average Number of Green-Stick Sets Per Vessel
2016	3	26	3
2017	10	19	29
2018	9	30	35
2019	9	6	43
Summary (2016-2019)	19	31	32

Note: numbers rounded to the nearest whole number. *Yellowfin, bigeye, albacore, skipjack and bluefin. Source: Logbooks

4.9.9.2 Sub-Alternative I5b: Allow Atlantic Tunas Longline category permitted vessels to retain bluefin caught on green-stick gear, provided that pelagic longline gear is not on board

Although green-stick gear is an authorized gear for incidental retention of bluefin, there are no retention limits specified, and the current regulations do not address whether permitted pelagic longline vessels must comply with requirements of the IBQ Program to incidentally retain and land bluefin caught with green-stick gear.* Therefore retention of bluefin cannot occur under normal pelagic longline fishing operations.

* *Regulations prior to 2015 authorizing green-stick gear use, specified adherence to target catch requirements applicable to Longline category incidental retention of bluefin. In 2015, Amendment 7 changed the regulations for Atlantic Tunas Longline category permit holders by removing the target catch requirements for bluefin retention, and instead specifying that incidentally caught bluefin could only be retained in compliance with the IBQ Program requirements. Amendment 7 did not specify whether permitted pelagic longline vessels must comply with requirements of the IBQ Program to incidentally retain and land bluefin with green-stick gear.*

Because VMS set reporting, HMS logbook reporting requirements, and IBQ Program requirements, among other things, are required of vessels fishing under the Atlantic Tuna Longline permit, this alternative also clarifies that these requirements apply to use with green-stick gear. Vessels would be required to comply with HMS logbook requirements, and comply with the IBQ Program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations. Accordingly, under these circumstances, green-stick caught bluefin by vessels authorized to fish with pelagic

longline gear would be accounted for against the Longline category quota. The electronic monitoring requirements would not apply to such trips because pelagic longline gear would not be on board the vessel.

Under this alternative, NOAA Fisheries specifies that green-stick gear may only be used if pelagic longline gear is not on board. Allowing retention of green-stick caught bluefin only if pelagic longline gear is not on board may simplify enforcement and simplify reporting and monitoring.

Ecological Impacts

This alternative would have neutral ecological impacts, because it would not change the annual, science-based bluefin quota and any bluefin catch by green-stick gear would be accounted for with IBQ allocation. Furthermore, the amount of fishing effort with green-stick gear is expected to be extremely small due to the limited interest in using this gear type, and catch of any species is low compared to pelagic longline gear. Between 2016 and 2018, only one vessel has used both green-stick gear and pelagic longline gear in the same trip, and no bluefin were captured on that trip. Only one bluefin has been reported in the HMS logbook to be caught with green-stick gear by vessels also permitted to use longline. This bluefin was not caught by a vessel that used both types of gear on the same trip.

In general, indirect ecological impacts on target species or protected species are considered to be neutral because vessels that do use both types of gear typically do not deploy them on the same trip. The ecological effects of a requirement to only use one type of gear therefore largely mirrors current fishing behavior. Implementing this alternative is not anticipated to change the amount of effort exerted by the fishery, and therefore result in anticipated ecological impacts for these species that are different from the No Action Alternative.

Socioeconomic Impacts

This alternative is anticipated to have minor and adverse socioeconomic impacts to fishermen and neutral indirect socioeconomic impacts to supporting businesses. Only 19 pelagic longline vessels have fished with green-stick gear. An examination of pelagic longline logbook data suggests that since 2015, only one vessel deployed both green-stick gear and pelagic longline gear in a single trip (data not shown to protect confidentiality of business information), with yellowfin tuna constituting the primary landings from that trip. Most other fishermen fished either with pelagic longline gear or green-stick gear; therefore, restricting them to one option or another under this alternative would likely not change fishing practices for most vessels using green-stick gear. However this alternative would preclude the option to fish with green-stick while pelagic longline gear is on board, and thus not enhance flexibility in the fishery. The majority of green-stick gear fishing effort occurred in the Gulf of Mexico by vessels that participate in the OFRP. These vessels cannot use pelagic longline gear as a condition of the OFRP program. Recent data suggests little need for these vessels to have the ability to use both types of gear; however, once the OFRP is over there might be future interest if these vessels go back to using pelagic longline gear. Vessels from the Atlantic (mostly from North Carolina) tended to also only use one type of

gear at a time. Overall, across regions, there appears to be a very small number of fishermen wishing to use both gears. However, adding this restriction could limit the ability of those vessels to maximize their opportunity to catch yellowfin.

Because very few fishermen use both types of gear at the same time, restricting the fishery to only one type of gear is not anticipated to change the demand for additional pelagic longline gear or green-stick gear by permitted fishermen. Therefore, indirect socioeconomic impacts on supporting businesses that provide such gear are anticipated to be neutral.

4.9.9.3 Preferred Sub-Alternative I5c: Allow Atlantic Tunas Longline category permitted vessels to retain bluefin caught on green-stick gear, regardless of whether pelagic longline gear is on board

This alternative clarifies retention and reporting requirements for bluefin caught with green-stick gear (by vessels with Longline category permits, regardless of whether pelagic longline gear is on board), to allow the retention of one bluefin per trip (of 73" or greater CFL) and with additional regulations applying to such trips. Vessels would be required to submit a VMS set report for each green-stick retrieval *with interactions with bluefin*, and report information on the location of the set, and numbers and length of bluefin within 12 hours (in addition to the VMS reports for pelagic longline sets). Vessels must also comply with HMS logbook requirements, and comply with the IBQ Program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations.

NOAA Fisheries does not intend for this alternative to require purchase of new EM equipment, or reconfiguration of existing EM equipment. If pelagic longline gear is on board, vessels must comply with EM requirements (to continue monitoring the retrieval of longline sets with the EM System) and other regulations that are triggered by the presence of pelagic longline gear. Bluefin caught with pelagic longline gear must be recorded with the EM System. Since green-stick gear is not connected to the hydraulics (which trigger EM equipment operation), fish captured with green-stick gear are not required to be recorded by EM equipment.

Ecological Impacts

This alternative would have neutral ecological impacts for the same reasons provided under Sub-Alternative I5b, Ecological Impacts paragraph 1. Clarifying the regulations ensures accountability and aligns reporting requirements for green-stick caught bluefin with the requirements for pelagic longline gear use, but is not expected to alter fishing effort of either green-stick or pelagic longline gear in a way that would impact bluefin.

Ecological impacts on other Atlantic HMS and on protected resources are anticipated to be neutral. Implementing this alternative is not anticipated to change the amount of effort exerted by vessels using green-stick or pelagic longline gear, and therefore result in anticipated ecological impacts for these species that are different from the No Action Alternative.

Socioeconomic Impacts

In comparison to the No Action Alternative, this alternative would have minor, beneficial economic impacts because a vessel would be able to retain a legal-sized bluefin that may otherwise be discarded dead due to a *de facto* prohibition on bluefin retention. Retention of such fish would reduce waste, augment revenue, and reduce regulatory discards. Allowing the use of green-stick gear while pelagic longline gear is on board is intended to provide vessel operators flexibility to employ fishing strategies with multiple gear types to optimize their business in a highly dynamic fishery.

Since very few fishermen use both types of gear at the same time, this alternative is not anticipated to change the demand for additional pelagic longline gear or green-stick gear by permitted fishermen. Therefore, indirect socioeconomic impacts on supporting businesses that provide such gear are anticipated to be neutral. The growth in the use of green-stick gear is constrained by capital investments involved in rigging a vessel. A green-stick rig with fiberglass pole and separate hydraulic haul-back capability was estimated to cost $5,300 - $9,300 in 2008. Accounting for inflation and assuming no additional factors influencing price, these costs today could range from $6,266 to $10,995.

4.9.10 Conclusions – 'I5' Alternatives

Preferred Alternative I5c, clarification of the regulations to allow the retention of a legal-sized bluefin caught using green-stick gear, would reduce wasteful discards. Allowing such activity on a trip in which pelagic longline gear is also on the vessel would enhance flexibility for vessel operations in a highly dynamic fishery. The neutral ecological and beneficial socioeconomic impacts are consistent with the objectives of this Amendment. This alternative would clarify reporting and monitoring requirements, but would not result in additional industry or agency resources to reconfigure EM systems. Clarifying the regulations to allow the retention of bluefin caught with green-stick gear is aligned with the original intent of the 2008 rule, which authorized its use to allow efficient catch of Atlantic tunas with gear that is low in bycatch and has low bycatch mortality. The 2008 rule required that such activity operate within existing quotas, size limits, or other established limitations. Dead discarding of bluefin (although expected to be a rare occurrence) may be reduced on pelagic longline trips where vessels elect to use green-stick gear to target yellowfin tuna compared to other alternatives which do not allow retention of incidentally caught bluefin from green-stick gear. Finally, the use of green-stick gear as an alternative gear may be facilitated, which is consistent with the 2008 rule that implemented green-stick gear use. Depending upon local fishery and market conditions, and vessel size and layout, there may be opportunities for efficiency by allowing the retention of a bluefin by green-stick gear while both gear types are on board a vessel.

4.10 Impacts on Bycatch

National Standard 9 states that conservation and management measures shall, to the extent practicable: (1) minimize bycatch; and (2) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch. The MSA defines bycatch as fish that are harvested in a fishery, but that are not sold or kept for personal use, and includes the discard of whole fish at sea or elsewhere, including economic discards and regulatory discards, and fishing mortality due to an encounter with fishing gear that does not result in capture of fish (i.e., unobserved fishing mortality). The priority under this standard is first to avoid catching bycatch species where practicable. Fish that are bycatch and cannot be avoided must, to the extent practicable, be returned to the sea alive. Any proposed conservation and management measure that does not give priority to avoiding the capture of bycatch species must be supported by appropriate analyses. This evaluation must consider the net benefits to the Nation, including various relevant factors. These factors include negative impacts on affected stocks, environmental consequences and impacts on other marine organisms; non-consumptive uses of bycatch species; income to participants in directed fisheries and incomes to participants in fisheries that target the bycatch species.

Bluefin tuna incidental catch and bycatch

For pelagic longline fishery, bluefin tuna are an incidental catch species that may be harvested and sold, consistent with regulatory restrictions. The preferred alternatives applicable to the pelagic longline fishery were designed to be consistent with Amendment 7 and the IBQ Program, both of which focused on reducing incidental catch and bycatch of bluefin. One of Amendment 7's primary objectives was to reduce dead discards of bluefin tuna. The first two objectives of the IBQ Program implemented by Amendment 7 were to "Limit the amount of bluefin landings and dead discards in the pelagic longline fishery" and "Provide strong incentives for the vessel owner and operator to avoid bluefin tuna interactions, and thus reduce bluefin dead discards." The preferred alternatives in this Amendment 13 FEIS are consistent with those objectives, and should continue the reduction in bluefin dead discards that began with Amendment 7.

Regarding the handgear fisheries that target bluefin tuna, the only bluefin bycatch associated with the handgear fisheries are regulatory discards of undersized fish. None of the Preferred alternatives include any aspects that would alter the bycatch associated with those fisheries.

Bycatch other than bluefin

The amount of non-bluefin bycatch impacts, such as undersized swordfish, shortfin mako sharks, prohibited sharks, or sea turtles, would not be impacted by any of the preferred alternatives in the pelagic longline fishery or the bluefin handgear fisheries. This is because NOAA Fisheries does not anticipate more than minor changes, if any, in fishing effort or behavior, as a result of the preferred alternatives. The preferred alternatives are not anticipated to affect ESA-listed species in any way not already analyzed under the existing Biological Opinions for HMS fisheries.

Chapter 3 (Affected Environment; Section 3.4) in this document contains a description of how the HMS fisheries address the statutory requirements to address bycatch and protected species; lists of specific methods used to reduce bycatch in the HMS commercial and recreational fisheries; and data on species caught as bycatch in the HMS fisheries.

4.11 Impacts on EFH

Section 303(a)(7) of the Magnuson-Stevens Act requires FMPs to address the effects of fishing on EFH and identify other actions to encourage the conservation and enhancement of EFH. In such HMS FMPs, NOAA Fisheries must evaluate the potential adverse effects of fishing activities on EFH and must include in FMPs management measures that minimize adverse effects to the extent practicable. NOAA Fisheries also must identify other activities that may adversely affect EFH and recommend actions to reduce or eliminate these effects.

Chapter 3 of this document (Affected Environment) contains Section 3.3, which describes EFH for HMS species. Because HMS fishing gear is fished in the water column and does not come in contact with the benthic environment (and does not alter the relevant habitat characteristics of the water column), the preferred alternatives are anticipated to have minimal to no impact on EFH for Atlantic HMS or for species managed under Council FMPs associated with the benthic environment. Thus, NOAA Fisheries anticipates there are no adverse effects on EFH to address as a result of this action.

4.12 References

NMFS. 2011. Environmental Assessment, Regulatory Impact Review and Final Regulatory Flexibility Analysis for the Atlantic Bluefin Tuna General and Harpoon Category Regulations. NOAA, NMFS, Highly Migratory Species Management Division

NMFS. 2014. Final Amendment 7 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, NMFS, Highly Migratory Species Management Division

NMFS. 2017. Catch Share Policy. NOAA, NMFS Policy 01-121. Silver Spring, Md.

NMFS. 2018. Environmental Assessment, Regulatory Impact Review and Final Regulatory Flexibility Analysis for the Atlantic Bluefin Tuna and Northern Albacore Quota Rule. NOAA, NMFS, Highly Migratory Species Management Division

NMFS. 2019. Three-Year Review of the Individual Bluefin Quota Program. NOAA, NMFS, Highly Migratory Species Management Division

NMFS. 2020. 2019 Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species. NOAA, NMFS, Highly Migratory Species Management Division

5 Cumulative Impacts

A cumulative effects assessment is a required part of an EIS according to the Council on Environmental Quality (CEQ) regulations (40 CFR part 1508.7). Cumulative impacts are the impacts on the environment, which result from the incremental effects of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts include the total effect on a natural resource, ecosystem, or human community due to federal, non–federal, public, and private entities. Cumulative impacts may also include the effects of natural processes and events, depending on the specific resource.

The goal of this section is to describe the cumulative ecological, economic, and social impacts of past, present, and reasonably foreseeable future actions in association with the preferred alternatives presented in this document. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective. Rather, the intent is to focus on those effects that are truly meaningful. This chapter serves to examine the potential direct and indirect effects of the alternatives in Amendment 13 together with past, present, and reasonably foreseeable future actions that affect the environment. It should also be noted that the predictions of potential synergistic effects from multiple actions, past, present and/or future will generally be qualitative in nature due to the difficulty in quantitatively analyzing the anticipated effects of such actions. In qualitatively describing impacts, the term 'valued ecosystem components' is used in NEPA analyses to categorize the types of impacts evaluated. As described in detail in the Affected Environment chapter (Chapter 3), the valued ecosystem components considered in this cumulative impacts analysis are the following: bluefin, other highly migratory species, protected species, essential fish habitat, and the human community. The scope of the valued ecosystem components is a result of the geographic distribution of the HMS fishery and the gear types and fishing practices utilized in the fishery. The species caught by the fishery and the impacts of the fishery fall within the scope of the above ecosystem components. The temporal scope of the valued ecosystem components includes actions that have taken place since the adoption of the ICCAT rebuilding plan for bluefin tuna in 1998, but focuses on actions since 2006, when the Consolidated HMS FMP was implemented. The bluefin fishery is management pursuant to both ATCA and Magnuson-Stevens Act, and the context set by the rebuilding plan (1998) and FMP amendment (2006) provide a logical time period for the analysis.

5.1 Past, Present, and Reasonably Foreseeable Actions

Most of the past, present, and reasonably foreseeable actions contributing to the cumulative effects and considered in this chapter are fishery-related activities (e.g., Federal fishery management actions). These activities have fairly straightforward effects on

environmental conditions, and were, are, or will be taken, in large part, to improve those conditions. Important non fishery-related factors are also discussed below, as these factors combine with the fishery actions to affect the environment, including the human community.

Fishery-Related Actions

The geographic area potentially impacted by this action is the Federal Exclusive Economic Zone (EEZ) off the Atlantic and Gulf coasts of the United States. This broad area includes Atlantic HMS species and Council-managed species. Some examples of the Council-managed fisheries in the area include: the Northeast scallop fishery; Northeast groundfish fishery; tilefish fishery; Gulf of Mexico reef fish fishery; *Loligo* and *Illex* squid trawl fisheries; shark bottom longline fishery; Atlantic dolphin/wahoo fishery; and various recreational fisheries. Many of these fisheries occur in the benthic or mid-water areas of the water column. The alternatives of this amendment address operations of the pelagic longline and trap incidental and thedirected bluefin fisheries. Although these other fisheries operate in some of the same areas as the relevant HMS fisheries, minimal interactions occur between these Council-managed fisheries and the HMS fisheries. Some exceptions are fisheries for coastal pelagic species such as dolphin and wahoo (South Atlantic Fishery Management Council). Pelagic longline gear and handgear targeting bluefin are fished high in the water column and are rarely used in the benthic to mid-water columns of the ocean, where the majority of the other fisheries' activities occur. Therefore, NOAA Fisheries has determined that the appropriate scope of the cumulative effects analysis is limited to fisheries and activities or actions that also affect the pelagic environment and habitats within the action area, primarily the directed tuna and swordfish fisheries and directed bluefin tuna fisheries that may also catch BAYS (bigeye, albacore, yellowfin, skipjack) tunas or swordfish.

As discussed in Chapter 3, NOAA Fisheries has taken a number of actions in the past in order to, among other things, prevent overfishing and achieve, on a continuing basis, optimum yield and rebuild overfished fisheries. These actions have included Fishery Management Plans (FMPs), FMP amendments, and framework actions (https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/atlantic-hms-fishery-management-plans-and-amendments). The goals and objectives of past rules are summarized in Chapter 3. As described in this document NOAA Fisheries currently is in the rulemaking process for the bluefin fisheries (Amendment 13), and can reasonably expect to implement regulations in the future to address the management and conservation of Atlantic tunas and swordfish in directed tuna or swordfish fisheries and in fisheries that catch tunas or swordfish. The purpose and need, and objectives of this amendment are described in earlier sections, particularly Chapter 1, and are not repeated here.

Recent actions through 2021 within HMS fisheries that may affect commercial and recreational HMS fisheries both directly and indirectly are listed below (Table 5.1). These fisheries are expected to be most affected by the proposed measures in Amendment 13. A comprehensive list of all past actions listed by year can be found in Chapter 1 of the 2021 SAFE Report (NMFS 2021).

Future actions that are anticipated include inseason actions such as those supporting management of the commercial bluefin fishery, similar to those listed in Table 5.1. As described in Chapter 3, in 2021, ICCAT adopted a new bluefin tuna TAC and U.S. quota for 2022 (Recommendation 21-07) and, to implement it, NOAA Fisheries has proposed increasing the U.S. baseline annual bluefin tuna quota by approximately 5 percent to 1,316.14 mt and dividing that quota among the established regulatory domestic bluefin tuna subquota categories (87 FR 12648; March 7, 2022). That rulemaking is not yet finalized, but is expected to be final before the final rule implementing this FEIS is published. ICCAT anticipates that the SCRS will complete the bluefin tuna management strategy evaluation, including providing candidate management procedures to ICCAT for consideration, in 2022, with a view to ICCAT's adoption of a management procedure to set TACs for 2023 onward. We anticipate that conservation and management measures and TACs that are implemented will be science-based and consistent with the ICCAT Convention objective of maintain populations of tunas and tuna-like fishes at levels that will permit maximum sustainable yield (MSY). New measures or changes to the ICCAT conservation and management program for bluefin tuna may require future domestic rulemaking consistent with ATCA and the Magnuson-Stevens Act.

Table 5.1 Recent Actions within HMS Fisheries that May Affect the environment, including bluefin fisheries

Federal Register Citation	Date	Rule or Notice
2017		
82 FR 3209	1/11/2017	Final rule; Atlantic HMS; technical amendment to regulations
82 FR 4856	1/17/2017	Notice of receipt of an application for Exempted Fishing Permit and availability of Draft Environmental Assessment for Pelagic Longline Research in East Florida Coast Closed Area
82 FR 10746	2/15/2017	Extension of comment period and announcement of public webinar for Exempted Fishing Permit application for pelagic longline research in East Florida Coast Closed Area
82 FR 12296	3/2/2017	Annual adjustment of Atlantic bluefin tuna Purse Seine and Reserve category quotas; inseason quota transfer of 45 mt from the Reserve category to the Longline category
82 FR 12747	3/7/2017	Inseason transfer of 40 mt of Atlantic bluefin tuna quota from the Reserve category to the General category and adjusted daily retention limit for March 5 – March 31
82 FR 14162	3/17/2017	Atlantic bluefin tuna Angling category southern Area trophy fishery closure March 20
82 FR 16136	4/3/2017	Atlantic bluefin tuna General category fishery closure March 29 – May 31
82 FR 16478	4/4/2017	Final Rule to Implement Amendment 5b to the 2006 Consolidated HMS Fishery Management Plan
82 FR 19615	4/28/2017	Atlantic bluefin tuna Angling category recreational daily retention limit adjustment April 30 – December 31
82 FR 22616	5/17/2017	Atlantic bluefin tuna General category fishery daily retention limit adjustment for June 1 - August 31
82 FR 26603	6/8/2017	Atlantic bluefin tuna Angling category Gulf of Mexico trophy fishery closure June 7
82 FR 36689	8/7/2017	Atlantic bluefin tuna General category fishery daily retention limit adjustment August 5 – December 31
82 FR 37566	8/11/2017	Issuance of exempted fishing permit and availability of final Environmental Assessment for pelagic longline research in East Florida Coast Closed Area

Federal Register Citation	Date	Rule or Notice
82 FR 37825	8/14/2017	Atlantic bluefin tuna Angling category northern area trophy fishery closure August 11
82 FR 38853	8/16/2017	Inseason transfer of 40 mt of Atlantic bluefin tuna quota from the Reserve category to the Harpoon category
82 FR 39047	8/17/2017	Atlantic bluefin tuna General category fishery closure August 16-31
82 FR 41356	8/31/2017	Atlantic bluefin tuna General category fishery daily retention limit adjustment September 1 – December 31
82 FR 43500	9/18/2017	Adjustments to 2017 northern albacore quota, North and South Atlantic swordfish quotas, and Atlantic bluefin tuna Reserve category quota
82 FR 43711	9/19/2017	Atlantic bluefin tuna General category fishery closure September 17-30
82 FR 43710	9/19/2017	Notification that the Northeast Distant Gear Restricted Area (NED) quota is filled and Atlantic tunas Longline category individual bluefin quota accounting rules now apply in the NED
82 FR 46000	10/3/2017	Inseason transfer of 156.4 mt Atlantic bluefin tuna quota from the Reserve category to the General category
82 FR 46934	10/10/2017	Atlantic bluefin tuna General category fishery closure October 5 – November 30
82 FR 49303	10/25/2017	Proposed rule to modify individual bluefin tuna quota program regulations for accounting for bluefin tuna
82 FR 49773	10/27/2017	Proposed rule for an Atlantic HMS Charter/Headboat permit commercial sales provision
82 FR 55520	11/22/2017	Transfer of unused Atlantic bluefin tuna Harpoon category quota to the General category; General category fishery opens December 1 with 12.7 mt quota
82 FR 55512	11/22/2017	Final rule to establish quotas, opening dates, and retention limits for the 2018 Atlantic shark commercial fishing season
82 FR 57543	12/6/2017	Final rule for an Atlantic HMS Charter/Headboat permit commercial sales provision
82 FR 57885	12/8/2017	Atlantic bluefin tuna General category fishery closure December 6-31, 2017
82 FR 60680	12/22/2017	Inseason transfer of 14.3 mt from the General category December 2018 subquota period to the January 2018 subquota period
2018		
83 FR 8037	2/23/2018	Proposed rule to revise Atlantic shark fishery closure regulations
83 FR 8946	3/2/2018	Emergency interim final rule to address overfishing of Atlantic shortfin mako sharks
83 FR 8969	3/2/2018	Notice of intent for scoping of Atlantic bluefin tuna pelagic longline area-based and weak hook measures
83 FR 9232	3/5/2018	Transfer of 10 mt of Atlantic bluefin tuna quota from the Reserve category to the January 2018 subquota period and closure of the General category fishery for large medium and giant bluefin tuna until the General category reopens on June 1, 2018
83 FR 9255	3/5/2018	Notice of intent to prepare an environmental impact statement for shortfin mako shark management measures
83 FR 12141	3/20/2018	Atlantic bluefin tuna Angling category southern area trophy fishery closure March 17 – December 31
83 FR 17110	4/18/2018	Annual adjustment of bluefin tuna Purse Seine and Reserve category quotas; inseason quota transfer from the Reserve category to the Longline category for April 13 – December 31
83 FR 18230	4/26/2018	Atlantic bluefin tuna Angling category fishery daily retention limit adjustment April 26 – December 31
83 FR 21936	5/11/2018	Atlantic bluefin tuna General category fishery daily retention limit adjustment for June 1 – August 31
83 FR 22602	5/16/2018	Atlantic bluefin tuna Angling category Gulf of Mexico trophy fishery closure May 13 – December 31
83 FR 30884	7/2/2018	Swordfish general commercial permit retention limit adjustment July 1 – December 31, 2018
83 FR 31517	7/6/2018	Proposed rule for Atlantic bluefin tuna and northern albacore quotas; minor regulatory change to address shark-damaged tunas

Federal Register Citation	Date	Rule or Notice
83 FR 31677	7/9/2018	Final rule to revise Atlantic HMS shark fishery closure regulations
83 FR 33870	7/18/2018	Atlantic region commercial aggregated large coastal shark and hammerhead shark management groups retention limit adjustment July 18 – December 31
83 FR 35566	7/27/2018	Atlantic bluefin tuna Angling category northern area trophy fishery closure July 26
83 FR 35590	7/27/2018	Proposed rule for Amendment 11 to the 2006 Consolidated HMS Fishery Management Plan on Shortfin Mako Shark Management
83 FR 37446	8/1/2018	Adjustments to 2018 North and South Atlantic swordfish quotas
83 FR 38664	8/7/2018	Inseason transfer of 30 mt Atlantic bluefin tuna quota from the Reserve category to the Harpoon category
83 FR 42452	8/22/2018	Extension of emergency measures to address overfishing of Atlantic shortfin mako shark
83 FR 42607	8/23/2018	Atlantic bluefin tuna General category fishery daily retention limit adjustment August 23 – 31
83 FR 45866	9/11/2018	Proposed rule to establish quotas, opening dates, and retention limits for the 2019 Atlantic shark commercial fishing season
83 FR 47598	9/20/2018	Comment period extension for the proposed rule for Amendment 11 to the 2006 Consolidated HMS Fishery Management Plan on Shortfin Mako Shark Management
83 FR 47843	9/21/2018	Inseason transfer of 30 mt of Atlantic bluefin tuna quota from the Reserve category to the General category and closure of the General category fishery September 23 - 30
83 FR 50857	10/10/2018	Inseason transfer of 55 mt of Atlantic bluefin tuna quota from the Reserve category and Harpoon category to the General category and closure of the General category fishery October 5 – December 1
83 FR 51391	10/11/2018	Final rule for Atlantic bluefin tuna and northern albacore quotas; minor regulatory change to address predator-damaged tunas
83 FR 52169	10/16/2018	Atlantic bluefin tuna General category fishery reopening October 15 – 16
83 FR 55108	11/2/2018	Atlantic bluefin tuna General category fishery reopening October 31 – November 2
83 FR 57340	11/15/2018	Atlantic bluefin tuna General category fishery reopening November 12 – 16
83 FR 60777	11/27/2018	Final rule to establish quotas, opening dates, and retention limits for the 2019 Atlantic shark commercial fishing season
83 FR 62512	12/4/2018	inseason transfer of 129.2 mt of Atlantic bluefin tuna quota from the Reserve category to the General category, and 9.9 mt from the Harpoon category to the General category for the remainder of the 2018 fishing year
83 FR 63831	12/12/2018	Selection of all registered HMS tournaments for reporting
83 FR 67140	12/28/2018	Inseason transfer of 19.5 mt from the General category December 2019 subquota Period to the January 2019 subquota period
2019		
84 FR 3742	2/13/2019	General category fishery inseason transfer of 26 mt of Atlantic bluefin tuna quota from the Reserve category to the General category
84 FR 6701	2/28/2019	Annual adjustment of the Atlantic bluefin tuna Purse Seine and Reserve category quotas; General category fishery inseason transfer of 25 mt of Atlantic bluefin tuna quota from Reserve category
84 FR 7302	3/4/2019	Closure of General category January fishery for 2019
84 FR 9719	3/18/2019	Closure of Atlantic bluefin tuna Angling category southern area trophy fishery
84 FR 20296	5/9/2019	Atlantic bluefin tuna Angling category daily retention limit adjustment for May 11–December 31
84 FR 22731	5/20/2019	Atlantic bluefin tuna General category daily retention limit adjustment for June–August subquota time period
84 FR 25707	6/4/2019	Closure of Atlantic bluefin tuna Angling category Gulf of Mexico trophy fishery
84 FR 30954	6/28/2019	Closure of Atlantic bluefin tuna Angling category northern area trophy fishery
84 FR 33008	7/11/2019	Atlantic bluefin tuna General category daily retention limit adjustment for June–August subquota period
84 FR 33205	7/12/2019	Proposed rule to adjust Atlantic bluefin tuna pelagic longline area-based and weak hook measures

Federal Register Citation	Date	Rule or Notice
84 FR 35340	7/23/2019	Inseason transfer of 30 mt from the Atlantic bluefin tuna Reserve category to the Harpoon category
84 FR 38143	8/6/2019	Inseason transfer of 15 mt from the Atlantic bluefin tuna Reserve category to the Harpoon category
84 FR 39208	8/9/2019	Closure of Atlantic bluefin tuna Harpoon category fishery
84 FR 39978	8/9/2019	Closure of Atlantic bluefin tuna General category fishery for June–August subquota period
84 FR 47440	9/10/2019	Adjustment of 2019 northern albacore, north and south Atlantic swordfish, and Atlantic bluefin tuna Reserve category quotas
84 FR 48566	9/16/2019	Inseason transfer of 60 mt from the Atlantic bluefin tuna Reserve category and closure of the General category fishery for September subquota period
84 FR 52806	10/3/2019	General category fishery inseason transfer of 100 mt of Atlantic bluefin tuna October–November 2019 subquota from the Reserve category
84 FR 55507	10/17/2019	Closure of Atlantic bluefin tuna General category fishery for October–November subquota period
84 FR 63812	11/19/2019	Inseason quota of 53.2 mt from the Atlantic bluefin tuna quota Reserve category to the General category
2020		
85 FR 17	1/2/2020	Inseason transfer of 19.5 mt from the General category December 2020 subquota period to the January 2020 subquota period
85 FR 6828	2/6/2020	Annual adjustment of the Atlantic bluefin tuna Purse Seine and Reserve category quotas; General category fishery inseason transfer of 51 mt of Atlantic bluefin tuna quota from Reserve category
85 FR 10341	2/24/2020	Closure of bluefin tuna angling category southern area trophy fishery for 2020
85 FR 10993	2/26/2020	Closure of General Category bluefin fishery for January subquota period for 2020
85 FR 18812	4/2/2020	Final Rule: Pelagic longline weak hook and area measures
85 FR 21789	4/20/2020	Closure of Angling category Gulf of Mexico Trophy Fishery (Incidental)
85 FR 23315	4/27/2020	Proposed Rule to Modify North Atlantic Swordfish and Shark Retention Limits for Certain Permit Holders and Add Inseason Adjustment Authorization Criteria
85 FR 26365	5/4/2020	Angling category daily retention limit adjustment
85 FR 31414	5/26/2020	Closure of Angling category northern trophy fishery
85 FR 43148	7/16/2020	Quota transfer from Reserve to Harpoon category
85 FR 48120	8/10/2020	Closure of bluefin harpoon category
85 FR 59445	9/22/2020	Quota transfer from Reserve to General category
85 FR 61638	9/30/2020	Closure of General category September subquota period
85 FR 61872	10/1/2020	Adjustment of 2020 northern albacore, north and south Atlantic swordfish, and Atlantic bluefin tuna Reserve category quotas
85 FR 64411	10/13/2020	Closure of General category October-November subquota period and transfer of quota from Reserve to General category
85 FR 68798	10/30/2020	Reopening of General category October-November subquota period and transfer of quota from Reserve to General category
85 FR 71270	11/9/2020	Second reopening of General category October-November subquota period
85 FR 76030	11/27/2020	Comments requested on issuance of Exempted Fishing Permits and related permits in 2021 for Atlantic Highly Migratory Species
85 FR 76533	11/30/2020	Request for applications: 2021 Shark Research Fishery
85 FR 81837	12/17/2020	Fishery closure- Atlantic bluefin tuna General category fishery (December subquota)
85 FR 83832	12/23/2020	Adjustment of Atlantic bluefin tuna General category subquota
2021		
86 FR 8717	2/9/2021	Annual adjustment of the Atlantic bluefin tuna Purse Seine and Reserve category quotas; General category fishery inseason transfer of 26 mt of Atlantic bluefin tuna quota from Reserve category
86 FR 12291	3/3/2021	Closure of General Category bluefin fishery for January subquota period for 2021

Federal Register Citation	Date	Rule or Notice
86 FR 12548	3/4/2021	Closure of bluefin tuna angling category southern area trophy fishery for 2021
86 FR 22006	4/26/2021	Proposed Rule: Federal Atlantic Tunas Regulations in Maine State Waters
86 FR 22882	4/26/2021	Final Rule to Modify North Atlantic Swordfish and Shark Retention Limits for Certain Permit Holders and Add Inseason Adjustment Authorization Criteria
86 FR 22895	4/30/2021	Angling category daily retention limit adjustment
86 FR 24359	5/6/2021	Closure of Angling category Gulf of Mexico Trophy Fishery (Incidental)
86 FR 25992	5/12/2021	Proposed Rule: General category Restricted-Fishing Days for 2021
86 FR 26424	5/14/2021	Closure of Angling category northern trophy fishery
86 FR 27686	5/21/2021	Proposed Rule: Amendment 13
86 FR 27814	5/24/2021	General category retention limit adjustment
86 FR 30287	6/7/2021	Amendment 13 Notice of Public Hearing Webinars
86 FR 31701	6/15/2021	Reconsideration of Spring Gulf of Mexico Monitoring Area Notice of Public Webinars
86 FR 36669	7/13/2021	General category retention limit adjustment reduction
86 FR 38262	7/20/2021	Amendment 13 Comment Period Extension of Comment Period
86 FR 42743	8/5/2021	Final Rule: Federal Atlantic Tunas Regulations in Maine State Waters
86 FR 43118	806/2021	Closure of General Category bluefin fishery for June through August subquota period for 2021
86 FR 43420	8/9/2021	Quota transfer from Reserve to Harpoon category
86 FR 43421	8/9/2021	Final Rule: General category Restricted-Fishing Days for 2021
86 FR 51016	9/14/2021	Quota transfer from Reserve to General category September subquota period for 2021
86 FR 53010	9/24/2021	Closure of General category September subquota period
86 FR 54659	10/04/2021	Adjustment of 2021 northern albacore, north and south Atlantic swordfish, and Atlantic bluefin tuna Reserve category quotas
86 FR 54873	10/05/2021	Quota transfer from Reserve to General category October through November subquota period for 2021
86 FR 66975	11/24/2021	Quota transfer from Reserve and Harpoon categories to General category December subquota period for 2021
86 FR 71393	12/16/2021	Quota Adjustment and Closure of the General category December subquota period for 2021
86 FR 72532	12/22/2021	Reopening of General category December subquota period for 2021
86 FR 66975	11/24/2021	Atlantic bluefin tuna General category December subquota adjustment

More recent rules and notices are located at: Notices and Rules.

International Management

Atlantic tunas, including bluefin tuna, are managed federally under the dual authority of the Magnuson-Stevens Act and ATCA, which authorizes the Secretary to promulgate regulations as may be necessary and appropriate to implement binding ICCAT recommendations. ICCAT is regional fisheries management organization responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and its adjacent seas. ICCAT adopts management measures (called "recommendations") for tunas and tuna-like species based on scientific advice. Those recommendations are binding on parties, including the United States, and address aspects of fishery management such as quotas, minimum sizes, trade restrictions, statistical documents, vessel lists, etc. ICCAT also compiles fishery statistics from its members and from entities fishing for these species in the Atlantic Ocean and coordinates research, including stock assessments, on behalf of its members. Thus, ICCAT's management actions contribute to the cumulative effects

considered here. The preferred alternatives listed in this document are consistent with the active ICCAT recommendations.

Non-Fishery Related Factors

Activities that have meaningful effects on the ecosystem components include the introduction of chemical pollutants, sewage, changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine environment. Broad categories activities that cause such changes to the marine environment (i.e., habitat for HMS species) include, but are not limited to, dredging, filling, excavation, mining, impoundment, discharge, water diversions, thermal additions, actions that contribute to non-point source pollution and sedimentation, introduction of potentially hazardous materials, introduction of exotic species, and the conversion of aquatic habitat that may eliminate, diminish, or disrupt the functions of Essential Fish Habitat (EFH) (NMFS, 2017). These activities pose a risk to all of the ecosystem components in the long term. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and, as such, may indirectly constrain the sustainability of the managed resources, non-target species, and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these ecosystem components to the impacts of fishing effort. A discussion of land-based and coastal and offshore activities that may affect HMS EFH is in section 5.2.1 of Amendment 10 (NMFS, 2017).

Climate Change

The warming of the climate system is unequivocal. In a recent report, the Intergovernmental Panel on Climate Change (IPCC) of the United Nations Environment Program noted many impacts to the marine environment due to climate change (IPCC, 2019. Special Report on the Ocean and Cryosphere in a Changing Climate), including increasing ocean temperature and hypoxia, declines in pH, increases in stratification, primary productivity and food web impacts, fish distributional changes, etc. The amount of information available on climate impacts to marine systems has increased substantially in recent years; however, relatively little is known about impacts to Atlantic HMS, many of which have very broad thermal tolerances. It is difficult to predict climate-induced responses of marine fish populations, particularly those on a higher trophic level, due to exposure to a complex mix of changing abiotic (e.g., temperature, salinity, pH) and biotic (e.g., abundance and distribution of predators and prey) conditions (Hollowed et al. 2013) and inconsistent and incomplete data (Murawski 2013). Muhling et al. (2011) modeled a variety of climate change simulations in the Gulf of Mexico specifically to quantify potential effects of warming on the suitability of the Gulf of Mexico as a spawning ground for bluefin tuna. Model results showed that bluefin tuna were indeed likely to be vulnerable to climate change impacts with increasing water temperature, affecting spawning times and locations, as well as larval growth, feeding, and survival. NOAA Fisheries is taking several steps to address the potential impacts of climate change on managed resources, including the development of vulnerability assessments and a climate science strategy.

Deepwater-Horizon Oil Spill

On April 20, 2010, an explosion occurred on the Deepwater Horizon MC252 oil rig, resulting in the release of an estimated 4.9 million barrels of oil into the Gulf. The oil spill affected more than one-third of the Gulf area from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. The impacts of the Deepwater Horizon MC252 oil spill on the physical environment are expected to be significant and may be long-term. One concern is that the oil spill may have impacted spawning success of species that spawn in the summer months, either by reducing spawning activity or by reducing survival of the eggs and larvae. Effects on the physical environment, such as low oxygen, could lead to impacts on the ability of larvae and post-larvae to survive, even if they never encounter oil. In addition, effects of oil exposure may create sub-lethal effects on the eggs, larva, and early life stages. The stressors could potentially be additive, and each stressor may increase the susceptibility to the harmful effects of the other (Amendment 31, 2018; South Atlantic Fishery Management Council).

As described in Chapter 3 of this document, during the time period of the spill, bluefin were migrating into the Gulf of Mexico to spawn. It was estimated that 2 to 5 trillion larval fish were killed. Twenty billion to 100 billion large tunas were directly killed, with an estimated total injury of 1,000 to 4,000 mt. The Oceanic Fish Restoration Project (OFRP) was implemented to restore pelagic fish biomass through actions that were expected to reduce fish mortality from bycatch and regulatory discards in the portion of the U.S. Atlantic pelagic longline fishery operating in the Gulf of Mexico.

Amendment 13 Preferred Alternatives

The preferred alternatives in this FMP amendment would combine to modify HMS bluefin tuna commercial and recreational fisheries regulations to further evolve and optimize the management of bluefin fishery (although some of the preferred alternatives would preserve the status quo regulations). Commercial and recreational fishermen that target and incidentally catch bluefin would benefit from changes to requirements for modified category allocations, adjustments to the Individual Bluefin Quota (IBQ) Program; elimination of the Purse Seine category; modifications to the General category subquota allocations; modifications to the Angling category trophy fishery, and other handgear fishery regulatory modifications.

The preferred alternatives are designed to manage the Atlantic HMS resources, focusing on bluefin, in a manner that maximizes resource sustainability and fishing opportunities, while minimizing, to the greatest extent possible, the socioeconomic impacts on affected fishermen, dealers, and other fishing interests. The preferred alternatives would meet conservation and management objectives while also reducing regulatory burden and providing additional opportunities to catch target species. The preferred alternatives specifically address the objectives of this amendment, which include: optimize allocations to provide fishing vessels with a reasonable opportunity to catch the U.S. quota; facilitate the ability for active HMS directed permit categories to catch their full bluefin quota allocations; maintain flexibility in the regulations; maintain consistency with conservation and management objectives; and modify the management of the pelagic longline fishery in

response to the Three-Year Review as well as to important relevant, prevailing trends. In doing so, the preferred alternatives have fewer negative socioeconomic impacts than other alternatives while supporting the conservation objectives for all species.

The preferred alternatives cumulatively represent a decrease in the regulatory burden for fishermen and seafood dealers. The preferred alternatives could have overall minor beneficial cumulative ecological impacts and neutral to minor beneficial cumulative socioeconomic impacts. The following past and ongoing actions had or would have varying degrees of synergistic impacts on the human environment when considered in conjunction with the action in the preferred alternatives:

- On January 1, 2015, NOAA Fisheries implemented Amendment 7 to the 2006 Consolidated HMS FMP (79 FR 71510; December 2, 2014). The rule dramatically changed bluefin management, particularly within the pelagic longline fishery. Amendment 7 changed the allocations of U.S. bluefin quota among domestic fishing categories. It also implemented measures applicable to the pelagic longline fishery, including: the IBQ Program; the Spring Gulf of Mexico Gear Restricted Area; the Cape Hatteras Gear Restricted Area; closure of the pelagic longline fishery when annual bluefin quota is reached; elimination of target catch requirements associated with retention of incidental bluefin in the pelagic longline fishery; mandatory retention of legal-sized bluefin caught as bycatch; expanded monitoring requirements, including Electronic Monitoring (EM) via cameras and bluefin catch reporting via VMS; and transiting provisions for pelagic longline and bottom longline vessels. The rule also had impacts on the recreational HMS fishery by changing the quota allocation of the Angling category Trophy South subquota to create a Trophy Gulf of Mexico (incidental only) area and allocation. This rule proposes to modify many of the management measures implemented under Amendment 7. The alternatives would affect the commercial and recreational HMS fisheries, and the alternatives are broadly organized according to the type of vessels primarily affected (e.g., pelagic longline vessels - IBQ Program, Purse Seine category participants, General category, Angling category, etc.) for ease of understanding. The majority of the measures seek to provide increased management flexibility in the bluefin fishery both directed and incidental categories. When the preferred alternatives in Amendment 13 are considered in conjunction with the Amendment 7 measures that remain in place, it is anticipated this action may have minor beneficial to neutral cumulative ecological and socioeconomic impacts.
- On September 15, 2017, the first marine national monument in the Atlantic Ocean, the Northeast Canyons and Seamounts Marine National Monument, was created. The total area of the monument is 4,913 square miles of ocean. Commercial fishing and other resource extraction activities have been prohibited within the monument boundaries on a year-round basis. Recreational fishing is allowed to occur in the monument boundaries. On June 5, 2020, the prohibition on commercial fishing was lifted under the Presidential "Proclamation on Modifying the Northeast Canyons and Seamounts Marine National Monument." On October 8, 2021, the prohibited activities were again revised to include a prohibition on commercial fishing (Proc. 10287; 86 FR 57349). The National Monument does not intersect with any areas considered in this action. No additional cumulative impacts are anticipated stemming from the National Monument,

because the National Monument is already part of the management and regulatory environment during the timeframe of analyzed data in this DEIS.

- On October 11, 2018, NOAA Fisheries published a final rule (83 FR 51391) to adjust and recalculate the baseline annual U.S. quota and subquotas for Atlantic bluefin and the baseline annual U.S. Northern Atlantic albacore tuna quota to reflect quotas adopted by the ICCAT. Additionally, this final rule updated regulatory language on school bluefin, made a minor change to the Atlantic tunas size limit regulations to address retention, possession, and landing of bigeye and yellowfin tuna damaged through predation by sharks and other marine species. Cumulative ecological impacts of the preferred alternatives in the final rule were expected to be neutral to minor beneficial, while the socioeconomic impacts were expected to be minor and beneficial. The modification of language to address damaged tunas through predation by sharks and other marine species, was primarily economic and administrative, and no environmental effects were anticipated because the change only allows for retention of a very limited number of fish that would otherwise be caught but need to be discarded. When the preferred alternatives in Amendment 13 are considered in conjunction with the 2018 quota rule it is anticipated this action may have minor beneficial to neutral cumulative ecological and socioeconomic impacts.
- On March 3, 2019, NOAA Fisheries implemented Amendment 11 to the 2006 Consolidated HMS FMP (84 FR 5358; February 21, 2019) (Amendment 11). Amendment 11 implemented management measures to address the United States' portion of overfishing and to help rebuild the overfished North Atlantic shortfin mako shark stock. These measures are based on the ICCAT stock assessment that determined that shortfin mako sharks are overfished and experiencing overfishing. Management measures also reflect binding management measures adopted in ICCAT Recommendation 17-08. Under Amendment 11, and consistent with ICCAT recommendations at the time, commercial measures would allow retention of shortfin mako sharks by HMS permit holders when caught with longline or gillnet gear and only if the shark is dead at haulback. Retention of dead shortfin mako sharks with pelagic longline gear has been allowed under Amendment 11 regulations only if there is a functional EM system on board the vessel. Recreational measures increased the minimum size limit for retention of shortfin mako sharks from 54" fork length (straight line) to 71" fork length for males and 83" fork length for females and required the use of circle hooks for recreational shark fishing in all areas. (Note, however, that NOAA Fisheries has proposed modifying measures in Amendment 11 in an ongoing rulemaking.) Overall, Amendment 11 was expected to have beneficial ecological impacts in the short- and long-term and minor adverse or neutral cumulative socioeconomic impacts on participants in the recreational and commercial fisheries. When the preferred alternatives of Amendment 13 areconsidered in conjunction with Amendment 11, it is not anticipated to create any additional adverse impacts to commercial or recreational bluefin fishermen or to the stocks in question.
- On May 16, 2019, NOAA Fisheries announced its intent to conduct a draft environmental impact analysis, specifically a DEIS, for an action to consider options to perform research and collect data in areas closed to or restricting fishing and gear types for HMS in support of and to evaluate spatial fisheries management (84 FR 22112). Strategiesto facilitate research and data collection in these areas could improve

sustainable management of HMS. NOAA Fisheries conducted scoping at that time in 2019, and is currently developing the DEIS and proposed rule. This project is too early in its development to allow NOAA Fisheries to anticipate any potential impacts in conjunction with the preferred alternatives in Amendment 13.

- The Deepwater Horizon Offshore Fishing Restoration Project (OFRP) is currently active in the Gulf of Mexico region and selects pelagic longline vessels on an annual basis to participate in the program. These vessels are compensated to refrain from fishing pelagic longline gear when bluefin are present and spawning in the Gulf of Mexico, and are encouraged to fish with alternative gears (e.g., green-stick and buoy gear) for swordfish and yellowfin tuna. For pelagic longline permitholders who are IBQ shareholders, their distributed IBQ allocations are locked and cannot be used when they are participating in the program. The last year of the program anticipated to be 2022 As a result of vessels participating in this project, the number of vessels actively fishing pelagic longline in the winter and spring in the Gulf of Mexico may decrease. When the preferred alternatives for Amendment 13 are considered in conjunction with the OFRP, it could have minor beneficial cumulative ecological impacts to bluefin in the Gulf of Mexico.
- On April 2, 2020, NOAA Fisheries published a final rule (85 FR 18812) that modified certain pelagic longline bluefin area-based and weak hook management measures. This rule eliminated the Cape Hatteras Gear Restricted Area from the regulations. The rule also modified the current year-round weak hook requirement for pelagic longline vessels in the Gulf of Mexico to a seasonal requirement (January-June) when bluefin are abundant in the Gulf of Mexico. The rule also converted a closed area in the Atlantic (Northeastern United States Closed Area) and a gear restricted area (Spring Gulf of Mexico Gear Restricted Area) to monitoring areas. These areas, which were previously closed to reduce bluefin incidental catch on pelagic longline gear, are now open to pelagic longline fishing under a stringent monitoring process. Bluefin mortality that occurs in the monitoring areas while they are in effect (April - May for the Spring Gulf of Mexico Monitoring Area and June for the Northeastern United States Monitoring Area) will be deducted from a threshold specific to that area. If the threshold is reached the area will close and remain closed unless NOAA Fisheries takes additional action. Overall this rule was expected to have minor adverse (mainly billfish) to minor beneficial ecological impacts and neutral to minor beneficial socioeconomic impacts. When the preferred alternatives in Amendment 13 are considered in conjunction with the final rule for pelagic longline bluefin area-based and weak hook management measures, it is anticipated this action may have minor beneficial to neutral cumulative ecological and socioeconomic impacts.
- On August 5, 2021, NOAA Fisheries published a final rule (86 FR 42743) adding Maine to the list of states for which NOAA Fisheries has determined that Federal Atlantic tunas regulations are applicable within state waters, consistent with section 9(d) of ATCA and implementing regulations. No additional cumulative impacts are anticipated stemming from that rulemaking in conjunction with the preferred alternatives in Amendment 13.
- On August 9, 2021, NOAA Fisheries published a final rule to set Atlantic bluefin tuna General category restricted-fishing days (RFDs) for the 2021 fishing year, clarify the regulations regarding applicability of RFDs to HMS Charter/Headboat permitted vessels, and correct references to the Atlantic Tunas General category permit

throughout the HMS regulations (86 FR 43421). This action established RFDs on Tuesdays, Fridays, and Saturdays during September through November 2021. On an RFD, Atlantic Tunas General category permitted vessels may not fish for (including catch-and-release or tag-and-release fishing), possess, retain, land, or sell BFT. On RFDs, persons aboard HMS Charter/Headboat permitted vessels with a commercial sale endorsement are prohibited from fishing commercially for BFT. Persons aboard all HMS Charter/Headboat permitted vessels can fish recreationally for BFT under the applicable Angling category restrictions and retention limits. No additional cumulative impacts were anticipated from this rulemaking in conjunction with the preferred alternatives in Amendment 13, since its applicability was limited to 2021. On March 7, 2022, NOAA Fisheries published a proposed rule (87 FR 12643) to establish RFDs for the General category 2022 fishing year. If finalized as proposed, RFDs in conjunction with the preferred alternatives in Amendment 13 would be anticipated to have neutral to minor beneficial cumulative ecological and socioeconomic impacts.

- On March 7, 2022, NOAA Fisheries published a proposed rule (87 FR 12648) to implement ICCAT Recommendation 21-07 by increasing the U.S. baseline annual bluefin tuna quota. This rule is not yet finalized. If finalized as proposed, the quota increase in conjunction with this action would be anticipated to have neutral to minor beneficial cumulative ecological and socioeconomic impacts.
- NOAA Fisheries published a proposed rule that would implement ICCAT Recommendation 21-09 by prohibiting retention of shortfin mako sharks caught in association with ICCAT fisheries in 2022 (87 FR 21077; April 11, 2022). Specifically, this action would implement a flexible shortfin mako shark retention limit with a default of zero, in the commercial and recreational HMS fisheries. If finalized as proposed, the preferred alternatives in Amendment 13 in conjunction with the rule on shortfin mako retention would have no additional cumulative impacts, because there are very low level of shortfin mako retention.
- In the near future, NOAA Fisheries intends to publish a proposed rule that would consider prohibiting oceanic whitetip sharks in all regions and scalloped hammerhead sharks in the Central and Southwest Atlantic Distinct Population Segment (DPS). These species and DPSs are listed as threatened under the Endangered Species Act (ESA), and the rulemaking is anticipatedin response to two Biological Opinions (BiOps) for Atlantic Highly Migratory Species (HMS): one for the pelagic longline (PLL) fishery and one for the non-PLL fisheries.

5.2 Combined Ecological Impacts

Combined, the ecological impacts of all of the preferred alternatives range from neutral to minor and beneficial, as explained in the summary below. Combined ecological impacts discussed below are the sum of the impacts of all of the individual preferred alternatives. In contrast, cumulative impacts encompass more broadly the past and reasonable forseeable impacts of other management measures and factors. Each alternative is described in Chapter 2 and a detailed discussion of ecological impacts for each alternative can be found in Chapter 4.

Preferred Sub-Alternative A2b would determine IBQ share percentages annually based upon each individual permitted vessel's fishing effort as measured by sets instead of measured by designated species landings or hooks. Specifically, the measure of fishing effort would be the total number of sets deployed relative to the total number of sets deployed by the pelagic longline fleet, as the measure of fishing effort. The direct short- and long-term ecological impacts of Sub-Alternative A2b on bluefin are expected to be neutral. The short- and long-term indirect ecological impacts on other HMS species (as well as protected species) would also be neutral, because fishing strategies for target species are likely to remain largely unaffected by redistribution of bluefin quota to active vessels. This Sub-Alternative would also authorize the framework for a future *de minimis* IBQ set-aside for new entrants, which would have a neutral ecological impact.

Preferred Alternative B3 would be implemented in conjunction with the dynamic allocation alternatives. Regional designations of IBQ shares and allocation (GOM and ATL) would be determined on an annual basis as part of the annual dynamic allocation process. The accounting rules for the regional IBQ allocations would also remain the same (except in the event the amount of GOM designated IBQ shares was five percent or less of the total amount of IBQ shares for a given year), and there would be a maximum amount of bluefin catch from the Gulf of Mexico via the limited amount of GOM designated IBQ allocation (or a limitation directly on catch from the Gulf of Mexico if GOM shares are five percent or less). Specifically, regional designations would be based on the location of the relevant pelagic longline fishing activity used in the annual allocation (under the 'A' alternatives). The initial cap on GOM designated IBQ shares would be 35 percent of the total Longline category shares the same as set under Amendment 7. Although the initial cap would be set at 35 percent, the amount of GOM designated shares (based on the relative amount of fishing effort in the Gulf of Mexico) may be lower. If the amount of GOM designated IBQ allocation in a given year is five percent or less of the total amount of IBQ allocation available, the requirement that only GOM designated IBQ allocation be used to account for bluefin caught in the Gulf of Mexico would not be in effect in the subject fishing year for which shares are distributed (and ATL designated IBQ allocation could be used to account for bluefin catch or satisfy the minimum IBQ allocation requirement under the quarterly accountability rules). The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Alternative B4 would maintain the inclusion of any data associated with fishing in the Northeast Distant Gear Restricted Area (NED) as part of formulas that determine IBQ shares, and maintain the current IBQ catch accounting rules for fishing in the NED. Vessels do not have to use IBQ allocation to account for bluefin catch from the NED until after the ICCAT-designated 25 mt of bluefin have been caught. This alternative would not affect the overall level of bluefin catch. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Alternative C1 would continue the current regulations under which no sale of IBQ shares are allowed. Amendment 7 (2015) implemented the current rules, which prohibit sale of IBQ shares, yet allow temporary (annual) leasing of IBQ allocation among Atlantic Tunas Longline category permit holders. IBQ shares are linked to, and non-

severable from Atlantic Tunas Longline category permits and may not be sold (Atlantic Tunas Longline category permits may be sold however). Sale of shares is a separate and distinct type of transaction from temporary leasing of IBQ allocation. Atlantic Tunas Longline category permit holders may lease IBQ allocation at any time during a calendar year to another permit holder, but the leased IBQ allocation does not carry over from one year to the next. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative D1c would cap the percentage of IBQ shares that an entity could hold, or acquire as shareholder, at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with the owned IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). This alternative would not modify the annual science-based ICCAT recommended bluefin quota, nor the fishing mortality associated with that quota. The total amount of IBQ allocation resulting from the available IBQ shares would remain equal to the Longline category quota. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative D2a would maintain the Amendment 7 limit on the amount of IBQ allocation an individual longline vessel can lease annually as the total longline allocations on an annual basis (in conjunction with Preferred Sub-Alternative F2b and F3a-where there would be no Purse Seine category and thus no leasing from purse seine participants). The short-term and long-term direct and indirect ecological impacts of this alternative are expected to be neutral because determining the level of a cap on the amount of IBQ allocation a single entity could lease or use during a year, or not implementing a cap, does not affect the amount of overall Longline category quota that may be caught.

Preferred Sub-Alternative E1b would modify two aspects of the dealer reporting requirements for the IBQ Program. First, this alternative would eliminate the current requirement that vessel operators or owners confirm that the landing report information entered into the IBQ system by the dealer is accurate, by entering the personal identification number (PIN) associated with the vessel account. Instead, a new email notification by NOAA Fisheries via the IBQ system (or a message within the IBQ system) would inform the vessel owner when a dealer conducts a transaction with that vessel's IBQ account to provide a means of vessel operator oversight of dealer transactions with their IBQ vessel account. The requirement that the dealer enter the data on bluefin landings into the online IBQ system via the dealer account would continue.

Secondly, Sub-Alternative E1b would continue the current VMS reporting requirements for bluefin dead discards, but remove the requirement that any pelagic longline vessel owner or operator who discarded dead bluefin also enter dead discard information from the trip by coordinating with the dealer and entering that trip's dead discard information into the Catch Shares Online System via the dealer account. The source of real-time dead discard data would be the VMS data regarding dead discards, entered by the vessel operator via the bluefin set report, from sea. This alternative would not affect the amount of overall

Longline category quota that may be caught or have any environmental effects, as it is largely an administrative matter affecting reporting. Therefore, the overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative E2b would require that the vessel operator mail EM system hard drives within 48 hours at the completion of every other trip (every second trip), instead of after *each* pelagic longline fishing trip. An exception to this requirement would be that if the hard drive is at capacity (full) after one trip, as indicated by the EM System, the vessel operator must mail the hard drive at the end of that trip. This alternative would not affect the amount of overall Longline category quota that may be caught or have any environmental effects, as it is largely an administrative matter affecting reporting Therefore, the overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative E3b would clarify the regulations regarding EM cameras to include installation of permanent or semi-permanent hardware, if necessary, in order to mount and install video cameras at locations on vessels as necessary to obtain optimal views, and allow NOAA Fisheries, working in conjunction with the vessel owner/operator, to make relatively minor modifications to the vessel structure to mount cameras in locations that provide required views of the vessel and adjacent areas. For example, NOAA Fisheries may require the installation of the rail camera on vessel structure, or installation of new permanent or semi-permanent hardware such as booms on a structure near the vessel's rail for the purpose of obtaining a different camera angle to provide an optimal view. The ecological impacts of Sub-Alternative E3b, the preferred alternative, will be indirect, and beneficial due to improved accuracy of the discard data derived from the EM Program.

Preferred Sub-Alternative E4b would require more specific fish handling procedures and the installation/placement of a measuring grid on deck, in view of one of the cameras. Specifically, the vessel crew would be required to place retained fish on a mat with grid lines or a grid painted on deck in view of the processing camera, so the video recording included images of the fish. The grid may be customized to an individual vessel while also having lines of standard intervals. The impacts of this alternative are expected to be minor and beneficial due to better size and identification estimates for landed tunas.

Preferred Sub-Alternative E6b would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by permit holders for a particular year is warranted. Annually, NOAA Fisheries would estimate its incremental costs associated with the IBQ Program (including costs associated with the cost recovery program) and the total ex-vessel value of bluefin sold from the pelagic longline fishery; and notify the permit holders whether a cost recovery fee will be charged for the year. This alternative would have short- or long-term direct and indirect neutral ecological impacts, because it would only result in a report on the catch share program's cost recovery and the potential collection of some cost recovery fees and not affect fishing activities of the fleet.

Preferred Sub-Alternative F1b would simplify the annual quota allocation process. Specifically, this alternative would make a change to the mathematical method used in the annual quota allocation process in order to achieve a similar result through simpler means. Instead of a two-step process of subtracting the 68 mt and then applying the category allocation percentages, there would be a one- step process applying slightly revised category allocation percentages. The short- and long-term direct and indirect ecological impacts are expected to be neutral compared to the No Action (Alternative F1a) alternative, because the overall quota and each category's subquota would not change from status quo.

Preferred Sub-Alternative F2b would discontinue the Purse Seine category through redistribution of Purse Seine category quota effective upon implementation of the A13 final rule. NOAA Fisheries would remove purse seine from the list of authorized gear and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants. This alternative in isolation, would result in no impact to the bluefin stock since the quota would be reallocated under anotheralternative. This alternative is closely related the Preferred Sub-Alternative F3a, described below. Therefore, the overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative F3a would reallocate the Purse Seine category proportionally to all bluefin quota categories (General, Angling, Harpoon, Longline, Trap, and Reserve categories) based on the percentages associated with each quota category, and result in revised allocations and quotas. This alternative would result in additional quota for all categories (General, Angling, Harpoon, Longline, Trap and Reserve categories). The short- and long-term direct and indirect ecological impacts are expected to be neutral compared to the No Action (Alternative F2a) alternative, because the overall quota would not change from the status quo, nor would there be meaningful changes to the location and manner in which the bluefin quota is utilized, nor would there be meaningful changes to the impacts on other species or the environment from the potential increased use of gear types other than purse seine.

Preferred Alternative G1 would make no changes to the regulations regarding suballocation of the General category bluefin quota into time-period subquotas. Since, this alternative would maintain the current time periods, there would be no General category bluefin activity during the months of April and May of each year. Depending on how quickly the available January-March subquota is used, it is likely based on the closure date in the last few years (e.g., no closure in 2015 or 2016; closure on March 29, 2017, March 2, 2018, February 28, 2019, and February 24, 2020) that there may not be General category fishing activity in part or all of March as well. Therefore, the overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Alternative H2 would modify the current Angling category Trophy subquota areas and allocations outlined at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° North Latitude (N. lat.) (off Chatham, MA); these newly-

formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively.

These newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area. The net result would be that the Angling Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each area would receive the same amount of quota. To create the new trophy suballocation for the Gulf of Maine trophy area, NOAA Fisheries would increase the allocation for trophy bluefin. Because the amount of school bluefin (27" - < 47") that can be caught each year is limited in the codified regulations, and in compliance with the ICCAT bluefin recommendation, to no more than 10 percent of the annual U.S. bluefin tuna quota, any increase to the trophy subquota would be best balanced with an equivalent reduction of the subquota for large school/small medium bluefin subquota (47" - < 73"), which is the remainder of the Angling category quota once the school bluefin subquota and trophy subquotas are subtracted. NOAA Fisheries would not expect fishing behavior to change as a result of this alternative, and the overall quota would remain the same. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative I1a would maintain the current authorized gears applicable to the Atlantic tunas permit categories (§ 635.19(b)). For example, vessels permitted in the HMS Charter/Headboat category would be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for authorized recreational catch of non-bluefin tunas, and the vessels permitted in General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. It would not authorize the use of harpoon gear on HMS Charter/Headboat permitted vessels. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative I2c would set a default overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip (i.e., the combined limit of large medium (73" - < 81") and giant (81" or greater) would be 10 fish), and would allow NOAA Fisheries flexibility to adjust (via inseason action) the combined daily retention limit between 5 and 10 fish. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral since this alternative would not change the Harpoon category subquota.

Preferred Sub-Alternative I3a would maintain the June 1 start date and November 15 closure date for the Harpoon category season. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral since this alternative would not change the Harpoon category start date.

Preferred Sub-Alternative I4b would extend the ability for permit holders with an Atlantic tunas permit in the General, Harpoon, or Trap category, or Atlantic HMS permit in the Angling or Charter/Headboat category, to change permit category, to change permit categories from 45 days to the full fishing year provided the vessel has not landed a bluefin. There are no ecological impacts (direct, indirect, long or short term) for this alternative

since it affects a minimum number of permit holders and would not increase or decrease the amount of fishing effort for handgears used.

Preferred Sub-Alternative I5c would clarify the retention and reporting requirements for bluefin caught with green-stick gear (by vessels with Atlantic tunas Longline category permits) to allow the retention of one bluefin per trip (of 73" or greater CFL) taken incidentally while fishing for other target species. Vessels would be required to submit a Vessel Monitoring System (VMS) set report for each green-stick retrieval with interactions with bluefin, and report information on the location of the set, and numbers and length of bluefin within 12 hours (in addition to the VMS reports for pelagic longline sets). This VMS requirement differs from the VMS requirement associated with the use of pelagic longline gear, which requires submission of a report after each pelagic longline set (also within 12 hours). Regardless of whether sets are made with green-stick gear or pelagic longline gear, vessels would be required to comply with HMS logbook requirements, and comply with the IBQ Program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations. If pelagic longline gear is on board, vessels would be required to comply with EM requirements (to continue monitoring the retrieval of longline sets with the EM System on the same trip) and other regulations that are triggered by the presence of pelagic longline gear.

This alternative would result in direct, short- and long-term neutral ecological impacts because any bluefin catch by green-stick gear would be accounted for with IBQ allocation, and would be within the annual science-based ICCAT recommended bluefin quota.

Combined, the ecological impacts of all of the preferred alternatives range from neutral to minor and beneficial.

5.3 Combined Social and Economic Impacts

Combined, the preferred alternatives are expected to have minor beneficial or neutral socioeconomic impacts, as explained in the below summary. However, some adverse socioeconomic impacts may occur with Alternatives E3b, E4b, E6b, F3, I2b, and I3a (minor) and F2b (moderate). Each alternative is described in Chapter 2 and a detailed discussion of socioeconomic impacts for each alternative can be found in Chapter 4.

Under preferred Sub-Alternative A2b, NOAA Fisheries would define IBQ shareholders annually based upon the total number of pelagic longline sets deployed by each individual permitted vessel relative to the total number of sets deployed by the pelagic longline fleet, as the measure of fishing effort. The socioeconomic impacts of this alternative would be minor and beneficial overall because some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative.

Preferred Alternative B3 would be implemented in conjunction with the dynamic allocation alternatives. Regional designations (GOM and ATL) would be determined on an annual

basis as part of the annual dynamic allocation process. The accounting rules for the regional IBQ allocations would also remain the same (except in the event the amount of GOM designated IBQ shares was five percent or less of the total amount of IBQ shares for a given year), and there would be a maximum amount of bluefin catch from the Gulf of Mexico via the limited amount of GOM designated IBQ allocation (or a limitation directly on catch from the Gulf of Mexico if GOM shares are five percent or less). Specifically, regional designations of IBQ shares and allocations would be based on the location of the relevant pelagic longline fishing activity used in the annual allocation. There would be a cap on the amount of GOM designated IBQ shares (and allocation that could be allocated). The initial cap would be 35 percent of the Longline category quota, the same as set under Amendment 7. Although the initial cap would be set at 35 percent, the amount of GOM designated shares (based on the relative amount of fishing effort in the Gulf of Mexico) may be lower. The overall socioeconomic impacts are expected to be minor and beneficial, as a result of the increased flexibility for vessels currently without GOM designated IBQ allocation, and flexibility under the circumstances of very low levels of GOM designated IBQ. NOAA Fisheries would be authorized to modify the cap on the amount of GOM IBQ designated shares based on specific criteria.

Preferred Alternative B4 would maintain the current method of inclusion of data from the NED, in any of the alternatives that define IBQ shares and continue the current IBQ catch accounting rules for fishing in the NED. Vessels do not have to use IBQ allocation to account for bluefin catch from the NED until after the ICCAT-designated 25 mt of bluefin have been caught. This alternative would not affect the overall level of bluefin catch. The overall socioeconomic impacts of the No Action Alternative with respect to the NED rules would also be neutral.

Preferred Alternative C1 would continue the current regulations under which no permanent sale of IBQ shares are allowed. Amendment 7 implemented the current rules, which prohibit permanent sale of IBQ shares, yet allow temporary (annual) leasing of IBQ allocation among Atlantic Tunas Longline category permit holders. IBQ shares are linked to, and non-severable from Atlantic Tunas Longline category permits and may not be sold (Atlantic Tunas Longline category permits may be sold however). Permanent sale of shares is a separate and distinct type of transaction from temporary leasing of IBQ allocation. Atlantic Tunas Longline category permit holders may lease IBQ allocation at any time during a calendar year to another permit holder, but the leased IBQ allocation does not carry over from one year to the next. This alternative would have neutral socioeconomic impacts.

Preferred Sub-Alternative D1c would cap the percentage of IBQ shares that an entity could hold, acquire or use at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with the owned IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or resulting from changes in the distribution of fishing effort among fishery participants. NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements. This cap level would allow flexibility in entities' business planning to acquire

more shares, by acquiring additional Atlantic Tunas Longline category permits or under Alternative C2. In addition, it is not likely that an entity would reach a 25-percent cap through the annual IBQ shares they would receive under the A alternatives. Therefore, this alternative is expected to have neutral socioeconomic impacts.

Preferred Sub-Alternative D2a would maintain the Amendment 7 limit on the amount of quota allocation an individual vessel (longline or purse seine) can lease annually as the total longline allocations on an annual basis (in conjunction with Preferred Sub-Alternative F2b and F3a-where there would be no Purse Seine category and thus no leasing from purse seine participants). The short-term direct socioeconomic impacts of this alternative are expected to be neutral because, for practical purposes there would be no change in the regulations regarding the amount of IBQ allocation a shareholdermay lease. They may lease as much as they need to account for bluefin catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for potential future catch of bluefin. The IBQ Program was designed to provide ample flexibility for vessel owners to lease IBQ allocation in the amounts that they need. to account for bluefin catch,

Preferred Sub-Alternative E1b would modify two aspects of the dealer reporting requirements for the IBQ Program. First, this alternative would remove the requirement that any pelagic longline vessel owner or operator who discarded dead bluefin is required to also enter dead discard information from the trip, by coordinating with the dealer and entering that trip's dead discard information into Catch Shares Online System via the dealer account. This alternative would not affect the current VMS reporting requirements for bluefin dead discards. The source of real-time dead discard data would be the VMS data regarding dead discards, entered by the vessel operator via the bluefin set report, from sea. The requirement that the dealer enter the data on bluefin landings into the on-line IBQ system via the dealer account would continue.

Secondly, Sub-Alternative E1b would eliminate the current requirement that vessel operators or owners confirm that the landing report information entered into the IBQ system by the dealer is accurate, by entering the PIN associated with the vessel account (pursuant to §635.15(b)(4)(iii). This option would be combined with a new email notification by NOAA Fisheries via the Catch Shares Online System (or a message within the Catch Shares Online System) that would inform the vessel owner when a dealer conducts a transaction with that vessel's IBQ account to provide a means of vessel operator oversight of dealer transactions with their IBQ vessel account. This alternative would have indirect, minor, beneficial, long and short-term impacts for dealers since they are relieved of a reporting requirement (dead discards) and would no longer be required to collaborate with fishermen for landings data entry.

Preferred Sub-Alternative E2b would require that the vessel operator mail the EM hard drives at the completion of every two trips, instead of after each pelagic longline fishing trip. This alternative would not change the fishing practices of the fleet. This alternative would have a minor, direct, short- and long-term beneficial socioeconomic impact by reducing the costs and time associated with mailing electronic monitoring hard drives.

Preferred Sub-Alternative E3b would clarify the regulations to make it clear that NOAA Fisheries may require installation of permanent or semi-permanent hardware in order to mount and install EM video cameras at locations on vessels as necessary to obtain optimal views, and allow NOAA Fisheries, working in conjunction with the vessel owner/operator, to make relatively minor modifications to the vessel structure to mount cameras in locations that provide required views of the vessel and adjacent areas. This alternative would result in additional costs and more substantial mounting systems for rail cameras that may include new permanent or semi-permanent structures and/or current vessel structures such as booms or stabilizers as mounts for cameras. The socioeconomic impacts in the short- and long-term of modifying the camera installation and placement would bedirect, minor adverse.

Preferred Sub-Alternative E4b would require more specific fish handling procedures, and purchase and the installation/placement of a measuring grid on deck, in view of one of the EM cameras. Specifically, the vessel crew would be required to place retained fish on a mat with grid lines or a grid painted on deck in view of the processing camera, so the video recording included images of the fish on the mat. The mat would be a standardized size with lines of standard intervals. The socioeconomic impacts in the short term would be minor adverse as the crew would need to modify their fish handling procedures to place all fish on the grid.

Preferred Sub-Alternative E5b would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by federally permitted Atlantic Tunas dealers purchasing bluefin from pelagic longline vessels for a particular year is warranted. Annually, NOAA Fisheries will estimate its incremental costs associated with the IBQ Program (including costs associated with the cost recovery program) and the total ex-vessel value of bluefin sold from the pelagic longline fishery; and notify the public whether a cost recovery fee will be charged for the year. A cost recovery fee, if implemented, would have minor, adverse economic impacts on bluefin dealers that purchase bluefin.

Preferred Sub-Alternative F1b would simplify the quota regulations by making a slight change to the mathematical method used in the annual quota allocation process of providing 68 mt to the Longline category. In order to achieve a similar result through simpler means, this alternative would no longer subtract 68 mt from the U.S. baseline quota prior to allocation to the quota categories, but would instead modify the currently codified allocation percentages in order to result in an amount similar to the 68-mt amount. This alternative would have neutral short term direct and indirect socioeconomic impacts because the overall quota and amount of quota (in metric tons) distributed to each category would not change from the status quo under the current ICCAT quota.

Preferred Sub-Alternative F2b would discontinue the Purse Seine category through redistribution of Purse Seine category quota effective upon implementation of the A13 final rule. The ability of vessels to obtain an Atlantic Tunas Purse Seine category permit would also end. NOAA Fisheries would remove purse seine from the list of authorized gear and remove other references in the regulations to the purse seine fishery, purse seine gear,

purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants. This alternative would have moderate adverse direct short and long-term socioeconomic impacts to Purse Seine category participants.

Preferred Sub-Alternative F3a would reallocate Purse Seine category quota proportionally to all bluefin quota categories (General, Harpoon, Angling, Longline, Trap, and Reserve), and result in additional quota for the remaining directed and incidental fisheries. The short- and long-term direct socioeconomic impacts for Alternative F4 would be moderately beneficial for fishery participants (including dealers and associated businesses). The impacts on historical purse seine fishery participants that leased bluefin quota to pelagic longline shareholders in the past and considered under Preferred Sub-Alternative F2b.

Preferred Alternative G1 would make no changes to the regulations regarding suballocation of the General category bluefin quota. Because this alternative would maintain the January through March period (which remains open until the January subquota is used or until March 31, whichever comes first), there would be no General category activity during the months of April and May on an annual basis. Depending on how quickly the available January through March subquota is used, it is likely that there may not be General category fishing activity in part or all of March as well. This conclusion is based on the closure date during the last few years (e.g., no closure in 2015 or 2016; closure on March 29, 2017, March 2, 2018, and February 28, 2019). This alternative would result in short- and long-term direct neutral socioeconomic impacts.

Preferred Alternative H2 would modify the current Angling category northern trophy subquota areas and allocations specified at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° N. lat. (off Chatham, MA); these newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively. The net result would be that the Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each area would receive the same amount of quota (i.e., the Angling category trophy quota would be divided equally four ways). To create the new trophy suballocation for the Gulf of Maine trophy area, NOAA Fisheries would increase the allocation for trophy bluefin (e.g., from 2.3 to 3.1 percent of the Angling category quota under current regulations to equate to a trophy quota of 7.2 mt and allow each of the four areas to have 1.8 mt) and decrease the allocation for large school/small medium bluefin (measuring 47 to less than 73”) by the equivalent amount.

Under this alternative, there would be direct, short-term, minor, beneficial social impacts (and economic impacts for charter vessels) to a small number of vessels in the new zone north of 42° N. lat. (the Gulf of Maine trophy area) given the small amount of fish that would be allowed to be landed, and the perception of greater fairness among northern area participants may result in indirect, longer-term, beneficial, social impacts.
Preferred Sub-Alternative I1a would maintain the current authorized gears applicable to the Atlantic tunas permit categories (§ 635.19(b)). For example, vessels permitted in the HMS Charter/Headboat category would be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for authorized recreational catch of non-bluefin

tunas, and vessels permitted in the General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. It would not authorize the use of harpoon gear on HMS Charter/Headboat permitted vessels. This alternative would have neutral socioeconomic impacts on permitted HMS Charter/Headboat vessels, which could continue to fish under the Atlantic Tunas General and Angling category regulations using existing authorized gear.

Preferred Sub-Alternative I2c would set a default overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip (i.e., the combined limit of large medium (73" - < 81") and giant (81" or greater) would be 10 fish), and would allow NOAA Fisheries the flexibility to adjust (via inseason action) the combined retention limit to between 5 and 10 fish. Overall, there are direct, short-term, neutral or minor impacts as a result of a few trips being constrained by a ten-fish limit (adverse), but also a potentially longer Harpoon category season (beneficial).

Preferred Sub-Alternative I3a would maintain the June 1 start date and November 15 closure date for the Harpoon category season. This alternative may have both minor beneficial and adverse, direct, short-term social and economic impacts (See Chapter 4 for description).

Preferred Sub-Alternative I4b would extend the ability to change permit categories from 45 days to the full fishing year as long as the vessel has not landed a bluefin. The socioeconomic impacts (long term, direct and indirect) of this alternative are neutral, or slightly beneficial since the number of permit holders impacted is so small, and any impacts of obtaining an annual permit in the wrong category would only be for one fishing season.

Preferred Sub-Alternative I5c would clarify the retention and reporting requirements for bluefin caught with green-stick gear (by vessels with Longline category permits) to allow the retention of one bluefin per trip (of 73" or greater CFL), regardless of whether pelagic longline gear is onboard. Vessels would be required to submit a VMS set report for each green-stick retrieval with interactions with bluefin, and report information on the location of the set, and numbers and length of bluefin within 12 hours (in addition to the VMS reports for pelagic longline sets). Vessels must comply with HMS logbook requirements, and comply with the IBQ Program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations. If pelagic longline gear is onboard, vessels must comply with electronic monitoring requirements (to continue monitoring the retrieval of longline sets with the electronic monitoring system) and other regulations that are triggered by the presence of pelagic longline gear. This alternative would have direct minor, long-term beneficial economic impacts because a vessel would be able to retain a legal-sized bluefin that may otherwise be required to be discarded dead.

5.4 Summary of Cumulative Impacts

The goal of this section is to summarize the cumulative ecological, economic, and social impacts of past, present, and reasonably foreseeable future actions with regard to the

management measures presented in this document. Table 5.2 shows summary information on the impacts of the alternatives analyzed.

Table 5.2 Comparison of Impacts Analyzed

Alternative	Bluefin Tuna	Other Atlantic HMS and Protected Species	Socioeconomic
Modifications to IBQ Share Eligibility, Distribution and Allocation Methods			
A1: No Action	Neutral	Neutral	Neutral/minor adverse
A2a: Dynamic determination of IBQ shares based on hooks as the measure of fishing effort	Neutral	Neutral	Minor beneficial
A2b: Dynamic determination of IBQ shares based on pelagic longline sets as the measure of fishing effort (Preferred)	Neutral	Neutral	Minor beneficial
A2c: Dynamic determination of IBQ shares based upon designated species landings as the measure of fishing effort	Neutral	Neutral	Minor beneficial
A2d: Dynamic determination of IBQ shares and distribution of IBQ allocation in equal amounts to active vessels.	Neutral	Neutral	Minor beneficial
A3: Amendment 7 allocation formula, using 2016-2018 data.	Neutral	Neutral	Minor beneficial
Modifications to Rules Closely Linked to IBQ Allocations			
B1: Regional Designations - No Action	Neutral	Neutral	Neutral
B2: Eliminate the Regional IBQ Designations and Cap Bluefin Catch from the GOM.	Neutral	Neutral	Minor Beneficial and Adverse
B3: Modify Regional GOM and ATL Designations for a Dynamic Allocation System and Cap Bluefin Catch from the Gulf of Mexico (Preferred)	Neutral	Neutral	Minor Beneficial
B4: NED Rules - No Action (Preferred)	Neutral	Neutral	Neutral
B5: Do not include NED fishing activity as part of the data used in calculating IBQ Allocations.	Neutral	Neutral	Minor Adverse
Permanent Sale of IBQ Shares			
C1: No Action (Preferred)	Neutral	Neutral	Neutral
C2: Allow Permanent Sale of IBQ Shares	Neutral	Neutral	Neutral/minor adverse
Cap on IBQ Shareholder Percentage or IBQ Allocation use.			
D1a: No Action (No cap on amount of IBQ shares owned)	Neutral	Neutral	Neutral
D1b: Cap amount of IBQ shares owned at seven percent	Neutral	Neutral	Minor Adverse
D1c: Cap amount of IBQ shares owned at 25 percent. (Preferred	Neutral	Neutral	Neutral
D1d: Cap amount of IBQ shares owned at 50 percent.	Neutral	Neutral	Neutral
D2a: No Action (No Cap on Amount of IBQ Allocation Leased or Used) (Preferred).	Neutral	Neutral	Neutral
D2b: Establish a Cap on the amount of IBQ Allocation an Entity may lease or use.	Neutral	Neutral	Neutral
Adjustments to other aspects of the IBQ Program.			
E1a: Maintain Current Dealer Reporting Requirement for IBQ Program - No Action.	Neutral	Neutral	Minor Adverse
E1b: Modify Dealer Reporting Requirements for IBQ Program (Preferred).	Neutral	Neutral	Minor Beneficial
E2a: Maintain Current Requirement for Mailing Electronic Monitoring Hard Drives - No Action	Neutral	Neutral	Minor Adverse

Alternative	Bluefin Tuna	Other Atlantic HMS and Protected Species	Socioeconomic
E2b: Modify Requirement for Mailing Electronic Monitoring Hard Drives (Preferred)	Neutral	Neutral	Minor Beneficial
E3a: Electronic Monitoring - Camera Installation - No Action	Minor Adverse	Neutral	Neutral
E3b: Clarify and expand NOAA Fisheries authority for installation of cameras (Preferred).	Minor Beneficial	Neutral	Minor Adverse
E4a: Specify Additional Fish Handling Protocols for Electronic Monitoring - No Action.	Minor Adverse	Neutral	Neutral
E4b: Specify Additional Fish Handling Protocols for Electronic Monitoring (Preferred).	Minor Beneficial	Neutral	Minor Adverse
E5a: Do Not Implement a Cost Recovery Program - No Action	Neutral	Neutral	Neutral
E5b: Implement a Cost Recovery Program (Preferred)	Neutral	Neutral	Minor Adverse
Modifications to the Purse Seine Category Management Measures and Other Category Quota Allocations			
F1a: No Change to codified quota allocation percentages to reflect the annual 68-mt allocation to the Longline category - No Action	Neutral	Neutral	Neutral
F1b: Modify codified quota allocation percentages to reflect the annual 68-mt allocation to the Longline category (Preferred)	Neutral	Neutral	Neutral
F2a: No Change to Purse Seine category and quota allocation- No Action	Neutral	Neutral	Moderate Adverse
F2b: Discontinue Purse Seine category and reallocate quota upon implementation of Amendment 13 (Preferred)	Neutral	Neutral	Moderate Adverse
F2c1: Discontinue Purse Seine category and reallocate quota at a future date (i.e., “sunset” date).	Neutral	Neutral	Moderate Adverse
F2c2: Partially reallocate Purse Seine category quota and allow current Purse Seine category participants to lease quota and fish until sunset date	Neutral	Neutral	Moderate Adverse
F3a: Reallocate Purse Seine category quota proportionally to all other quota categories, and apply Longline category increase to all areas (Preferred)	Neutral	Neutral	Moderate Beneficial
F3b: Reallocate Purse Seine category quota proportionally to all other quota categories, but do not allow an increase in Longline category quota that could be used in the Gulf of Mexico.	Neutral	Neutral	Moderate Beneficial
F4: Reallocate Purse Seine category quota proportionally but only to directed bluefin categories, including Reserve (not Longline or Trap)	Neutral	Neutral	Moderate Beneficial
Combined F1b, F2b, and F3a	Neutral	Neutral	Moderate Beneficial
Modifications to General category subquota periods and/or allocations			
G1: No Modifications to General category subquota periods and/or allocations - No Action (preferred)	Neutral	Neutral	Neutral
G2a: Modify General category subquota time periods: 12 equal months	Neutral	Neutral	Moderate Beneficial to Adverse
G2b: Modify General category time periods: Extend the January through March subquota time period through April 30	Neutral	Neutral	Neutral to Minor Beneficial

Alternative	Bluefin Tuna	Other Atlantic HMS and Protected Species	Socioeconomic
G3a: Modify General category subquota allocation percentages: Increase the January through March amount	Neutral	Neutral	Minor Adverse to Minor Beneficial
G3b: Modify General category subquota allocation percentages: Increase the September and the October through November amounts and decrease June through August amount.	Neutral	Neutral	Neutral or Minor Adverse to Minor Beneficial
G3c: Modify General category subquota allocation percentages: If reallocate Purse Seine quota proportionally to all other quota categories, place all quota that is reallocated to the General category to the fall time periods.	Neutral	Neutral	Neutral to Moderate Beneficial
Modifications to the Angling category trophy fishery			
H1: No Modifications to the Angling category trophy fishery - No Action	Neutral	Neutral	Neutral to Minor Adverse
H2: Modify Angling category trophy areas and allocations (percentages) (Preferred)	Neutral	Neutral	Minor Beneficial
Modifications to other handgear fishery regulations			
I1a: No Modifications to other handgear fishery regulations - No Action (Preferred)	Neutral	Neutral	Neutral
I1b: Allow use of harpoon gear on charter/headboat vessels	Neutral	Neutral	Neutral
I1c: Remove harpoon gear as an authorized gear for General category permitted vessels.	Neutral	Neutral	Minor Adverse
I2a: Harpoon Category Daily Retention Limit - No Action	Neutral	Neutral	Neutral to Minor Adverse
I2b: Set a Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and maintain current retention limit (range) on large medium bluefin	Neutral	Neutral	Minor Beneficial
I2c: Set a default Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and adjust daily retention limit for large medium bluefin over a range of five to ten fish (adjusted inseason)(Preferred)	Neutral	Neutral	Minor Beneficial
I3a: Maintain Current Harpoon Category Strat and End dates - No Action (Preferred).	Neutral	Neutral	Minor Beneficial
I3b: Adjust Harpoon category season	Neutral	Neutral	Minor Beneficial and Adverse
Open Access Permitting Regulations and Green-stick gear regulations			
I4a: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed bluefin - No Action	Neutral	Neutral	Neutral
I4b: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed a bluefin (Preferred)	Neutral	Neutral	Minor Beneficial
I5a: Clarify Regulations for Retention of Bluefin Caught with Green-stick Gear by Permitted Vessels Authorized to Fish with Pelagic Longline Gear - No Action	Neutral	Neutral	Minor Adverse

Alternative	Bluefin Tuna	Other Atlantic HMS and Protected Species	Socioeconomic
I5b: Allow Atlantic tunas Longline category permitted vessels to retain bluefin caught on green-stick gear, provided that pelagic longline gear is not onboard	Neutral	Neutral	Minor Adverse
I5c: Allow Atlantic tunas Longline category permitted vessels to retain bluefin caught on green-stick gear, regardless of whether pelagic longline gear is onboard (Preferred)	Neutral	Neutral	Minor Beneficial

Cumulative Impacts Expected from Past, Present, and Future Actions

Based on the summary information in the above table, supported by the analyses in Chapter 4, the cumulative effects of the proposed action in combination with the effects of the past, present, and future actions, are expected to result in neutral to minor beneficial ecological impacts and minor to moderate beneficial socioeconomic impacts.

5.5 Mitigation

Mitigation is an important mechanism that Federal agencies can use to minimize, prevent, or eliminate damage to the human and natural environment associated with their actions.

As described in the Council on Environmental Quality regulations, agencies can use mitigation to reduce environmental impact in several ways. Mitigation may include one or more of the following: avoiding the impact by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments. The mitigation measures discussed in an Environmental Impact Statement (EIS) must cover the range of impacts of the proposal and must be considered even for impacts that by themselves would not be considered "significant." If a proposed action is considered as a whole to have significant effects, all of its specific effects on the environment must be considered, and mitigation measures must be developed where it is feasible to do so. NOAA Fisheries may consider mitigation provided that the mitigation efforts do not circumvent the goals and objectives of the rulemaking or requirements under the Magnuson-Stevens Act and other applicable law.

5.6 Mitigation Measures

5.6.1 Modifications to IBQ Share Eligibility, Distribution and Allocation Methods

Preferred Sub-Alternative A2b would determine IBQ share percentages annually based on each individual permitted vessel's sets as a measure of fishing effort. Specifically, the measure of fishing effort would be the total number of each individual vessel's sets relative to the total number of sets deployed by the pelagic longline fleet. This would result in neutral ecological impacts. This alternative would have minor beneficial socioeconomic impacts. Vessel owners that would experience a decrease in IBQ share percentage as a result of the preferred alternative may lease IBQ allocation in order to address the need for IBQ allocation to account for bluefin or fulfill the minimum share requirements under quarterly accountability. Further, if a vessel increased its fishing effort (number of sets, relative to the total fleet sets), its IBQ share percentage would also increase. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

5.6.2 Modifications to Rules Closely Linked to IBQ Allocations

Preferred Alternative B3 would be implemented in conjunction with the dynamic allocation alternatives. Regional designations (GOM and ATL) would be determined on an annual basis as part of the annual dynamic allocation process, the accounting rules for the regional IBQ allocations would also remain the same (except for the circumstance where the amount of GOM designated IBQ is five percent or less), and a maximum amount of bluefin catch from the Gulf of Mexico and GOM designated IBQ allocation would be set. Specifically, regional designations would be based on the location of the relevant pelagic longline fishing activity used in the annual allocation. There would be a cap on the amount of GOM IBQ that could be used. The initial cap would be 35 percent of the longline allocation, the same as set under Amendment 7. Although the initial cap would be set at 35 percent, the amount of GOM designated shares (based on the relative amount of fishing effort in the Gulf of Mexico) may be lower. If the amount of GOM designated IBQ is 5 percent or less (of the total IBQ), the requirement that only GOM designated IBQ can be used to account for bluefin caught in the Gulf of Mexico would not be if effect; and the requirement that only GOM designated IBQ be used to satisfy the minimum IBQ requirements under quarterly accountability would not be in effect. The overall socioeconomic impacts are expected to be minor and beneficial. Ecological impacts are expected to be neutral. Therefore, no mitigation measures are necessary

Preferred Alternative B4 would maintain the current method of inclusion of data from the geographic area comprising the NED, in any of the alternatives that define IBQ shares and continue the current IBQ catch accounting rules for fishing in the NED. This alternative would not affect the overall level of bluefin catch. The overall ecological and socioeconomic impacts of the No Action Alternative with respect to the NED rules would be neutral. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

5.6.3 Sale of IBQ Shares

Preferred Alternative C1 would continue the current regulations under which no sale of IBQ shares are allowed. Amendment 7 (2015) implemented the current rules, which prohibit sale of IBQ shares, yet allow temporary (annual) leasing of IBQ allocation among Atlantic Tunas Longline category permit holders. IBQ shares are linked to, and non-severable from Atlantic Tunas Longline category permits and may not be sold (Atlantic Tunas Longline category permits may be sold however). Sale of shares is a separate and distinct type of transaction from temporary leasing of IBQ allocation. Atlantic Tunas Longline category permit holders may lease IBQ allocation at any time during a calendar year to another permit holder, but the leased IBQ allocation does not carry over from one year to the next. The overall ecological and socioeconomic impacts of the No Action Alternative would be neutral and minor beneficial, respectively. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

5.6.4 Cap on IBQ Shareholder Percentage or IBQ Allocation use

Preferred Sub-Alternative D1c would cap the percentage of IBQ shares that an entity could own at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with the owned IBQ shares. The overall ecological and socioeconomic impacts of this alternative are expected to be neutral. Preferred Sub-Alternative D2a would maintain the Amendment 7 limit on the amount of quota allocation an individual vessel (longline or purse seine) can lease annually as the combined Longline and Purse Seine category allocations on an annual basis. The overall ecological and socioeconomic impacts of this alternative are expected to be neutral. No mitigation measures are necessary for these alternatives because impacts were mitigated through the selection of the preferred alternative.

5.6.5 Adjustments to other aspects of the IBQ Program

Preferred Sub-Alternative E1b would modify two aspects of the dealer reporting requirements for the IBQ Program. First, this alternative would eliminate the current requirement that vessel operators or owners confirm that the landing report information entered into the IBQ system by the dealer is accurate, by entering the PIN associated with the vessel account. Secondly, this alternative would remove the requirement that any pelagic longline vessel owner or operator who discarded dead bluefin is also required to also enter dead discard information from the trip by coordinating with the and entering that trip's dead discard information into the on-line IBQ system via the dealer account. This alternative would not affect the current VMS reporting requirements for bluefin dead discards. The overall ecological and socioeconomic impacts of this alternative are expected to be neutral, and minor beneficial, respectively. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative E2b would require that the vessel operator mail the hard drives at the completion of every two trips, instead of after each pelagic longline fishing trip. The overall ecological and socioeconomic impacts of this alternative are expected to be neutral,

and minor beneficial, respectively. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative E3b would clarify that NOAA Fisheries may require installation of permanent or semi-permanent hardware in order to mount and install video cameras at locations on vessels as necessary to obtain optimal views, and allow NOAA Fisheries, working in conjunction with the vessel owner/operator, to make relatively minor modifications to the vessel structure to mount cameras in locations that provide required views of the vessel and adjacent areas. The ecological impacts of Alternative E3b, the preferred alternative, are minor beneficial due to improved accuracy of the discard data derived from the Electronic Monitoring Program. This alternative would result in minor adverse socioeconomic impacts. Vessel crew may have to deploy the relevant hardware and experience a slight increase in the time required to maintain and operate the electronic monitoring system and increased the complexity associated with the fishing operations. Since NOAA Fisheries would cover the cost of installations of the boom, and remounting camera, there would no economic burden on the fleet. Ecological benefits from other alternatives in this action would outweigh the cost of this camera installation. No mitigation measures are necessary for these alternatives because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative E4b would require more specific fish handling procedures and the installation/placement of a measuring grid on deck, in view of one of the cameras. Specifically, the vessel crew would be required to place retained fish on a mat with grid lines or a grid painted on deck in view of the processing camera, so the video recording included images of the fish on the mat. This alternative would result in minor beneficial ecological impacts, due to the increased potential for higher data quality. This alternative would result in minor adverse socioeconomic impacts. The crew would need to modify their fish handling procedures to place all fish on the grid. Since NOAA Fisheries would cover the cost of the mat and/or paint. No mitigation measures are necessary for this sub-alternative because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative E5b would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by permit holders for a particular year is warranted. If cost recovery fees were charged in a particular year, the cost incurred by vessel operators that landed bluefin would be relatively minor, so the socioeconomic impacts are minor and adverse. However, as noted above, this alternative would apply an annual approach, which could help eliminate fees in years when there would be little or no net gain to NOAA Fisheries.

5.6.6 Modifications to the Purse Seine Category Management Measures and Other Category Quota Allocations

Preferred Sub-Alternative F1b would simplify the quota regulations by making a slight change to the mathematical method used in the annual quota allocation process of

providing 68 mt to the Longline category. In order to achieve a similar result through simpler means, this alternative would no longer subtract a set amount from each quota category annually, but would instead modify the currently codified allocation percentages in order to result in an amount similar to the 68-mt. The ecological and socioeconomic impacts are expected to be neutral. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative F2b would discontinue the Purse Seine category through redistribution of Purse Seine category quota effective upon implementation of the A13 final rule. The ability of vessels to obtain an Atlantic Tunas Purse Seine category permit would also end. NOAA Fisheries would remove purse seine from the list of authorized gear and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants. This alternative would result in neutral ecological impacts. This alternative would result moderate adverse socioeconomic impacts on potential purse seine fishery participants. No fishing by past fishery participants has occurred since 2015, which will lessen the impacts of discontinuing this fishery. Further, since 2015 past Purse Seine category participants were provided opportunities to fish and to potentially annually increase their available bluefin quota if landing bluefin, while also being able to lease quota to pelagic longline fishery vessels. Amendment 7 regulations were designed to reflect the status of the fishery at that time (i.e., mostly inactive) and provide flexibility for the use of the Purse Seine category bluefin quota,essentially providing a transitional period during which activity could be resumed, even if incrementally, and some financial benefit could be received through leasing. Reallocation of the purse seine quota would result in greater net benefits. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative, and economic impacts were effectively mitigated by the opportunity to obtain revenue via leasing bluefin quota to longline shareholders, since 2015, absent renewed fishing activity.

Preferred Alternative F3a would result in additional quota for all bluefin quota categories in greater amounts than the No Action alternative. Ecological and socioeconomic impacts are expected to be neutral and moderately beneficial, respectively. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

5.6.7 Modifications to General category subquota periods and/or allocations

Preferred Alternative G1 would make no changes to the regulations regarding suballocation of the General category bluefin quota. Because this alternative would maintain the January-March subquota period (or associated allocation), there would be no General category activity during the months of April and May. The ecological and socioeconomic impacts are expected to be neutral. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

5.6.8 Modifications to the Angling category trophy fishery

Preferred Alternative H2 would modify the current Angling category Trophy subquota areas and allocations outlined at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° N. lat. (off Chatham, MA); these newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively. The net result would be that the Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each area would receive the same amount of quota (i.e., the Angling category trophy quota would be divided equally four ways).

The ecological are expected to be neutral. Under this alternative, there would be minor, beneficial social impacts to recreational anglers (and economic impacts for charter vessels) to a small number of vessels in the new zone north of 42° N. lat. (the Gulf of Maine trophy area). Given the small amount of fish that would be allowed to be landed, and the perception of greater fairness among northern area participants this alternative may result in indirect, longer-term, beneficial, social impacts. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

5.6.9 Modifications to other handgear fishery regulations

Preferred Sub-Alternative I1a would maintain the current authorized gears applicable to the Atlantic tunas permit categories (§ 635.19(b)). For example, vessels permitted in the HMS Charter/Headboat category would continue to be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for recreational catch of non-bluefin tunas. Vessels permitted in the General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. It would not authorize the use of harpoon gear on HMS Charter/Headboat permitted vessels. The ecological and socioeconomic impacts are expected to be neutral. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative I2c would set a default overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip (i.e., the combined limit of large medium (73” - < 81”) and giant (81” or greater) would be 10 fish), and would allow NOAA Fisheries the flexibility to adjust (via inseason action) the combined trip limit to between 5 and 10 fish. This alternative would have minor beneficial impacts because few trips would be constrained by a ten-fish limit (adverse), and due to a potentially longer Harpoon category season (beneficial). On a per-trip basis, impacts would depend on several factors including bluefin fishing conditions and availability, the combined retention limit, and ex-vessel price, which is subject to numerous factors including fish handling and quality and market saturation. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative I3a would maintain the June 1 start date and November 15 closure date for the Harpoon category season. This alternative is expected to result in

neutral ecological impacts. This alternative would have minor beneficial social and economic impacts (See Chapter 4 for description). This alternative would maintain the traditional start date and effectively have neutral socioeconomic impacts on the fishery as a whole. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative I4b would extend the ability to change permit categories from 45 days to the full fishing year as long as the vessel has not landed a bluefin. The ecological impacts would be neutral. The socioeconomic impacts are expected to be minor beneficial. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative I5c clarifies retention and reporting requirements for bluefin caught with green-stick gear (by vessels with Longline category permits), to allow the retention of one bluefin per trip (of 73" or greater CFL), regardless of whether pelagic longline gear is onboard, and with additional regulations applying to such trips. The ecological and socioeconomic impacts are expected to be neutral and minor beneficial, respectively. No mitigation measures are necessary because impacts were mitigated through the selection of the preferred alternative.

5.7 Unavoidable Adverse Impacts

There are no unavoidable adverse ecological impacts expected that would result from the preferred alternatives and corresponding management measures associated with bluefin fisheries. NOAA Fisheries would continue to monitor the impact of the management measures in the preferred alternatives and would propose additional management measures, as necessary, to avoid any unanticipated adverse impacts. However, as explained in Chapter 4 and this chapter, there are unavoidable minor adverse socioeconomic impacts that would result from the preferred alternatives associated with bluefin fisheries. As noted, the unavoidable impacts were mitigated through the selection of the preferred alternatives, and non-selection of other analyzed alternatives.

5.8 Irreversible and Irretrievable Commitment of Resources

The management measures in the preferred alternatives would not result in any irreversible and irretrievable commitment of resources. Fishery management regulations can be revisited if/when new information comes to light and/or changing circumstances. Overall, there are expected to be neutral ecological impacts from the preferred alternatives.

5.9 Monitoring

The fishery will continue to be monitored through the diverse requirements already established through previous management actions, to ensure that fishery management

plan objectives are achieved. Reporting and monitoring requirements are generally specific to the different HMS permit categories, and are fully described in the annual HMS SAFE Reports, available online. No monitoring of mitigations measures is required.

5.10 References

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NMFS. 2020. 2019 Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species. NOAA, NMFS, Highly Migratory Species Management Division.

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6 Regulatory Impact Review

NOAA Fisheries requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR also serves as the basis for determining whether the proposed regulations are a "significant regulatory action" or a “significant guidance document” under the criteria provided in Executive Order (E.O.) 12866, as amended by E.O. 13258 and E.O. 13422, and provides some information that may be used in conducting an analysis of the effects on small business entities pursuant to the Regulatory Flexibility Act (RFA).The RIR provides analyses of the economic benefits and costs of each alternative to the nation and the fishery as a whole. The information contained in Chapter 6, taken together with the data and analysis incorporated by reference, comprise the complete RIR.

The requirements for all regulatory actions subject to the requirements of E.O. 12866 are summarized in the following statement from the order:

> *In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.*

E.O. 12866 further requires the Office of Management and Budget review of proposed regulations that are considered to be “significant.” A significant regulatory action is one that is likely to:

- Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments of communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this Executive Order.

Section 6 of E.O. 12866 addresses how matters are identified as, or determined by the Administrator of Office of Information and Regulatory Affairs (part of Office of Management and Budget) to be, a significant regulatory action. Pursuant to the procedures established to implement section 6, the Office of Management and Budget has determined that this action is not significant. A summary of the expected net economic benefits and costs of each alternative, which are based on supporting text in Chapter 4, can be found in Table 6.1.

6.1 Description of the Management Objectives

Please see Chapter 1 for a description of the objectives of this action.

6.2 Description of the Fishery

Please see Chapter 3 for a description of the fisheries that could be affected by these management actions.

6.3 Statement of the Problem

Please see Chapter 1 for a description of the problem and need for this action.

The purpose of the measures in this document is to manage Atlantic HMS resources, focusing on improvement of bluefin conservation and management, consistent with existing overfishing, rebuilding and other measures; to maximize fishing opportunities, provide flexibility in management; and minimize adverse socioeconomic impacts on affected fisheries. An amendment to the 2006 Consolidated HMS FMP is needed to address bluefin management due to the recent trends and characteristics of the bluefin fishery, and the need to continue to comply with both domestic and international management objectives and obligations.

6.4 Description of Each Alternative

Please see Chapter 2 for a summary of each alternative and Chapter 4 for a complete description of each alternative and its expected ecological, social, and economic impacts. Chapters 3 and 6 provide additional information related to the economic impacts of the alternatives.

6.5 Economic Analysis of the Expected Effects of Each Alternative Relative to the Baseline

Table 6.1 summarizes the net economic benefits and costs of each of the alternatives analyzed in this FMP amendment and Environmental Impact Statement (EIS). Additional details and more complete analyses are provided in Chapter 4.

Table 6.1 Net Economic Benefits and Costs of Each Alternative

Alternatives	Economic Benefits	Economic Costs
Modify IBQ Share Eligibility, Distribution and Allocation Methods		
Alternative A1: No Change to IBQ Share Eligibility, Distribution, and Allocation Method - No Action	No change in economic benefits.	The individual quota constraints and cost associated with the amount of IBQ allocations under Amendment 7 would continue. There would continue to be inefficiency associated with annual IBQ allocations that are neither used to account for bluefin catch nor leased to other shareholders. The total fleet-wide cost of leasing IBQ allocation is estimated to be $306,000 per year under the No Action Alternative. There would also be costs associated with time spent by leasing market participants communicating with other participants when they are trying to find potential lessors or lessees and the time spent by lessors executing the transactions.
Alternative A2: Dynamic Determination of IBQ Shares: Eliminate existing designations of IBQ shareholders and distribute IBQ shares only to currently active vessels		
Sub-Alternative A2a: Dynamic determination of IBQ shares based on hooks as the measure of fishing effort	Some shareholders (and permit holders without shares currently) would have an increase in the IBQ share percentage and thus in subsequent IBQ allocation compared to the No Action alternative, while others would have a decrease. The number of shareholders with an increase would be greater than the number with a decrease. It is estimated that 65 vessels would have larger IBQ allocations compared to the No Action Alternative. The total lease value of IBQ shares/allocation gained by those vessels with an increase in IBQ share percentage/new shares is estimated to be $287,790 per year.	NOAA Fisheries estimates that 26 vessels would have smaller IBQ allocations when compared to the No Action Alternative, and would be in worse economic position with respect to the amount of IBQ allocation distributed to them as a result.. Costs to such vessels would be short-term, as shares would be revised each year based on the most recent available fishing effort data. The total lease value of IBQ shares and subsequent IBQ allocation lost under this alternative is estimated to be $94,464 per year for all 26 vessels.
Sub-Alternative A2b: Dynamic determination of IBQ shares based on pelagic longline sets as the measure of fishing effort – (Preferred)	Some shareholders (and permit holders without shares currently) would have an increase in IBQ share percentage compared to the No Action Alternative, while others would have a decrease. NOAA Fisheries estimates 61 vessels would have larger annual IBQ allocations as a result of this increased share percentage compared to the No Action	NOAA Fisheries estimates that 30 vessels would have smaller IBQ share percentages and subsequent annual IBQ allocations compared to the No Action Alternative, and would be in worse economic position with respect to the amount of IBQ allocation they have. Costs to vessels would be short-term, as shares would be revised each year based on the most recent

Alternatives	Economic Benefits	Economic Costs
	Alternative. The total lease value of IBQ allocation gained in aggregate by those vessels with new or increased shares would be $279,532 per year.	available fishing effort data. The total lease value of IBQ allocation lost by such vessels in aggregate would be approximately $90,273 per year.
Sub-Alternative A2c Dynamic determination of IBQ shares based upon designated species landings as the measure of fishing effort	Some shareholders (and permit holders without shares currently) would have an increase in IBQ share percentage compared to the No Action Alternative, while others would have a decrease. NOAA Fisheries estimates 63 vessels would have larger IBQ share percentages and subsequent IBQ allocations compared to the No Action Alternative. The total lease value of IBQ allocation gained would be $301,925 per year.	NOAA Fisheries estimates that 28 vessels would have smaller IBQ allocations compared to the No Action Alternative, and would be in worse economic position with respect to the amount of annual IBQ allocation distributed to them. Costs to vessels would be short-term, as shares would be revised each year based on the most recent available fishing effort data. The total lease value of IBQ allocation lost by these 28 vessels in aggregate would be approximately $106,529 per year.
Sub-Alternative A2d: Dynamic determination of IBQ shares and distribution of IBQ allocation in equal amounts to active vessels.	Some shareholders (and permit holders without shares currently) would have an increase in IBQ share percentage compared to the No Action Alternative, while others would have a decrease. NOAA Fisheries estimates 56 vessels would have larger IBQ share percentages and resulting IBQ allocations compared to the No Action Alternative. The total lease value of IBQ allocation gained by such vessels in aggregate would be $209,093 per year.	NOAA Fisheries estimates that 35 vessels would have smaller IBQ allocations compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of annual IBQ allocation distributed to them. Among these vessels, in aggregate, the total lease value of IBQ allocation lost would be approximately $21,063 per year.
Sub-Alternative A3:	Some shareholders (and active permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action. 72 vessels would have an increase in IBQ share and allocation.The total lease value of IBQ allocation gained by such vessels in aggregate would be $225,848 per year.	NOAA Fisheries estimates that 28 vessels would have smaller IBQ shares and allocations compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of annual IBQ allocation distributed to them. Among these vessels, in aggregate, the total lease value of IBQ allocation lost would be approximately $66,849 per year.
Modifications to Rules Closely Linked to IBQ Allocations		
Alternative B1: Regional Designations - No Action	No change in economic benefits.	No change in economic costs.
Alternative B2: Eliminate the Regional IBQ Designations and Cap Bluefin Catch from the GOM	There may be a short-term benefit to vessels that have only ATL designated IBQ allocation, and currently must lease GOM designated IBQ	For vessels that already fish exclusively in the Gulf of Mexico with all or most of their IBQ allocation designated as GOM, this alternative

Alternatives	Economic Benefits	Economic Costs
	allocation to fish in the Gulf of Mexico. Such vessels would be able to fish in the Gulf of Mexico without the need to lease GOM designated IBQ allocation,. Facilitation of fishing opportunities in the Gulf of Mexico may result in increased revenue for such vessels.	may have indirect cost associated with increased competition for fishing grounds or markets due to any increased fishing effort in the Gulf of Mexico. Overall allowable bluefin catch would be capped in the Gulf of Mexico, however, ameliorating such potential effect.
Alternative B3: Modify Regional Designations for a Dynamic Allocation System and Cap Bluefin Catch from the Gulf of Mexico (Preferred)	This alternative would provide increased flexibility for vessels that currently have ATL designated IBQ shares, because the dynamic annual definition of shares and regional designations would enable a vessel to receive annual shares with a GOM regional designation as a result of fishing with pelagic longline gear in the Gulf of Mexico during the previous year. This would decrease the need to lease GOM designated IBQ allocation annually. Low GOM IBQ threshold would result in additional flexibility under conditions of very low GOM IBQ.This would have positive, but unquantified, economic benefits. There are likely low num bers of vessels that would take advantage of the flexibility.	If the number of vessels fishing in the Gulf of Mexico increased, there may be minor short-term costs due to increased competition in the area, but the potential for such costs is very low.
Alternative B4: NED Rules - No Action (Preferred)	No change in economic benefits.	No change in economic costs.
Alternative B5: Do not include NED fishing activity as part of the data used in calculating IBQ allocations	No change in economic benefits.	Vessels fishing in the NED would face economic costs because their fishing effort in the NED would not be reflected in their IBQ share percentage. Depending upon the specific amount of a vessel's fishing effort in the NED, a vessel may receive a lower IBQ share percentage. If vessel owners operating in the NED receive a lower IBQ share percentage relative to their total fishing effort than other vessels, they would have economic costs as compared to other vessels in the form of less available IBQ allocation to facilitate directed fishing trips. Disadvantaging vessels that fish in the NED may alter the costs and incentives for vessels to fish in the NED, and have adverse long-term economic impacts, both on individual vessels and on the fishery as a whole due to underutilization of available swordfish quota.

Alternatives	Economic Benefits	Economic Costs
Sale of IBQ Shares		
Alternative C1: No Sale Allowed - No Action (Preferred)	Continued prohibition on sale of IBQ shares would reduce uncertainty in the IBQ allocation leasing market, which would be beneficial to the IBQ Program overall.	Might limit some participants from accumulating additional IBQ shares to scale up their business.
Alternative C2: Allow Sale of IBQ Shares	Sale of IBQ shares provides participants an alternative means of participating in the IBQ leasing market that enables management of their IBQ allocation and business planning on a longer time scale than a single year. Permit holders may be able to save money through a single IBQ share transaction instead of via annual IBQ allocation lease transactions.	Allowing sale of IBQ shares would introduce uncertainty in the IBQ leasing market.. This alternative would also be inconsistent with a dynamic allocation alternative, which redefines shareholders on an annual basis.
Cap on IBQ Shareholder Percentage or IBQ Allocation use		
Alternative D1: Cap Accumulated Sum of IBQ Shares Owned by a Single Entity		
Sub-Alternative D1a: No Action (No cap on amount of IBQ shares owned)	No change in economic benefits.	No change in economic costs in the short-term. In the long-term, if one entity bought sufficient Atlantic Tunas Longline category permits with IBQ shares, or bought IBQ shares if allowed under Alternative C2, to control an excessive portion of the market, there could be economic costs resulting from any market inefficiencies that would develop. The current limitation on issuance of limited access permits is likely to prevent such an occurrence.
Sub-Alternative D1b: Cap amount of IBQ shares owned at seven percent	Implementing a low cap to prevent acquisition of excessive IBQ shares would prevent a single entity from controlling an excessive portion of the market. Otherwise, no change in economic benefits is expected.	There is arguably an economic opportunity cost associated with the seven percent cap if, for example, entities wished to access more shares. If under the preferred 'A' alternatives, the number of active vessels decreases and therefore the IBQ share percentage to each vessel increases, the cap could be reached and limit an entity's ability to be issued IBQ shares above the cap. With a seven-percent cap, an entity could have to forgo a portion of the IBQ shares they would otherwise receive to stay at or below the cap. This could in turn limit the amount of fishing activity and target species landings of vessels or businesses..
Sub-Alternative D1c: Cap amount	No change in economic benefits would be	There is the possibility that entities could wish

Alternatives	Economic Benefits	Economic Costs
of IBQ shares owned at 25 percent (Preferred)	expected. It is not likely that an entity would reach a 25-percent cap through the annual IBQ shares they would receive under the A alternatives. Implementing a cap to prevent acquisition of excessive IBQ shares (through purchase of Atlantic Tunas Longline category permits or IBQ shares if allowed under Alternative C2) would prevent a single entity from controlling an excessive portion of the market, which could be a long-term economic benefit to the fishery as a whole.	to acquire additional shares that would be above a 25-percent cap. In that case, there could be economic opportunity costs associated with that cap.
Sub-Alternative D1d: Cap amount of IBQ shares owned at 50 percent	No change in economic benefits would be expected. It is not likely that an entity would reach a 50-percent cap through the annual IBQ shares they would receive under the A alternatives. Implementing a cap to prevent acquisition of excessive IBQ shares (through purchase of Atlantic Tunas Longline category permits or IBQ shares if allowed under Alternative C2) would prevent a single entity from controlling an excessive portion of the market, which could be a long-term economic benefit to the fishery overall.	This alternative could have minor economic costs, if the high cap level of 50 percent is insufficient to prevent acquisition of excessive IBQ shares. On the other hand, entities that wished to acquire additional shares that would be above a 50-percent cap would encounter economic opportunity costs, although this is not likely with the high 50-percent cap level.
Alternative D2: Establish a Cap on the Amount of IBQ Allocation an Entity May Lease or Use		
Sub-Alternative D2a: No Action (No Cap on Amount of IBQ Allocation Leased or Used) (Preferred)	No change in economic benefits.	No change in economic costs.
Sub-Alternative D2b: Establish a Cap on the amount of IBQ Allocation an Entity may lease or use	No change in economic benefits.	A vessel may be challenged to account for bluefin catch and be limited in their abilty to fish for target species. In the long term, entities that wished to acquire IBQ allocations (through permit acquisition or leasing of IBQ allocations) above a 25-percent cap would haveeconomic opportunity costs associated with this cap.
Adjustments to other aspects of the IBQ Program		
Alternative E1: Dealer Reporting Requirements		
Sub-Alternative E1a: Maintain	No change in economic benefits.	There are continuing minor costs associated

Alternatives	Economic Benefits	Economic Costs
Current Dealer Reporting Requirement for IBQ Program - No Action		with requiring vessel operators and dealers to collaborate in submitting information that is also supplied independently by vessel operators by way of VMS. The requirement for fishermen to submit a PIN when dealers entered landings data was also frustrating for fishermen and dealers alike since fishermen were frequently either not available when dealers entered the data, or did not have access to their PIN.
Sub-Alternative E1b: Modify Dealer Reporting Requirements for IBQ Program (Preferred)	This alternative would continue the current VMS reporting requirements for bluefin dead discards. It would remove the requirement that a pelagic longline vessel owner or operator must coordinate with a dealer to enter a trip's dead discard information into the online IBQ system via the dealer account. This alternative would also eliminate the current requirement that vessel operators or owners enter a PIN associated with the vessel account. These changes would slightly reduce labor cost associated with this reporting.	Reduced labor costs, as explained on left.
Alternative E2: Requirements for Mailing Electronic Monitoring Hard Drives		
Sub-Alternative E2a: Maintain Current Requirement for Mailing Electronic Monitoring Hard Drives - No Action	No change in economic benefits.	No change in economic costs. Costs associated with the requirement for shipping hard drives to NOAA Fisheries after each fishing trip would continue.
Sub-Alternative E2b: Modify Requirement for Mailing Electronic Monitoring Hard Drives (Preferred Alternative)	This alternative would reduce the cost and time associated with mailing electronic monitoring hard drives by reducing the frequency of hard drive shipments. This reduction in shipping frequency would save operators an average of $120 per year and time and labor, as they would only have to pull, package and ship hard drives after every other trip.	Reduced costs, as explained on left. The reduction in shipping frequency would not have a negative impact on the review of the data.
Alternative E3: Electronic Monitoring - Camera Installation		
Sub-Alternative E3a: Maintain Current Regulations for Camera Installation - No Action	No change in economic benefits.	No change in economic costs.
Sub-Alternative E3b: Clarify NOAA Fisheries authority for	Installation of permanent or semi-permanent hardware in order to mount and install video	There are minor economic costs associated with modifying the camera installation and

Alternatives	Economic Benefits	Economic Costs
Installation of Cameras (Preferred)	cameras at locations on vessels necessary to obtain optimal views, may improve accuracy of the discard data derived from the Electronic Monitoring Program. This would result in improved management of the fishery in the long-term.	placement. When agency funding is not available, vessel owners would be required to pay for the installation of hardware to install a boom or telescoping device supporting the rail camera. Vessel crew would be required to extend, lower, or raise the boom-mounted camera during fishing activities if needed. Additional logistics required may represent an increased time burden. Crew may also be required to access the camera during the trip in order to clean the lens. The process of cleaning the lens may be more difficult if the camera is mounted on a boom. The cost paid by vessels owners associated with the installation of booms could be up to approximately $1,000 per vessel. With an active fleet of 86 vessels, the total cost to the pelagic longline fleet is estimated to be $86,000.
Alternative E4: Specify Additional Fish Handling Protocols for Electronic Monitoring		
Sub-Alternative E4a: Maintain Current Fish Handling Protocols for Electronic Monitoring - No Action	No change in economic benefits.	No change in economic costs.
Sub-Alternative E4b: Specify Additional Fish Handling Protocols for Electronic Monitoring (Preferred)	There may be some minor economic benefits associated with improvements to bluefin data quality. More accurate fish identification and sizing would decrease reporting and monitoring uncertainty, however the economic benefits would be long term in nature, resulting from increased flexiblity or improvements in the management of the fishery in general.	This alternative may increase costs in terms of the time required to process fish, and costs associated with a measurement tool such as a processing mat (with printed grid) or grid painted directly on the deck. Nonskid deck paint costs between about $35 and $85 per gallon. A 4 foot by 8 foot all weather mat, custom printed with a grid may cost approximately $225 per mat. The vessel owners would be responsible for the costs.
Alternative E5: Cost Recovery Program		
Sub-Alternative E5a: No Cost Recovery Program - No Action	No change in economic benefits.	No change in economic costs.
Sub-Alternative E5b: Implement a Cost Recovery Program (Preferred Alternative)	No change in economic benefits.	There would be direct cost to pelagic longline vessel owners that land bluefin associated with a cost recovery program. They would incur a fee based on their bluefin landings. The industry-wide fees could total about $25,178

Alternatives	Economic Benefits	Economic Costs
		per year in total based on average bluefin landings from 2016 through 2019. NOAA Fisheries would incur costs annually as a result of the time required to determine whether a cost recovery fee will be charged, and as a result of the process of charging a cost recovery fee, if NOAA Fisheries makes a determination that a fee for a particular year is warranted.
Modifications to the Purse Seine Category and Other Category Quota Allocations		
Alternative F1: Modify codified quota allocation percentages to reflect the annual 68-mt allocation to the Longline category.		
Sub-Alternative F1a: Current Method of Deriving 68 mt for Allocation to Longline Category — No Action	No change in economic benefits.	The minor administrative costs associated with this alternative would continue (i.e., more complex mathematical calculation and challenge communicating information to the public).
Sub-Alternative F1b: Modify codified Longline quota allocation (%) to reflect the annual 68-mt allocation to the Longline category (Preferred Alternative)	No change in economic benefits in the short-term. If the ICCAT quota increased in the future, this alternative would have benefits for the Longline category participants because the category would be allocated slightly more quota than under the No Action Alternative.	No change in economic costs in the short-term. If the ICCAT quota decreased in the future, this alternative would have costs for the Longline category participants because the category would be allocated slightly less quota than under the No Action Alternative.
Alternative F2: Purse Seine category and quota allocation		
Sub-Alternative F2a: Maintain Purse Seine Category - No Action	No change in economic benefits	The current economic costs associated with this alternative would continue. There would be opportunity costs associated with unused Purse Seine category quota that is not reallocated or leased.
Sub-Alternative F2b: Discontinue Purse Seine category and reallocate quota upon implementation of Amendment 13 (Preferred)	Reallocation of Purse Seine category quota may increase economic benefits for fisheries receiving an increase in quota (see Sub-Alternative F3a).	This alternative would have moderate long-term economic costs to the Purse Seine category participants. Purse Seine category participants would no longer be distributed bluefin quota, so neither fishing for bluefin or leasing in the IBQ system would be allowed. The revenue losses from leasing are estimated at $38,391 category-wide or $7,678 per vessel, based on average rates of leasing in the past. The other source of potential lost revenue is fishing. Purse seine category participants last landed fish during

Alternatives	Economic Benefits	Economic Costs
		2013-2015. The most likely estimation of Purse Seine category fishing activity over the next five years is zero landings since the category has not fished since 2015. The estimated maximum amount the Purse Seine category could catch on an annual basis, taking into consideration dead discards, is estimated to be $1.61 million.
Alternative F2c: Discontinue Purse Seine category and reallocate quota at a future date (i.e., "sunset" date)		
Sub-Alternative F2c1: Allow current Purse Seine category participants to lease and fish until sunset date	No change in economic benefits.	The costs are the same as Alternative F2b, but delayed by two years since both fishing and leasing activity would be allowed under this alternative until the end of Year 2. The revenue losses from leasing are estimated at $38,391 category-wide or $7,678 per vessel, based on average rates of leasing in the past.
Sub-Alternative F2c2: Allow current Purse Seine category participants to lease but not fish until sunset date	No change in economic benefits.	The costs are the same as Alternative F2c1, but only leasing activity would be allowed under this alternative until the end of Year 2. The revenue losses from leasing as of Year 2 are estimated at $38,391 category-wide or $7,678 per vessel, based on average rates of leasing in the past.
Alternative F3: Reallocate Purse Seine category quota proportionally to all other quota categories		
Sub-Alternative F3a: Reallocate Purse Seine category quota proportionally to all other quota categories, and apply Longline category increase to all areas (Preferred)	The economic benefits of this alternative would include estimated increases in revenue for the directed commercial quota categories that would receive the redistributed quota after the Purse Seine category is eliminated out. For the incidental fishery (Longline category) the increased quota would facilitate the IBQ Program This alternative would facilitate the success of the IBQ Program by supporting a functioning IBQ allocation leasing market, and likely prevent economic losses that could result from a poorly functioning IBQ allocation leasing market. Vessels would therefore be better positioned to account for incidental bluefin catch and satisfy the minimum IBQ requirements. When combined with Alternative F2b, the estimated gross annual increase in revenue for these categories totals $2.3 million. Taking into account the estimated annual revenue loss to the Purse Seine category for	No change in economic costs. (*See* F2 alternatives for costs associated with discontinuation of the Purse Seine category).

Alternatives	Economic Benefits	Economic Costs
	leasing ($38,391) the net increase in revenue is approximately $2.26 million annually (for all categories combined).	
Sub-Alternative F3b: Reallocate Purse Seine category quota proportionally to all other quota categories, but do not allow an increase in the Gulf of Mexico for Longline category	The economic benefits would include estimated increases in revenue for the commercial quota categories that received the redistributed quota after the Purse seine category was terminated, excluding any increase because of use of the redistributed quota in the Gulf of Mexico by the Longline category. When combined with Alternative F2b, the net estimated annual increase in revenue for these categories totals $22.3 million.	No change in economic costs. (*See* F2 alternatives for costs associated with discontinuation of the Purse Seine category).
Alternative F4: Reallocate Purse Seine category quota proportionally but only to directed bluefin categories, including Reserve (not Longline or Trap)	The economic benefits would include estimated increases in revenue for the commercial quota categories that received the redistributed quota after the Purse Seine category was terminated. When combined with Alternative F2b, the estimated net annual increase in revenue for these categories totals $2.26 million. Purse Seine revenue loss for leasing rather than fishing was used to calculate net value because it is the most likely scenario, since Purse Seine category participants have not fished since 2015, but have been actively leasing quota through 2019.	Because the Longline category would not receive reallocated Purse Seine category bluefin quota, the IBQ allocation leasing market is likely to be constrained, which may result in economic losses. The economic losses may result from higher costs for leased IBQ allocation or from decreased target catch if a lack of IBQ allocation affects fishing behavior. (*See* F2 alternatives for costs associated with discontinuation of the Purse Seine category).
Modifications to General category subquota periods and/or allocations		
Alternative G1: Maintain Current General Category Sub-Quota Periods - No Action (Preferred)	No change in economic benefits.	No change in economic costs.
Alternative G2: Modify General category subquota time periods		
Sub-Alternative G2a: Modify General category subquota time periods: 12 equal months	There would generally be increased revenues for the General category participants from January through May and October through December. For early season (January-March) General category participants, there would be a potential revenue increase of approximately $1.6 million during this time period. For October-November and for December, potential revenues would increase by approximately	There would generally be decreased revenues for the General category participants from June through September. Potential revenue for the June-August and September periods would decrease by approximately $1.9 million and $1.5 million under this alternative.

Alternatives	Economic Benefits	Economic Costs
	$309,000 (28 percent) and $404,000 (60 percent) at $6.89 per pound and $10.54 per pound, respectively. The June to August and September sub-quota periods would have potential revenue decreases of $1.9 million and $1.5 million, respectively. Net annual revenues for the category would increase by approximately $303,000 (3.6 percent). The changes in revenues in these General category subquota allocation alternatives is strongly subject to availability of fish and fishing conditions during these time periods.	
Sub-Alternative G2b: Modify General subquota category time periods: Extend the January through March subquota time period through April 30	This alternative would increase the likelihood of winter General category participants and Charter/Headboat participants, when fishing commercially, being able to catch the full January subquota, particularly if NOAA Fisheries increases the January-March subquota via an inseason transfer. Increases in economic benefits would depend on the availability of bluefin to the fishery from the beginning of April until the available subquota (base or adjusted, as applicable) is reached. Price per pound is also influenced by the amount of bluefin on the market. NOAA Fisheries estimates the value of an unused mt of January-March subquota, using the January-March 2019 average price per pound of $6.93, at $15,277.	To the extent that less unused quota might be adjusted and transferred inseason from a subquota period to a later period(s), impacts for General category participants fishing in the later time periods would be negative and potentially cost some businesses reduced revenue.
Alternative G3: Modify General category subquota allocation percentages		
Sub-Alternative G3a: Modify General category subquota allocation percentages: Increase the January through March amount	If quota that is anticipated to be unused in the first part of the summer season is made available to January through March period General category participants and bluefin are landed against the January through March subquota, it would potentially result in improved and fuller use of the General category quota. Also, because bluefin price per pound is often higher in the January through March period than during the summer, shifting quota to this earlier period would result in beneficial impacts to early season General category participants. It is possible, however, that an increase of bluefin	This alternative could result in some economic cost overall to participants in the June through December time periods.

Alternatives	Economic Benefits	Economic Costs
	on the market in the January through March period could reduce the average price for that time of year. This could reduce overall revenues and/or profitability during that period. Overall, economic benefits would be expected for the January through March fishery participants.	
Sub-Alternative G3b: Modify General category subquota allocation percentages: Increase the September and the October through November amounts and decrease June through August amount	To the extent that quota that is anticipated to be unused in the first part of the summer season is made available to General category participants for the September and October through November periods and bluefin are landed against those subquotas, it would potentially result in improved and fuller use of the General category quota. In the last three years however, the June through August base subquota has been exceeded, and the fishery for that time period was closed in 2017 and 2019 prior to August 31. Also, because bluefin price per pound is often higher in the September and October through November periods than during the June through August period, shifting quota to these later periods would result in beneficial impacts to fall General category participants. It is possible, however, that an increase of bluefin on the market in the fall periods could reduce the average price for that time of year. Additionally, any unused quota from the June through August subperiod may be adjusted (added) to subsequent periods. Overall, economic benefits are expected to be neutral to positive, and would be beneficial for September through November fishery participants.	This alternative could result in some economic cost overall to participants in the June through August time periods if the decreases in quota impact revenues from fishing. There is a risk in shifting quota allocation to later periods in the fishing year that the full General category quota may not be reached, depending on fishing conditions and bluefin availability on the fishing grounds.
Sub-Alternative G3c: Modify General category subquota allocation percentages: If reallocate Purse Seine quota proportionally to all other quota categories, place all quota that is reallocated to the General category to the fall time periods	An additional 110.4 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 147.3 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category September period could result in additional potential annual gross revenues of over $1.6 million or $2.2 million, respectively, for the Genceral category overall. An additional 54.2 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 72.2	General category participants that fish outside of the fall time periods might experience fewer benefits from any reallocation of the Purse Seine quota.

Alternatives	Economic Benefits	Economic Costs
	mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category October- November period could result in additional potential annual gross revenues of over $823,000 or $1.1 million, respectively.	
Modifications to the Angling category trophy fishery		
Alternative H1: Maintain Current Angling Category Trophy Areas and Allocations - No Action	No change in economic benefits.	There may be some economic costs to Angling category and for-hire Charter/Headboat category fishermen in New England states as they may have little to no opportunity to land bluefin when the fish are in their area as the northern trophy fishery may already be closed for the year if recent bluefin availability patterns continue.
Alternative H2: Modify Angling category trophy areas and allocations (percentages) (Preferred)	There would be economic benefits to a small number of vessels in the new Gulf of Maine trophy area given the small amount of fish that would be allowed to be landed.	There could be some decrease in angler satisfaction for those fishing for large school/small medium bluefin due to the slight reduction in allocation for those size classes.
Modifications to other handgear fishery regulations		
Alternative I1: Use of harpoon gear on vessels other than Harpoon category-permitted vessels		
Sub-Alternative I1a: Maintain the Current Authorized Gears - No Action (Preferred)	No change in economic benefits.	No change in economic costs.
Sub-Alternative I1b: Allow use of harpoon gear on charter/headboat vessels	There would be economic benefits specifically for those vessels that have success in harpooning bluefin that may be available at the water's surface. There are times when the feeding behavior of commercial sized bluefin makes hooking a fish difficult, so harpooning could lower costs in those cases. This alternative would increase opportunities for commercial handgear fishermen to attain the bluefin Atlantic Tunas General category quota.	There could be economic costs for existing HMS Charter/Headboat operators due to the potential for Atlantic Tunas General or Harpoon category permit holder to change to the HMS Charter/Headboat category, potentially increasing competition for charter business. There could be costs associated regarding the potential for increases in bycatch mortality due to high-grading, or if fish under the commercial size are harpooned and released due to size restrictions.
Sub-Alternative I1c: Remove harpoon gear as an authorized gear for General category permitted vessels	There could be some benefits to rod and reel fishermen in the General category from reduced pressure from landings by General category participants that used harpoon, which could fill	There would be increased costs since this alternative would reduce flexibility and efficiency in catching the General category quota. There could be an estimated $164,979

Alternatives	Economic Benefits	Economic Costs
	the available General category quota quickly according to comments. NOAA Fisheries estimates a potential increase of $234,240 to General category (quota) participants using rod-and-reel if harpoon is prohibited based on data that shows that 125 fish were reported as harpooned by General category permitted vessels in 2019.	reduction in revenue from bluefin caught per year overall by General category participants that used harpoon gear in the past.
Alternative I2: Harpoon category daily retention limit		
Sub-Alternative I2a: Maintain Current Harpoon Category Retention Limits - No Action	No change in economic benefits.	In the short-term the economic costs are likely to be neutral. However, in the long-term economic costs could be negative, as participants would continue to be limited to the default of two large medium bluefin if caught while targeting giant bluefin.
Sub-Alternative I2b: Set a Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and maintain current retention limit (range) on large medium bluefin	There may be a minor increase in economic benefits if the length of the season is increased.	There would be minor costs resulting from a few trips being constrained by a ten fish limit. NOAA Fisheries estimates a loss of one to 10 fish for the Harpoon category would be approximately $1,640 to $16,402 for the Harpoon category as a whole for the year (or $1,922 to $19,220 for the year, using the average of 2017-2019 price data).
Sub-Alternative I2c: Set a default Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and adjust combined daily retention limit over a range of 5 to 10 fish (adjusted inseason) (Preferred)	There may be a minor increase in economic benefits if the length of the season is increased.	The impacts of this alternative would be very similar to those for I2b, but the combined retention limit could be adjusted via inseason action to between 5 and 10 fish (with a default of 10). Because the alternative includes a potential adjustment of the combined limit to less than 10 fish, ex-vessel revenues for some vessels could be decreased relative to Alternative I2b.
Alternative I3: Harpoon category season		
Sub-Alternative I3a: Maintain Current Harpoon Category Start and End Dates - No Action (Preferred)	No substantial change in economic benefits. The benefits would be attributed to the Harpoon category season remaining consistent with prior years. To the extent that opportunities could extend deeper into the summer, more Harpoon category participants could benefit. The Harpoon and General category seasons starting together also would facilitate	To the extent that bluefin may be available to harpoon gear operators prior to June 1, opportunities to harpoon fish may be lost, both from the catch of the fish and the potential for better ex-vessel prices when there may be fewer fish on the market, particularly from the General category, which would not begin until June 1.

Alternatives	Economic Benefits	Economic Costs
	enforcement and business planning, and provide greater certainty to participants regarding opportunities, participation/effort, and potential impact on market prices.	
Sub-Alternative I3b: Adjust Harpoon category season	This alternative would increase the likelihood of Harpoon category participants being able to catch the full Harpoon category quota and thus benefit from landings revenue. An increase in yield may result from a potential increase in the geographic and temporal distribution of landings. The value of an unused metric ton of Harpoon category landings is estimated at $11,838 and $13,845 using the average 2017-2019 price.	No substantial change in economic costs are expected, but uncertainty in the harpoon and General category fisheries would increase.
Alternative I4: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed bluefin		
Sub-Alternative I4a: Maintain Current 45-day Permit-Change Restriction - No Action	No change in economic benefits.	A small number of permit holders obtain an annual permit in the wrong category. If permit changes are not allowed, a commercial fisherman could be prevented from selling fish anda charter/headboat fishermen could be prevented from taking paying passengers for a year.
Sub-Alternative I4b: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed a bluefin. (Preferred)	There are slight benefits associated with allowing permit holders that obtain annual permits in the wrong category to change permit categories within a fishing year. This would allow those commercial fishermen to sell fish or charter/headboat fishermen to take paying passengers (e.g., HMS Angling permit incorrectly obtained).	No change in economic costs.
Alternative I5: Clarify Regulations for Retention of Bluefin Caught with Green-stick Gear by Longline category permitted vessels		
Sub-Alternative I5a: No Action - Do not change the current green-stick gear regulations	No change in economic benefits.	This would maintain the current regulations that preclude a pelagic longline vessel from retaining and selling bluefin caught on green-stick gear. Vessels would be required to discard a legal-sized bluefin if caught.
Sub-Alternative I5b: Allow Longline category permitted vessels to use green-stick gear	This alternative would have minor economic benefits because a vessel would be able to retain a legal-sized bluefin that may otherwise	Adding this restriction could limit the ability of those vessels to maximize their opportunity to catch yellowfin. However, very few fishermen

Alternatives	Economic Benefits	Economic Costs
provided that pelagic longline gear is not onboard and vessels comply with VMS set report, HMS logbook, and IBQ Program requirements	be discarded dead due to a de facto prohibition on bluefin retention. Retention of such fish would reduce waste and augment revenue.	use both types of gear at the same time.
Sub-Alternative I5c: Regardless of whether pelagic longline gear is onboard, apply an incidental green-stick gear retention limit of one bluefin for Longline category permitted vessels, provided that vessels comply with VMS set report, HMS logbook, and IBQ Program requirements (Preferred)	This alternative would have minor economic benefits because a vessel would be able to retain a legal-sized bluefin that may otherwise be discarded dead due to a de facto prohibition on bluefin retention. Retention of such fish would reduce waste and augment revenue. Allowing the use of green-stick gear while pelagic longline gear is onboard is intended to provide vessel operators flexibility to employ fishing strategies with multiple gear types to optimize their business in a highly dynamic fishery.	No change in economic costs.

7 Final Regulatory Flexibility Analysis

The Final Regulatory Flexibility Analysis (FRFA) is conducted to comply with the Regulatory Flexibility Act (5 U.S.C. §§ 601 et seq.) (RFA). The goal of the RFA is to minimize the economic burden of federal regulations on small entities. To that end, the RFA directs federal agencies to assess whether a proposed regulation is likely to result in significant economic impacts to a substantial number of small entities, and identify and analyze any significant alternatives to the proposed rule that accomplishes the objectives of applicable statutes and minimize any significant effects on small entities. Certain data and analyses required in a FRFA are also included in other Chapters of this document. Therefore, this FRFA incorporates by reference the economic analyses and impacts in Chapters 4, 5, and 6 of this document.

This FRFA has been updated from the Initial Regulatory Flexibility Analysis (IRFA) published in the DEIS to reflect analyses that were updated with the inclusion of an additional year of data (2019). That data was not included in the IRFA because it was not available at the time the DEIS was prepared. Its inclusion in the FEIS does not substantially alter any analyses, outcomes, or conclusions. Some of the preferred alternatives in the DEIS are no longer preferred, and some of the non-preferred alternatives of the DEIS are now preferred in this FEIS. The analysis of the IBQ allocation leasing program was refined in this FEIS. Whereas the analysis of the leasing program in the DEIS compared the portion of leases from the Purse Seine category participants to the portion of leases from pelagic longline vessels, the analysis in the FEIS has been refined to further reflect the source of pelagic longline leases from either active or inactive vessels. Some of the preferred alternatives were modified slightly and therefore analyses were modified slightly, but did not alter the scope of the impacts. The estimated change in revenue associated with the preferred alternatives in the FEIS is within a similar range to those presented in the DEIS, when compared to the no action alternative.

In the DEIS, it was stated that NOAA Fisheries would be pay for required additional equipment for the electronic monitoring program, if funding was available, and provided an estimate of the cost per vessel. In this FEIS, because funding is not available for this purpose and in consideration of relevant policy regarding payment of electronic monitoring costs (National Marine Fisheries Procedure 04-115-02; Cost Allocation in Electronic Monitoring Programs for Federally Managed U.S. Fisheries), analyses presume vessel owners would be required to pay for the installation of required additional support structures for the rail camera under the preferred alternative. The cost estimate per vessel in this FEIS is the same as that noted in the DEIS, and the conclusion that the adverse economic impacts are minor has not changed.

7.1 Statement of the Need for and Objectives of this Final Rule

Section 604(a)(1) of the RFA requires Agencies to state the objective of, and legal basis for the proposed action. Please see Chapter 1 for a full description of the objectives of this action.

NOAA Fisheries developed the draft management objectives based upon the data and recommendations of the Three-Year Review, comments received during the Amendment 13 scoping process, and the detailed suggestions and concerns expressed by the HMS Advisory Panel, fishery participants, and the public regarding management of bluefin over the last several years. These specific objectives are within the context of the current 2006 Consolidated HMS FMP and its amendments, including the overarching objectives of ending overfishing, and meeting other legal obligations and conservation and management goals and requirements.

7.2 A Summary of the Significant Issues Raised by the Public Comments in Response to the Initial Regulatory Flexibility Analysis, a Summary of the Agency's Assessment of Such Issues and a Statement of Any Changes Made in the Rule as a Result of Such Comments.

Sections 604(a)(2) and (3) of the RFA require that a FRFA include a summary of significant issues raised by public comment or by the Chief Counsel for Advocacy of the Small Business Administration in response to the IRFA and proposed rule, a summary of the assessment of the Agency of such issues, and a statement of any changes made in the rule as a result of such comments. NOAA Fisheries did not receive any comments on the proposed rule from the Chief Counsel for Advocacy of the Small Business Administration. Additionally, NOAA Fisheries did not receive any public comments specifically on the IRFA, however the Agency did receive some comments regarding the anticipated or perceived economic impact of the rule. The comments and responses included below are those that pertain specifically to such economic impacts. All of the comments received are summarized in Appendix A of the FEIS.

Comment: NOAA Fisheries received a comment that some pelagic longline vessels rely on dolphin fish for up to 30 percent of their revenue, and, because the designated species under dynamic allocation as proposed did not include dolphin fish, such vessels would be disadvantaged by the proposed dynamic allocation measure, by receiving less IBQ shares or other indirect impacts based on a resultant perception that dolphin fish is not an important component of the fishery target species.

Response: NOAA Fisheries agrees that dolphin fish is an economically important component of the pelagic longline fishery. NOAA Fisheries is no longer preferring the dynamic allocation based on designated species landings for several reasons, including the economic importance of dolphin fish.

Comment: NOAA Fisheries received comments that the use of tiers in the proposed dynamic allocation alternatives has the effect of disadvantaging some vessels assigned to each of the four tiers, which define only four distinct percentage shares (instead of customized shares for each vessel). Specifically, some vessels could receive less IBQ shares and may have to spend more money to lease additional shares from other vessels, or lose potential income from additional shares that could have leased to other vessels.

Response: NOAA Fisheries agrees that there were negative implications for individual vessels associated with the use of tiers. After consideration of public comments, NOAA Fisheries determined that the beneficial aspects of the use of tiers did not outweigh these negative aspects, and, therefore NOAA Fisheries would base dynamic allocation shares on customized percentages rather assign vessels to one of four distinct tiers.

Comment: NOAA Fisheries received a comment that the combined effect of the proposed IBQ measures that focus on the Gulf of Mexico – that is the Gulf of Mexico designation of IBQ and the associated rules -would not function when there is very low fishing effort in the Gulf of Mexico. The specific concern stated was that vessels may have insufficient IBQ allocations to satisfy the minimum IBQ requirements as well as account for any bluefin catch, and that vessels would not lease IBQ allocation to other vessels. A severely constrained or non-functioning IBQ program in the Gulf of Mexico would directly impact the ability for vessels to fish and earn income.

Response: NOAA Fisheries agrees that under conditions of very low fishing effort in the Gulf of Mexico, the IBQ Program may not function as designed, and therefore NOAA Fisheries is modifying the final measures to provide flexibility under specific conditions of low amounts of Gulf of Mexico-designated IBQ shares and allocation resulting from low fishing effort in the Gulf of Mexico during the previous three years.

Comment: NOAA Fisheries received a comment that a bluefin quota 'set-aside' should be created to provide a source of IBQ shares and allocation for vessels that are new entrants to the fishery that would not otherwise have IBQ.

Response: NOAA Fisheries agrees that a new entrant set-aside is a measure that could be authorized for future development via framework action. In the context of the dynamic allocation measure, authorizing a set aside of a *de minimis* amount of BFT shares and allocation for new entrants would be an efficient means of laying the groundwork for the development of such a program in the future. A future regulatory action to fully develop an IBQ set-aside program could be warranted, should dynamic allocation provisions finalized in this action not facilitate new entrants. A quota set-aside program would have many associated policy and regulatory implications that would need to be addressed, and therefore separate rulemaking would need to occur to fully address the complexities of a set-aside program, if necessary.

Comment: NOAA Fisheries received comments that that the Purse Seine category should not be reallocated, or that if reallocated, the Longline category should be included in the

reallocation. Commenters noted that because pelagic longline vessels rely on Purse Seine category quota for leasing under the IBQ Program, they would be impacted by a decrease in the availability of IBQ allocation to lease. They stated that the increased IBQ allocation to active pelagic longline vessels under the preferred IBQ allocation alternative will not make up for the loss of quota currently available from the Purse Seine category. Commenters further stated that the Purse Seine category quota provides a safety net for the pelagic longline fishery in case of unexpected bluefin tuna catch.

Response: NOAA Fisheries agrees that active vessels in the pelagic longline fishery have relied upon Purse Seine category bluefin quota as a source from which to lease bluefin quota, given that it may be leased through the IBQ system. Refinement of analyses in the DEIS support the conclusion that the increased IBQ allocation to active pelagic longline vessels under the proposed IBQ allocation alternative would not make up for the loss of quota currently available from the Purse Seine category. As a result of this and other considerations, NOAA Fisheries is no longer preferring Alternative F4, and would instead reallocate Purse Seine category quota to all bluefin quota categories, including the Longline category.

Comment: NOAA Fisheries received comments on some of the alternatives that were not preferred, pertaining to the General category bluefin fishery. One commenter noted that modification of the current subquota periods into 12 equal subquota periods (Alternative G2a), would adversely affect the participation and finances of vessels, depending upon the location of the vessels. A commenter did not support extending the January through March subquota period until the end of April (Alternative G2b) because such a change would result in negative economic consequences later in the year.

Response: NOAA Fisheries agrees that no changes should be made to the General category subquota periods, and the preferred alternative in the DEIS and this FEIS is the No Action Alternative G1.

Comment: NOAA Fisheries received comments that the implementation of the proposed retention limit of 10 bluefin for the Harpoon category, which applies to large medium and giant fish (combined), would result in lost fishing opportunity and unharvested bluefin quota, and that therefore NOAA Fisheries should not implement the measure.

Response: NOAA Fisheries disagrees that the harpoon retention limit would result in lost fishing opportunity. Based on past data, the retention limit would affect relatively few vessels. In 2019 only 2 percent of Harpoon category trips landed 10 or more bluefin. Secondly, a default retention limit of 10 combined fish (with the ability to adjust the limit inseason to between 5 and 10 fish) provides NOAA Fisheries a means with which to influence rates of catch and optimize fishing opportunity and resultant revenue.

7.3 Description and Estimate of the Number of Small Entities to Which the Final Rule Would Apply

Section 604(a)(4) of the RFA requires Agencies to provide an estimate of the number of small entities to which the rule would apply. The Small Business Administration (SBA) authorizes an agency to develop its own industry-specific size standards after consultation with SBA Office of Advocacy and an opportunity for public comment (see 13 CFR 121.903(c)). Pursuant to this process, NOAA Fisheries issued a final rule that established a small business size standard of $11 million in annual gross receipts for all businesses in the commercial fishing industry (NAICS 11411) for RFA compliance purposes. 80 FR 81194, December 29, 2015 (effective on July 1, 2016). SBA has established size standards for all other major industry sectors in the United States, including the scenic and sightseeing transportation (water) sector (North American Industry Classification System (NAICS) code 487210, for-hire), which includes charter/party boat entities. SBA has defined a small charter/party boat entity as one with average annual receipts (revenue) of less than $8.0 million.

NOAA Fisheries considers all HMS permit holders to be small entities because they had average annual receipts of less than $11 million for commercial fishing. Regarding those entities that would be directly affected by the preferred alternatives, the average annual revenue per active pelagic longline vessel in 2017 is estimated to be $307,422 based on the 88 active vessels, which is well below the NOAA Fisheries small business size standard for commercial fishing businesses of $11 million. In 2019, there were 280 Pelagic Longline category permits, and 67 vessels were actively fishing based on logbook records.

Other non-longline HMS commercial fishing vessels typically earn less revenue than pelagic longline vessels and, thus, would also be considered to be small entities. The other (non-pelagic longline) preferred commercial alternatives would apply to 2,721 General category permit holders, 3,769 Charter/Headboat permit holders, 20 Harpoon category permit holders, and 34 seafood dealers that purchase bluefin (based on 2019 data). There are no Purse Seine category permits issued currently, however there are five historical participants in the purse seine fishery that are allocated bluefin quota that they have used to participate in the IBQ leasing program, which has generated some revenue for them in the past five years (Note: The Purse Seine category would be eliminated through the preferered alternative's implemenation in this amendment).

NOAA Fisheries has determined that the preferred alternatives would not likely directly affect any small organizations or small government jurisdictions defined under the RFA, nor would there be disproportionate economic impacts between large and small entities.

More information regarding the description of the fisheries affected can be found in Chapter 3.

7.4 Description of the Projected Reporting, Record-Keeping, and Other Compliance Requirements of the Proposed Rule, Including an Estimate of the Classes of Small Entities Which Would be Subject to

the Requirement and the Type of Professional Skills Necessary for Preparation of the Report or Record

Section 604(a)(5) of the RFA requires Agencies to describe any new reporting, record-keeping and other compliance requirements. Some preferred alternatives in Amendment 13 would result in reporting, record-keeping, and compliance requirements that require a new or modified Paperwork Reduction Act filing, which was completed in association with the proposed rule and DEIS.

Under Preferred Alternative F2b, NOAA Fisheries would remove the requirements for vessels fishing with purse seine gear to report bluefin information through VMS, because this alternative would eliminate the provisions that allow fishing with purse seine gear. Because this alternative would remove a requirement, there are no additional skills needed.

Under Preferred Sub-Alternative I5c, vessels authorized to fish with pelagic longline gear would be allowed to retain one bluefin per trip (73" or greater CFL) caught with green-stick gear. New reporting requirements would be implemented to collect data from sets made with green-stick gear. Vessels would be required to submit a Vessel Monitoring System (VMS) set report for each green-stick retrieval with interactions with bluefin, and report information on the location of the set, and numbers and length of bluefin within 12 hours (in addition to the VMS reports for pelagic longline sets). Vessels would be required to comply with the IBQ Program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations. NOAA Fisheries estimates that the number of small entities that would be subject to these requirements would include participants in the Longline category. In 2019, a total of 280 Atlantic Tunas Longline category limited access permits were issued. However, only a total of three vessels permitted in the Longline category are expected to use green-stick gear, based on historical information. While this is a new reporting requirement, there are no additional skills needed as vessels are already required to report bluefin through the VMS set report; this requirement would simply include reports for green-stick gear.

Under Preferred Sub-Alternative E1b, NOAA Fisheries would remove two aspects of the dealer reporting requirements for the IBQ Program. First, this alternative would eliminate the current requirement that vessel operators or owners confirm that the landing report information entered into the IBQ system by the dealer is accurate, by entering the Personal Identification Number (PIN) associated with the vessel account (pursuant to 50 C.F.R. § 635.15(b)(4)(iii)). Secondly, this alternative would remove the requirement that any pelagic longline vessel owner or operator who discarded dead bluefin is required to also enter dead discard information from the trip by coordinating with the dealer and entering that trip's dead discard information into the online IBQ system via the dealer account. These changes would reduce reporting requirements for the same 280 Longline category permittees, described above. It is likely that the number of vessels that would actually be affected by this requirement would not be larger than 60 vessels. Since 2017, no more than

58 different pelagic longline vessels have landed bluefin tuna. Because this alternative would remove dealer reporting requirements, there are no additional skills needed.

Preferred Sub-Alternative E5 would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by permit holders for a particular year is warranted. Annually, NOAA Fisheries would estimate its incremental costs associated with the IBQ Program (including costs associated with the cost recovery program) and the total ex-vessel value of bluefin sold from the pelagic longline fishery, and provide notice on whether a cost recovery fee will be charged for the year. If NOAA Fisheries determines the annual cost recovery fee is warranted, NOAA Fisheries would send invoices electronically or via paper mail to Atlantic Tunas Longline permit holders that landed bluefin (based on dealer landings data). Permit holders would be billed based on the ex-vessel value of the bluefin purchased. Permit holders would pay the cost recovery fee through the online IBQ Program website and the associated pay.gov link. NOAA Fisheries anticipates that the small entities that could be subject to new cost recovery requirements (Atlantic tuna longline permit holders) that would actually be affected by this requirement would not be larger than 60 vessels. Since 2017, no more than 58 different pelagic longline vessels have landed bluefin tuna. Under this new requirement, permit holders may be required to use the pay.gov website to pay the cost recovery fee. While this is a new requirement, using the pay.gov website is similar to other websites commonly used to pay bills and therefore does not require any additional skills.

7.5 Description of the Steps the Agency Has Taken to Minimize the Significant Economic Impact on Small Entities Consistent with the Stated Objectives of Applicable Statutes

Under section 604(a)(6) of the RFA, Agencies must describe the steps to minimize the significant economic impact on small entities consistent with the stated objectives of applicable statutes, including a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule and why the agency rejected each one of the other significant alternatives to the rule considered by the agency which affect the impact on small entities. These impacts are discussed below and in Chapters 4 and 6 of this document.

7.5.1 Alternative A: Modifications to IBQ Share Eligibility, Distribution and Allocation Methods

Alternative A1, the No Action Alternative, would make no changes to the current method of determining IBQ share eligibility, and the distribution of IBQ allocations, including regional designations. This alternative would not result in any changes in the economic impacts to small entities associated with the IBQ Program under Amendment 7. However, the costs and inefficiencies associated with the current method of share allocation would continue, and therefore could be considered as minor adverse economic impacts (which could be avoided by selection of the preferred alternative). The percentage share allocations

associated with the high, medium and low tiers are 1.2 percent, 0.6 percent, and 0.37 percent. Applying these percentages to the 2019 pelagic longline quota of 360,656 pounds, the IBQ allocations associated with high, medium, and low shareholders are 4,317 pounds, 2,157 pounds, and 1,330 pounds per vessel, respectively. There are a total of 43 high tier, 62 medium tier, and 31 low tier shareholders, for a total of 136 shareholders, as defined by Amendment 7.

Under the No Action Alternative there would continue to be the inefficiency associated with annual IBQ allocations that are neither used to account for bluefin catch, nor leased to other shareholders. During 2015, 2016, 2017, 2018, and 2019, only 77, 63, 63, 56, and 64 percent of shareholders were active fishing, respectively. To estimate the costs associated with a hypothetical future leasing market under the No Action Alternative, NOAA Fisheries chose both an estimated cost per pound for leased quota and an estimated number of pounds leased. Based on the weighted average price per pound of leased IBQ allocation from 2017, 2018, and 2019, the overall average cost of leasing IBQ allocation is $1.70 per pound. In 2019 there was a total of 180,756 pounds of IBQ allocation leased (including leased allocation from Purse Seine participants) by 56 vessels. If the average amount leased per longline vessel in the future were 1,577 lb (based on 2019 data), and the average price of a lease among longline vessels were $1.61 per pound (price for longline vessels only), the cost of leasing IBQ allocation per vessel would be $2,539. The costs associated with leasing IBQ allocation would also include time spent by leasing market participants communicating with other participants when they are trying to find potential lessors or lessees, and the time spent by lessors online executing the transactions. Alternative A1 would not meet objective 4 of this Amendment because it would not be responsive to the recommendations of the Three-Year Review, which noted that a different method of share and allocation distribution may be warranted, and concerns regarding the relatively large amount of IBQ shares associated with inactive shareholders. For these reasons, NOAA Fisheries is not preferring this alternative at this time.

Alternative A2 is composed of four sub-alternatives that consider various annual dynamic determination methods for allocating IBQ shares. Under these alternatives, IBQ shareholders would be determined annually, based on the application of eligibility criteria intended to define a pool of recently active vessels. Therefore, elements of each of these alternatives include a definition/criteria for determining the pool of vessels that have recently fished (i.e., defining what an “active” vessel is). Under all of the sub-alternatives, there would be 91 defined shareholders based on the total number of vessels that submitted VMS bluefin reports from 2017 through 2019.

Sub-Alternative A2a would define IBQ shareholders annually based on hooks as the measure of fishing effort. For most active IBQ shareholders, who are small business entities, the economic impact of this alternative would be positive, and the overall economic impacts would be minor beneficial. Shareholders are directly impacted by changes to their share percentages, and such changes are short term because the definition of shareholders would occur on an annual basis. Some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. One

adverse impact for shareholders may be a slightly reduced ability for business planning due to the potential annual variability in share percentages. It should be noted however that shareholders would be aware that a substantive change in their amount of fishing effort may result in slight changes in their share percentage in the following year. Adverse impacts on a shareholder could be partially mitigated through leasing IBQ allocation. Such adverse impacts would only be partially mitigated because of the cost of leasing IBQ allocation. Some shareholders (and permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease. The number of shareholders with an increase would be greater than the number of shareholders with a decrease. Overall, there would be a net increase in IBQ allocation value.

Based on the analysis provided in Chapter 4 of this FEIS, 65 vessels would have IBQ allocations larger than compared to the No Action Alternative, and be in a better economic position with respect to the amount of IBQ allocation they receive based on their share percentage (expressed in terms of potential lease costs avoided, or leasing benefits accrued). The average pounds of IBQ allocation gained would be 2,604 with a range of between 482 and 7,049 pounds. Using a weighted average cost per pound of leased IBQ allocation from 2017 through 2019 of $1.70 per pound, the average lease value of IBQ allocation gained would be approximately $4,428 per shareholder with a range of $819 to $11,983. Twenty-six vessels would have IBQ allocations smaller when compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they receive based on their share percentage. The average pounds of IBQ allocation lost would be 2,137 with a range of between 1,535 and 3,695 pounds. Using the same weighted average cost per pound of leased IBQ allocation of $1.70 per pound, the average lease value of IBQ allocation lost would be approximately $3,633 per shareholder with a range of $2,609 to $6,282. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The most notable trend is that under dynamic allocation based on fishing effort measured by hooks, vessels are generally distributed more IBQ allocation than under the No Action Alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 91, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active but receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel). Although the number of vessels that gain or lose IBQ share percentages and associated IBQ allocation, and the value of such losses (Table 4.15) are similar if dynamic allocation is based on either hooks, sets, or designated species landings, this alternative is not preferred at this time. The number of hooks is more difficult to verify than sets, and public comment strongly supported the use of sets instead of hooks or designated species landings.

Preferred Sub-Alternative A2b would define IBQ shareholders annually based on pelagic longline sets as the measure of fishing effort. For most active IBQ shareholders, who are

small business entities, the economic impact of this alternative would be positive, and the overall economic impacts would be minor beneficial. Shareholders are directly impacted by changes to their share percentages, and such changes are short term because the definition of shareholders would occur on an annual basis. Some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. One adverse impact for shareholders may be a slightly reduced ability for business planning due to the potential annual variability in share percentages. It should be noted however that shareholders would be aware that a substantive change in their amount of fishing effort may result in slight changes in their share percentage in the following year. Adverse impacts on a shareholder could be partially mitigated through leasing IBQ allocation. Such adverse impacts would only be partially mitigated because of the cost of leasing IBQ allocation. Overall, there would be a net increase in IBQ allocation value.

Based on the analysis provided in Chapter 4 of this FEIS, 61 vessels would have IBQ shares and subsequent allocations larger than compared to the No Action Alternative, and be in a better economic position with respect to the amount of IBQ allocation distributed to them in association withtheir IBQ share (expressed in terms of potential leases costs avoided, or leasing benefits accrued). The average pounds of IBQ allocation gained would be 2,696 with a range of between 43 and 7,490 pounds. Using a weighted average cost per pound of leased IBQ allocation from 2017 through 2019 of $1.70 per pound, the average lease value of IBQ allocation gained would be approximately $4,582 per shareholder with a range of $74 to $12,732. Thirty vessels would have IBQ allocations smaller when compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they have. The average pounds of IBQ allocation lost would be 1,799 with a range of between 51 and 4,295 pounds. Using the same weighted average cost per pound of leased IBQ allocation of $1.70 per pound, the average lease value of IBQ allocation lost would be approximately $3,492 per shareholder with a range of $87 to $7,302. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. Notably, under dynamic allocation based on sets, vessels are generally distributed more IBQ allocation than under the No Action Alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 91, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel). Public comment supported this alternative.

Sub-Alternative A2c would define IBQ shareholders annually based upon the total amount by weight of each individual permitted vessel's designated species landings relative to the total amount of designated species landings by pelagic longline fleet, as the measure of fishing effort. For most active IBQ shareholders, who are small business entities, the economic impact of this alternative would be positive, and the overall economic impacts

would be minor beneficial. Allocation of shares based on designated species landings may align more closely with the need to account for bluefin using IBQ allocation than the non-preferred alternatives, and therefore may reduce inefficiency in the distribution of IBQ shares and reduce leasing costs for fishery participants. Shareholders are directly impacted by changes to their share percentages and such changes would be short-term because the definition of shareholders would occur on an annual basis. Some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. One adverse impact for shareholders may be a slightly reduced ability for business planning due to the potential annual variability in share percentages. It should be noted however that shareholders would be aware that a substantive change in their amount of fishing effort may result in slight changes in their share percentage in the following year. Adverse impacts on a shareholder could be partially mitigated through leasing IBQ allocation. Such adverse impacts would only be partially mitigated because of the cost of leasing IBQ allocation. The number of shareholders with an increase would be greater than the number of shareholders with a decrease. Overall, there would be a net increase in IBQ allocation value. Participants in the Deepwater Horizon OFRP would have their fishing effort represented by the use of a proxy amount of landings used in the calculation of their IBQ shares, in order to ensure that there are no negative impacts associated with their voluntary participation in that project.

Based on the analysis provided in Chapter 4 of this FEIS, 63 vessels would have IBQ allocations larger than compared to the No Action Alternative, and be in a better economic position with respect to the amount of IBQ allocation distributed to them as a result of their share percentage (expressed in terms of potential leases costs avoided, or leasing benefits accrued). The average pounds of IBQ allocation gained would be 819, with a range of between 491 and 8,110 pounds. Using a weighted average lease value of IBQ allocation gained would be approximately $4,792 per shareholder with a range of $835 to $13,787. Thirty vessels would have IBQ allocations smaller when compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they have. The average pounds of IBQ allocation lost would be 2,238 with a range of between 805 and 3,792 pounds. Using the same weighted average cost per pound of leased IBQ of $1.70 per pound, the average lease value of IBQ allocation lost would be approximately $3,805 per shareholder with a range of $1,369 to $6,446. It should be noted that all active vessels would receive IBQ share percentages and subsequent allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The exclusion of dolphin and wahoo from the list of designated species affected the IBQ share percentages of eight vessels in the analyses. Compared to the IBQ share percentages that they would have received if dolphin and wahoo were included, four vessels increased in share percentage and four vessels decreased. The difference in percentage shares was relatively minor, with vessel shares moving from one quartile to an adjacent quartile. The most notable trend is that under dynamic allocation based on designated species landings, vessels generally would be distributed more IBQ allocation than under the No Action

Alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 91 and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel). Although the number of vessels that gain or lose IBQ shareholder status or receive less of a share percentage, and the value of such losses (Table 4.15), are similar if dynamic allocation is based on either hooks, sets, or designated species landings, this alternative is not preferred at this time. The use of landings as a metric to determine IBQ shares is more complex to administer, and may create incentives to modify fishing strategies that result in the capture of lesser value fish or the increased waste of fish due to the fact that higher pounds of designated species landings result in larger IBQ shares. This alternative is not preferred at this time.
Sub-Alternative A2d would define IBQ shareholders annually, and distribute IBQ allocation in equal amounts to eligible permitted vessels. An eligible vessel would be any vessel that landed designed species during recent years (i.e., at least one of the three most recent years of available data). For most active IBQ shareholders, who are small business entities, the economic impact of this alternative would be positive, and the overall economic impacts would be minor beneficial. Shareholders are directly impacted by changes to their share percentages, and such changes are short term because the definition of shareholders would occur on an annual basis. Some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. One adverse impact for shareholders may be a slightly reduced ability for business planning due to the potential annual variability in share percentages. It should be noted however that shareholders may be frustrated that allocation may not align with their need for IBQ allocation, given that the distribution of IBQ shares would not be based on any metric of fishing effort. Adverse impacts on a shareholder could be partially mitigated through leasing IBQ allocation. Such adverse impacts would only be partially mitigated because of the cost of leasing IBQ allocation. There would be 91 defined shareholders based on current data for eligible vessels. Public comments supported the logic that determination of IBQ shares based on a measure of fishing effort is more equitable than equal shares, because the pelagic longline fleet is very diverse, with some vessels being very active with a lot of fishing effort, while other vessels have relatively low fishing effort. For the vessels that would receive a lower share compared to the No Action alternative, the size of such losses would be relatively small (354 lb). The economic losses in total for vessels that would receive a lower share ($21,063) compared to the No Action alternative are lower than the comparable losses for the other alternatives.

Based on the analysis provided in Chapter 4 of this FEIS, 56 vessels would have IBQ allocations larger than compared to the No Action Alternative, and be in a better economic position with respect to the amount of IBQ allocation they have (expressed in terms of potential lease costs avoided, or leasing benefits accrued). The average pounds of IBQ allocation gained would be 2,196 with a range of between 1,806 and 3,963 pounds. Using a weighted average lease value of IBQ allocation gained would be approximately $3,734 per shareholder with a range of $3,070 to $6,737. Thirty-five vessels would have IBQ allocations smaller when compared to the No Action Alternative, and would be in a worse

economic position with respect to the amount of IBQ allocation they have. The average pounds of IBQ allocation lost would be 354. Using the same weighted average cost per pound of leased IBQ allocation of $1.70 per pound, the average lease value of IBQ allocation lost would be approximately $602 per shareholder. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. Notably, under dynamic allocation-based equal allocation, vessels currently in the medium and low tiers (93 vessels combined) (i.e., under the No Action Alternative, that have 2,157 pounds and 1,330 pounds, respectively) would have a larger IBQ share percentage and be distributed more IBQ allocation based on equal allocation (3,963 pounds), while vessels currently in the high tier (43 vessels) (with 4,317 pounds) would have a lower IBQ share percentage and be distributed less IBQ allocation (3,963 pounds. The number of IBQ shareholders would be reduced from 136 to 91, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel). This alternative is not preferred.

Alternative A3 would distribute IBQ allocation using the same formula used in Amendment 7, but instead of using data during the period from 2006 through 2012, the alternative would define eligible vessels as those that reported making at least one set using pelagic longline gear (based on logbook data, as in Amendment 7) from 2016 through 2018, and the relevant catch data used to designate IBQ shareholders to one of three tiers would also be based on 2016 through 2018. The number of tiers (three) would remain the same (high, medium, and low), but the IBQ share percentages would be higher for all tiers. For example, the low tier share percentage under the Revised Amendment 7 formula alternative would be 0.5 percent instead of 0.37 percent and result in a large annual IBQ allocation. Although the defined IBQ share percentages would all be larger, because the alternative entails recalculation of the complex Amendment 7 formula based on more recent data (i.e., 2016 through 2018), for all vessels, some permit holders would change tiers, going either 'up' or 'down'. The net result under this alternative would be some permit holders would have a larger IBQ share percentage and other permit holders would have a smaller IBQ share percentage when compared to the No Action Alternative. Overall, the socioeconomic impacts to pelagic longline vessels would be minor beneficial, compared to the no action alternative because the bluefin quota would be allocated more efficiently due to the reduced number of shareholders (a reduction from 136 shareholders under the No Action Alternative down to 99 shareholders under this alternative).

Based on the analysis provided in Chapter 4 of this FEIS, 71 vessels would have IBQ allocations larger than compared to the No Action Alternative, and be in a better economic position with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). The average pounds of IBQ allocation gained would be 1,871 with a range of between 473 and 5,933 pounds. Using a weighted average lease value of IBQ allocation gained would be approximately $3,181 per

shareholder with a range of $805 to $10,086. Twenty-eight vessels would receive IBQ allocations smaller when compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they have. The average pounds of IBQ allocation lost would be 637 with a range of between 354 and 2,514. Using the same weighted average cost per pound of leased IBQ allocation of $1.70 per pound, the average lease value of IBQ allocation lost would be approximately $1,404 per shareholder with a range of between $601 and $4,273. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The distribution of allocation among vessels is similar for the two alternatives, but for the revised Amendment 7 alternative, there are a higher number of vessels that receive larger distributions. For example, under the No Action Alternative, 56 vessels would be allocated between 6 and 10 bluefin, whereas under the revised Amendment 7 alternative, 42 vessels would be allocated between 11 and 15 bluefin. The number of IBQ shareholders would be reduced from 136 to 99, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel). This alternative only partially achieves the objective that IBQ shares distributed to inactive shareholders be redistributed to active vessels, because the share determination is static (i.e., a one-time determination). Because the alternative is not dynamic, over time the distribution of IBQ shares and subsequent IBQ allocation among vessels may not be aligned with the active vessels. This alternative is not preferred at this time.

7.5.2 Alternative B: Modifications to Rules Closely Linked to IBQ Allocations

The economic impacts of Alternative B1, the No Action Alternative, would be neutral, and would result in the continuation of the current IBQ shareholders, associated share percentages, and regional designations. Vessels that currently do not have Gulf of Mexico (GOM) designated IBQ allocation but would like to fish in the Gulf of Mexico would need to lease GOM IBQ allocation. The costs associated with vessels leasing GOM designated IBQ allocation would continue. Vessels that do not have any shares of GOM designated IBQ would not gain any additional flexibility. This alternative is not preferred at this time.

Alternative B2, the elimination of the regional designations in conjunction with maintaining a maximum amount of bluefin catch from the Gulf of Mexico (set at 35 percent of the Longline category quota) may have short-term beneficial and adverse economic impacts. There may be a short-term beneficial impact on vessels that under the current regulations (No Action Alternative) have only Atlantic (ATL) designated IBQ allocation, and currently must lease GOM designated IBQ allocation in order to fish in the Gulf of Mexico. Such vessels would be able to fish in the Gulf of Mexico without the need to lease, which may reduce or eliminate the need for leasing IBQ allocation by such vessels. Facilitation of fishing opportunities in the Gulf of Mexico may result in increased revenue for such vessels.

If the elimination of regional designations increases the number of vessels that fish in the Gulf of Mexico, and there are increased landings of target species, there would be short-termeconomic benefits to dealers in the Gulf of Mexico. For vessels that already fish exclusively in the Gulf of Mexico, with all or most of their IBQ allocation designated as GOM, this alternative may have adverse economic impacts. Such vessels that currently have GOM designated IBQ allocation may face increased competition for fishing grounds or markets due to any increased fishing effort in the Gulf of Mexico, or face a smaller market for leasing their GOM allocation to other vessels. Elimination of the regional designations would likely result in increased uncertainty in the fishery. This alternative is not preferred at this time.

Preferred Alternative B3 would modify regional GOM and ATL designations for a dynamic allocation system and cap bluefin catch from the Gulf of Mexico. This alternative includes an additional aspect that was not included in the DEIS. Public comments expressed the concern that the potential for declining effort in the Gulf of Mexico could result in a percentage of GOM IBQ so low that it improperly constrains the fishery. Therefore, in order to prevent serious constraints in the functioning of the IBQ Program in the Gulf of Mexico under conditions of very low fishing effort, the preferred alternative in this FEIS includes a GOM designated share percentage threshold. If the total amount of IBQ shares that are designated as GOM are 5 percent or less of the total IBQ allocations (ATL plus GOM designated shares), the requirement to account for bluefin caught in the Gulf with GOM IBQ allocation, and use GOM IBQ allocation to satisfy the minimum IBQ requirement under the quarterly accountability will not apply. Overall, the economic impacts are expected to be minor and beneficial, due to the increased flexibility for vessels currently without GOM designated IBQ shares and subsequent allocation. More specifically, there could be several types of impacts on small entities as a result of this alternative: Those associated with vessel owners that have ATL designated IBQ shares (likely with home ports in the Atlantic); impacts on vessel owners with GOM designated IBQ shares (likely with home ports in the Gulf of Mexico), and those impacts that may result from a reduced percentage of total IBQ shares that are designated as GOM (if the amount of GOM designated shares, based on location of fishing effort (landings) exceeds the level of the cap). This alternative would provide increased flexibility for vessels that currently have ATL designated IBQ shares because the dynamic annual definition of shares and regional designations would enable a vessel to receive annual shares with a GOM regional designation as a result of fishing with pelagic longline gear in the Gulf of Mexico during the previous year (instead of needing to lease GOM designated IBQ allocation annually). Historical fishery participants in the Gulf of Mexico would continue to receive GOM designated IBQ shares based on their level of activity (in the Gulf of Mexico). If the number of vessels fishing in the Gulf of Mexico increased, there may be minor short-term adverse economic impacts to those entities due to increased competition. However, based on the few vessels with home ports in the Atlantic that have fished in the Gulf of Mexico during the past few years, the potential for any adverse economic impact on vessels with home ports in the Gulf of Mexico is very low. Regarding the potential for NOAA Fisheries to decrease the maximum percentage of GOM designated IBQ shares, if the maximum amount of GOM designated IBQ shares were reduced compared to the No Action level (e.g., down to between 27 percent or 33 percent of the total IBQ shares), there would likely be no practical impact because the recent levels

of catch of bluefin from the Gulf of Mexico have been very low. This alternative would provide a reasonable amount of flexibility for vessels to fish in the Gulf of Mexico.

Preferred Alternative B4 is the No Action Alternative with respect to the Northeast Distant Gear Restricted Area (NED) rules. The economic impacts of the preferred alternative with respect to the NED rules would be neutral. Data associated with vessels fishing in the NED are included as part of the formula defining IBQ shares, and vessels fishing in the NED do not have to use IBQ allocation to account for bluefin catch until after the 25 mt NED quota is utilized. Vessels that fish in the NED would continue to be able to fish there with no impact on the associated IBQ shares.

Alternative B5 would not include NED fishing activity as part of the data used in calculating IBQ Allocations. This alternative would have minor adverse economic impacts on vessels that fish in the NED because their fishing effort in the NED would not be reflected in their IBQ share percentage. Depending upon the specific amount of fishing effort, a vessel may receive a lower IBQ share percentage (if the reduction in numbers of hooks changed the assignment of quartile based on the vessel's percentage of total hooks). Nine vessels fished in the NED during 2016 to 2018. For example, under Alternative A2a, dynamic allocation based on hooks, although the number of hooks used to determine IBQ shares would be substantially reduced, because the shares are determined based on quartiles, only one vessel would have a lower percentage share by not including the NED effort in the calculation. It should be noted that if the share percentages were determined based upon each vessel's specific percentage of number of hooks (instead of being assigned to quartiles) the average decrease in the number of hooks for vessels that fished in the NED would be 37 percent (compared to inclusion of this effort in the share percentage). The range of decrease in numbers of hooks was between 6 percent and 100 percent. The NED fishery is unique and highly variable, and therefore only a few vessels fish there intermittently. If a vessel fished in the NED during a particular year, their share percentage may be reduced during subsequent years as a result, whether or not any bluefin were caught during that year, and whether or not the vessel choses to fish in the NED during subsequent years. If NED fishers receive *a lower IBQ share percentage relative to their total fishing effort* than other vessels, this may put them at a competitive disadvantage. Disadvantaging vessels that fish in the NED may alter the costs and incentives for vessels to fish in the NED, and have an adverse long-term impact on the fishery as a whole due to the underutilization of swordfish. This alternative is not preferred at this time.

7.5.3 Alternative C: Sale of IBQ Shares

Preferred Alternative C1 would continue the current regulations under which no sale of IBQ shares are allowed. This alternative is expected to have minor beneficial economic impacts. There is little need for Atlantic Tunas Longline category permit holders to accumulate additional IBQ shares, because for most permit holders, annual allocations combined with a minimal amount of leasing is likely to be sufficient for permit holders to account for bluefin catch. Continued prohibition on sale of IBQ shares would reduce

uncertainty in the IBQ allocation leasing market in both the short term and long term, which would be beneficial to the IBQ Program overall.

Alternative C2 would allow sale of IBQ shares. This alternative is expected to have minor adverse economic impacts overall. Some impacts may be beneficial and some adverse, with the net socioeconomic impacts being minor adverse. Sale of IBQ shares provides Atlantic Tunas Longline category permit holders an alternative means of participating in the IBQ leasing market that enables management of their IBQ allocation and business planning on a longer time scale than a single year. Permit holders may be able to save money through a single IBQ share transaction instead of via annual IBQ allocation lease transactions, a beneficial impact. On the other hand, allowing sale of IBQ shares would introduce uncertainty in the IBQ allocation leasing market, which is otherwise robust as described in the Three-Year Review, and that uncertainty could have an adverse impact on the IBQ Program overall. An example of increased uncertainty in the fishery may be a result of the IBQ leasing market. There may be a concern about an individual entity purchasing an amount of IBQ shares that result in a negative impact on other shareholders or fishery participant's ability to lease IBQ. There is no demonstrated need for Atlantic Tunas Longline category permit holders to accumulate additional IBQ shares over multiple years, because for most permit holders, annual allocations combined with a minimal amount of leasing is likely to be sufficient for permit holders to account for bluefin catch. Furthermore, sale of IBQ shares would not be consistent with the dynamic allocation alternatives. This alternative is not preferred at this time.

7.5.4 Alternative D: Cap on IBQ Shareholder Percentage or IBQ Allocation use

Sub-Alternative D1a, the No Action Alternative, would not place a cap on the amount of IBQ shares owned. This alternative is expected to have neutral economic impacts on small entities. The IBQ Program has been functioning under these regulations since 2015, and there have been no reported or observed issues relating to excessive accumulation of IBQ shares. In 2015-2019, the highest level of IBQ share ownership by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Overall, IBQ share ownership has been fairly stable over time. In addition, the preferred alternatives under the IBQ allocation alternatives (A alternatives) are designed to update and more closely align the distribution of IBQ shares with the current fishing activity and need for IBQ allocation by the pelagic longline fleet, which could reduce the likelihood that entities would seek to buy additional Atlantic Tunas Longline category permits with IBQ shares, or buy additional IBQ shares if allowed under this Amendment. It is possible that future conditions in the fishery will change. Regardless of the likelihood of accumulation of IBQ shares, this alternative would not prevent future accumulations of shares by entities and is therefore not preferred at this time.

Sub-Alternative D1b, cap accumulated sum of IBQ shares owned by a single entity at seven percent, is expected to have minor adverse economic impacts on small entities. In 2015-2019, the highest level of IBQ share ownership by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time

period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would own on an annual basis would be between six and seven percent of total shares. If this trend continues where the maximum percent ownership remains stable over time, implementing a cap at seven percent would not impact the fleet. However, there is the possibility that entities could have business plans to acquire additional shares (if allowed under Alternative C2) or purchase additional permits to increase their IBQ shares in the short-term that would be above a seven-percent cap, in which case there could be short-term minor adverse economic impacts. If an entity owned many vessels and caught a large percentage of designated species landings (under the dynamic allocation alternatives), it is possible that a seven percent share cap would result in a disproportionately low percentage share of bluefin that could affect their ability to fish for their target species, and prevent increases in lawful fishing activity. If is also possible that if the overall fishing effort declines the relative share holdings of an entity would increase, even if they made no changes to the level of their ownership of permits, or in their level of fishing effort.

In the long term, if an entity has business plans to acquire additional Atlantic Tunas Longline category permits, they would need to calculate their total IBQ share ownership and add to that the IBQ shares associated with the permits to determine what permit of what share level they could buy. The entity would be limited to either buying a permit that does not cause them to reach the seven percent cap, or to buying a permit with no IBQ shares. Since seven percent is a low cap, it is more likely that an entity would be faced with that limitation in the long term. Another impact could occur if, under the preferred 'A' alternatives, the number of active vessels decreases and therefore the IBQ share percentage to each vessel increases. At a seven-percent cap, an entity could have to forgo a portion of the IBQ shares they would otherwise receive to stay at or below the cap. By limiting the number of Atlantic Tunas Longline category permits an entity could own (outside of the limit discussed above at § 635.4(l)(2)(iii)), or limiting the amount of annual IBQ shares an entity could receive (or buy, under Alternative C2), the seven-percent cap could in turn limit the amount of fishing activity and target species landings of vessel or business, potentially preventing that business from increasing activity. For these reasons, Sub-Alternative D1b could have long-term adverse economic impacts. On the other hand, implementing a low cap to prevent acquisition of excessive IBQ shares would prevent a single entity from controlling an excessive portion of the market, potentially more so than would a higher cap. For the reasons stated, this alternative is not preferred at this time.

Preferred Sub-Alternative D1c, cap amount of IBQ shares owned at 25 percent, is expected to have neutral economic impacts. In 2015-2019, the highest level of IBQ share ownership by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would own on an annual basis would be between six and seven percent of total shares. If this trend continues where the maximum percent ownership remains stable over time, implementing a cap at 25 percent would not impact the fleet. However, there is the possibility that entities could have business plans to acquire additional shares that, in the long-term, would be above a 25-percent cap, in which case there could be long-term minor

adverse economic impacts. That said, the likelihood of this adverse economic is low, given the data on recent levels of entity holdings of shares. This cap level would allow flexibility in entities' business planning to acquire more shares, by acquiring additional Atlantic Tunas Longline category permits or under Alternative C2 (via purchase of shares). Implementing a cap to prevent acquisition of excessive IBQ shares would prevent a single entity from controlling an excessive portion of the market, would address potential concerns among vessel owners, and accumulation of shares by a single entity and reduce any associated uncertainty, which would be a minor, beneficial socioeconomic impact. Overall, however, given the above minor conflicting potential impacts, a share cap percentage is anticipated to have a neutral socioeconomic impact on vessel owners. In addition, this share cap is anticipated to have a neutral socioeconomic impact on dealers or supporting shoreside businesses because this alternative mainly affects the business practices of fishery participants.

Sub-Alternative D1d, cap amount of IBQ shares owned at 50 percent, is expected to have neutral economic impacts. In 2015-2019, the highest level of IBQ share ownership by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would own on an annual basis would be between six and seven percent of total shares. If this trend continues where the maximum percent ownership remains stable over time, implementing a cap at 50 percent would not impact the fleet. This cap level would allow flexibility in entities' business planning to acquire more shares, by acquiring additional Atlantic Tunas Longline category permits or under Alternative C2. In addition, it is not likely that an entity would reach a 50-percent cap through the annual IBQ shares they would receive under the A alternatives. Therefore, impacts would be neutral. In the long term, Sub-Alternative D1a could have direct minor adverse economic impacts, if the high cap level of 50 percent is insufficient to prevent acquisition of excessive IBQ shares, allowing a single entity to control an excessive portion of the market. On the other hand, there is the possibility that entities could have business plans to acquire additional shares that, in the long-term, would be above a 50-percent cap, which could also be a long-term minor adverse economic impact, although this is not likely with the high 50-percent cap level. Even though the accumulation of excessive shares in the fishery may be improbable, a cap level of 50 percent is likely insufficient to prevent acquisition of excessive IBQ shares, and could allow a single entity to control an excessive portion of the market. This alternative is not preferred at this time.

Preferred Sub-Alternative D2a (No Action) that would not cap the amount of IBQ leased or used, is expected to have neutral economic impacts on small entities. The IBQ Program has been functioning under these regulations since 2015, and there have been no reported or observed issues relating to excessive accumulation of IBQ allocation. The highest amount of IBQ allocation that a single entity held in a given year, including leased allocation, was 6.5 percent, 12.3 percent, and 8.8 percent of the total annual allocation (i.e., the Longline category bluefin quota) in 2015, 2017, and 2019, respectively. The IBQ Program was designed to provide ample flexibility for vessel owners to lease IBQ allocation in the amounts that they need to account for bluefin catch, maintain an IBQ allocation balance

that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin. Setting a cap on IBQ share ownership under preferred Sub-Alternative D1c would prevent an excessive accumulation of IBQ allocation over time, resulting from IBQ shares. Leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year, therefore there is no long-term concern about excessive accumulation of allocation. In addition, the preferred alternatives under the IBQ allocation alternatives (A alternatives) are designed to update and more closely align the distribution of IBQ shares and resulting allocation with the current fishing activity and need for IBQ allocation of the pelagic longline fleet, which could reduce the likelihood that entities would seek to lease additional allocation.

Sub-Alternative D2b, establishes a cap on the amount of IBQ allocation an entity may lease or use at 25 percent, is expected to have neutral economic impacts on small entities. The highest amount of IBQ allocation that a single entity held in a given year, including leased allocation, was 6.5 percent, 12.3 percent, and 8.8 percent of the total annual allocation (i.e., the Longline category bluefin quota) in 2015, 2017, and 2019, respectively. If this level of IBQ allocation leasing continues, implementing a cap at 25 percent would not impact the fleet. In addition, it is not likely that an entity would reach a 25-percent cap through the annual IBQ allocation they would receive under the A alternatives. In addition, the preferred alternatives under the IBQ allocation alternatives (A alternatives) are designed to update and more closely align the distribution of IBQ shares and resulting allocation with the current fishing activity and need for IBQ allocation of the pelagic longline fleet, which could reduce the likelihood that entities would seek to lease additional allocation. This cap level would likely allow flexibility in entities' short-term business planning to lease IBQ allocation to account for bluefin catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin. Given the levels of leasing in the past, it is not likely that a limit on use of IBQ would have any impacts. If fishery conditions change or reallocation results in vessels using a relatively higher percentage of IBQ allocation, a usage cap could impact the ability of vessels to lease and account for bluefin. In addition, the IBQ Program was designed to be maximally flexible with regard to leasing IBQ allocation, which would be limited by this alternative. This takes into account that in each year that the IBQ Program has been in place, allocation usage has been well below the Longline category bluefin quota (as described in the Three-Year Review), meaning that IBQ allocation is available to lease and account for additional bluefin while remaining within that quota. The perception that there is a limit on how much IBQ allocation an entity can lease could cause some permit holders to become needlessly risk averse and decrease their fishing activity and, consequently, target species landings. This alternative is not preferred at this time.

7.5.5 Alternative E: Adjustments to other aspects of the IBQ Program

Sub-Alternative E1a, No Action on modifying dealer reporting requirements that were implemented by Amendment 7, has direct, minor adverse economic impacts because it

requires vessel operators and dealers to collaborate in submitting information that is also supplied independently by the vessel operators by way of VMS. The requirement to verify information by submitting it in two different reporting systems can be frustrating for fishermen. During the time-period collecting two data streams, NOAA Fisheries was able to verify information that was collected, and determine that VMS was the best approach for submitting a single stream of dead discard data. The requirement for fishermen to submit a personal identification number (PIN) when dealers entered landings data was also frustrating and time consuming for fishermen and dealers alike since fishermen were frequently either not available when dealers entered the data, or did not have access to their PIN. Fishermen chose to provide their PIN to dealers which allowed the data to be entered, but did not provide the data verification that was the objective of the original requirement. This alternative is not preferred at this time.

Preferred Sub-Alternative E1b that modifies dealer reporting requirements for IBQ Program, has minor, beneficial economic impacts for dealers since they are relieved of a reporting requirement (dead discards) and are no longer required to collaborate with fishermen for landings data entry. The removal of the PIN collaboration will reduce frustration for both fishermen and dealers and thus reduce labor costs with this task. Instead of being required to coordinate with the dealer to provide a PIN in conjunction with a bluefin landing, a pelagic longline fisherman will be informed via an automated email from the Catch Shares Online System when dealers enter a landing transaction into the computer system and a landing is accounted for in their vessel's account.

Sub-Alternative E2a, the No Action Alternative, would continue the current requirement that electronic monitoring (EM) hard drives be submitted after each trip using pelagic longline gear. This alternative would have minor adverse economic impacts when compared to the preferred alternative. This alternative would maintain the current requirements for shipping hard drives. Currently vessel owners or operators must mail hard drives to NOAA Fisheries after each fishing trip. When compared to the preferred alternative, this would maintain a higher cost burden by requiring transactions after each trip. This would also maintain a higher burden in terms of time. Operators would have to spend time pulling, packaging and shipping hard drives after each trip, instead of after every other trip. This alternative is not preferred at this time.

Preferred Sub-Alternative E2b would require that the vessel operator mail the hard drives at the completion of every two trips, instead of after each pelagic longline fishing trip. This alternative would have a minor beneficial economic impact by reducing the costs and time associated with mailing EM hard drives. Sub-Alternative E2a would reduce the frequency of hard drive shipments allowing vessels to send hard drives in after each trip. This would reduce the number of transactions by half. Considering the high transaction average of 34 shipments per year, this would reduce the high average to 17 shipments. Each active vessel would still ship at least 1 hard drive per year, as NOAA Fisheries would require any data recorded in a given year be submitted to NOAA Fisheries prior to the next fishing year. Assuming a shipping cost of $20 per transaction, this reduction in shipping frequency would save operators an average of $120 per year. Reducing shipping frequency also saves vessel operators additional time and logistics, by only having to pull, package and ship hard

drives after every other trip. The time savings provided by this alternative are difficult to quantify, as vessel operators shipping methods will influence the amount of time saved, however this would provide a minor beneficial impact by providing time-savings to the vessel operators.

Sub-Alternative E3a, the No Action Alternative, would not clarify the current procedures regarding EM camera installation. The economic impacts of Sub-Alternative E3a would be neutral compared to the preferred alternative. The No Action Alternative maintains the current camera array requirements and therefore would clarify that NOAA Fisheries has the authority to require vessels to install or mount structures that would optimize the placement of the cameras. NOAA Fisheries would not install any additional hardware on vessels. Vessels would not be required to pay up to approximately $1,000 per vessel for installation of a boom or telescoping support for the rail camera. There would not be any vessel downtime for vessels required for installation of new hardware. This alternative would not cause any behavioral changes for the fleet. Vessel operators would not be required to install a boom and therefore would not have to deploy the boom during fishing activity. Vessel operators would continue to operate as they have since implementation of the EM program during Amendment 7. This alternative is not preferred at this time.

Preferred Sub-Alternative E3b would clarify that NOAA Fisheries may require installation of permanent or semi-permanent hardware in order to mount and install EM video cameras at locations on vessels as necessary to obtain optimal views, and that NOAA Fisheries, working in conjunction with the vessel owner/operator, may make relatively minor modifications to the vessel structure to mount cameras in locations that provide required views of the vessel and adjacent areas. The economic impacts of modifying the camera installation and placement would be minor adverse for these small entities, due to the requirement to pay up to approximately $1,000 per vessel for the installation of a boom or telescoping device to mount the rail camera on, unless agency funding were to be available. Vessel crew would be required to extend, lower, or raise the boom mounted camera during fishing activities if needed. Additional logistics required may represent an increased time burden and a slight increase in the complexity of their fishing operation. Overall however, this time burden would only be a couple of minutes to extend, lower or raise at the start and end of each fishing trip. Crew may also be required to access the camera during the trip in order to clean the lens. The process of cleaning the lens may be more difficult if the camera is mounted on a boom.

Sub-Alternative E4a, the No Action Alternative regarding specifying additional fish handling protocols for electronic monitoring, would have neutral economic impacts. No additional handling requirements or measurement tools would be required and therefore there would be no additional labor or equipment costs to vessel operators. This alternative is not preferred at this time.

Preferred Sub-Alternative E4b would require more specific fish handling procedures and the installation/placement of a measuring grid on deck, in view of one of the cameras. This alternative would have minor adverse impacts as it would slightly increase costs in terms of the time required to process fish, or costs associated with a measurement tool such as a

printed processing mat or painted grid on the deck. Non-skid deck paint costs between about $35 and $85 per gallon. A 4 foot by 8 foot all weather mat, custom printed with a grid may cost approximately $225 per mat (estimate based on internet market research). The crew would need to modify their fish handling procedures to place all fish on the grid. Although the requirement would be in place for the short and long-term, it is anticipated that the impacts would reduce over time as crew practiced the new handling procedure and therefore would have very minimal adverse long-term impacts on operations.

Sub-Alternative E5a would make no changes to the current regulations, under which there is not a cost recovery program in place and would therefore have a neutral economic impact. Currently, there is no cost recovery program in place for the IBQ Program. Sub-Alternative E5a, the No Action Alternative, would not result in any change. Therefore, there would not be any economic costs on small entities associated with the No Action Alternative. This alternative is not preferred at this time.

Sub-Alternative E5b, the preferred alternative, would implement a cost recovery program. A cost recovery fee, if implemented, would have minor, adverse economic impacts on Atlantic Tunas Longline category permit holders that land bluefin tuna. They would incur up to a three percent fee on any purchase of bluefin from pelagic longline vessels. It is likely that the number of vessels that would be affected by this requirement would not be larger than 60 vessels. Since 2017, no more than 58 unique pelagic longline vessels have landed bluefin tuna. The long-term impacts are uncertain given that the fee would not be charged in years where the collection program costs exceed estimated recovered costs.

7.5.6 Alternative F: Modifications to the Purse Seine Category Management Measures and Other Category Quota Allocations

These alternatives continue the process that began with Amendment 7 to address quota allocations in a changing fishery. The alternatives in this section propose ending the Purse Seine category, and redistributing the Purse Seine category quota to other fishing categories. These alternatives include ending the fishery immediately, or at a sunset date two years after the implementation of Amendment 13.

The section for each alternative describes the gross economic impacts for that alternative or associated sub-alternatives. Sub-Alternative F1b is a preferred alternative with neutral economic impacts which are integrated into the analyses for Alternatives F3-4. Sub-Alternatives F2b-c address the timing of terminating the Purse Seine category, which would result in redistribution of quota allocation to the other categories. The analyses for Sub-Alternatives F2b-c focus on the impacts to the Purse Seine category.

The redistribution of Purse Seine category quota is analyzed in Alternatives F3-4. These alternatives are all expected to have a direct beneficial impact to the categories receiving quota, since these alternatives would provide more certainty about how the Purse Seine category quota would be redistributed than the status quo. Beneficial impacts for the Angling category (recreational) are likely to be less than the commercial categories since

the Angling category has not landed its full quota for the last five years (Table 11.3), and does not appear to be quota limited. Since the Angling category does not generate revenue directly for bluefin landings, this qualitative description serves as the impact analysis for the Angling category. The quantitative analyses that follow assume that increases in quota result in proportional increases in revenue for each commercial category receiving quota, with the exception of the Longline category, which has an incidental catch of bluefin. It is important to note that there may be other unquantified factors that could negatively affect this assumption, such as product quality, and the amount of product on the market at any given time. Alternatives F3-4 also compare the economic impacts for F alternative combinations, in order to describe the net impacts of these alternatives. Sub-Alternative F2b describes the impacts to the historical Purse Seine category participants.

Alternative F1 would modify the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category. Sub-Alternative F1a is the "No Action" alternative, and the economic impacts would be neutral because quota and quota allocation methodologies would not change from the current methods and amounts. Sub-Alternative F1b is the preferred alternative, and would modify codified quota allocation percentages to simplify the quota allocation process, while reflecting the annual 68-mt allocation to the Longline category. Specifically, this alternative would simplify the quota regulations by making a slight change to the mathematical method used in the annual quota allocation process of providing 68 mt to the Longline category. In order to achieve a similar result through simpler means, this alternative would no longer subtract 68 mt from the U.S. baseline quota prior to allocation to categories, but would instead modify the currently codified allocation percentages in order to result in an amount similar to the 68-mt. Instead of a two-step process of subtraction and then application of the individual quota category percentages, there would be a one-step process. The current process was put in place by Amendment 7 as an initial means of resolving the change in ICCAT recommendation that no longer provided an allowance of 68 mt to the United States for pelagic longline fishery dead discards.

Sub-Alternative F1b would have neutral economic impacts to each category because the overall quota and amount of quota (in metric tons) distributed to each category would not change from the status quo under the current ICCAT quota. If the ICCAT quota increased in the future, this alternative would have minor positive economic impacts for Longline category participants and minor negative economic impacts for other categories when compared to the status quo because the Longline category would be allocated slightly more quota than under the No Action Alternative. Conversely, in the event of an ICCAT quota decrease, the impacts for the Longline category would be minor negative, with minor positive impacts to the other categories compared to the status quo. This alternative is not preferred at this time.

Alternative F2 would eliminate the Purse Seine category and redistribute that category's quota to other quota categories under a variety of options. Sub-Alternative 2a is the No Action Alternative, and would maintain all aspects of the current quota allocation (with the exception of other quota allocation alternatives considered in Sections G, H, and I, regarding the General and Harpoon categories) and Purse Seine category regulations. The

Purse Seine category would continue to receive quota based on activity level, and could either fish or trade that quota via the IBQ system. There would likely continue to be a large annual shift of Purse Seine category quota to the Reserve category (required under the regulations), that could be redistributed via inseason action. The economic impacts of this alternative would be neutral. This alternative is not preferred at this time.

Sub-Alternative F2b, a preferred alternative, would discontinue the Purse Seine category and reallocate quota upon implementation of Amendment 13. This alternative could be implemented in conjunction with one of the methods of reallocation described under Alternatives F3 (a and b) and F4. This alternative and its Sub-Alternatives F2c1 and F2c2 are intended only to address the timing of the discontinuation of the Purse Seine category. The impacts associated with quota reallocation will be discussed under the reallocation alternatives. The impacts from the set of alternatives for discontinuance and reallocation (e.g., F2b and F3a) are considered additive.

Sub-Alternative F2b would have moderate adverse direct economic impacts to Purse seine category participants compared to the status quo. Under this alternative, quota allocations would no longer be distributed to Purse Seine category participants, so neither fishing for bluefin nor leasing via the IBQ system would be allowed after the effective date of Amendment 13. The economic impacts are estimated based on the loss of potential revenue from these two activities. This is expected to be the least desirable alternative for the Purse Seine category participants because the economic impacts would occur in Year 1 after implementation of Amendment 13.

The potential annual value of purse seine-related leases can be estimated using leasing data from the last five years (2015-2019). The weighted average price per pound for purse seine-related leases shows a declining trend over the last five years, so the most recent cost of $1.25 per pound was used to estimate likely potential loss. The greatest amount of purse-seine related quota leased was 47.7 percent in 2019. Using the average amount of quota leased each year over the time series (30,713 pounds) multiplied by $1.25 per pound, there would be an estimated loss of $38,391 per year category-wide or $7,678 per participant. The average amount of quota leased was used as a basis for this estimate because the time series for the amount of purse seine-related IBQ quota leased showed no discernible trend. The maximum potential annual value of purse seine-related leases using this leasing data can also be estimated. The weighted price per pound for purse seine-related leases shows a declining trend over the last five years, so the most recent cost of $1.25 per pound was used to estimate a maximum annual loss of $151,568 (121,254 pounds x $1.25 per pound) category-wide (i.e., 55 mt) or $30,314 per participant, assuming all allocated Purse Seine category quota would be leased.

The other potential negative impact of this alternative is the loss of potential fishing revenue. Purse Seine category participants last landed fish during 2013-2015. It is unlikely that Purse Seine category participants would choose to fish again because of such limited activity over the last 15 years. Purse seine category participants are not currently economically dependent upon bluefin landings. If they did choose to fish in the future, the value of landings can be estimated using historical data and applying the quota

adjustments based on previous year's catches. It would also be appropriate to estimate dead discards using the observer data collected during the 2013-2015 season. The average annual dead discard estimate is 28.4 percent of catch, or conversely, Landings = Catch x 71.6%. At the current adjusted quota of 55 mt, the Purse Seine category could land up to 39.4 mt and discard up to 15.6 mt, depending upon the number of participants fishing. Catch of 55 mt equates to 11 mt per vessel, which is 25 percent of the 43.9 mt annual allocation, and would result in the 50-percent quota level for each vessel in the following year.

The average price for Purse Seine category landings for the three most recent years of activity (2013-2015) was $4.66 per pound. Although these data are from several years ago, the value of bluefin per pound in recent years has ranged between approximately $4.00 and $6.00 per pound for categories with landings, and the values for 2013-2015 for all categories are in line with recent prices.

The most reasonably likely estimate of Purse Seine category future fishing activity is for 0 mt landings since the category has not fished since 2015. However, the maximum amount the Purse Seine category could catch annually (based on the highest level of quota possible and five participants), and as a result, the maximum revenue lost for this alternative, taking into consideration dead discards, is estimated to be $1.61 million category-wide, and $0.32 million per participant.

Sub-Alternative F2c would discontinue the Purse Seine category and reallocate quota at a future (sunset) date i.e., the end of Year 2 after Amendment 13 is implemented. Sub-Alternative F2c1 would allow leasing and fishing until the sunset date, while Sub-Alternative F2c2 would only allow leasing until the sunset date. Economic impacts for Sub-Alternative F2c1 would be moderate and adverse, the same as Sub-Alternative F2b (discontinue Purse Seine category upon implementation of Amendment 13), but delayed by two years since both fishing and leasing activity would be allowed under this alternative until the end of Year 2. This alternative is not preferred at this time.

Annual losses for Purse Seine category leasing are estimated to be $38,391 category-wide and $7,678 per participant, based on the average amount of quota leased since 2015.

Sub-Alternative F2c2 would discontinue the Purse Seine category at a sunset date (end of Year 2) and only allow leasing until the sunset date. Economic impacts for Sub-Alternative F2c2 would be moderate and adverse, the same as Sub-Alternative F2c1, but since only leasing activity would be allowed under this alternative until the end of Year 2, there would be lost opportunity to fish for bluefin and associated potential revenue losses. Like Sub-Alternative F2c1, annual losses for Purse Seine category leasing are estimated to be $38,391 category-wide and $7,678 per participant, based on the average amount of quota leased since 2015. Potential loss of fishing revenue is similar to that estimated for Sub-Alternative F2b, since fishing would not be allowed under this alternative. The most reasonably likely estimate of Purse Seine category future fishing activity is for 0 mt landings since the category has not fished since 2015. However, the maximum amount the Purse Seine category could catch (based on the highest level of quota possible and five

participants), and as a result, the maximum revenue lost for this alternative, taking into consideration dead discards, is estimated to be $1.61 million category-wide, and $0.32 million per participant. This alternative is not preferred at this time.

Alternative F3 would reallocate the Purse Seine category quota proportionally to all other quota categories. Sub-Alternative F3a would apply Longline category increase to *all* areas, while Sub-Alternative F3b would only allow the Longline category increase to be fished in the Atlantic (not the Gulf of Mexico).

Economic impacts for Sub-Alternative F3a (Preferred, reallocate to all categories with no restictions on location of use of Longline category) would be moderate and beneficial, and include estimated increases in revenue for the directed commercial quota categories that would receive the redistributed quota after the Purse Seine category was terminated. The Longline category would continue to benefit from a robust IBQ leasing market resulting from additional IBQ. Annual revenue increases are estimated as follows: $1,689,758 for the General category, $131,548 for the Harpoon category, and $93,204 for the Reserve category, resulting in a combined total of $1,914,510. Total revenue that could accrue due to bluefin quota associated with the Reserve category was also estimated because quota from the Reserve could be used to augment one of the commercial categories via inseason action, at some point during the fishing year.

When combined with Sub-Alternative F2b (immediate disbursement), there would be moderately beneficial economic impacts for the Preferred Sub-Alternative F3a (to reallocate to all categories). There would be beneficial impacts on fishery participants due to increased bluefin quota and associated revenue. Net impacts (i.e., economic impacts to all categories combined) are also beneficial, since the estimated annual revenue loss to the Purse Seine category for leasing would be $0.15 million annually, which equals a net increase in revenue of approximately $2.15 million annually. Revenue loss associated with purse seine leasing rather than fishing was used to calculate net value because a leasing only scenario is the most likely scenario that would occur, since Purse Seine category participants have not fished since 2015, but have been actively leasing quota through 2019.

When combined with Sub-Alternative F2c (reallocate in the future), which would reallocate the Purse Seine category quota after a 2-year sunset period, the Preferred Sub-Alternative F3a's short-term economic impacts would be neutral, since there would be no change in quota allocation to non-purse seine categories from the status quo. Combining the Preferred Sub-Alternative F3a with F2c is not preferred at this time.

Economic impacts for Sub-Alternative F3b (rellocated to all categories but Longline category could not use additional bluefin quota in the Gulf of Mexico) would be moderate and beneficial, and include estimated increases in revenue for the directed quota categories that received the redistributed quota.

When combined with Sub-Alternative F2b (immediate disbursement), economic impacts for Sub-Alternative F3b (reallocation to all categories, but Longline vessels would be prohibited from using the additional quota in the Gulf of Mexico) would be moderately

beneficial for participants in all quota categories, except for pelagic longline vessels that fish in the Gulf of Mexico. The estimated annual increase in revenue for these categories totals $2.3 million. Net impacts are also beneficial, since the estimated annual revenue loss to the Purse Seine category for leasing is $0.15 million annually, which equals a net increase in revenue of approximately $2.15 million annually. Purse Seine category revenue losses associated with leasing rather than fishing was used to calculate net value because it is the most likely scenario, because Purse Seine category participants have not fished since 2015, but have been actively leasing quota through 2019. This alternative is not preferred at this time.

When combined with Sub-Alternative F2c, which would reallocate the Purse Seine category quota after a 2-year sunset period, Alternative F3a's short term economic impacts would be neutral. Combining F3a with F2c, which would delay reallocation, is not preferred at this time.

Alternative F4 would redistribute Purse Seine category quota to the directed categories only. Economic impacts for Alternative F4 would be moderate and beneficial for directed categories, and moderate and negative for incidental categories. The beneficial impacts include increases in revenue for the commercial quota categories that receive the redistributed quota after the Purse Seine category is terminated. Annual revenue increases for each directed category are as follows: General category - $2,011,770; Harpoon category - $147,046; Reserve - $109,894 for a total of $2,268,710. However, impacts on the Longline category would be moderate and negative due to the fact that the Longline category would not be allocated any Purse Seine category bluefin quota, and the resultant impacts on the IBQ leasing market. Bluefin quota from the Purse Seine category would be neither reallocated to the Longline category, nor available for leasing. Active vessels in the IBQ program in the past have relied, in a large part, on Purse Seine category bluefin quota as the source for leasing IBQ. When combined with Alternative F2b (immediate disbursement) (Preferred), economic impacts for Alternative F4 would be moderately beneficial for directed category participants receiving quota. The estimated annual increase in revenue for these categories totals $2.26 million. Net impacts are also beneficial, since the estimated annual revenue loss for the Purse Seine category from loss of leasing is $0.15 million annually, which equals a net increase in revenue of approximately $2.11 million annually. Revenue for leasing rather than fishing was used to calculate net value because it is the most likely scenario, since Purse Seine category participants have not fished since 2015, but have been actively leasing quota through 2019. It is difficult to quantify the negative aspects of the impact of this alternative on the IBQ Program. The costs associated with leasing are likely to increase, and if fishing behavior is constrained by a poorly functioning IBQ leasing market, there could be reductions in target species landings. This alternative is not preferred at this time.

When combined with Sub-Alternative F2c (1 and 2), which would reallocate the Purse Seine category quota after a 2-year sunset period, Alternative F4's short term economic impacts would be neutral. The long-term impacts would be moderate and beneficial. There would be economic gains for the categories receiving quota when the sunset of the Purse Seine category occurs after two years, and losses for the Purse Seine category at that time.

These annual gains would be approximately $2.26 million. The estimated annual revenue loss to the Purse Seine category for leasing would be $0.15 million annually. The future loss of revenue from the Purse Seine category is based on leasing rather than fishing, because it is the most likely scenario. Purse Seine category participants have not fished since 2015, but have been actively leasing quota through 2019.

7.5.7 Alternative G: Modifications to General category subquota periods and/or allocations

Alternative G1, the preferred No Action Alternative, would not make any modifications to the General category subquota periods and/or allocations. If no action is taken to modify the General category subquota allocations, economic impacts would be neutral. The status quo subquotas assigned to the time periods generally reflect the historical catch patterns from the 1980s and 1990s as well as formalization of the winter fishery. Recent annual bluefin landings under the General category quota have approached or exceeded the base and adjusted General category quotas (i.e., they were 149 and 101 percent of base and adjusted quotas, respectively, for 2017; 168 and 96 percent of base and adjusted quotas for 2018; and 147 and 104 percent base and adjusted quotas for 2019).

Exceedances of base quotas reflect inseason quota transfers from the Reserve and Harpoon categories. As implemented in Amendment 7, NOAA Fisheries may proactively transfer quota from one or more of the subquotas. In other words, NOAA Fisheries has the authority to transfer quota from one subquota period to another, earlier in the calendar year. In recent years, NOAA Fisheries has proactively transferred quota from the December subquota period to the January through March subquota period in order to maximize the fishing opportunities on an annual basis ('front-loading' the quota). Some General category participants would prefer to see more opportunities available when market prices are perceived as being generally higher, such as in the fall months (but this varies with market volume). In recent years, some of the subquotas have been reached and the General category has been closed while fishing opportunities remain and while other subquotas are not reached. Although ex-vessel prices have been variable over the last several years, high landings relative to quota have led to a modest total increase in ex-vessel gross revenues in 2016 through 2019. Revenues for the General category were $9.7 million in 2016 and 2018, at the highest level since 2002. Of the status quo alternative (G1) and the ones that modify the time-period subquotas (G2a, G3a, and G3b), this one (G1) would result in the lowest potential annual gross revenues, but the amount is less than 0.2 to 3.6 percent less than for the other alternatives. The changes in revenues in these General category subquota allocation alternatives is strongly subject to availability of fish and fishing conditions during these time periods. Further, the potential gross revenue estimates for Alternatives G2a, G3a, and G3b and based on price assumptions and market dynamics that are uncertain.

Sub-Alternative G2a would modify the General category time periods to 12 equal months. To calculate potential changes in revenues, the amount of potential landings and the value of those landings per current time period can be examined (assuming full harvest). For

example, for the current January period (which continues until the available subquota is taken, or March 31, whichever comes first), the base quota is 29.5 mt. Under this alternative, 46.3 mt would be available per month, so the total base quota available for January through March is 138.9 mt. Because 2019 prices were somewhat anomalous (due to a combination of factors including fish quality and dealer agreements to not purchase fish for market purposes, among others), NOAA Fisheries is using average 2017-2019 price data, by subquota time period, to calculate potential gross revenues. For early season (January-March) General category participants, an additional 109.4 mt would be available (i.e., 138.9-29.5 mt). At $6.93 per pound, this represents a potential revenue increase of approximately $1.6 million overall during this time period, nearly five times the current amount. Using $6.93 per pound as an estimate for the ex-vessel prices for the early season, potential revenues for each of those months would be $707,365 (i.e., 46.3 mt × $6.93 per pound). Potential revenues for the current June-August and September periods would decrease by approximately $1.9 million (50 percent) and $1.5 million (69 percent), given recent average price ($6.41 and $6.66, respectively). For October-November and for December, potential revenues would increase by approximately $309,000 (28 percent) and $404,000 (60 percent) at $6.89 per pound and $10.54 per pound, respectively. Relative to the No Action Alternative (G1), there would generally be substantially increased revenues for January through May and October through December and substantially decreased revenues for June through September, and total annual revenues would increase by approximately $303,000 (3.6 percent). Thus, impacts are expected to be moderate, and beneficial or adverse, depending on quota and fish availability in the various time periods. The changes in revenues in these General category subquota allocation alternatives is strongly subject to availability of fish and fishing conditions during these time periods. Further, the potential gross revenue estimates are based on price assumptions and market dynamics that are uncertain. Of the status quo alternative (G1) and the ones that modify the time-period subquotas (G2a, G3a, and G3b), this one (G2a) would result in the highest potential annual gross revenues, but the amount is less than 4 percent greater than for Alternative G1. NOAA Fisheries also takes into consideration the risk of shifting quota allocation to later periods in the fishing year that the full General category quota may not be reached, depending on fishing conditions and bluefin availability on the fishing grounds. This alternative is not preferred at this time.

Sub-Alternative G2b, modify General category time periods to extend the January through March subquota time period through April 30, would increase the likelihood of winter General category participants and Charter/Headboat participants, when fishing commercially, being able to catch the full January subquota, particularly if the NOAA Fisheries increases the January through March subquota via an inseason transfer. Thus, impacts would be minor, and neutral or beneficial, depending upon when fishery participants fish. For General category participants fishing in the January through March period the effects would be beneficial. The likelihood of these economic benefits being realized may not be high. For those fishing later in the year the impacts are likely to be neutral. To the extent that less unused quota might roll forward to later periods, impacts for General category participants fishing in the later time periods could be slightly adverse, however the January subquota period has been catching most of its quota under the current, shorter time frame. An increase in optimum yield may result from a potential

increase in the geographic and temporal distribution of landings. Increases in positive economic impacts would depend on the availability of bluefin to the fishery from the beginning of April until the available subquota (base or adjusted, as applicable) is reached. Price/pound is also influenced by the amount of bluefin on the market. NOAA Fisheries estimates the value of an unused mt of January through March subquota, using the January through March 2019 average price per pound of $6.93, at $15,277. The value of the 2019 January through March base subquota is estimated at $2,122,478 assuming full harvest. This alternative is not preferred at this time.

Sub-Alternative G3a would modify the General category allocation percentage to increase the January through March amount. In 2015 and 2016, June through August subperiod landings were less than the base quota. For the last three years, June through August subperiod landings have exceeded the available base quota and NOAA Fisheries has not transferred additional quota to the General category for use in that subperiod. If quota that is anticipated to be unused in the first part of the summer season is made available to January through March period General category participants and bluefin are landed against the January through March subquota, it would potentially result in improved and fuller use of the General category quota. Also, because bluefin price per pound is often higher in the January through March period than during the summer, shifting quota to this earlier period would result in beneficial impacts to early season General category participants. It is possible, however, that an increase of bluefin on the market in the January through March period could reduce the average price for that time of year. Participants in the summer fishery may perceive such quota transfer to be a shift away from historical participants in the traditional General category bluefin fishing areas off New England and thus adverse. However, because unused quota may be adjusted (added) within a calendar year from one period to the next, any unused quota from the adjusted January through March period would return to the June through August period and onward if not used completely during that period. Overall, impacts would be expected to be neutral or minor and beneficial for January through March fishery participants and neutral or minor and adverse impacts for participants in the June through December time periods. This alternative is not preferred at this time.

Sub-Alternative G3b modifies General category allocation percentages and increases the September and the October through November amounts and decreases the June through August amount. To the extent that quota that is anticipated to be unused in the first part of the summer season is made available to General category participants for the September and October through November periods and bluefin are landed against those subquotas, it would potentially result in improved and fuller use of the General category quota. In the last three years, however, the June through August base subquota has been exceeded, and the fishery for that time period was closed in 2017 and 2019 prior to August 31. Also, because bluefin price per pound is often higher in the September and October through November periods than during the June through August period, shifting quota to these later periods would result in beneficial impacts to fall General category participants. It is possible, however, that an increase of bluefin on the market in the fall periods could reduce the average price for that time of year. Participants in the summer fishery who may only have access to bluefin at that time may perceive such quota transfer to be adverse.

However, summer and fall participants are largely the same. Additionally, any unused quota from the June through August subperiod may be adjusted (added) to subsequent periods. Overall, impacts would be expected to be neutral or minor, and would be beneficial for September through November fishery participants and neutral or minor, adverse impacts for participants in the June through August time periods. However, there is a risk in shifting quota allocation to later periods in the fishing year that the full General category quota may not be reached, depending on fishing conditions and bluefin availability on the fishing grounds. This alternative is not preferred at this time.

Sub-Alternative G3c would modify the General category allocation percentages. This alternative is directly associated with Alternatives F5 and F6 (discontinue Purse Seine category fishery and reallocate quota). Any increases of General category quota resulting from Alternatives F5 and F6 would be applied to the September and the October through November subquota periods. Under Sub-Alternative G3c, impacts would be neutral or moderate, and beneficial. An additional 110.4 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 147.3 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category September period could result in additional potential annual gross revenues of over $1.6 million (110.4 mt x $6.66 per pound) or $2.2 million (147.3 mt x $6.66 per pound), respectively. An additional 54.2 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 72.2 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category October-November period could result in additional potential annual gross revenues of over $823,000 (54.2 mt x $6.89 per pound) or $1.1 million (72.2 mt x $6.89 per pound), respectively. This alternative is not preferred at this time.

7.5.8 Alternative H: Modifications to the Angling category trophy fishery

Alternative H1, the No Action Alternative, is expected to be neutral, or minor adverse, vary by geographic area, and be dependent on availability of trophy-sized bluefin on the fishing grounds. The issue of economic costs for Angling category participants is not relevant as there is no sale of tunas by Angling category participants and anglers are not considered to be small entities under the RFA. For charter vessels, which sell fishing trips to recreational fishermen, economic impacts are expected to be neutral to beneficial for those in the northern mid-Atlantic states and neutral to adverse for those north of that area, including New England states, as the perceived opportunity to land a trophy bluefin may be diminished. Given that the current northern area Trophy bluefin subquota of 1.8 mt represents approximately 11 individual fish, impacts are expected to be minor. For the Angling category overall, impacts of Alternative H1 would be neutral or slightly adverse. This alternative is not preferred at this time.

Preferred Alternative H2 would modify the current Angling category northern trophy subquota areas and allocations specified at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° N. lat. (off Chatham, MA); these newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area,

respectively, as shown in Figure 2.3. The net result would be that the Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each area would receive the same amount of quota (i.e., the Angling category trophy quota would be divided equally four ways). To create the new trophy suballocation for the Gulf of Maine trophy area, NOAA Fisheries would increase the allocation for trophy bluefin. Because the amount of school bluefin (27" - < 47") is limited in the codified regulations, and in compliance with the ICCAT bluefin recommendation, to no more than 10 percent of the annual U.S. bluefin tuna quota, any increase to the trophy subquota (equal to or greater than 73") would need to be balanced with an equivalent reduction of the subquota for large school/small medium bluefin subquota (47" - < 73"), which is the remainder of the Angling category quota once the school bluefin subquota and trophy subquotas are subtracted. For example, referring to the current Angling category quota regulations (as summarized in Table 3.10), NOAA Fisheries would increase the portion of the Angling category quota allocated for trophy bluefin from 2.3 to 3.1 percent). This would result in a minor decrease in the amount of allocation for large school/small medium bluefin (measuring 47 - < 73").

Specifically, under the current Angling category quota, the trophy quota would increase from 5.4 mt to 7.2 mt, and each area would be allocated 1.8 mt. This would allow annually up to 11 trophy bluefin to be landed in the new zone north of 42° N. lat. (the Gulf of Maine trophy area), using an average weight of approximately 360 pounds. At an average 2018 weight of approximately 132 pounds for large school/small medium bluefin, this represents a reduction of 30 approximately fish from the large school/small medium size class annually. NOAA Fisheries would not expect fishing behavior to change as a result of this alternative, because there is already targeted recreational effort in that area for bluefin measuring less than 73".

There would be minor, beneficial social impacts (and economic impacts for charter vessels) to a small number of vessels in the new zone north of 42° N. lat. (the Gulf of Maine trophy area) resulting from the small amount of fish that would be allowed to be landed. The perception of greater fairness among northern area participants also represents indirect, longer-term, beneficial, social impacts. HMS Charter/Headboat permitted vessel owners and operators have commented over the years that the ability to attract customers with the opportunity to retain a trophy bluefin is important, even if few are ultimately landed. They indicate that the opportunity to catch trophy bluefin is especially important if the General category is closed due to a time-period subquota being met. Their premise is that New England charters are more reliant on bluefin than those that operate further south (such as off the Mid- and South Atlantic U.S. coast) where there are more numerous target species. NOAA Fisheries has also received comments about the importance of trophy opportunities for tournaments as well.

There could be minor, adverse social impacts (and economic impacts for charter vessels) for those fishing for large school/small medium bluefin due to the slight reduction in allocation for those size classes. However, this would depend on whether quota is reallocated from the Purse Seine quota (see F alternatives) and whether or not NOAA Fisheries modifies daily retention limits inseason for large school/small medium bluefin based on available quota. Changes to daily retention limits as a result of this action would

be unlikely given the very small amount of quota that would be converted to trophy-sized bluefin and the fact that NOAA Fisheries typically adjusts daily retention limits for 27 - <73" bluefin once annually in the spring with no further adjustments inseason. Overall, NOAA Fisheries anticipates, minor, beneficial social and economic impacts from Alternative H2.

7.5.9 Alternative I: Modifications to other handgear fishery regulations

Preferred Sub-Alternative I1a would maintain the current authorized gears applicable to the Atlantic tunas permit categories. For example, participants in the HMS Charter/Headboat category would be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for authorized recreational catch of non-bluefin tunas, and the General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels. Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. This alternative would have neutral economic impacts on permitted HMS Charter/Headboat vessels, which could continue to fish under the Atlantic Tunas General and Angling category regulations using existing authorized gear, and neutral impacts on Atlantic Tunas General category permitted vessels. Total Atlantic Tunas General category revenues, which included sale of commercial-sized bluefin by HMS Charter/Headboat permitted vessels, for the 2019 fishing year were approximately $8.3 million. General category fishing year bluefin base quotas have been reached annually for the last five years. As a percentage of adjusted General category quota, landings were 95.1 percent in 2015, 110.9 percent in 2016, 101 percent in 2017, 95.7 percent in 2018, and 99.3 percent in 2019. Less than 5 percent of General category landings resulted from harpoon gear use.

Sub-Alternative I1b would add harpoon gear as an authorized gear for the HMS Charter/Headboat category vessels. The addition of this gear would only apply to vessels with the ability to carry six or fewer passengers for hire. Harpoon gear could be used on commercial trips by Charter/Headboat permitted vessels with the commercial sale endorsement. This alternative would have minor, beneficial economic impacts for those vessels that have success in harpooning bluefin that may be available at the water's surface. Landings data and information from fishermen indicate that there are times when the feeding behavior of commercial sized bluefin makes hooking a fish difficult. To the extent that a fisherman could harpoon bluefin at the surface when the fish are present at the water surface, Alternative I1b could increase the potential of filling the General category bluefin daily retention limit and of gaining more ex-vessel revenue per trip. NOAA Fisheries anticipates that the number of bluefin that would be caught with harpoon gear by HMS Charter/Headboat category permitted vessels is very low. Use of harpoon gear typically involves installation of a pulpit to the bow of the vessel (and the associated investment of money to do so) and requires a certain degree of skill. Comments made to NOAA Fisheries since 2007 reinforce the notion that the ability to harpoon a bluefin will not necessarily lead to a substantial increase in incidences of a bluefin being caught with harpoon gear on

HMS Charter/Headboat permitted vessels. Alternative I1b may have slightly negative economic impacts for existing HMS Charter/Headboat operators due to the potential for Atlantic Tunas General or Harpoon category permit holders to change to the HMS Charter/Headboat category, potentially increasing HMS Charter/Headboat competition for clients. This alternative would provide consistency in the regulations regarding authorized handgear used historically for commercial catch of bluefin, and would increase opportunities for commercial handgear fishermen to attain the bluefin Atlantic Tunas General category quota. This alternative is not preferred at this time.

Sub-Alternative I1c would eliminate harpoon as gear authorized for use by General category permitted vessels. This alternative would result in, minor, adverse impacts because it would reduce opportunity for vessels with General category permits that fish with harpoon gear and reduce flexibility and efficiency in catching the General category quota. Although NOAA Fisheries has received comments from General category (quota) participants that harpoon activity fills the available General category quota more quickly, thus reducing opportunities for rod and reel fishermen, an examination of 2019 General category landings data show that 125 fish (less than 5 percent of the 2,612 fish landed by General category vessels) were reported as harpooned. At an average June through August ex-vessel General category price per pound of $5.12 and a 366-pounds average General category fish weight for rod-and-reel caught bluefin, this amount of fish could be estimated to represent a potential increase of $234,240 to General category (quota) participants using rod-and-reel gear (i.e., including HMS Charter/Headboat permitted vessels with a commercial sale endorsement landing bluefin commercially) if harpoon use was prohibited. For General category quota participants using harpoon gear, with an average June through August ex-vessel price per pound of $5.84 and a 280-pound average fish weight, the inability to land this amount of fish could represent $164,979. Some of the comments received on this issue point to the fact that harpooners have the ability to fish in the Harpoon category, with its own dedicated quota. This alternative is not preferred at this time.

Sub-Alternative I2a would maintain the current Harpoon category retention limit regulations: an unlimited number of giant bluefin per day (measuring 81” curved fork length or greater), and two large medium bluefin (73” to < 81”) per vessel per day unless the large medium bluefin retention limit is increased by NOAA Fisheries through an inseason adjustment to a maximum of four per vessel per day. The economic impact of the No Action Alternative is expected to be neutral, or slightly adverse, because participants would continue to be limited to the default of two large medium bluefin (and maximum of four if NOAA Fisheries were to make an inseason adjustment) if caught while targeting giant bluefin. In 2019, large medium bluefin comprised 45 percent of Harpoon category landings, with the remaining 55 percent giants. Of the Harpoon category trips on which at least one bluefin was landed, 42 percent landed only large mediums, 35 percent landed large mediums and giants, and 22 percent landed only giants. Twenty-nine percent of 2019 Harpoon category trips landed only 1 bluefin; 28 percent landed 2 fish; 14 percent landed 3 fish; 24 percent landed 4-8 fish; and 5 percent landed 9 or more fish. This alternative is not preferred at this time.

Sub-Alternative I2b would set an overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip (i.e., the combined limit of large medium (73" - < 81") and giant (81" or greater) would be 10 fish), and would maintain the current regulations regarding retention of large medium bluefin (73" - < 81") (i.e., the range of two (default) to four fish, adjustable through inseason action). This alternative would have neutral impacts as a result of a few trips being constrained by a 10-fish limit (adverse), but also a potentially longer Harpoon category season (slightly beneficial). On a per-trip basis, impacts would depend on several factors including bluefin fishing conditions and availability, the large medium retention limit (two if default but up to four through inseason action), and ex-vessel price, which is subject to numerous factors including fish handling and quality and market saturation. That said, NOAA Fisheries anticipates that impacts could also be slightly adverse. Looking at successful 2019 trips, NOAA Fisheries can estimate potential impacts of this change by determining the number of trips on which more than 10 bluefin were landed and assuming that those fish may not be able to be landed under this alternative. Using 2019 successful trip data, if the daily limit was set at 10 bluefin, the revenue from up to 10 bluefin would be foregone for the season. At an average 2019 weight of 306 pounds and an average price of $5.37 per pound for the Harpoon category, a loss of one to 10 fish would be approximately $1,640 to $16,402 for the Harpoon category as a whole for the year. Using the average of 2017-2019 price data (an average of $6.28 for the Harpoon category), the range of potential revenue loss would be $1,922 to $19,220 for the year. This alternative is not preferred at this time.

Preferred Sub-Alternative I2c would set a default overall daily limit of 10 commercial-sized bluefin per day or trip (i.e., the combination of large medium (73" - < 81") and giant (81" or greater) would be 10 fish). Secondly, this alternative would allow NOAA Fisheries to set the combined daily retention limit over a range of 5 to 10 fish (adjustable through inseason action) For example, if NOAA Fisheries were to set the Harpoon category limit of combined large medium and giant bluefin to nine (via inseason action) (and a limit of two large medium fish were in effect), then no more than seven giant bluefin could be kept in that same day or trip, such that the total does not exceed nine fish. Because a restriction of the total number of bluefin could result in less potential for landing giants per day or trip, ex-vessel revenues could be decreased relative to Sub-Alternative I2b due to less overall weight of fish sold (all other things equal, such as shape, meat quality, etc.). Overall however, the impacts are expected to be neutral, because the likelihood of such a change in revenue is low, due to the low likelihood of a trip scenario where the restriction of retention of the total numbers for bluefin would limit the ability for the vessel to retain giant bluefin.

Preferred Sub-Alternative I3a would maintain the June 1 start date and November 15 closure date for the Harpoon category season. This alternative may have both minor beneficial and adverse, socioeconomic impacts, but overall the impacts would be beneficial. The beneficial impacts could be attributed to the Harpoon category season remaining consistent with prior years. A June 1 start date for the Harpoon category means that the Harpoon and General category seasons start at the same time. The Harpoon and General category seasons starting together would facilitate enforcement and business planning, and provide greater certainty to participants regarding opportunities, participation/effort, and

potential impact on market prices. Participants would continue to have the potential to catch the same percentage of the quota and earn the equivalent share of total ex-vessel revenues. The adverse impacts may result from lost opportunities. To the extent that bluefin may be available to harpoon gear prior to June 1, opportunities to harpoon fish may be lost, both from the catch of the fish and the potential for better ex-vessel prices when there may be fewer fish on the market, particularly from the General category, which would not begin until June 1. To the extent that opportunities could extend deeper into the summer, more Harpoon category participants could benefit. It is possible that the No Action Alternative would have some adverse socioeconomic impacts on fishermen, dealers, and the support industries located in New England, where harpoon use has historically occurred, primarily on the fishing grounds off Massachusetts, New Hampshire, and Maine. Under the No Action Alternative, Harpoon category participants have not filled their adjusted quotas in two (2016, 2018) of the last five years (2015 through 2019) (see Table 11.3 Appendix B), but, conversely in 2019, NOAA Fisheries closed the Harpoon category relatively early (August 8).

Sub-Alternative I3b would lengthen the season for the Harpoon category by implementing an earlier start date of May 1 for the fishery instead of the current start date of June 1. The November 15 closure date would remain the same. The overall impacts would be both minor adverse and beneficial. The relative magnitudes of the adverse and beneficial impacts are unknown. Starting the Harpoon category season in advance of the General category season (which would remain at June 1) would result in an adverse impact. The adverse impacts would result from increased uncertainty for enforcement and business planning, and reduced certainty to General category participants regarding opportunities, participation/effort, and potential impact on market prices. A beneficial impact would accrue to Harpoon category vessels. This alternative would increase the likelihood of Harpoon category participants being able to catch the full Harpoon category quota and thus would be minor, and beneficial. An increase in optimum yield may result from a potential increase in the geographic and temporal distribution of landings. Increases in positive economic impacts would depend on the availability of bluefin to the fishery from the beginning of May until the Harpoon category quota (base or adjusted, as applicable) is reached. Recently, the price for Harpoon category bluefin has been higher in June than later in the season, so an earlier start date could be beneficial, although price per pound is also influenced by the amount of bluefin on the market. The value of an unused metric ton of Harpoon category landings is estimated at $11,838 using the 2019 average ex-vessel price of $5.37 per pound, and $13,845 using the average 2017-2019 price ($6.28). This alternative is not preferred at this time.

Sub-Alternative I4a would maintain the current requirement that gives permit holders 45 days to change their Atlantic tunas or HMS permit category as long as they have not landed a bluefin. The economic impacts of this alternative are neutral since the number of permit holders impacted is so small, and any impacts of obtaining an annual permit in the wrong category are only for one fishing season. For a subset of these permit holders the impact can be very adverse, if an incorrect permit is obtained that prohibits a commercial fisherman from selling fish or a charter/headboat fisherman from taking paying passengers

(e.g., HMS Angling permit). In these instances, the impact is adverse, but minimal on a fishery-wide basis. This alternative is not preferred at this time.

Preferred Sub-Alternative I4b would extend the ability to change permit categories from 45 days to the full fishing year as long as the vessel has not landed a bluefin. The economic impacts of this alternative are neutral, or slightly beneficial since the number of permit holders impacted is so small, and any impacts of obtaining an annual permit in the wrong category are only for one fishing season. For a subset of these permit holders, the impact of this alternative can be very beneficial, if an incorrect permit is obtained that prohibits a commercial fisherman from selling fish or a charter/headboat fisherman from taking paying passengers (e.g., HMS Angling permit). In these instances, the impact is beneficial, but minimal on a fishery-wide basis.

Sub-Alternative I5a would make no changes to the current regulations concerning green-stick gear. Vessels authorized to fish with pelagic longline gear would not be permitted to retain bluefin caught with green-stick gear. The economic impacts of the No Action Alternatives would be minor and adverse, as a result of maintaining the current regulations that preclude a pelagic longline vessel from retaining bluefin caught on green-stick gear. An analysis of self-reported logbook data from sets made with green-stick gear suggest that a small number of vessels use this gear. The number of unique pelagic longline vessels that use green-stick gear has increased with time. There were no sets reported in 2015 that were attributed to the use of this gear type. In 2016 only a single pelagic longline vessel reported sets made with green-stick gear in the HMS logbook, and the low rate of bluefin catch. Vessels participating in the Gulf of Mexico DWH OFRP have used green-stick gear in the Gulf of Mexico, which accounts for most of the gear use in the Gulf of Mexico. These vessels are prohibited from landing bluefin while participating in the project, but must account for any dead discards with IBQ allocation. This alternative is not preferred at this time.

Sub-Alternative I5b would clarify retention and reporting requirements for bluefin caught with green-stick gear by vessels with Atlantic Tunas Longline category permits, to allow the retention of one bluefin per trip (73" or greater CFL), provided that pelagic longline gear is not onboard, and that vessels comply with additional regulations (i.e., VMS set reports, HMS logbook requirements, IBQ program requirements) applying to such trips. This alternative is anticipated to have minor and adverse economic impacts to fishermen. The restriction that green-stick gear cannot be used if pelagic longline gear is onboard may limit the flexibility for fishermen to adapt fishing strategies to the conditions on a particular trip, and reduce the ability of those vessels to maximize their opportunity to catch yellowfin. Only 12 pelagic longline vessels have fished with green-stick gear. Most other fishermen fished either with pelagic longline gear or green-stick gear; therefore, restricting them to one option or another under this alternative would likely not change fishing practices for most vessels using green-stick gear. Overall, across regions, there appears to be a very small number of fishermen wishing to use both gears. Due to the minimal use of green-stick and pelagic longline gear in tandem, there is little information regarding the costs and benefits of having different types of gear onboard. Relevant factors for selecting one gear type may include target species, market factors, available deck space,

cost of the gear, and trip length. Green-stick gear selection by fishermen targeting yellowfin could maximize economic returns and efficiency, or reflect adherence to specific requirements if fishing under the DWH OFRP in the Gulf of Mexico. This alternative is not preferred at this time.

Preferred Sub-Alternative I5c clarifies retention and reporting requirements for bluefin caught with green-stick gear (by vessels with Longline category permits), to allow the retention of one bluefin per trip (of 73" or greater CFL) and with additional regulations (i.e., VMS set reports, HMS logbook requirements, IBQ program requirements) applying to such trips. This alternative would allow both green-stick and pelagic longline gear on the vessel at the same time. In comparison to the No Action Alternative, this alternative would have minor, beneficial economic impacts because a vessel would be able to retain a legal-sized bluefin that may otherwise be discarded dead due to a *de facto* prohibition on bluefin retention. Retention of such fish would reduce waste, augment revenue, and reduce the frustration associated with regulatory discarding. Allowing the use of green-stick gear while pelagic longline gear is onboard is intended to provide vessel operators flexibility to employ fishing strategies with multiple gear types to optimize their business in a highly dynamic fishery. Green-stick gear selection by fishermen targeting yellowfin could maximize economic returns and efficiency, or reflect adherence to specific requirements if fishing under the DWH OFRP in the Gulf of Mexico.

8 Community Profiles

8.1 Introduction

The Magnuson-Stevens Act requires, among other things, that all Fishery Management Plans (FMPs) include a fishery impact statement intended to assess, specify, and describe the likely effects of the measures on fishermen and fishing communities (§ 303(a)(9)). To address the requirements of § 303(a)(9), NOAA Fisheries notes that:

- Cumulative conservation, economic and social impacts of the preferred alternatives are described in Chapter 5, detailed explanation of impacts is described in Chapter 4.0, and net costs and benefits are described in Section 6.5.
- Mitigation measures are described in Section 5.6.
- Safety of human life at sea is addressed in Section 9.1.1 under National Standard 10.

In Section 8.2 below, NOAA Fisheries provides information on specific communities that might be affected by this action and those communities' reliance and engagement with commercial and recreational fishing, as well as qualitative measures of social vulnerability. As explained in Section 5.3, cumulatively, the preferred alternatives generally are expected to have minor beneficial or neutral socioeconomic impacts. The socioeconomic impacts of defining IBQ shareholders annually (Sub-Alternative A2b) based on sets would be minor and beneficial overall because some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. The socioeconomic impacts of the IBQ regional designation rules (Alternative B3) are expected to be minor and beneficial, as a result of the increased flexibility for vessels currently without GOM designated IBQ allocation, and flexibility under the circumstances of a very low level of GOM designated IBQ. Sub-Alternative (D1c) that would cap the percentage of IBQ shares that an entity could hold, acquire or use at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with the owned IBQ shares would have neutral socioeconomic impacts. The Sub-Alternative (E1b) that would streamline the dealer reporting requirement for the IBQ Program would have minor beneficial impacts due to the reduced burden. The Sub-Alternative that would reduce the frequency with which vessels must mail their EM hard drives would reduce costs and time burdens (E2b). Sub-Alternative F3a would reallocate Purse Seine category quota proportionally to all bluefin quota categories (General, Harpoon, Angling, Longline, Trap, and Reserve), and result in additional quota for the active directed and incidental fisheries. Alternative H2 would modify the current Angling category Trophy North subquota areas and allocations, and result in additional fishing opportunity for a small number of vessels in the new zone. Sub-Alternative I2c, that would set a Harpoon retention limit may result in some additional fishing opportunities by lengthening the season. Sub-Alternative I4b would extend the ability to change permit categories from 45 days to the full fishing year and benefit vessel owners. Sub-Alternative I5c would clarify the retention and reporting requirements for bluefin caught with green-

stick gear, would have beneficial economic impacts because a vessel would be able to retain a legal-sized bluefin that may otherwise be discarded dead.

However, some adverse socioeconomic impacts may occur with Preferred Alternatives E3b, E4b, E5b, F2b, I2c, and I3a (minor). Although some of the adverse impacts of the Preferred Alternatives would affect communities listed as socially vulnerable, the selection of the Preferred Alternatives mitigated adverse impacts, and none of the Preferred Alternatives with adverse impacts would have a disproportionate impact one of the communities with high social vulnerability. Alternatives E3b, and E4b, the electronic monitoring alternatives, and alternative E5b (cost recovery), would have very minor adverse impacts that impact all active vessels in the fishery. The communities with relatively high social vulnerability that would experience the minor adverse impacts are likely to be in Dulac, LA, Fort Pierce, FL, and Wanchese, NC. Preferred Alternative F2b (Purse Seine category reallocation) would have a moderate adverse impact, but the purse seine fishery has not been active since 2015. Therefore, even if the adverse impacts of Alternative F2b affect a vulnerable community, because the commercial reliance of the affected entities is low, the impact on any vulnerable community would be mitigated.

The National Environmental Policy Act (NEPA) requires federal agencies to consider the interactions of natural and human environments by using a "systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making" (§102(2)(A)). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects, which may be direct, indirect, or cumulative. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. The consequences of management actions need to be examined to better ascertain and, to the fullest extent possible, mitigate regulatory impacts on affected constituents.

Social impacts are generally the consequences to human populations resulting from some type of public or private action. Those consequences may include alterations to the ways in which people live, work or play, relate to one another, and organize to meet their needs. In addition, cultural impacts, which may involve changes in values and beliefs that affect people's way of identifying themselves within their occupation, communities, and society in general are included under this interpretation. Social impact analyses help determine the consequences of policy action in advance by comparing the status quo with the projected impacts. Community profiles are an initial step in the social impact assessment process.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) outlines a set of National Standards that apply to all fishery management plans and the implementation of regulations. Specifically, National Standard 8 notes that:

"Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meets the requirements of paragraph (2) [National Standard 2], in order to (A) provide for the sustained participation

of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities." (§301(a)(8)). See also § 600.345 (National Standard 8 Guidelines).

"Sustained participation" is defined to mean continued access to the fishery within the constraints of the condition of the resource (50 CFR § 600.345(b)(4)). The Magnuson-Stevens Act defines a "fishing community" as:

"a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew, and United States fish processors that are based in such communities." (§ 3(17)).

Specific to development and amendment of Highly Migratory Species (HMS) FMPs, the Magnuson-Stevens Act, paragraphs 304(g)(1)(C) and (G)(ii)-(iii) require the Secretary to:

- Evaluate the likely effects, if any, of conservation and management measures on participants in the affected fisheries and minimize, to the extent practicable, any disadvantage to U.S. fishermen in relation to foreign competitors
- Ensure that conservation and management measures –
    - Take into consideration traditional fishing patterns of fishing vessels of the United States and the operating requirements of the fisheries; and
    - Are fair and equitable in allocating fishing privileges among United States fishermen and do not have economic allocation as the sole purpose.

NOAA Fisheries guidelines for social impact assessments (NMFSI-01-111-02, 2007) specify that the following elements are utilized in the development of FMPs and FMP amendments:

1. The size and demographic characteristics of the fishery-related work force residing in the area; these determine demographic, income, and employment effects in relation to the workforce as a whole, by community and region.

2. The cultural issues of attitudes, beliefs, and values of fishermen, fishery-related workers, other stakeholders, and their communities.

3. The effects of final actions on social structure and organization; that is, on the ability to provide necessary social support and services to families and communities.

4. The non-economic social aspects of the final action or policy; these include life-style issues, health and safety issues, and the non-consumptive and recreational use of living marine resources and their habitats.

5. The historical dependence on and participation in the fishery by fishermen and communities, reflected in the structure of fishing practices, income distribution and rights.

8.2 Method—Previous Community Profiles and Assessments

Background and summary information on the community studies conducted to choose the communities profiled in this document is not repeated here and can be found in other documents, such as Amendment 7 (2014), and previous HMS Stock Assessment and Fishery Evaluation (SAFE) Reports).

Table 8.1 and Table 8.2 below present social indicators of vulnerability and resilience developed by Jepson and Colburn (2013) for the 10 ports for pelagic longline fishery commercial bluefin landings, (Table 8.1) and the top ten ports for handgear fishery commercial bluefin landings (Table 8.2). Jepson and Colburn (2013) developed a series of indices using social indicator variables that could assess a coastal community's vulnerability or resilience to potential economic disruptions such as those resulting from drastic changes in fisheries quotas and seasons, or natural and anthropogenic disasters. Indices and index scores were developed using factor analyses of data from the United States Census, permit sales, landings reports, and recreational fishing effort estimates from the Marine Recreational Information Program (MRIP) survey (Jepson and Colburn, 2013). The nine social indices developed by Jepson and Colburn (2013) can be divided into two categories: 1) fishing engagement and reliance, and 2) social vulnerability. For each index, the community is ranked as scoring high (one standard deviation or more above the mean score), medium high (0.5 to 0.99 standard deviations above the mean score), medium (0 to 0.49 standard deviations above the mean score), or low (below the mean score) on the index scale.

Fishing Reliance and Engagement Indices

Jepson and Colburn (2013) developed two indices each to measure community reliance and engagement with commercial and recreational fishing, respectively. Commercial fishing engagement was assessed based on pounds of landings, value of landings, number of commercial fishing permits sold, and number of dealers with landings. Commercial fishing reliance was assessed based on value of landings per capita; number of commercial permits per capita; dealers with landings per capita; and data on percentage of people employed in agriculture, forestry, and fishing from the Bureau of Labor Statistics. The recreational fishing engagement index was measured using MRIP estimates of the number of charter, private boat, and shore recreational fishing trips originating in each community. The recreational fishing reliance index was generated using the same fishing trip estimates adjusted to a per capita basis. MRIP data is not available for the state of Texas, so the recreational indexes for Texas were instead calculated based on recreational permit data from NOAA Fisheries, and boat ramp data from the state of Texas. As such, recreational index scores for Texas communities are only comparable to other communities within the state.

In Table 8.1, fishing reliance and engagement index scores are presented for 10 HMS pelagic longline communities. Eight of the 10 HMS communities scored either high or medium high on commercial or recreational engagement, 3 of 10 scored either high or medium high on commercial reliance, and five of ten scored either high or medium high on recreational reliance. Two communities that scored high on all four indices are Dulac, LA

and Barnegat Light, NJ, indicating that these communities have greater than normal dependence on the recreational and commercial fishing sectors for jobs and economic support. Wanchese, NC, New Bedford, MA, Ocean City, MD, Fort Pierce, FL, Fairhaven, MA, Beaufort, NC, and Islip, NY scored high or medium high on both fishing engagement indices, while scoring medium high, medium or low on both fishing reliance indices indicating that while Wanchese, NC, New Bedford, MA, Ocean City, MD, Fort Pierce, FL, Fairhaven, MA, Beaufort, NC, and Islip, NY have a significant fishing community, it is not a massive component of the city's overall population.

In Table 8.2, fishing reliance and engagement index scores are presented for 10 HMS handgear communities. Eight of the 10 HMS communities scored either high or medium high on commercial or recreational engagement, 2 of 10 scored either high or medium high on commercial reliance, and three of ten scored either high or medium high on recreational reliance. Two communities that scored high on all four indices included Wanchese, NC and Chatham, MA, indicating that these communities have greater than normal dependence on the recreational and commercial fishing sectors for jobs and economic support. Gloucester, Newburyport, Provincetown, MA, Rye and Seabrook, NH scored high or medium high on both fishing engagement indices, while scoring medium high, medium or low on both fishing reliance indices indicating that while these areas have a significant fishing community, it is not a massive component of the city's overall population.

Social Vulnerability Indices

Five indices of social vulnerability developed by Jepson and Colburn (2013) are presented in this section (Table 8.1, and Table 8.2). The personal disruption index includes the following community variables representing disruptive forces in family lives: percent unemployment, crime index, percent with no diploma, percent in poverty, and percent separated females. The population composition index shows the presence of populations who are traditionally considered more vulnerable due to circumstances associated with low incomes and fewer resources. The poverty index includes several variables measuring poverty levels within different community social groups including: percent receiving government assistance, percent of families below the poverty line, percent over age of 65 in poverty, and percent under age of 18 in poverty. The labor force index characterizes the strength and stability of the labor force and employment opportunities that may exist. A higher ranking indicates fewer employment opportunities and a more vulnerable labor force. Finally, the housing characteristics index is a measure of infrastructure vulnerability and includes factors that indicate housing that made be vulnerable to coastal hazards such as severe storms or coastal flooding. Fort Pierce, FL was the only HMS community to score high or medium high on all five indices of social vulnerability with Dulac, LA scored high on four of the five indices of social vulnerability. Three other HMS communities scored high or medium high on two or three social vulnerability indices: Wanchese, NC, New Bedford, MA, and Ocean City, MD. These scores suggest these communities would likely experience greater difficulty recovering from economic hardships caused by job losses in the recreational and commercial fishing sectors.

Table 8.1 Social Vulnerability Indices for 10 HMS PLL Communities for 2016-2019

Community	Population	Fishing Engagement and Reliance				Social Vulnerability				
		Commercial Engagement	Commercial Reliance	Recreational Engagement	Recreational Reliance	Personal Disruption	Population Composition	Poverty	Labor Force	Housing
Wanchese, NC	1,642*	HIGH	MED HIGH	MED HIGH	HIGH	LOW	LOW	MED HIGH	LOW	MED HIGH
New Bedford, MA	95,072*	HIGH	MEDIUM	MED HIGH	LOW	HIGH	MED HIGH	HIGH	MEDIUM	MEDIUM
Ocean City, MD†	7,102*	HIGH	MEDIUM	HIGH	HIGH	LOW	LOW	LOW	HIGH	MED HIGH
Fort Pierce, FL	41,590*	MED HIGH	LOW	HIGH	MEDIUM	HIGH	HIGH	HIGH	MED HIGH	MED HIGH
Barnegat Light, NJ	574*	HIGH	HIGH	HIGH	HIGH	LOW	LOW	LOW	HIGH	LOW
Fairhaven, MA	15,873*	HIGH	LOW	MED HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM
Port Royal, SC‡	10,678*	LOW	LOW	MEDIUM	LOW	LOW	LOW	LOW	LOW	MED HIGH
Beaufort, NC	47,759*	HIGH	MEDIUM	HIGH	MED HIGH	MED HIGH	LOW	LOW	LOW	MED HIGH
Islip, NY	335,543*	MEDIUM	MED HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Dulac, LA	1,463*	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	HIGH	HIGH	HIGH

* Population estimates (2010 census) from https://factfinder.census.gov.
† https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/map.
‡Jepson and Colburn (2013) and https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/map web page does not provide social vulnerability index analyses on a county level.
Source: Jepson and Colburn 2013 and https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/index.

Table 8.2 Social Vulnerability Indices for 10 HMS handgear Communities for 2016-2019

Community	Population	Fishing Engagement and Reliance				Social Vulnerability				
		Commercial Engagement	Commercial Reliance	Recreational Engagement	Recreational Reliance	Personal Disruption	Population Composition	Poverty	Labor Force	Housing
Wanchese, NC	1,642*	HIGH	MED HIGH	MED HIGH	HIGH	LOW	LOW	MED HIGH	LOW	MED HIGH
Gloucester, MA	28,789*	HIGH	MEDIUM	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Portland, ME	66,194*	LOW	MEDIUM	HIGH	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM
Chatham, MA	6,125*	HIGH	HIGH	HIGH	HIGH	LOW	LOW	LOW	HIGH	LOW
Harwich Port, MA	1,644*	MEDIUM	MEDIUM	HIGH	HIGH	LOW	LOW	LOW	HIGH	LOW
Marshfield, MA	25,132*	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Rye, NH	5,298*	MED HIGH	MEDIUM	MED HIGH	MEDIUM	LOW	LOW	LOW	LOW	LOW
Newburyport, MA	17,416*	MED HIGH	LOW	HIGH	MEDIUM	LOW	LOW	LOW	LOW	LOW
Seabrook, NH	8,693*	MED HIGH	LOW	HIGH	MEDIUM	LOW	LOW	LOW	LOW	MED HIGH
Provincetown, MA	2,942*	MED HIGH	MEDIUM	MED HIGH	MEDIUM	LOW	LOW	LOW	LOW	MEDIUM

* Population estimates (2010 census) from https://factfinder.census.gov.
† https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/map.
‡Jepson and Colburn (2013) and https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/map web page does not provide social vulnerability index analyses on a county level.
Source: Jepson and Colburn 2013 and https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/index.

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9 Applicable Laws

9.1 Magnuson-Stevens Fishery Conservation and Management Act

Fishery management measures must be consistent with ten national standards contained in the Magnuson-Stevens Act (sec. 301). This section describes how the preferred alternatives in this action are consistent with the National Standards and guidelines set forth in 50 Code of Federal Regulations (CFR) part 600. More information on the Magnuson-Stevens Act can be found in earlier chapters.

9.1.1 Consistency with the National Standards

National Standard 1 states that conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery.

For quota-managed stocks, including western Atlantic bluefin, the 2006 Consolidated HMS FMP and its amendments and implementing regulations include conservation and management measures that address overfishing and optimum yield requirements of National Standard 1 and its guidelines (50 C.F.R. § 600.310). For bluefin, quotas are adopted internationally through the International Commission for the Conservation of Atlantic Tunas (ICCAT) and implemented domestically under the Atlantic Tunas Convention Act (ATCA) and MSA.

In 2021, ICCAT recommended a U.S. TAC of 1,316.14 (plus the 25-mt bycatch allowance), noting "the positive results of the 2021 western Atlantic bluefin tuna stock assessment, which estimates that the total biomass has increased by 9% over the time period 2017-2020, indicates that the current TAC is not likely to have led to overfishing relative to $F_{0.1}$ with a high probability, and shows clear signs of several strong subsequent recruitment years" (ICCAT Rec 21-07). The status of the stock after the 2021 stock assessment remained "no overfishing occurring/rebuilding status unknown." The adopted TAC is consistent with scientific advice and is precautionary, taking into consideration scientific uncertainty and the status of the stock. The ICCAT recommendation also preserves ongoing management measures adopted as part of the original rebuilding plan for the stock, and the 2006 Consolidated HMS FMP and its amendments manage the stock within the ICCAT-recommended quota.

The preferred alternatives in this action do not affect the ICCAT-adopted western Atlantic BFT quota, which is implemented domestically in a manner conistent with applicable NS 1 obligations. Consistent with those obligations, the quota and related management measures help to achieve, on a continuing basis, the optimum yield for HMS fisheries. Objectives of this amendment listed in Chapter 1, section 1.4, include: 1) evaluate and

optimize the allocation of U.S. bluefin quota among all bluefin quota categories, considering historical allocations and recent fishery characteristics and trends, to provide U.S. fishing vessels with a reasonable opportunity to catch the U.S. quota established by ICCAT, facilitate the ability for active HMS directed permit categories to catch their full bluefin quota allocations, and facilitate directed fishing for species other than bluefin in the pelagic longline fishery while accounting for incidental bluefin catch; 2) maintain flexibility of the regulations to account for the highly variable nature of the bluefin fisheries, and maintain fairness among permit/quota categories; 3) continue to manage the Atlantic pelagic longline fishery consistent with the IBQ Program objectives in Amendment 7, and consistent with the conservation and management objectives of the 2006 Consolidated Atlantic HMS FMP and, its amendments, and consistent with all applicable laws; and 4) modify the management of the pelagic longline fishery in response to the Three-Year Review of the IBQ Program, and in response to important relevant prevailing trends (e.g., declining fishing effort and revenue for target species).

The preferred alternatives would manage stocks consistent with NS1 obligations to prevent overfishing, end overfishing, or rebuild stocks, as applicable. The measures are consistent with existing management measures that implement relevant science-based quotas and with other measures designed to appropriately conserve the stocks. No quotas would be increased or decreased by the management measures or have adverse impacts on the stocks. The preferred alternatives would help to achieve optimum yield for target species, such as swordfish and yellowfin tuna, and bluefin in directed bluefin fisheries, by optimizing allocation of U.S. bluefin quota among all quota categories and providing reasonable fishing opportunities to catch science-based quotas where established. The bluefin fishery is a quota-managed fishery with a limit on the maximum fishing mortality associated with the fishery that is set by the level of the total bluefin quota. Specific management measures constrain the methods, locations and timing of catch. Amendment 13's preferred alternatives would modify specific rules such as trip limits, reporting, or quota distribution among quota categories but would not affect the total bluefin quota. Reallocation of Purse Seine category quota among all quota categories, and annual distribution of IBQ shares within the Longline category under the IBQ Program, could result in some changes in fishing behavior. However, such changes, if any, would be minor. Over the past years, most Purse Seine category quota (75 percent) was reallocated for use by the other quota categories through an annual reallocation mechanism, and from the remaining 25 percent, Purse Seine category participants have actively leased quota to pelagic longline vessels. Thus, NOAA Fisheries does not anticipate major changes in fishing effort or behavior. Other previously implemented management measures, such as NOAA Fisheries' authority to close the fishery when the quota is reached, and the ability to transfer quota inseason from one category to another, help ensure that overall, bluefin fisheries remain within the U.S. quota. Preferred alternatives are also consistent with conservation and management requirements for other species, including bycatch species, in these fisheries.

The preferred Longline category and IBQ Program alternatives, as well as the Purse Seine category reallocation alternative, would result in changes to bluefin quota allocation and usage. However, they would not affect the pelagic longline fishery's ability to appropriately

limit incidental catch of bluefin, as described further in Chapter 4. Furthermore, they may increase opportunities for pelagic longline vessels to catch target species. These alternatives are:

> A2b. Distribute IBQ shares annually only to active vessels based the relative number of pelagic longline sets as the measure of fishing effort (*dynamic allocation*);
> B3. Modify the Gulf of Mexico and Atlantic regional IBQ share designations for dynamic allocation and cap bluefin catch from the Gulf of Mexico;
> D1c. Cap accumulated IBQ shares owned by a single entity at 25 percent; and
> I5c. Clarify the regulations for the retention of bluefin caught on green-stick gear by Longline category permitted vessels.

Preferred Alternative B3 would maintain current limits on the amount of bluefin that could be incidentally caught in the Gulf of Mexico, the recognized spawning grounds of bluefin tuna, but provide flexibility to reduce the limit if warranted. If, under conditions of low amounts Gulf of Mexico designated IBQ the accounting rules were modified, to preserve the intent of the GOM designated shares and allocation, as first articulated in Amendment 7 regarding the level of effort in the Gulf of Mexico, the maximum allowable bluefin catch from the Gulf of Mexico will be the catch weight equivalent of the otherwise applicable 35 percent cap (or lower if NOAA Fisheries modifies the level consistent with other provisions in this Amendment). This cap will be measured by weight of bluefin catch (landings and dead discards)(i.e., the default level of 35 percent,). If this level of bluefin catch (landings and dead discards) were reached in the Gulf of Mexico, NOAA Fisheries would prohibit vessels from fishing with pelagic longline gear in the Gulf of Mexico for the remainder of that year.

The preferred alternatives for the directed bluefin categories that would result in changes to bluefin quota allocation and usage, if finalized, would maintain category quotas and associated fishing opportunities within the overall U.S. bluefin quota, as described further in Chapter 4. These are:

> F1b. Modify codified quota allocation percentage to reflect the annual 68-mt allocation to the Longline category
> F2b. Discontinue the Purse Seine category upon implementation of Amendment 13;
> F3a. Reallocate the quota historically associated with the Purse Seine category, proportionally to the General category, the Harpoon category, the Angling category, the Longline category, the Trap category, and the Reserve category;
> H2. Modify Angling category trophy areas and allocations by dividing the northern area into two zones and creating a new suballocation;
> I2c. Set a default limit on the total number of bluefin at 10 fish (combined large medium and giants); specify a range from 5 to 10 fish (combined large medium and giants) that may be implemented inseason; and
> I4b. Amend open access Atlantic tunas or HMS permit category regulations (administrative in nature).

National Standard 2 states that conservation and management measures shall be based on the best scientific information available.

The preferred alternatives in this document are consistent with National Standard 2 and its guidelines (§ 600.315). The preferred alternatives are based on the best scientific information available, including the latest stock assessments, scientific research, the analyses in the Three-Year Review, and up-to-date data sources. The data sources cited throughout this Final Environmental Impact Statement (FEIS) represent the best scientific information available. Different data sources may have different date ranges used, because the time at which different data sources have finalized data available differ, and for other reasons, as explained in Chapters 3 and 4.

National Standard 3 states that, to the extent practicable, an individual stock of fish shall be managed as a unit throughout its range and interrelated stocks of fish be managed as a unit or in close coordination.

The preferred alternatives in this document are consistent with National Standard 3 and its guidelines (§ 600.320). Amendment 13 would not alter the established management unit for Atlantic HMS (*see* 2006 Consolidated HMS FMP at Chapter 3), which are managed as a unit throughout their range in U.S. federal waters. In addition, as a condition of their federal permits, vessels fishing for Atlantic HMS must comply with federal requirements when fishing in state waters, unless the states have more restrictive regulations. Given their highly migratory nature, some Atlantic HMS are subject to international management at ICCAT to ensure conservation and management throughout their range. Conservation and management measures in the 2006 Consolidated HMS FMP and its amendments and regulations address both domestic and international requirements for Atlantic HMS.

National Standard 4 states that conservation and management measures shall not discriminate between residents of different states. Furthermore, if it becomes necessary to allocate or assign fishing privileges among various U.S. fishermen, such allocation should be fair and equitable to all fishermen; be reasonably calculated to promote conservation; and should be carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The preferred alternatives are consistent with National Standard 4 and its guidelines (§ 600.325).

Residents of Different States

The preferred alternatives would not discriminate between residents of different states. The preferred alternatives would not differentiate among U.S. citizens, nationals, resident aliens, or corporations on the basis of their state of residence nor would they incorporate or rely on a state statute or regulation that discriminates against residents of another state. The preferred alternatives would be applied equally to all permit holders, regardless of homeport. Permit holders may fish for HMS managed species in any HMS jurisdictional

waters where they are found, regardless of the state where they or their business reside or their vessel's principal or home port state.

While the preferred alternatives do not discriminate between residents of different states, some of the alternatives would have different socioeconomic impacts on different fishery participants, depending upon quota category, historical fishing behavior and catch, dependence upon the fishery, fishing location, and social attributes such as dependence upon fishing and social vulnerability, as described below. The preferred alternatives reflect the fact that the bluefin fisheries (and other HMS fisheries) are widely distributed and highly variable due to the diversity of participants (location, gear types, commercial, recreational), and because bluefin migrate over thousands of miles, with an annual distribution that is highly variable. Vessels fishing in any geographic area in the Atlantic or Gulf of Mexico are likely to have only limited access to bluefin unless they travel long distances within the migratory range of bluefin. The ports and communities that provide the goods and services to support the bluefin fisheries may vary as well, as vessels travel over large distances to pursue their target species.

As discussed in Chapter 8, those pelagic longline fishery participants associated with communities with relatively higher dependence upon commercial fishing include Wanchese, NC; New Bedford, MA; Ocean City, MD; Barnegat Light, NJ; Fairhaven, MA; Beaufort, NC; Dulac, LA; Gloucester, MA; Chatham, MA; and Marshfield, MA. Several communities are characterized as having a relatively high social vulnerability to potential impacts, including Wanchese, NC, New Bedford, MA, Dulac, LA, and Fort Pierce, FL. The principal communities associated with the handgear fishery are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

The preferred alternatives were designed to mitigate distributive and other impacts. Multiple aspects of both the IBQ Program and the directed fishery quota allocation alternatives were designed to optimize flexibility and fishing opportunity. The overall bluefin quota system would be responsive to changes in the fishery and mitigate potential impacts as practicable. The complexity and flexibility of the preferred alternatives (in the context of the current regulations) reflect the objective of providing opportunity to a diverse set of participants in a highly variable and dynamic fishery. The preferred alternative to create a new Angling category trophy bluefin area helps to ensure equitable access to the fishery.

Allocating or assigning fishing privileges

As discussed below, the preferred alternatives that allocate or assign fishing privileges are consistent with the National Standard 4 requirements to be (1) fair and equitable to all such fishermen; (2) reasonably calculated to promote conservation; and (3) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

(1) Fair and Equitable

The preferred IBQ Program alternatives are fair and equitable to all fishermen. Alternative A2b would annually provide IBQ shares to active vessels, based on each individually permitted vessel's fishing effort, using the number of pelagic longline sets relative to total sets as the measure of effort. Alternative B3 retains regional designations for IBQ shares and allocations (Atlantic or Gulf of Mexico), an approach adopted in Amendment 7 in light of the fact that the the Gulf of Mexico is recognized as the primary spawning ground for the western Atlantic bluefin tuna stock. Alternative B3 would base annual regional designations on the location of pelagic longline sets in each area and vessel-specific share percentages on each vessel's sets as compared to total sets in each area. To address concerns about the potential for very low Gulf of Mexico IBQ shares and constraints on the IBQ Program, Alternative B3 provides a trigger for temporary relaxation of the regional accounting rules. In developing the above alternatives, as reflected in Amendment 7 and this Final Amendment 13, NOAA Fisheries took into consideration, among other things, current and historical harvests; investments in and dependence upon the fishery; continued participation in the fishery by active vessels; entry into the fishery of new vessels; promotion of the sustained participation of fishing communities that depend on the fisheries; and, ensuring the limited access privilege holders do not acquire an excessive share of the total limited access privileges in the program. *See* 16 U.S.C. § 1853a(c)(5) (considerations for allocations under LAPP).

NOAA Fisheries believes that the below alternatives are also fair and equitable, and in designing them, considered other factors relevant to the Amendment's objectives, including economic and social impacts, dependence on the fishery by present participants and coastal communities, and opportunity for new participants to enter the fishery.

Preferred Alternative F1b simplifies the mathematical method used for the annual bluefin category quota process. This would not substantively change the approach that has in place since 2015, which Amendment 7 analyzed and determined to be fair and equitable. *See* section 2.10.16 (explaining why fundamental changes to category quotas was not considered in Amendment 13).

Preferred Alternatives F2b and F3a would discontinue the no longer active Purse Seine category and reallocate that category's bluefin quota to all bluefin categories (General, Harpoon, Angling, Longline, Trap, and Reserve categories). Promoting commercial and recreational fishing under sound conservation and management principles and achieving and maintaining, on a continuing basis, optimum yield from a fishery are key purposes of the Magnuson-Stevens Act. This reallocation is consistent with those purposes and is fair and equitable because it would discontinue a category that has had little to no landings and would provide additional quota to active fishers. From 2005 to 2012 there was no purse seine fishing activity. From 2013 to 2015, only one Purse Seine category participant fished, making only a few sets, and accounting for only a small percentage of total annual bluefin landings each year (six, five, and four percent in 2013, 2014, and 2015, respectively). In deciding on the preferred alternatives, NOAA Fisheries considered dependence upon a fishery (or lack thereof), as that is a social attribute relevant to the determination of socioeconomic impacts (Chapter 8). In addition, NOAA Fisheries considered economic and

social impacts to the five historical participants in the Purse Seine category and to the other bluefin categories. Reallocation of the purse seine quota to active bluefin categories would maximize overall benefits for the fishery. *See* Sections 4, 6, 7 and 8 for analyses of socioeconomic impacts and benefits of the preferred alternatives. Under current regulations, the Purse Seine category may be allocated up to 18.6 percent of the U.S. Atlantic bluefin quota, a percentage that is not proportionate to the number of historical fishery participants (five historical participants). In contrast, the Angling category is currently allocated 19.7 percent of the total U.S. bluefin quota (after deduction of 68 mt from the U.S. baseline quota), and there were over 20,000 HMS Angling permits issued in 2018. In addition, the reallocation is fair and equitable because it would allocate Purse Seine category quota to the other categories in proportion to their respective percentages of the total U.S. bluefin quota. These percentages were designed to provide fishing opportunities throughout the fishing year and to broad geographic areas, in the context of the highly variable fishery and weather conditions, and with consideration of bluefin distribution.

Preferred Alternative G1 maintains General category subquota periods/allocations that reflect the general seasonality, historical availability and relative sizes of the historical seasonal fisheries for bluefin. After considering information from recent years, including metrics that represent fishing opportunity, NOAA Fisheries believes that the subquotas continue to be appropriate, given fish availability, fishing effort, and bluefin landings during the different subquota time periods. The General category subquota periods and allocations, in conjunction with NOAA Fisheries' existing flexibility to provide additional quota via its inseason authorities, provide fishing opportunities in the context of the variable distribution of bluefin. This alternative is fair and equitable, as it provides fishing opportunities throughout the fishing year throughout broad geographic areas, in the context of the highly variable fishery and weather conditions.

Preferred Alternative H2 is fair and equitable as it would subdivide an existing Angling category area into two, resulting in four Angling category areas, then allocate the Angling category trophy quota equally among the four areas. This will provide for opportunities for the incidental catch and retention of trophy-sized bluefin in New England while continuing to provide such opportunities throughout the Atlantic Ocean and Gulf of Mexico.

(2) Reasonably Calculated to Promote Conservation

The above, preferred alternatives are reasonably calculated to promote conservation. The 2006 Consolidated HMS FMP and its amendments and regulations include measures that address the conservation requirements of the Magnuson-Stevens Act, which include preventing overfishing and rebuilding overfished stocks. Amendment 13 does not affect those measures, but contributes to and furthers the management of bluefin tuna consistent with the conservation requirements. Through vessel-level accountability, the IBQ Program alternatives would continue to promote conservation, by ensuring that the Longline category does not overharvest its quota and has incentives to limit bluefin dead discards and landings. The preferred Purse Seine category alternatives (F2b and F3a) also promote conservation by optimizing yield through allocation of quota to active bluefin categories

and by encouraging a rational, more easily managed use of the resource through discontinuation of a non-active category. Under current regulations, NOAA Fisheries annually transfers a large amount of unused Purse Seine category quota through a Reserve category to other quota categories through inseason actions. Preferred alternatives F2b and F3a eliminate the annual uncertainty about the amount and timing of such reallocations (*see* section 4.6.2.1) and simplify the management process.

The preferred General and Angling category alternatives (G1 and H2) also promote conservation by encouraging a rational, well-managed use of the resource and optimizing social and economic benefits. Alternative G1 (no action) maintains existing time periods and subquota allocations that provide fishing opportunities throughout the fishing year throughout broad geographic areas, in the context of the highly variable fishery and weather conditions. *See* section 4.7.1 for discussion of alternative G1's socioeconomic impacts. Alternative H2 allocates Angling category trophy quota equally among four areas, providing opportunities for incidental catch and retention of trophy-sized bluefin throughout the Atlantic Ocean and Gulf of Mexico. *See* section 4.8.2 for discussion of alternative H1's socioeconomic impacts. The preferred alternatives, and existing authority to transfer quota between quota categories and within subcategories (unchanged by Amendment 13), provide for adaptability and flexibility in management of the bluefin fisheries of the management, allowing for changes without the need for a complex and potentially time-consuming amendment process.

While the preferred alternatives are expected to have neutral ecological impacts, this does not mean they are *not* reasonably calculated to promote conservation. Fishing inherently has impacts on fish, protected species, and the marine environment, yet key purposes of the Magnuson-Stevens Act include promoting commercial and recreational fishing under sound conservation and management principles and achieving and maintaining, on a continuing basis, optimum yield from fisheries. 16 U.S.C. 1801(b)(3)-(4). Thus, consistent with the National Standard 4 guidelines (50 C.F.R. § 600.325(c)(3)(ii)), NOAA Fisheries interprets "promotion of conservation" broadly, and does not believe that "promoting conservation" simply means increasing biomass in the fishery or that allocations can only be made when they increase biomass of fish or reduce impacts to protected species. If measures in an FMP and its amendments (or being developed through an FMP amendment) prevent overfishing, rebuild overfished stocks, and are consistent with other National Standards and requirements of the Act and other applicable law – which is the case here – the agency has discretion to consider allocations, even if they would result in more catch or interactions with marine resources.

Measures that encourage a rational, well-managed use of fishery resources are measures that are "reasonably calculated to promote conservation." *See* 50 C.F.R. § 600.325(c)(3)(ii) (National Standard 4 guidelines). For the bluefin tuna fishery, there are different gear types/categories, fishing practices, fishing locations and potentially affected fishing communities; variability in bluefin availability (seasonally and annually) and thus fishing effort; and other variables. There are also different ecological, economic and social impacts relevant to each gear type, and accordingly, different conservation and management measures (e.g., catch or bag limits, reporting and record keeping, etc.) applicable to them.

Having considered all of the above and public comment and conducted further analyses in this Final Amendment 13/FEIS, NOAA Fisheries believes that the preferred alternatives promote effective, efficient management of bluefin resources and fair and equitable fishing opportunities within and across gear categories and throughout the Atlantic Ocean and Gulf of Mexico, consistent with the objectives of Amendment 13 and Magnuson-Stevens Act requirements.

(3) *Excessive Shares*

The General, Harpoon and Angling categories do not pose any concerns regarding excessive shares, as they do not provide for allocation of privileges to any particular individual, corporation, or other entity.

The IBQ Program alternatives would be carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges. Preferred Alternative D1c would prevent excessive shares by establishing a cap (25 percent of total IBQ shares) on IBQ shares held or acquired through the purchase of permits (and associated shares), or based on dynamic determination of shares under Alternative A2b.

Amendment 13 would not limit IBQ leasing or use, because as explained under preferred Alternative D2a, the duration of a quota lease would be limited to a single year. Individual shareholders/vessel owners may lease quota during a fishing year for use, but at the end of the year, there is no rollover that enables quota to be used in the subsequent year. In addition, there are not strong incentives to accumulate large amounts of IBQ allocations, as bluefin is an incidental catch species. NOAA Fisheries also notes that Amendment 13 is not likely to increase the amount of IBQ allocation available to the IBQ allocation leasing market, given the elimination of the Purse Seine category as a source of leased IBQ allocation. NOAA Fisheries believes that the IBQ Program provide sufficient disincentives to accumulating excessive leased shares. *See* section 4.4.2.1 for further explanation of alternative D2a.

National Standard 5 states that conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

The preferred alternatives in this document are consistent with National Standard 5 and its guidelines (§ 600.330). The preferred alternatives, where practicable, consider efficiency in the utilization of fishery resources. Dynamic annual determination of IBQ shares based on pelagic longline sets, under preferred Alternative A2b, would ensure that Atlantic Tunas Longline category permit holders with recent fishing activity will receive IBQ shares each year, which will increase efficiency of IBQ distribution by assigning shares to active vessels instead of inactive vessels, as well as facilitate increased utilization of target species. Discontinuing the no longer active Purse Seine category (preferred Alternative F2b) and reallocating that quota to active bluefin categories (preferred Alternative F3a) will increase the efficiency of utilization of U.S. bluefin quota.

None of the preferred alternatives have economic allocation as their sole purpose. The specific objectives for Amendment 13 are within the context of the 2006 Consolidated HMS FMP and its amendments, including the overarching objectives of ending overfishing. *See* National Standard 1 discussion, above, listing objectives. As explained in the National Standard 1 and 4 discussions above, the Longline category and IBQ Program alternatives serve an important conservation purpose: ensuring that the Longline category does not overharvest its quota and has incentives to limit bluefin dead discards and landings. The preferred Purse Seine alternative (F2b) and associated reallocation of quota alternative (Alternative F3a) help to achieve, on a continuing basis, optimum yield. Other purposes of the preferred alternatives include providing flexibility in light of changing conditions in the fishery (*see* National Standard 6 discussion, *infra*) and simplifying the process for calculating the annual bluefin quota (Alternative F1b).

National Standard 6 states that conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

The preferred alternatives in this document are consistent with National Standard 6 and its guidelines (§ 600.335). The preferred alternatives in this action were designed to take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches. Given the high variability in the distribution and availability of highly migratory species, and the diverse participation in the fishery (e.g., geographically, economically, methodology), flexibility is an important element of the management strategy. Preferred Alternatives A2b, D1c, and I5c for the Longline category, F6 for the directed bluefin quota categories, H2 for the Angling category, I2c for the Harpoon category, and I4b for open access permit categories, were designed to give HMS fishermen more flexibility when fishing, allowing for adjustments in fishing techniques and location to better adapt to changing fishing conditions. Providing this flexibility would give fishermen the ability to better adjust to variations among, and contingencies in, fisheries, fishery resources, and catches. Analyses of the alternatives are based on consideration of multiple years of data to ensure that decisions are not based on a single, possibly aberrant year of data. Furthermore, the analyses compare data from baseline periods (i.e., prior to implementation of respective measures) against data recently collected to demonstrate temporal variations in the data.

National Standard 7 states that conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The preferred alternatives in this document are consistent with National Standard 7 and its guidelines (§ 600.340). The economic impacts section of the DEIS provides detailed analyses of the costs and cost savings associated with each alternative. The preferred alternatives were chosen, in part, to minimize costs on the fishery, while meeting required conservation and management objectives. Further, none of the preferred alternatives would result in excessive administrative or monetary costs to the Agency, relative to the associated benefits of the alternative. The management program is not novel, and therefore

modifications of the current regulations do not increase uncertainty for the Agency. The preferred alternatives were also structured to avoid unnecessary duplication by taking into account the range of alternatives as well as existing requirements on the relevant fisheries and existing measures in place for the bluefin quota categories. For example, preferred Alternatives E1b on IBQ Program reporting requirements, E2b on mailing electronic monitoring hard drives, and I5c on green-stick gear regulations would streamline regulatory requirements and remove regulatory burden. Although Alternative E3b would increase one-time costs to vessel owners, the cost is reasonable when compared to the average annual operating income of a vessel as described in impacts analysis. This is consistent with National Standard 7 guidelines, which specify that management measures should not impose unnecessary burdens on the economy or individuals and that management measures should be designed to give fishermen the greatest possible freedom of action in conducting business and pursuing recreational opportunities that are consistent with ensuring wise use of the resources and reducing conflict in the fishery.

National Standard 8 states that conservation and management measures shall, consistent with the conservation requirements of the Magnuson-Stevens Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to provide for the sustained participation of such communities, and to the extent practicable, minimize adverse economic impacts on such communities.

The preferred alternatives in this document are consistent with National Standard 8 and its guidelines (§ 600.345). The adverse economic impacts were minimized to the extent practicable through the selection of the preferred alternatives. The impacts analyses in Chapter 4 include examples of communities that may be affected by each alternative, and Chapter 8 contains an analysis of characteristics of affected communities relevant to the evaluation of impacts of the alternatives. The preferred alternatives would modify bluefin quota category fishery regulations in a manner that increases fishermen's access to target species while minimizing impacts to incidentally caught species (including bluefin for the pelagic longline fishery). Other preferred alternatives include providing flexibility in light of changing conditions in the fishery (*see* National Standard 6 discussion, above). Because the preferred alternatives optimize quota allocation and increase flexibility for fishermen, beneficial social and economic impacts are likely for many communities including Barnegat Light, NJ, Dulac, LA, Wanchese, NC, Chatham, MA, New Bedford, MA, Gloucester, MA, Ocean City, MD, Fort Pierce, FL, Fairhaven, MA, Beaufort, NC, and Islip, NY.

National Standard 9 states that conservation and management measures shall, to the extent practicable, minimize bycatch, and to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch.

The 2006 Consolidated HMS FMP and its amendments and implementing regulations include conservation and management measures that, to the extent practicable, minimize bycatch and bycatch mortality, consistent with National Standard 9 and its guidelines (§ 600.350). The preferred alternatives are also consistent with those requirements.

The preferred IBQ Program alternatives would address incidental catch of bluefin tuna by pelagic longline vessels through annual, vessel-level allocations and continuing existing regulations regarding accountability, reporting and monitoring of bluefin catch. Preferred Alternative B3 would maintain current limits on the amount of bluefin that could be incidentally caught in the Gulf of Mexico, but provide flexibility to reduce the limit if warranted due to changes in the fishery or relevant best available scientific information, in order to maintain an effective cap on the amount of bluefin caught in the Gulf of Mexico (the recognized primary spawning grounds for western Atlantic bluefin tuna). In addition to bluefin incidental catch, these alternatives minimize, to the extent practicable, bycatch and bycatch mortality, as they provide for control of fishing activity consistent with science-based quotas through vessel-level accountability. The preferred Longline category alternatives are not expected to have impacts on other Atlantic HMS or protected species, as described in Chapter 4, and bycatch would continue to be minimized under existing regulations. The preferred alternatives for the General, Harpoon, and Angling categories are likewise not expected to affect protected species or bycatch of Atlantic HMS. As explained in Chapter 3, Harpoon gear is very selective, and the bycatch by other handgear used in the fishery such as rod and reel is minimized through various techniques (e.g., gear restrictions such as hook type, education, handling restrictions). In addition, discontinuing the Purse Seine category under preferred Alternative F3 would eliminate any bycatch associated with purse seine gear.

To put the Amendment 13 Preferred Alternatives in context, methods employed to reduce bycatch and bycatch mortality in the Atlantic HMS fisheries have been implemented continuously over time and are comprehensively described in the SAFE Report, published annually by the HMS Management Division. As examples, Final Amendment 5b (NOAA Fisheries 2017) and Amendment 11 to the 2006 Consolidated Atlantic HMS FMP (NOAA Fisheries 2018) explicitly addressed methods to reduce bycatch and bycatch mortality of specific sharks that are caught in Atlantic HMS fisheries. Furthermore, NOAA Fisheries continues to review data in order to continue reducing bycatch and bycatch mortality.

The 2006 Consolidated Atlantic HMS FMP and subsequent amendments provide standardized bycatch reporting methodologies (SBRM), and NOAA Fisheries summarizes and reviews these SBRMs annually in its SAFE Report, specifying the required procedures that constitute the standardized reporting methodology for each Atlantic HMS fishery. On January 19, 2017, NOAA Fisheries published final guidance on the requirements and implementation of standardized bycatch reporting methodologies (SBRM) in all fisheries managed under the Magnuson-Stevens Act (82 FR 6317, codified at 50 C.F.R. § 600.1610 *et seq.*). For Atlantic HMS fisheries, NOAA Fisheries undertook this review through Amendment 12 to the 2006 Consolidated Atlantic HMS FMP (86 FR 46836, August 20, 2021), which, among other things, reviewed and made updates to Atlantic HMS fishery SBRM. For a description of gear-specific SBRM for Atlantic HMS fisheries, see Section 2.3 of Final Amendment 12 (Amendment 12 to the 2006 Consolidated HMS Fishery Management Plan).

National Standard 10 states that conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The preferred alternatives in the document are consistent with National Standard 10 and its guidelines (§ 600.355). No impact to safety of life at sea is anticipated to result from these preferred alternatives. The preferred alternatives would not require fishermen to travel greater distances, fish in bad weather, or otherwise fish in an unsafe manner. Safety concerns raised with regard to Alternative Suites E3 (Electronic Monitoring) and I1 (Harpoon gear use) are acknowledged and addressed in Section 4 and responses to public comments.

9.1.2 Consideration of Section 304(g) Measures

Section 304(g) of the Magnuson-Stevens Act sets forth requirements specific to the preparation and implementation of an FMP or FMP amendment for HMS. See 16 U.S.C. 1854(g) for full text. The summary of the requirements of Section 304(g) and an explanation of how NOAA Fisheries is consistent with these requirements are below. The impacts of the preferred alternatives, and how they meet these requirements are described in more detail in Chapters 2 and 4 of this document.

Consult with and consider the views of affected Councils, Commissioners, and advisory groups

On May 21, 2019, NOAA Fisheries published a Notice of Intent to prepare an environmental impact analysis and Notice of Availability of an Issues and Options document for Amendment 13 (84 FR) 23020. NOAA Fisheries requested comments on the Notice of Intent and the management options described in the Issues and Options Paper and other potential regulatory provisions regarding the bluefin directed fisheries and incidental pelagic longline fishery. NOAA Fisheries held 11 public scoping meetings and consulted with the New England Fishery Management Council. The Gulf of Mexico Fishery Management Council, the South Atlantic Fishery Management Council, and the Mid-Atlantic Fishery Management Council were informed of the scoping process and provided with relevant information. The scoping public comment period ended July 31, 2019. Written comments received on the issues and options paper and presentation during the scoping meetings and at HMS Advisory Panel meetings were considered when preparing the DEIS.

On May 21, 2021, NOAA Fisheries published a proposed rule for Amendment 13 (86 FR 27686), accepting public comments through July 20, 2021. On July 20, 2021, based on public requests, including the HMS Advisory Panel, NOAA Fisheries extended the public comment period through September 20, 2021 (86 FR 38262). NOAA Fisheries briefed the Mid-Atlantic Fishery Management Council, the Gulf of Mexico Fishery Management Council, and the New England Fishery Management Council, and held three public hearing webinars. NOAA Fisheries accepted comments on Amendment 13 from the HMS Advisory Panel at its spring and fall 2021 meetings.

Establish an advisory panel for each FMP

As part of the 2006 Consolidated HMS FMP, NOAA Fisheries combined the Atlantic Billfish and HMS Advisory Panels into one panel. The combined HMS Advisory Panel provides representation from the commercial and recreational fishing industry, academia, non-governmental organizations, state representatives, representatives from the Regional Fishery Management Councils, and the Atlantic and Gulf States Marine Fisheries Commissions. NOAA Fisheries discussed the Issues and Options Paper for this amendment, as well as comments received during scoping, at the September 2018, May 2019, and September 2019 meetings. NOAA Fisheries discussed the proposed Amendment 13 management measures at the HMS Advisory Panel's spring and fall 2021 meetings.

Evaluate the likely effects, if any, of conservation and management measures on participants in the affected fisheries and minimize, to the extent practicable, any disadvantage to U.S. fishermen in relation to foreign competitors

Throughout this document, NOAA Fisheries has described the effects of the management measures and any impacts on U.S. fishermen. The preferred alternatives in this document are intended to manage Atlantic HMS resources, focusing on bluefin, in a manner that maximizes resource sustainability and fishing opportunity, while minimizing, to the greatest extent possible, the socioeconomic impacts on affected fisheries, and are not expected to disadvantage U.S. fishermen in relation to foreign competitors.

With respect to HMS for which the United States is authorized to harvest an allocation, quota, or fishing mortality level under a relevant international fishery agreement, provide fishing vessels with a reasonable opportunity to harvest such allocation, quota, or at such fishing mortality level

The United States is under an international agreement regarding the harvest of bluefin, the main species addressed in this amendment. The preferred alternatives address the objectives regarding optimizing allocation of U.S. bluefin quota among bluefin quota categories. For the Longline category, the preferred alternatives would further enable vessels to fish for target species while maintaining incentives to avoid bluefin and accounting for incidental bluefin catch. The preferred reallocation alternatives provide a reasonable opportunity for the directed bluefin categories to harvest bluefin quota.

Review on a continuing basis, and revise as appropriate, the conservation and management measures included in the FMP

NOAA Fisheries continues to review the need for any revisions to the existing regulations for Atlantic HMS fisheries, including through the Three-Year Review and annual SAFE Report.

Diligently pursue, through international entities, comparable international fishery management measures with respect to HMS

NOAA Fisheries continues to work with ICCAT and other international entities as relevant. To the extent that some of the management measures in this amendment could enhance

fishery management in other countries, NOAA Fisheries works to provide foreign nations with the techniques and scientific knowledge to implement similar management measures.

Ensure that conservation and management measures under this subsection:

1. ***Promote international conservation of the affected fishery;***
2. ***Take into consideration traditional fishing patterns of fishing vessels of the United States and the operating requirements of the fisheries;***
3. ***Are fair and equitable in allocating fishing privileges among United States fishermen and do not have economic allocation as the sole purpose; and***
4. ***Promote, to the extent practicable, implementation of scientific research programs that include the tagging and release of Atlantic HMS***

Amendment 13 would addresses these requirements as follows:

1. The preferred alternatives would promote the sustained international conservation of the bluefin fisheries as well as other HMS fisheries by providing for a more robust U.S. quota system with reduced management uncertainty.
2. The traditional patterns of fishing vessels have been taken into consideration through the design of the alternatives, which reflect the unique historical and regulatory circumstances and operating requirements affecting each permit category; and by examining the economic impacts on the different categories.
3. The preferred alternatives that would allocate fishing privileges among U.S. fishermen are fair and equitable, as explained above in this section (National Standard 4), and as explained and analyzed in previous chapters of this document.
4. NOAA Fisheries has a number of Atlantic HMS scientific research programs in place including tagging and release projects. The preferred alternatives would not directly implement or establish any new scientific programs, however, these actions would not impact existing programs either.

9.1.3 Essential Fish Habitat (EFH)

Section 303(a)(7) of the Magnuson-Stevens Act requires FMPs and their amendments to describe and identify EFH, minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat. The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The process of complying with the EFH provisions of the Magnuson-Stevens Act may include EFH consultations with NOAA Fisheries habitat experts. The area affected by this action has been identified as essential fish habitat (EFH) for species managed by the New England Fishery Management Council, Mid-Atlantic Fishery Management Council, South Atlantic Fishery Management Council, Gulf of Mexico Fishery Management Council, the Caribbean Fishery Management Council, and the HMS Management Division of NOAA Fisheries. In Amendment 10 to the 2006 Consolidated HMS FMP, NOAA Fisheries reviewed the various gear types with the potential to affect EFH and, based on the best available information, NOAA Fisheries determined that ecological impacts to EFH due to this action would likely be neutral. Amendment 10 to the 2006 Consolidated HMS FMP found that pelagic longline

and rod and reel gear does not typically interact with the sea floor; therefore, this gear type is unlikely to adversely affect EFH. This action in the context of the fishery as a whole will not have an adverse impact on EFH; therefore, an EFH consultation is not required. NOAA Fisheries will initiate the 5-Year review of Atlantic HMS essential fish habitat in 2022.

9.2 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act is to reduce the total amount of paperwork burden the federal government imposes on private businesses and citizens. The Paperwork Reduction Act imposes procedural requirements on agencies that wish to collect information from the public. Two of the preferred alternatives would have new reporting requirements subject to the Paperwork Reduction Act. Vessels issued an Atlantic Tunas Longline category permit fishing with green-stick gear would need to have a VMS unit and report bluefin interactions with such gear, via VMS. It is not likely that any vessels would need to install a VMS unit pursuant to this measure, but vessels would have a slight increase in reporting burden if they interact with bluefin. This reporting requirement is within the scope of an existing approved Paperwork Reduction Act (OMB Control No. 0648-0372). Secondly, pelagic longline vessels landing bluefin would be subject to a requirement to create an account with pay.gov in order to comply with cost recovery requirements. A new Paperwork Reduction Act submission and approval is pending.

9.3 Coastal Zone Management Act (CZMA)

NOAA Fisheries has determined that this action is consistent to the maximum extent practicable with the enforceable policies of the approved coastal management program of each state along the Atlantic coast, Gulf of Mexico, and the Caribbean Sea. This determination was submitted for review by the responsible state agencies on May 21, 2021, under section 307 of the CZMA. All entities notified either concurred with the consistency determination or did not respond, so consistency is inferred.

9.4 Environmental Justice

Executive Order 12898 requires agencies to identify and address disproportionately high and adverse environmental effects of its regulations on minority and low-income populations. To determine whether environmental justice concerns exist, the demographics of the affected area should be examined to ascertain whether minority populations and low-income populations are present. If so, a determination must be made as to whether implementation of the alternatives may cause disproportionately high and adverse human health or environmental effects on these populations.

Community profile information is available in the 2006 Consolidated HMS FMP (Chapter 9), a report by MRAG Americas, Inc., and Jepson (2008) titled “Updated Profiles for HMS

Dependent Fishing Communities" (Appendix E of Amendment 2 to the 2006 Consolidated HMS FMP), and in the 2015 HMS SAFE Report (NMFS 2015). The MRAG report updated community profiles presented in the 2006 Consolidated Atlantic HMS FMP, and provided new social impacts assessments for HMS fishing communities along the Atlantic and Gulf of Mexico coasts. The 2011 and 2012 SAFE Reports (NMFS 2011 and NMFS 2012) include updated census data for all coastal Atlantic states, and some selected communities that are known centers of HMS fishing, processing or dealer activity. Demographic data indicate that coastal counties with fishing communities are variable in terms of social indicators like income, employment, and race and ethnic composition.

The preferred alternatives were selected to minimize ecological and economic impacts and provide for the sustained participation of fishing communities. The preferred alternatives would not have any effects on human health nor are they expected to have any disproportionate social or economic effects on minority and low-income communities.

9.5 Endangered Species Act

The Endangered Species Act (ESA) is designed to protect critically imperiled species from extinction. NOAA Fisheries has detailed procedures to comply with the ESA, which may include formal consultations with agency experts. NOAA Fisheries has preliminarily determined that fishing activities pursuant to the preferred alternatives will not affect endangered and threatened species or critical habitat. This action would adjust the methodology for allocating IBQ shares in the pelagic longline fishery, and terminate the Purse Seine category and redistribute its quota to handgear fisheries and the Reserve category. None of these measures are expected to result in any increase in interactions with endangered or threatened species or critical habitat in a manner not considered through existing consultations.

On May 15, 2020, NOAA Fisheries issued a Biological Opinion (BiOp) completing consultation under section 7 of the ESA on the effects of the operation of the pelagic longline fishery for Atlantic HMS, carried out under the 2006 Consolidated HMS FMP, as amended. This BiOp analyzed the best available data, the status of the species, environmental baseline, effects of the proposed action, and cumulative effects. The BiOp concluded that the proposed action (the operation of the Pelagic Longline Fishery for Atlantic Highly Migratory Species (HMS), as managed under the FMP), was not likely to jeopardize the continued existence of the following ESA-listed species or distinct population segments (DPSs): sperm whales; the Northwest Atlantic DPS of loggerhead, Kemp's ridley, the North and South Atlantic DPSs of green, leatherback, hawksbill, or olive ridley sea turtles; giant manta ray; the Central and Southwest Atlantic DPS of scalloped hammerhead shark; and oceanic whitetip shark. Since no critical habitat will be adversely affected, the BiOp also concluded the action is not likely to destroy or adversely modify designated critical habitat.

Under Section 7(b)(4) and Section 7(o)(2) of the ESA, "take" that would otherwise be considered prohibited under Section 9 or Section 4(d) of the ESA, but which is incidental to

and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the reasonable and prudent measures (RPMs) and the terms and conditions of the incidental take statement (ITS) of the Opinion. The BiOp determined that RPMs were necessary or appropriate to minimize the impacts of future takes on sea turtles and other ESA-listed species and to monitor levels of incidental take. There were two RPMs in the BiOp and multiple terms and conditions associated with each. These RPMs are described in Section 3.4 of this document.

NOAA Fisheries also released a BiOp for all Atlantic HMS fisheries except pelagic longline, which stated that these fisheries (including handgear fisheries) are not likely to jeopardize the continued existence of listed species of sea turtles, sawfish, Atlantic sturgeon, scalloped hammerhead shark (Caribbean and Central Atlantic DPS), oceanic whitetip shark, and giant manta ray. NOAA Fisheries is implementing the Reasonable and Prudent Measures (RPMs) and Terms and Conditions of this e 2020 BiOp also (for Atlantic HMS fisheries Except Pelagic Longline).

The consultation history under Section 7 is found in the 2020 SAFE Report and relevant Biological Opinions.

9.6 Marine Mammal Protection Act

The Marine Mammal Protection Act prohibits the taking and exploitation of any marine mammals without appropriate authorization. The Act mandates that all commercial fisheries be classified by the level of incidental marine mammal death and serious injury. The List of Fisheries (LOF) puts each fishery into one of three categories: 1) Frequent incidental death or serious injury of marine mammals; 2) Occasional incidental death or serious injury of marine mammals; and 3) Remote likelihood of/no known incidental death or serious injury of marine mammals. The classification of a fishery on the LOF determines whether participants in that fishery are subject to certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan (TRP) requirements.

The LOF for 2020 (85 FR 21079, April 16, 2020) lists the pelagic longline fishery as a Category I fishery, with the high likelihood of serious injury or mortality to marine mammals. NOAA Fisheries has implemented management measures imposing restrictions on fishing activities to minimize bycatch of marine mammals (e.g., limited access permits, time/area closures, circle hook requirements, bait restrictions, careful release protocols, VMS requirements, authorized gears, and attendance at Protected Species Safe Handling, Release, and Identification workshops). In addition, once adopted and implemented, any relevant measures would be subject to all requirements of the Pelagic Longline Take Reduction Plan (74 FR 23349, May 19, 2009). The TRP management measures were established to reduce serious injury and mortality of long-finned and short-finned pilot whales, and Risso's dolphins in the U.S. East Coast Atlantic pelagic longline fishery, and include a requirement to post a marine mammal handling placard, restrict pelagic longline mainline length to 20 nm in the Mid-Atlantic Bight area, and develop observer and research participation requirements to operate in the Cape Hatteras Special Research Area. On

December 15, 2020, a proposed rule published that would modify the TRP (85 FR 81168). The proposed rule would (1) remove the Cape Hatteras Special Research Area and its special observer and research participation requirements; (2) modify the mainline length requirements to limit total length of active gear in the water and reduce soak times associated with pelagic longline sets that have multiple mainlines; and (3) implement terminal gear (hook and gangion) requirements in order to make the hooks the weakest part of the terminal gear (so that the hooks straighten before the gangion breaks). Comments were accepted until February 16, 2021. The final rule implementing these changes is pending.

Bycatch and bycatch mortality with commercial handgear is considered to be low, particularly for harpoons, which are thrown at individual fish determined by the fisherman to be greater than the minimum commercial size. Bycatch of other species in the harpoon fishery is expected to be virtually, if not totally, nonexistent. Hook-and-line and harpoon gear are classified as Category III fisheries under the MMPA. Strict control and operations of these fishing gears means these gear types are not likely to result in mortality or serious injury of marine mammals or sea turtles.

The DEIS analyzed all the alternatives and determined that the preferred alternatives for pelagic longline gear would not have additional, detrimental effect on marine mammals beyond the effects of actions previously analyzed in the 2006 Consolidated HMS FMP and its amendments and addressed through current action.

9.7 Executive Order 12866

Pursuant to the procedures established to implement section 6 of Executive Order 12866, the Office of Management and Budget has determined that this action is not significant.

9.8 Executive Order 13132

Executive Order 13132 requires consideration of conditions under which Federal rules may have implication on States (i.e., “Federalism Implications”). Amendment 7 would not have federalism implications sufficient to warrant preparation of a Federalism Assessment under E.O. 13132.

9.9 Information Quality Act

The Information Quality Act requires federal government agencies to employ sound science in making regulations and disseminating information. It also provides a mechanism for people to challenge government information they believe to be inaccurate. Pursuant to Section 515 of Public Law 106-554 (Information Quality Act), this information product has undergone a pre-dissemination review by the HMS Management Division of the Office of Sustainable Fisheries on March 23, 2021.

9.10 National Environmental Policy Act

The National Environmental Policy Act (NEPA) provides a mechanism for identifying and evaluating the full spectrum of environmental issues associated with federal actions, and for considering a reasonable range of alternatives to avoid or minimize adverse environmental impacts. The DEIS was submitted to the Environmental Protection Agency on May 14, 2021, which published a Notice of Availability (86 FR 27593, May 21, 2021). This FEIS is designed to meet the requirements of both the Magnuson-Stevens Act and NEPA. The Council on Environmental Quality (CEQ) has issued regulations specifying the requirements for NEPA documents (40 CFR 1500 – 1508) and National Oceanic and Atmospheric Administration's (NOAA's) policy and procedures for NEPA are found in NOAA Administrative Order 216-6A and its companion manual. The required elements of an Environmental Impact Statement Assessment (EIS) are specified in 40 CFR 1508.9(b) and NAO 216-6A Section 6. They are included in this document.

9.11 Administrative Procedure Act

Section 553 of the Administrative Procedure Act establishes procedural requirements applicable to informal rulemaking by Federal agencies. The purpose of these requirements is to ensure public access to the Federal rulemaking process, and to give the public adequate notice and opportunity for comment. A proposed rule was published on May 21, 2021 (86 FR 27686), with an initial public comment period that ended on July 20, 2021. Based on requests from the public, on July 20, 2021 the public comment was extended through September 20, 2021 (86 FR 38262) to provide additional time for the public to consider and comment on the proposed measures and DEIS. A final rule for Amendment 13 will be issued consistent with the APA.

9.12 Regulatory Flexibility Act

The purpose of the Regulatory Flexibility Act (RFA) is to reduce the impacts of burdensome regulations and recordkeeping requirements on small businesses. To achieve this goal, the RFA requires Federal agencies to describe and analyze the effects of proposed regulations, and possible alternatives, on small business entities. To this end, this document contains a Final Regulatory Flexibility Analysis (*see* Section 7), which includes an assessment of the effects that the preferred and other alternatives would likely have on small entities.

9.13 References

MRAG, Americas, Inc., and M. Jepson. 2008. Updated Profiles for HMS Dependent Fishing Communities: Social Impact Assessment Services for HMS Fishing Communities. Solicitation Number: DG133F06RQ0381, 84 pp.

NMFS. 2006. Final Consolidated Atlantic Highly Migratory Species Fishery Management Plan. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD. Public Document. pp. 1600.

NMFS. 2008. Final Amendment 2 to the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks, and Highly Migratory. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NMFS. 2011. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2011. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 294 pp.

NMFS. 2012. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2012. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 203 pp.

NMFS. 2015. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2015. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 185 pp.

NMFS. 2017. Regulatory Amendment 5b to the 2006 HMS FMP: Atlantic Shark Management Measures, February 2017. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 471 pp.

NMFS. 2018. Amendment 11 to the 2006 HMS FMP. December 2018. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 267 pp.

NMFS. 2019. Three-Year Review of the Individual Bluefin Quota Program. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD.

NMFS. 2020. 2019 Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 273 pp.

NOAA. 2016. Administrative Order 216-6A. NOAA Administrative Order Series. Compliance with the National Environmental Policy Act.

NOAA. 2017. Policy and Procedures for Complying with National Environmental Policy Act and Related Authorities. Companion Manual for NOAA Administrative Order 216-6A.

10 List of Preparers

The development of this action involved input from many people within NOAA Fisheries, NOAA Fisheries contractors, and input from public, constituent groups, and the HMS Advisory Panel. Staff and contractors from the HMS Management Division, in alphabetical order, who worked on this document include:

- Nicolas Alvarado, Fishery Management Specialist
- Heather Baertlein, Data Management Specialist
- Randy Blankinship, Division Chief
- Karyl Brewster-Geisz, Branch Chief (Regulations)
- Craig Cockrell, Fish Biologist
- Peter Cooper, Branch Chief (Operations)
- Jennifer Cudney, Fish Biologist
- Joseph Desfosse, Fishery Management Specialist
- Benjamin Duffin, Statistician
- Steve Durkee, Fishery Management Specialist
- Brad McHale, Branch Chief (Fisheries Reporting and Monitoring)
- Sarah McLaughlin, Management and Program Analyst
- Ian Miller, Fishery Management Specialist
- Larry Redd, Jr., Fishery Management Specialist
- George Silva, Fishery Economist
- Noah Silverman, Acting Branch Chief
- Carrie Soltanoff, Fishery Management Specialist
- Dianne Stephan, Fishery Management Specialist
- Nicholas Velseboer, Data Analyst
- Thomas Warren, Fishery Management Specialist

10.1 List of Agencies, Organizations, and Persons Consulted; Recipients of DEIS

Under 304(g)(1)(A) of the Magnuson-Stevens Fishery Conservation and Management Act, NOAA Fisheries is required to consult and consider the comments and views of affected Fishery Management Councils, ICCAT Commissioners and advisory groups, and advisory panels established under 302(g) regarding amendments to an Atlantic HMS FMP. NOAA Fisheries provided documents for the Atlantic, Gulf, and Caribbean Fishery Management Councils, Gulf and Atlantic States Marine Fisheries Commissions, and the HMS Advisory Panel at various stages throughout the process. Hard copies were also provided to anyone who requested copies.

- The development of this document also involved considerable input from other staff members and Offices throughout NOAA including, but not limited to: Other Divisions within the Office of Sustainable Fisheries (Jennifer Wallace, Anjanette Riley, Kris Gamble, and Rey Marquez);
- NOAA General Counsel (Caroline Park, Loren Remsberg, and Megan Walline)
- NOAA Fisheries NEPA (Cristi Reid and Steve Leathery)
- Michelle McGregor, Fishery Economist, Pacific Islands Regional Office
- NOAA Fisheries Southeast Fisheries Science Center
- NOAA Fisheries Office of Science and Technology.

Comments on the proposed rule and the draft environmental impact statement were accepted for 121 days from the date of publication of the proposed rule in the *Federal Register*. The amendment was presented at two HMS Advisory Panel meetings and three regional fishery management council meetings, and several public webinars were held.

The *Federal Register* notice and the FEIS, and any necessary addenda will also be made available to the public via the HMS webpage located at: https://www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species.

List of Agencies, Organizations, and Persons to whom copies of this FEIS were sent:

Alabama Department of Conservation and Natural Resources
Connecticut Department of Energy and Environmental Protection (Land and Water Resources Division)
Delaware Department of Natural Resources and Environmental Control (Coastal Programs Department)
Florida Department of Environmental Protection (Office of Resilience and Coastal Protection)
Georgia Department of Natural Resources (Coastal Zone Management Program)
Highly Migratory Species Advisory Panel
Louisiana Department of Natural Resources (Office of Coastal Management)
Maine Department of Marine Resources (Maine Coastal Program)
Maryland Department of Natural Resources (Chesapeake and Coastal Service)
Massachusetts Executive Office of Environmental Affairs (Office of Coastal Zone Management)
Mississippi Department of Natural Resources (Mississippi Coastal Program)
New Hampshire Department of Environmental Services (New Hampshire Coastal Program)
New Jersey Department of Environmental Protection (Land use Management)
New York Department of State (Office of Planning, Development, and Community Infrastructure)
North Carolina Department of Environment and Natural Resources (Division of Coastal Management)
Puerto Rico Department of Environment and Natural Resources (Coastal Zone Management Program)

Rhode Island Coastal Resources Management Council
South Carolina Department of Health and Environmental Control (Office of Ocean and Coastal Resource Management)
Texas General Land Office (Coastal Resources Division)
U.S. Virgin Islands, Department of Planning and Natural Resources
Virginia Department of Environmental Quality (Virginia Coastal Program)

11Appendices

11.1 Appendix A: Summary of Comments from Public Comment Period

On May 21, 2021, NOAA Fisheries published a proposed rule (86 FR 27686) and a Notice of Availability of a DEIS (86 FR 27593) in the Federal Register. NOAA Fisheries requested comments on the proposed rule and DEIS, and set the end of the public comment period for July 20, 2021. In response to public request, the comment period was extended until September 20, 2021 (86 FR 38262). During the public comment period, NOAA Fisheries held six public hearings (webinars) and discussed the proposed rule and DEIS with the HMS Advisory Panel twice. In addition, NOAA Fisheries received 47 written comments. All of the comments received have been organized under the major alternatives listed in Chapter 2 of this document. Comments that are similar in nature have been combined into one description of the topic. All written comments received during the public comment period may be viewed at the Federal e-Rulemaking Portal (search for "NOAA-NMFS-2019-0042).

'A' Alternatives: Modifications to Individual Bluefin Quota (IBQ) Share Eligibility, Distribution and Allocation Methods

Comment 1:

NOAA Fisheries received many comments supporting the preferred alternative of replacing the current system of 136 shareholders with a dynamic system where, annually, permit holders of active vessels would be defined as shareholders. Pelagic longline industry groups that represent pelagic longline vessels, supported dynamic allocation, but had different opinions on whether pelagic longline sets or designated species landings should be the basis for IBQ shares. One commenter stated that the current shareholder system in place was punitive in that it provided more bluefin to vessels that had no interactions with bluefin and did not need bluefin quota. One commenter supported a dynamic system of determining shares, but was in favor of distributing IBQ shares and their associated allocations in equal amounts to active vessels.

Response:

NOAA Fisheries agrees that a dynamic determination of active shareholders would improve the distribution of shares among Atlantic Tunas Longline permit holders by more effectively putting shares where allocation is likely to be used. NOAA Fisheries also agrees that the current share system may be overly restrictive, and the distribution of allocations may not be aligned with the need for quota. Allocating catch shares based on historical catch, which is typical of many catch share programs, may have disadvantages or limited relevance when implemented in the context of a catch share program for incidentally caught species such as bluefin. In contrast, a dynamic share determination, which adapts to

changes in fishery participation over time, would better align shares with the need for IBQ allocation, would be perceived as fair, and would continue to provide incentives to reduce incidental catch of bluefin. The relatively small amount of IBQ allocation that shareholders would be distributed and the requirement that all bluefin landings and dead discards be accounted for using IBQ allocation, would continue to provide strong incentives for vessels to modify their fishing behavior to avoid and reduce interactions with bluefin. Based in part on public comment, NOAA Fisheries has determined that a dynamic determination of shares based on sets would address the objective of providing shares only to vessels that have recently fished. NOAA Fisheries' response to comments regarding the elements and details of a dynamic system are contained in the responses to comments 2 through 5.

Comment 2:

Some commenters supported the use of designated species landings in general, but wanted to include dolphinfish (dolphin) as one of the species that count toward IBQ share determination, because of the importance of dolphin revenue, especially during May. Other commenters noted the exclusion of dolphin as one of the various reasons they did not support the use of designated species landings as the relevant metric upon which to base IBQ shares. They also commented that any species landed by the fleet should be considered as a designated species in the method of share determination. For example it was noted that traditionally, shortfin mako has been a target species and therefore the landings should be credited to fishermen. Some commenters noted the importance of all species landed to the economic viability of the fishery, given the variable nature of species available to the fishery.

Response:

NOAA Fisheries agrees that dolphin is an economically important component of pelagic longline fishery landings, especially during certain time periods. NOAA Fisheries did not propose inclusion of dolphin in the list of designated species (for the purpose of share determination) because dolphin comprises a relatively low portion of the total pelagic longline landings. Additionally, because of differences in management and data reporting due to the fact that dolphin is not managed under the 2006 Consolidated HMS FMP, it would be difficult for NOAA Fisheries to compile and analyze the dolphin data annually in an accurate and timely manner. As explained further in the response to comment 3, NOAA Fisheries is no longer preferring basing shares on designated species landings. In defining designated species, NOAA Fisheries intended to create a standardized list of a limited number of target species that would be used as a metric of fishing effort in the annual determination of IBQ shares, and as such the availability and timeliness of data was a relevant factor. NOAA Fisheries agrees that the pelagic longline fishery is a fishery that relies on many species for its revenue, due to the diversity of the fleet and the dynamic, migratory nature of the species it lands.

Comment 3:

NOAA Fisheries received a number of comments regarding the best method of determining shares (i.e., based on hooks, sets, landing, or equal shares). An organization representing pelagic longline businesses stated that determining IBQ shares using designated species landings would incentivize vessels to retain smaller fish or juvenile fish, which they currently release, to enhance the total weight of landings. Vessels would be incentivized to land all swordfish or tunas that come to the vessel, rather than releasing lower quality fish or lower value small fish. Further they stated that landings are not a standardized metric due to differences among pelagic longline vessels in fishing strategy and skill level, and due to landings being driven by prices and dealer demands. A different organization representing pelagic longline businesses supported using designated species landings as reasonable because of the logical relationship between fishing effort, amount of landings and need for IBQ allocation. One commenter stated that basing shares on landings is not fair because vessels have varied capacities for holding fish. NOAA Fisheries received multiple comments stating that NOAA Fisheries should prefer dynamic determination of IBQ shares based on pelagic longline sets because sets are a more reliable measure of the need for IBQ shares. Some commenters supported the use of sets, but suggested that only one set per day be allowed to count toward the determination of shares, because vessels might set multiple sets per day for the sole purpose of influencing their IBQ share percentage. One commenter supported dividing up shares equally among active vessels. NOAA Fisheries received multiple comments that the method used to determine IBQ shares is not a conservation issue and that NOAA Fisheries should follow the industry's recommendations for efficient IBQ share distribution.

Response:

NOAA Fisheries acknowledges that each of the methods analyzed for determining IBQ shares annually (hooks, sets, landings, or equal shares) has strengths and weaknesses. Given the diversity of the fleet and the highly variable and migratory nature of bluefin, it is difficult to precisely align the distribution of IBQ shares among vessels with the need for IBQ shares. Although a commenter supported the use of equal shares as a method of distributing shares among active vessels, most commenters supported basing shares on a metric that reflects fishing effort. NOAA Fisheries agrees with using fishing effort as the basis for determining IBQ shares, given that bluefin is an incidentally caught species, and there is a relationship between the amount of fishing effort and the number of bluefin a vessel is likely to encounter (and the need to account for bluefin using IBQ allocation). While Draft Amendment 13 preferred using designated species landings to determine IBQ shares, in Final Amendment 13, NOAA Fisheries is preferring determining IBQ shares based on the number of pelagic longline sets. The pelagic longline fleet is geographically diverse and includes a range of vessel sizes and fishing strategies. Using a metric of one set (a single deployment and retrieval of pelagic longline gear) per day provides a standardized, uniform method of determining IBQ shares and addresses the concern that a vessel operator might deploy speculative, short sets for the purpose of inflating the IBQ share determination. NOAA Fisheries can determine the number of sets annually, in a timely manner, using a single data source (VMS or logbooks) and, if necessary, verify the accuracy of the reported data using electronic monitoring (EM) data. A majority of active shareholders would have a larger share percentage under dynamic determination of shares

based on sets than they would under the current system (No Action). In selecting the final preferred alternative, NOAA Fisheries took into consideration public comments, which included different industry recommendations on the method to be applied; how the method of share distribution will influence various aspects of the IBQ Program, such as the IBQ allocation leasing market, vessel incentives to avoid bluefin, and the ability for vessels to account for bluefin catch; and ecological, economic and social impacts. NOAA Fisheries believes that the preferred alternative is reasonably calculated to promote conservation, because it encourages a rational, well-managed use of fishery resources through a reasonable a balanced allocation approach.

Comment 4:

NOAA Fisheries received multiple comments that quartiles or tiers should not be used to determine IBQ shares, and instead custom IBQ share percentages should be given based on vessel fishing effort. As proposed, some shareholders would have shares that are either larger or smaller than the shares percentage corresponding directly to the number of sets. Commenters stated that due to the differences in the share percentage between adjacent tiers, vessel operators may increase fishing effort for the sole reason of subsequently being put in the next higher tier and increasing their share percentage. They stated that a small amount of additional effort can have a disproportionate impact on the IBQ share a vessel receives, since moving from one quartile to the next higher quartile (tier) results in a large increase in IBQ allocation received (in lb). Commenters also stated that the quartile system is unnecessarily complex. NOAA Fisheries received comments in support of providing each active vessel at least a minimum amount of IBQ share that would allow them to depart on a fishing trip.

Response:

NOAA Fisheries agrees that tiers based on quartiles (which were preferred in the DEIS), should not be included in the share determination methods for the reasons noted by the commenters, and would instead implement 'customized' shares based on the number of pelagic longline sets in proportion to the total number of sets fleet-wide. Basically, this eliminates a step in the process and shares would correspond more directly to effort. Although NOAA Fisheries proposed using tiers in order to eliminate shares with either a very high or very low percentage, NOAA Fisheries agrees that 'customized' shares are simpler, and more equitable than the use of tiers. Using customized shares, no shareholder would receive a share larger or smaller than that which corresponds directly to the number of sets made by the vessel (during the relevant three-year period). NOAA Fisheries disagrees that each active vessel should receive a minimum percentage that would allow them to depart on a fishing trip. Under the current regulations, before departing on the first fishing trip in a calendar year quarter, a vessel with an eligible Atlantic Tunas Longline category permit that fishes with or has pelagic longline gear onboard must have the minimum IBQ allocation for either the Gulf of Mexico or Atlantic, depending on fishing location. Under a customized share determination method, vessels with a low number of sets may receive a share percentage that results in an IBQ allocation of less than the minimum IBQ allocation required to depart on a fishing trip. While understanding the logic

of the commenter's suggestions to implement a minimum share, NOAA Fisheries disagrees that it is warranted because it would complicate the determination of shares and would be inconsistent with the reasons for implementing customized shares. Adjustment of the lowest shares upward would erode the equitable nature of customized share determination. The shares that are adjusted upward would no longer represent the vessels' number of sets and all of the other shares would need to be adjusted downward slightly to derive the shares used to increase the size of the smallest shares. Vessels that receive a share that is smaller than the minimum IBQ allocation required can lease additional allocation in order to fish.

Comment 5:

NOAA Fisheries received a comment that the location and time of year of fishing activity should be taken into account when determining IBQ shares. The commenter stated that some fishing locations and times are not associated with interacting with bluefin, for example, in the Carolinas during August and September or in the Caribbean throughout the year. Two commenters supported maintaining the current regulations that include any data associated with fishing in the Northeast Distant Gear Restricted Area (NED) as part of formulas that determine IBQ shares, and maintaining the current IBQ catch accounting rules for fishing in the NED. One commenter did not support inclusion of trips in the NED, but suggested instead a complex system of rules for how such trips would factor into the determination of IBQ shares. Another commenter suggested that NOAA Fisheries analyze the impact of dynamic determination of IBQ shares based upon designated species landings as the measure of fishing effort on leasing of IBQ allocation.

Response:

NOAA Fisheries disagrees that the location and time of year of fishing activity should be taken into account when determining IBQ shares. Although the abundance and distribution of bluefin are associated with particular geographic regions and seasons, taking into account patterns of bluefin availability would increase the complexity of the share determination, and may not result in a distribution of shares among vessels that aligns with the need for bluefin allocation. The pelagic longline fishery is dynamic, mobile, and adaptive, with some vessels opportunistically targeting multiple species over wide geographic areas. Inclusion of all fishing activity as the basis of allocation formulas increases fishing opportunity and flexibility for vessels to fish in multiple areas, as conditions warrant. The NED fishery is an intermittent fishery with only a few participating vessels and does not warrant the development of different allocation rules. NED accounting rules take into account the fact that a binding ICCAT recommendation specifies a separate 25-mt bluefin quota to account for bycatch from the NED. Exclusion of NED fishing activity from data used to determine shares may affect profitability of vessel operations or incentives to fish in the NED, and affect fishing for target species. Unless clearly warranted, constraints on fishing for target species are not desirable. Under current regulations, any pelagic longline vessel may fish in the NED. NOAA Fisheries analyzed the impacts of dynamic determination of IBQ shares and concluded it would enhance the continued success of the IBQ allocation leasing program by the distribution of shares to active vessels.

All active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Sixty-one of the 91 active vessels would have larger IBQ allocations than they would under the current static determination of IBQ shares.

Comment 6:

NOAA Fisheries received multiple comments expressing concern that the preferred alternative for determining IBQ shares would not facilitate new entrants joining the pelagic longline fishery, as it would be difficult for new entrants to lease IBQ allocation from active vessels and to increase that amount of IBQ share over time.

Response:

NOAA Fisheries has concluded that the determination of IBQ shares based on vessel sets will enhance the continued success of the IBQ allocation leasing market, and therefore IBQ allocation will be available to new entrants to the fishery that do not have IBQ shares at the time of entry into the fishery. Under dynamic share determination, a new entrant to the fishery would need to lease IBQ allocation during the first year of their participation in the pelagic longline fishery. During the second year of participation, the vessel's share percentage would be based on the number of pelagic longline sets relative to the total fishery (during the previous three years). Since 2015 there have been participants in the fishery that were not shareholders, who have relied on leased IBQ allocations from shareholders in order to fish and account for bluefin catch. In light of public comment though, Amendment 13 adds to the framework provisions of the 2006 Consolidated HMS FMP the authority to set aside a *de minimis* amount of IBQ allocation for new entrants. Neither the Amendment 13 DEIS nor the FEIS analyzes a full set-aside program. Amendment 13 simply provides for the potential development of such a program in the future, if necessary, should the dynamic allocation provisions finalized in this action not facilitate new entrants. If that case, NOAA Fisheries would conduct rulemaking to set the precise amount of set-aside, and the requirements, process, and conditions associated with distributing IBQ allocation to new entrants.

'B' Alternatives: Modifications to Rules Closely Linked to IBQ Allocations

Comment 7:

NOAA Fisheries received comments in support of the preferred alternative to determine regional designations of IBQ shares and allocations on an annual basis as part of the annual dynamic allocation process. They indicated that the preferred alternative would allow more flexibility for vessels to fish in the Gulf of Mexico without needing to lease Gulf of Mexico designated IBQ (GOM IBQ) IBQ allocation. The need to lease IBQ allocation was particularly frustrating when vessels had to lease from vessels that were not actively fishing, but simply leasing their IBQ allocation to active vessels.

Response:

NOAA Fisheries agrees that the preferred alternative, which modifies the regional designations so that they are dynamic, would provide additional flexibility for vessels that are interested in fishing in the Gulf of Mexico. A vessel without any GOM IBQ shares during a particular year would need to lease GOM IBQ allocation to fish in the Gulf of Mexico that year, but in the subsequent year, in the context of the dynamic determination of IBQ shares, the vessels would have GOM IBQ shares in proportion to the number of pelagic longline sets in the Gulf of Mexico.

Comment 8:

NOAA Fisheries received a number of comments that did not support the preferred alternative to determine regional designations of IBQ shares and allocations on an annual basis as part of the annual dynamic allocation process. One commenter instead supported Alternative B2, which would remove regional designations altogether but retain the catch cap. Another commenter stated that the regional designations are an unnecessary barrier, an unjustified cost, and an impediment to attaining optimum yield in the fishery. Further, they stated that the preferred alternative did not provide a reasonable opportunity to catch the quota. A commenter stated that constraints in the Gulf of Mexico are not needed because the IBQ Program constrains the impacts of the fishery on bluefin. One commenter was concerned that, in the context of dynamic shares and regional designations, the potential for declining effort in the Gulf of Mexico could result in a low percentage of GOM IBQ shares that could severely limit the operation of the fishery. For example, a reduction in either the number of vessels fishing in the Gulf of Mexico, or reduction in the amount of fishing effort per vessel (or both) would result in a reduction in the amount of GOM designated shares (and IBQ allocation).

Response:

NOAA Fisheries disagrees that the preferred alternative for regional designations would represent an unwarranted barrier or cost to fishing, or that IBQ Program constraints for the Gulf of Mexico are unnecessary. The regional designation rules provide a balance between the need to cap bluefin catch in the Gulf of Mexico, provide equitable fishing opportunities, and modulate pelagic longline fishing effort in the Gulf of Mexico. The Amendment 7 IBQ Program rules as modified by Amendment 13 are intended to address the fact that the Gulf of Mexico is the recognized spawning ground for western Atlantic bluefin tuna. Under Amendment 13, a vessel without GOM designated IBQ shares, but fishing in the Gulf of Mexico would be required to lease GOM IBQ allocation during the first year of fishing in the Gulf of Mexico. However, in the following year the vessel would have GOM designated IBQ shares in proportion to the number of pelagic longline sets in the Gulf of Mexico. Over time, a vessel with increasing levels of fishing effort in the Gulf of Mexico would receive an increasing percentage of GOM designated IBQ shares. This method is a reasonable means of providing opportunities to fish in the Gulf of Mexico, while supporting the objectives of the regional designations. NOAA Fisheries agrees that under dynamic determination of shares and regional designations, there could be a situation of reduced fishing effort and low GOM designated shares. Under conditions of low GOM shares and allocation, vessels with GOM IBQ shares may be reluctant to lease IBQ allocation to others.

If unable to lease GOM IBQ allocation, prospective new entrants to the fishery (without any shares), or vessels with only Atlantic (ATL) designated shares, would be unable to meet the minimum IBQ allocation requirement, and thus be unable to fish in the Gulf of Mexico. Similarly, vessels with GOM designated IBQ shares may be unable to account for bluefin catch. Such serious constraints could result in poor function or disruption of the IBQ Program, and result in further declines in fishing effort or participation in the pelagic longline fishery, or prevent increases in fishing effort or participation. To address this, the preferred alternative in this Final Amendment 13/FEIS includes a GOM designated share percentage threshold. If the total amount of IBQ shares designated as GOM is five percent or less of the total IBQ allocations (ATL plus GOM designated shares), the requirement to account for bluefin caught in the Gulf of Mexico with GOM IBQ allocation, and use GOM IBQ allocation to satisfy the minimum IBQ allocation requirement would not apply. In other words, any vessel would be able to use GOM IBQ *or* ATL IBQ allocation to either account for bluefin catch (landings or dead discards) or satisfy the minimum requirements for IBQ allocation in the Gulf of Mexico. When this low share threshold provision is in effect, the maximum allowable bluefin catch from the Gulf of Mexico will be the weight of bluefin associated with the cap on GOM designated shares (i.e., the default level of 35 percent, or lower if modified). If this level of bluefin catch (landings and dead discards) were reached in the Gulf of Mexico, NOAA Fisheries would prohibit vessels from fishing with pelagic longline gear in the Gulf of Mexico for the remainder of that year.

Comment 9:

NOAA Fisheries received comments inquiring whether modifications to regional IBQ share designations would impact catch rates of bluefin in the Gulf of Mexico or impact the bluefin stock since spawning adults are found in the Gulf of Mexico.

Response:

Amendment 7 established the 35 percent GOM/65 percent ATL regional designation approach for IBQ shares and allocations, in light of the fact that the Gulf of Mexico is recognized as the primary spawning ground for the western Atlantic bluefin tuna stock. Given the annual, dynamic determination of IBQ shares under Amendment 13 and inherent variability in the pelagic longline fishery (see response to comment 5), NOAA Fisheries anticipates that catch rates of bluefin in the Gulf of Mexico could vary from year to year. However, NOAA Fisheries does not anticipate that the regional designation approach, as modified under Amendment 13, will result in an increase in incidental catch of bluefin in the Gulf of Mexico above levels of such catch since 2015. To ensure continued protections in the spawning grounds, NOAA Fisheries would establish a default cap (35 percent of total IBQ shares) on the maximum amount of bluefin that may be caught in the Gulf of Mexico, which could be adjusted downward to achieve conservation and management objectives per the criteria under § 635.27(a)(8). *See* response to comment 10 for further explanation. Further, when the low GOM share threshold provision is in effect, the maximum allowable bluefin catch from the Gulf of Mexico will be the weight of bluefin associated with the cap on GOM designated shares (i.e., the default level of 35 percent, or lower if NOAA Fisheries modifies the level consistent with other provisions in this Amendment). If this level of

bluefin catch (landings and dead discards) were reached in the Gulf of Mexico, NOAA Fisheries would prohibit vessels from fishing with pelagic longline gear in the Gulf of Mexico for the remainder of that year. The net ecological impact of the Amendment 13 measures on bluefin in the Gulf of Mexico is thus neutral.

Comment 10:

NOAA Fisheries received comments suggesting reduction of the cap on bluefin catch from the Gulf of Mexico from 35 percent to 25 percent due to the regulations not allowing targeted fishing for bluefin in the Gulf of Mexico. Another commenter suggested allowing the use of ATL designated IBQ allocation during the second half of the year.

Response:

NOAA Fisheries does not believe that a 25-percent cap on GOM-designated IBQ shares is needed to protect bluefin in the Gulf of Mexico. Under Amendment 13, the amount of bluefin incidental catch in the Gulf of Mexico would continue to be capped at a default level of 35 percent of total pelagic longline bluefin catch. The total amount of GOM-designated IBQ shares could be even less than 35 percent, as NOAA Fisheries will annually calculate the total amount (not to exceed 35 percent) based on the percentage of pelagic longline sets sets in the GOM compared to total sets (using the most recent, three-year period for which NOAA Fisheries has information). Moreover, if NOAA Fisheries determines that a downward adjustment is needed to achieve conservation and management objectives, it may reduce the maximum amount of bluefin that can be caught in the Gulf of Mexico, based on the determination criteria at § 635.27(a)(8).

There has not been a change in the status of the stock (no overfishing, overfished status unknown), and based on a 2021 stock assessment, ICCAT adopted a moderate increase in the western Atlantic bluefin total allowable catch. *See* 87 FR 12648, March 7, 2022 (proposed rule on Atlantic Bluefin Tuna and Northern Albacore Tuna Quotas). In addition, there has been no increase in fishing effort in the Gulf of Mexico, no increase in catch of bluefin from the Gulf of Mexico, nor other change in the fishery that would support consideration of a more conservative default cap level. As noted above, Amendment 13 would authorize NOAA Fisheries to reduce the cap, if necessary, for conservation and management reasons. NOAA Fisheries disagrees that allowing the use of ATL designated IBQ allocation during the second half of the year is a practical means of providing flexibility in the fishery. The regional designation rules provide adequate flexibility and a reasonable opportunity to fish in the Gulf of Mexico, while limiting the amount of potential bluefin incidental catch. Furthermore, a mid-year change to accounting rules would be impractical to administer in the Catch Shares Online System, the database accessible by dealers and vessel owners, which tracks bluefin catch and implements the relevant accounting rules.

'C' Alternatives: Sale of IBQ Shares

Comment 11:

NOAA Fisheries received several comments in support of the preferred no action alternative, under which the sale of IBQ shares would continue to be prohibited.

Response:

NOAA Fisheries agrees that the sale of IBQ shares should continue to be prohibited. NOAA Fisheries has not observed a need for Atlantic Tunas Longline permit holders to accumulate IBQ shares through purchase. For most shareholders, annual allocations combined with a minimal amount of leasing is likely to be sufficient for them to account for incidental bluefin catch. Additional rationale for preferring this alternative is in Chapter 2 of this document.

'D' Alternatives: Cap on IBQ Shareholder Percentage or IBQ Allocation Use

Comment 12:

NOAA Fisheries received several comments in support of the preferred alternative to cap the accumulated sum of IBQ shares at 25 percent.

Response:

NOAA Fisheries agrees that it is appropriate to cap the amount of shares an entity may hold or acquire at 25 percent of the total shares. The Magnuson-Stevens Act requires that NOAA Fisheries must ensure that limited access privilege permit holders do not acquire an excessive share of the total limited access privileges.

Comment 13:

A pelagic longline association supported the preferred alternative to maintain the current regulations that do not limit the amount of IBQ allocation a vessel may lease, based on the rationale in the DEIS.

Response:

NOAA Fisheries agrees that there should be no cap on the amount of IBQ allocation a vessel may lease. Long-term control of IBQ allocation by a single entity through leasing is not possible, because leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year. The most likely reason a vessel might need to lease a large amount of IBQ allocation would be to account for an unusually large incidental catch of bluefin, which is consistent with the objectives of the IBQ Program. The limited amount of IBQ allocation available through annual distribution to shareholders, and the limited amount of IBQ allocation available via leasing (as well as the associated costs), provide strong incentives to avoid bluefin. Furthermore, there are other potential challenges associated with the incidental catch of bluefin by pelagic longline vessels including bluefin weighing down longline gear (which typically catch lighter species) and bluefin market limitations and volatility. Provided the IBQ Program continues to function in a manner consistent with its objectives, with individual vessel accountability for bluefin catch and incentives to reduce

interactions with bluefin, there is no need for a cap on the amount of IBQ allocation that may be leased. During development of Final Amendment 13, NOAA Fisheries became aware of concerns regarding recent, high bluefin landings by a small number of vessels. NOAA Fisheries considers this to be an unusual event and not reflective of how the Program has functioned overall. A high bluefin landings event is unusual, and the risk of such an event will likely continue to be rare under Amendment 13.

Comment 14:

Several commenters supported simplification of the dealer reporting requirements for the IBQ Program. A pelagic longline association stated that removal of the bluefin dead discard reporting and personal identification number (PIN) requirements would lead to more timely reporting and better data. One commenter expressed the opinion that the passwords associated with the Catch Shares Online System were too complex and had to be changed too often.

Response:

NOAA Fisheries agrees that the removal of the bluefin dead discard reporting and PIN requirements will streamline the dealer reporting requirements. NOAA Fisheries did not propose or analyze any changes to the password requirements associated with the Catch Shares Online System. Passwords are required elements of computer systems to maintain a high level of data integrity and security.

'E' Alternatives: Adjustments to Other Aspects of the IBQ Program

Comment 15:

NOAA Fisheries received comments in support of the preferred alternative that would require vessels to mail in their electronic monitoring (EM) hard drives after every two trips instead of after each trip, because it would reduce the burdens associated with the requirement to mail hard drives. NOAA Fisheries received a comment stating that NOAA Fisheries should implement flexibility in the EM regulations regarding the method of transferring data to the Agency, in order to allow the EM Program to evolve with changing technology without needing further rulemaking.

Response:

NOAA Fisheries agrees that this requirement to reduce the frequency of mailing hard drives to the third-party contractor would reduce the amount of time and costs required of vessel operators as associated with the EM Program. NOAA Fisheries continually seeks to make its regulations more efficient and flexible, consistent with statutory requirements.

Comment 16:

NOAA Fisheries received comments that regulations for installation of EM cameras should not be expanded due to safety concerns with the installation of booms. Some commenters

expressed support or conditional support for mounting one of the video cameras on a boom or telescoping device to obtain a better view of bycatch events as gear is removed from the water. Some commenters said that deployment of booms could be done in a manner that addresses safety concerns, provided NOAA Fisheries works closely with the individual vessel owners/operators to minimize the chances of the boom interfering with any of the vessel operations. Two commenters supported revising EM regulations to improve vessel-level accountability by making the EM Program more robust.

Response:

In 2015, the final rule for Amendment 7 authorized NOAA Fisheries to "require vessel owners to make minor modifications to vessel equipment to facilitate installation and operation of the EM system," including "a mounting structure(s) for installation of the camera(s)" (§ 635.9(b)(2)). Preferred Sub-Alternative E3b would clarify that NOAA Fisheries may require vessel owners to install permanent or semi-permanent hardware (e.g., booms), if necessary, in order to mount and install video cameras at locations on vessels to obtain optimal views of fish and improve the accuracy of the resulting data. Not all vessels may need additional hardware. If needed, NOAA Fisheries would coordinate closely with vessel operators to address any vessel operation or safety concerns, taking into consideration the unique layout and operation of each vessel. A description of the boom configuration would be included in each vessel's Vessel Monitoring Plan, which is a customized description of the specifics of the EM components on each vessel. In addition to the safety aspect of installation, the vessel owner would have substantial input regarding the type and amount of materials used, because they would be paying for the installation. In Draft Amendment 13, NOAA Fisheries stated that it would pay the costs of boom installation as funds are available. At this time, appropriated funds are not available, thus, if additional hardware is needed, vessel owners would be required to cover the costs of the hardware and installation. The final video camera position would need to provide an optimal view of the area of the water surface and seaward of the rail, down to the water surface, where the gear and fish are hauled out of the water, while minimizing potential safety hazards and interference with vessel operations. The process of camera installation would include discussion with vessel owners/operators and looking at current or historical video footage of the views provided by the video camera. NOAA Fisheries agrees that improvement of the elements of the EM Program may contribute to the continued success of the IBQ Program and vessel-level accountability.

Comment 17:

NOAA Fisheries received comments that additional fish handling protocols for EM should not be specified and that a measuring grid on the deck of the vessel is not needed. Some commenters were concerned that a measuring mat would be hazardous or difficult to secure, or that a painted grid would be impractical because decks are routinely resurfaced. Two commenters, including the EPA, supported the proposed expansion of EM requirements to improve vessel-level accountability. Two commenters supported the preferred alternative provided the grids accommodate individual vessel configurations and maintain safety.

Response:

NOAA Fisheries believes that additional fish handling protocols that incorporate a measuring grid (Preferred Sub-Alternative E4b) are necessary in order to improve the data quality. The vessel crew would be required to place retained fish on a mat with grid lines or a grid painted on deck in view of the processing camera, so the video recording includes images of the fish. The use of a standardized grid would enable the video analyst to have a size reference to aid in the estimation of fish size and determination of fish species. For example, the total length of a fish and the relative size of the pectoral fin are some of the characteristics used in species identification. With the use of a reference grid, size estimation would be less affected by camera placement and angle, and the estimation of size and species identification may be improved. Further, a standardized reference grid may facilitate the development and use of computer algorithms and automation of video analysis. NOAA Fisheries will work with vessel owners/operators to install a measuring grid that, to the extent practicable, accommodates the unique layout and operations of each fishing vessel. A description of the measuring grid would be included in each vessel's Vessel Monitoring Plan, which is a customized description of the specifics of the EM components on each vessel. NOAA Fisheries changed its approach from Draft Amendment 13/DEIS, which stated that NOAA Fisheries would pay the costs of grid installation as funds are available. At this time, appropriated funds are not available and we are now requiring vessel owners to cover the cost of grid installation.

Comment 18:

NOAA Fisheries received a comment about the reasons for the proposed changes to the EM Program, and questioning whether the Program has been successful in corroborating the set-based self-reporting of bluefin catch.

Response:

Under the EM Program, NOAA Fisheries has been successful in corroborating set-based self-reported bluefin catch. NOAA released the Three-Year Review of the IBQ Program in 2019, which provides detailed information on the EM Program (NMFS 2019). VMS and EM data from 2015 through 2018 indicated that a high percentage of sets with bluefin catch reported via VMS that were audited by review of EM footage were confirmed. Likewise, a high percentage of sets that did not report bluefin catch via VMS did not show bluefin catch in audited EM footage. (Table 6.35 in Three-Year Review of the IBQ Program). Unpublished data from 2019 show a similarly high level of agreement between VMS reports and EM footage. Thus, there is high confidence in EM data on the number of retained fish when compared to VMS data; however, the EM data have relatively high variability in size estimation compared to self-reported data. In addition, the EM data on bluefin discards are less likely to match the VMS data due to discard events that occur outside the camera's field of view. Thus, NOAA Fisheries is finalizing Preferred Sub-Alternatives E3b and E4b to improve data quality, as explained in response to comments 16 and 17.

Comment 19:

NOAA Fisheries received a comment questioning whether the proposed cost recovery program is consistent with other cost recovery programs administered by NOAA Fisheries. Another commenter did not support implementation of a cost recovery program, because of the numerous reporting and monitoring costs that the pelagic longline fishery already incurs, and stated that Congress, in the Magnuson-Steven Act, did not envision cost recovery for an incidental species.

Response:

NOAA Fisheries developed the IBQ cost recovery program in consultation with NOAA Fisheries staff from other regions with cost recovery programs for limited access privilege programs (LAPP). Differences among cost recovery programs reflect the unique aspects of each fishery managed under a LAPP, consistent with relevant Magnuson-Stevens Act requirements (16 U.S.C. §§ 1853a(e) and 1854(d)(2)). The IBQ Program is unique, because bluefin is an incidental catch and not a targeted species. Typically, cost recovery programs recover agency costs based on revenue from catch of target species managed under the LAPP. Consistent with other cost recovery programs, in the IBQ program, a fee would not exceed three percent of the ex-vessel value of fish harvested under the LAPP (bluefin). *See id.* § 1854(d)(2)(B). Because bluefin is an incidental species in the pelagic longline fishery, and the IBQ Program provides incentives to reduce interactions with bluefin, landings of bluefin are likely to remain low relative to targeted species. Given the relatively small total ex-vessel value of bluefin incidentally caught and landed by pelagic longline vessels, and the substantial incremental costs to NOAA Fisheries associated with the IBQ Program, NOAA Fisheries anticipates that the likely cost recovery fee would be three percent of the ex-vessel value of bluefin sold (or less). As such, three percent of the ex-vessel value of bluefin will likely be a small amount of recoverable costs compared to other cost recovery programs. Therefore, Amendment 13 would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by permit holders participating in the IBQ Program is warranted. If the total fees that could be collected are similar to or less than the administrative costs of the cost recovery program, no cost recovery fee would be collected.

'F' Alternatives: Purse Seine Category and Quota Allocation Process

Comment 20:

Several commenters supported the preferred alternative to change the method of allocating bluefin quota among the quota categories to simplify the process. Two of the commenters stated that the proposed measure would not result in any net gains for the fishery and one commenter noted it was procedural in nature.

Response:

NOAA Fisheries agrees that the preferred alternative to change the mathematical method used in the annual quota allocation process to achieve a similar result through a simpler means is procedural in nature and would not meaningfully impact the net amount of bluefin quota allocated to the quota categories. Instead of a two-step process of subtracting

the 68 mt from the U.S. baseline quota and then applying the category allocation percentages, there would be a one-step process applying slightly revised category allocation percentages.

Comment 21:

NOAA Fisheries received many comments in support of the preferred alternative to discontinue the Purse Seine category and reallocate the bluefin quota upon implementation of Amendment 13. Commenters were in agreement with the underlying logic that the purse seine fishery has not been active for many years and that bluefin quota is needed by the other bluefin quota categories that are actively fishing. Furthermore, commenters thought that Purse Seine category participants who are not fishing should not be able to continue to profit by leasing bluefin quota to Atlantic Tunas Longline permit holders.

Response:

NOAA Fisheries agrees that the discontinuation of the Purse Seine category is warranted. The Purse Seine category has been allocated approximately 18 percent of the U.S. baseline bluefin quota. Discontinuation of the Purse Seine category and reallocation of its quota would provide additional quota to active fishing categories that are, at times, quota-limited, and increase the likelihood that more of the U.S. quota will be utilized. Bluefin quota allocated to the Purse Seine category has not been used in many years to harvest bluefin using purse seine gear, and a meaningful amount of that quota has not been leased to pelagic longline vessels. *See* response to comment 24 for further details. Quota that is allocated to Purse Seine category participants and then not used is a source of concern to participants of both the directed and incidental bluefin fisheries, who, as a result, may forego potential fishing opportunities. Reallocation of the Purse Seine category quota would also reduce various types of uncertainty that result from the inactive status of the Purse Seine category (see comment 23).

Comment 22:

NOAA Fisheries received comments opposed to the preferred alternative, because it does not reallocate Purse Seine category bluefin quota to the Longline category and would affect IBQ leasing. Commenters noted that pelagic longline vessels have depended on leasing currently available Purse Seine category quota to account for bluefin catch under the IBQ Program, and that Purse Seine category quota provides a safety net in case of unexpected bluefin catch. A pelagic longline association representative stressed the reliance of pelagic longline fishermen on leasing Purse Seine category quota, and stated that the IBQ Program would cease to function without that leasing opportunity. The representative stated that, in recent years, the agency has consistently reallocated 75 percent of the Purse Seine category quota to other categories, leaving 25 percent (4.4 percent of the U.S. baseline quota) available for leasing. Given that, 25 percent of the Purse Seine category quota should be reallocated to the Longline category. The State of Maryland's Department of Natural Resources supported including the Longline category in the reallocation due to their reliance on such quota for leasing. Another commenter stated that the increased IBQ

allocation to many active pelagic longline vessels under the preferred IBQ share alternative would not make up for the loss of quota currently available from the Purse Seine category. Other commenters did not think that excluding the Longline category from the proposed reallocation was fair and equitable. One commenter said that an adequate amount of bluefin quota for pelagic longline vessels was very important due to a decrease in the bluefin market and revenue and the relative increase in the cost of leasing bluefin.

Response:

NOAA Fisheries agrees that pelagic longline vessels have depended on bluefin quota that they lease from Purse Seine category participants to fish under the restrictions of the IBQ Program. IBQ Program participants require adequate IBQ allocation in order to meet the accounting requirements, participate in the leasing market, and mitigate risk. Adequate IBQ allocation is important to achieve a balance between incentives to reduce bluefin interactions and the ability to fish for target species to maintain profitability and supply the seafood market. In Draft Amendment 13/DEIS, NOAA Fisheries had preferred the alternative that did not reallocate bluefin quota from the Purse Seine category to the Longline category. After considering public comment, NOAA Fisheries re-analyzed data regarding the leasing program and concluded that the Longline category should receive reallocated Purse Seine category quota in order to increase the likelihood of maintaining a successful IBQ allocation leasing market in the future, including new entrants. As shown in Figure 4.10 of this Final Amendment 13/FEIS, pelagic longline vessels have been increasingly reliant on both the available Purse Seine category quota and inactive pelagic longline vessels as sources for bluefin quota leases. Therefore, NOAA Fisheries now prefers Sub-Alternative F3a, which reallocates the Purse Seine category quota to all of the other bluefin quota categories, in proportion to their baseline allocation percentages.

This alternative facilitates directed fishing by the Longline category while accounting for incidental bluefin catch and facilitates the ability for active HMS directed permit categories to catch their full bluefin allocations. Based on the current U.S. baseline quota, the Longline category would receive more quota (34.9 mt) under Sub-Alternative F3a than the average amount of Purse Seine leases from 2016 through 2019 (23.9 mt). Given recent lease amounts, NOAA Fisheries does not believe that reallocation of 25 percent of the Purse Seine category quota (54.88 mt) is needed, in order to promote the effective functioning of the IBQ program. Moreover, leasing was not the reason for why Amendment 7 adopted the annual quota allocation mechanism that guaranteed that a minimum of 25 percent of the Purse Seine category quota would be available to the five historical participants. *See* response to comment 24 for more on the mechanism. Under Amendment 7 rules, annual allocations to the Purse Seine category are are not based on IBQ leasing, but on the previous year's bluefin catch by each individual purse seine vessel, as the intent of the mechanism is to encourage purse seine vessels to catch rather than lease quota. *See* Final Amendment 7 to the 2006 Consolidated HMS FMP at 23-24 (explaining preferred Alternative A3a: Annual Reallocation of Bluefin Quota from Purse Seine Category).

Comment 23:

NOAA Fisheries received comments that supported maintaining the current status of the Purse Seine category and the associated quota rules under which, in recent years, 75 percent of the Purse Seine category quota has been reallocated annually to the Reserve category, and subsequently reallocated to the directed bluefin fishing quota categories. The commenters' view was that the current system of annual redistribution, which relies on the inactive status of the purse seine fishery, works well to meet the needs of the directed bluefin fisheries.

Response:

NOAA Fisheries agrees that there have been benefits for the directed categories due to the lack of purse seine vessels fishing activity and the annual Purse Seine category quota allocation mechanism under the Amendment 7 regulations. Notwithstanding these benefits, there has also been uncertainty each year about the amount of quota that will be in the Reserve category, the amount of quota that NOAA Fisheries may transfer inseason from the Reserve category to other quota categories, and the timing of such potential transfers. These sources of uncertainty make it difficult for vessel owners to plan their fishing season and may create market uncertainty. Lastly, there is an administrative burden for NOAA Fisheries associated with conducting inseason transfers. Reallocation of bluefin quota from the Purse Seine category would result in increases in the relative sizes of all of the remaining quota categories, larger baseline quotas, reduced uncertainties, and efficiencies in the management process by reducing the number of inseason actions.

Comment 24:

NOAA Fisheries received comments from a business that currently owns vessels that previously fished in the purse seine fishery that they do not support discontinuation of the Purse Seine category because the revenue from leasing bluefin quota contributes to the financial well-being of their company. They consider the business entities that lease Purse Seine category quota to pelagic longline vessels to be 'active', and stated that the proposed measures would render their vessels and permits worthless. One commenter felt that the purse seine fishery should be able to become active again if it wishes, because the purse seine fishery is currently inactive due to high regulatory burdens.

Response:

Since 1982, the Purse Seine category has been managed with non-transferrable limited entry permits, and limited to five participants who historically were financially dependent on the fishery. None of those participants uses purse seine gear any longer, nor have they recently. Although they continue to receive quota and may lease it, the current framework has inhibited maintaining and achieving, on a continuing basis, optimum yield in the fishery as a whole. Since Amendment 7 was implemented in 2015, 75% of Purse Seine category quota annually continues to not be used for bluefin fishing by purse seine vessels or not be available for leasing under the IBQ Program, and large amounts of quota are ultimately transferred to the Reserve category through an annual process. As a result, there is uncertainty each year about the timing and amount of quota to be transferred between the

Purse Seine and Reserve and other categories, administrative burden on NOAA Fisheries to administer the process, and uncertainty about the amount and price of bluefin quota that might be leased by Purse Seine participants.

Limited entry was initiated due to the large harvesting capacity of purse seine gear and its ability to exceed U.S. quotas in very short periods of time. Limited entry was implemented with the intent of ensuring that only those persons who had depended on this fishery for all or part of their livelihood were allowed access and this approach was practical given the small pool of ownership in this sector of the fishery. Under this limited entry system, the use of purse seine gear was authorized, and equal baseline quotas of bluefin were assigned to five individual vessel owners. This enabled owners to replace older vessels they owned with newer ones. Thus, NOAA Fisheries limited the purse seine fishery participation to only those historical purse seine vessels or their replacements. Although new entrants are prohibited, an owner of a vessel with an Atlantic Tunas permit in the Purse Seine category may transfer the permit to another purse seine vessel that he or she owns.

NOAA Fisheries does not consider the Purse Seine category to be currently active, even though some of the historical permit holders have been leasing bluefin quota to pelagic longline vessels as allowed under the Amendment 7 regulations (2015). Promoting commercial and recreational fishing under sound conservation and management principles and achieving, on a continuing basis, optimum yield from a fishery are key purposes of the MSA. From 2005 through 2012, there was no purse seine fishing activity. From 2013 through 2015, only one Purse Seine category participant fished, making only a few sets, and accounting for only a small percentage of total annual bluefin landings each year (six, five, and four percent in 2013, 2014, and 2015, respectively). Recognizing that there had been low (to no) fishing and consistent underutilization of the Purse Seine category quota, Amendment 7 established the annual allocation mechanism to, among other things, optimize the ability for all permit categories to harvest their full bluefin quota allocations. Under this mechanism, based on their prior year's catch, each of the five historical participants would receive a minimum of 25 percent of 1/5th of the Purse Seine category quota, even if they did not fish and up to 100 percent. The goal was to assure some level of fishing opportunity and create incentives for purse seine vessels to remain active in the fishery. *See* Final Amendment 7 to the 2006 Consolidated HMS FMP at 23-24. Since 2015, there has been no purse seine fishing activity. The historical participants sold the vessels that they used to fish for bluefin to new owners outside of those participants. Currently, there is no entity that fishes for bluefin with purse seine gear. Vessels sold by the historical permit holders have been or may be earning revenue in fisheries for species other than bluefin, and NOAA Fisheries did not receive public comment that indicates otherwise or that provides specific information related to impacts on permit values. NOAA Fisheries did analyze the effect of the amendment on harvesting privileges by estimating potential revenue loss from leasing bluefin quota and from potential future fishing/landings, and did not receive any public comments or new information since Draft Amendment 13/DEIS that is relevant to, or warrants a change in, these estimates. Even assuming the historical participants no longer obtain the financial benefits of leasing their quota, they have no property interest or other right to an ongoing income stream from those permits. Purse seine permits may not be assigned and are not transferable outside of the Purse Seine

category participants, and like any limited access privilege may be modified, suspended or revoked. In this instance, NOAA Fisheries has concluded that, in view of the long-term absence of active fishing, the elimination of the purse seine category will best contribute to achieving optimum yield and ensuring the greatest overall benefit to the nation.

Comment 25:

NOAA Fisheries received comments suggesting changes to the proposed distribution of reallocated Purse Seine category quota, including that no quota should be reallocated to the Angling category, additional quota going to the General category should be allocated to particular subquota periods, and more quota should be reallocated to the Harpoon category.

Response:

Quota categories are tightly associated with authorized gears and permit types. This structure based on gear and permit type remains a valid way to align quota distribution among diverse fisheries. Modifications to the relative size of the allocations (i.e., the percentages for each quota category) in order to further optimize the use of the bluefin resource should address specific concerns or trends in the fishery. There is no new scientific information or fishery trends that warranted fundamental reconsideration of the entire allocation structure beyond the alternatives examined in this Amendment. The preferred alternatives include modifications to the relative size of the category allocations (i.e., the percentages for each quota category) in order to streamline the allocation system, and further optimize the use of the bluefin resource through elimination of the Purse Seine category with redistribution to other categories. The fundamental sizes of the different quota categories in relation to each other was neither analyzed, nor changed. The scope and rationale for the allocation changes under consideration are consistent with NOAA Fisheries Procedural Directive 01-119-01 "Criteria for Initiating Fisheries Allocation Reviews", and the 2006 Consolidated HMS FMP. Additionally, NOAA Fisheries implemented Amendment 12 to the 2006 Consolidated HMS FMP (86 FR 46836, August 20, 2021), an amendment that, among other things, addresses the 2016 revised National Standard guidelines and the 2017 Fisheries Allocation Review Policy Directive 01-119. Amendment 12 established triggers for the review of allocations for quota-managed HMS species, and these factors were appropriately considered within the examined alternatives. NOAA Fisheries decided there was no need in Amendment 13 to consider fundamental changes to the baseline quota percentages (*see* Section 2.10.6), thus reallocating Purse Seine category quota in proportion to those percentages also seems reasonable.

Although the suggestions that the additional quota being reallocated from the Purse Seine category to the General category should be allocated to particular subquota periods was not within the scope of the action, the justifications cited by commenters for favoring one subquota period or another provided useful information for NOAA Fisheries' consideration of modifications to the General category subquota periods. Comments pertaining to the General category subquota periods or methods of allocating quota among the General category subquota periods are addressed in Comments 26 and 27.

'G' Alternatives: Modifications to General Category Subquota Periods and/or Allocations

Comment 26:

NOAA Fisheries received comments that opposed, or asked what the justification was for the preferred No Action alternative to maintain the current structure of the General category fishery time periods and associated subquotas. One commenter stated that current management of the General category favors participants early in the season versus the fall participants over the last several years. They further elaborated that the current fishery has evolved into a part-time fishery with many less experienced recent entrants to the fishery, and noted specific concerns such as poor quality fish landed. They suggested various requirements including: that General category vessels be required to show tax proof of their commercial status and abide by the relevant safety regulations; and that HMS Charter/Headboat vessels fishing under the General category quota verify that they take charter trips.

Response:

NOAA Fisheries agrees that the General category fishery has changed over time. Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the handgear fisheries that began prior to 2015 have continued. With such increases, there has been renewed public interest in the optimal and fair and equitable allocation of bluefin quota among seasons and geographic areas. These occurrences are the reason NOAA Fisheries considered changes to the General category fishery in this amendment. Notwithstanding these changes to the fishery, based on the analyses in Draft Amendment 13/DEIS and this Final Amendment 13/FEIS, NOAA Fisheries determined that the current structure of the fishery provides equitable fishing opportunities, as explained further in the response to Comment 27, and prefers the No Action alternative. The open access permit categories that allow the use of handgear to target bluefin commercially are intended to provide opportunities for a variety of participants. NOAA Fisheries acknowledges that among those participants there is likely to be a range in levels of experience and dependence upon the income derived from the fishery. There are licensing and safety regulations in place currently for the HMS Charter/Headboat and General category permitted vessels fishing commercially that do not apply to recreational vessels issued an HMS Angling permit.

Comment 27:

NOAA Fisheries received comments expressing concern with one or more of the alternatives analyzed but not preferred. A commenter stated that the alternative that would allocate the General category quota equally among 12 monthly subquota periods would benefit southern participants, but adversely affect finances and participation of northern participants. Commenters who are participants in the January through March fishery expressed interest in a larger January subquota to have more opportunity earlier in the season. A commenter did not support providing additional quota to the January

through March subquota period because it would mean taking away quota from the June through and August subquota period, during the time when there is the highest level of participation by fishermen north of Cape Cod. Similarly a commenter was concerned that the alternative that would extend the January through March subquota period through the end of April would represent a shift in catch and opportunity from north to south, and believed that it would result in negative economic consequences later in the year. A commenter was concerned about the alternative that would increase the September and October through November subquotas, with a corresponding decrease in the June through August subquota. They stated that the quota for the June through August subquota period has been exceeded in recent years and the fishery has been closed prior to August 31. They explained that the greatest fishing effort in terms of man-hours is during the June through August period, and that reducing the quota during this time period would represent a significant adverse impact on fishing opportunity. One commenter suggested that NOAA Fisheries should prioritize August General category fishing by creating a separate August subquota in order to maximize fishing opportunity and number of participants. The commenter stated that during August the greatest amount of bluefin availability coincides with the greatest amount of fishing effort. Other commenters who are participants in the October through November period or December period fisheries expressed concerns regarding the uncertainty of whether General category quota would remain for the times when commercial-sized bluefin are available in their areas. Some commenters preferred to see more opportunities available when market prices are generally higher, such as in the fall months. Several commenters noted that fall bluefin are the most valuable due to higher fat content and that providing more quota to June through August would increase landings of lower quality and lower value fish. Several commenters stated that commercial fishermen on Cape Cod and the islands of Martha's Vineyard and Nantucket depend on quality fish in the late fall. Allocating the additional quota for the fall would ensure that bluefin quota would last into the fall. Several commenters were concerned that, in recent years, some of the subquotas have been reached and the General category has been closed while fishing opportunities (i.e., fish availability) remained and meanwhile other subquotas are not reached. One commenter stated that NOAA Fisheries should create a separate November subquota period.

Response:

NOAA Fisheries acknowledges that there are varied views on how the General category could be modified. As noted by commenters, there are potential trade-offs associated with each of the alternatives analyzed, including the preferred alternative, depending upon the time of year or location being considered. The bluefin fishery is highly dynamic because bluefin are highly mobile, with a distribution that changes seasonally and annually. Fishing permits are open access, thus permit holders may fish in any geographic location they choose. Price fluctuations do not show a strong pattern during the year, despite perceptions that prices are higher in the fall. However, there are also predictable patterns in bluefin distribution that are reflected in the current structure of the General category subquota time periods. The larger quota associated with some subquota periods reflects the general seasonality, historical availability, and relative sizes of the historical seasonal fisheries for bluefin. NOAA Fisheries analyzed various quantitative metrics in Draft

Amendment 13/DEIS and this Final Amendment 13/FEIS to enable standardized comparisons among the different subquota periods and alternatives (e.g., Tables 4.32 through 4.40). Standardized metrics are used to compare among quota periods because the quota periods are allocated different amounts of bluefin, and are of different duration. After considering information from recent years, NOAA Fisheries believes that the subquotas continue to be appropriate, given fish availability, fishing effort, and bluefin landings during the different subquota time periods, and thus provide fair and equitable fishing opportunities.

It is important to note that the subquotas work in concert with several regulatory mechanisms that provide flexibility in how the amount of quota is divided among the subquota periods. NOAA Fisheries may transfer unused quota from one subquota period to a subsequent subquota period in the year such that the quota allocated to subquota periods may increase. Unused quota may, if remaining unused as the year progresses, all be transferred into the December subquota period. NOAA Fisheries may allocate quota from the December subquota period to the January through March subquota period, may allocate additional quota from the Reserve category, or may utilize changes in retention limits to modify the rate of catch to facilitate the attainment of subquotas and the annual quota.

In 2021, NOAA Fisheries resumed the use of restricted-fishing days to further facilitate the attainment of subquotas, and a schedule of restricted-fishing days has been proposed for 2022. The data from recent years suggest that the flexibility in the quota system provided by these regulatory mechanisms is working. Landings (as a percentage of quota) have been increasing in recent years. Subquota periods that have lower percentage allocations have not necessarily been limited by them. For example, during 2018 and 2019, landings during the January through March subquota period were 8 percent and 13 percent (respectively) of the total General category bluefin landings, despite that period having an initial allocation of 5.3 percent of the General category quota. Similarly, during 2018 and 2019, landings during the October through November subquota period were 18 percent and 22 percent of the total General category bluefin landings, despite that period having an initial allocation of 13 percent (Figure 3.3). Although the amount of bluefin quota in the Reserve category would be reduced under Amendment 13 as a result of the removal of the Purse Seine category, and the associated flexibility to transfer quota from the Reserve to the General category would be reduced, the General category would be allocated a larger portion of the U.S. bluefin quota. NOAA Fisheries will continue to monitor the General category carefully and make inseason adjustments per its regulations to facilitate a well-managed fishery that, among other things, provides equitable fishing opportunities.

'H' Alternatives: Modifications to the Angling Category Trophy Fishery

Comment 28:

NOAA Fisheries received comments in support of the preferred alternative to modify the current Angling category Trophy North subquota area by dividing the area into two zones (north and south of 42° North latitude (N. lat.), off Chatham, MA) and modify the allocation

percentages to provide opportunities for anglers fishing off New England and make the trophy fishery more equitable. One commenter noted that the Angling category boosts local economies through angler expenditures on boat fuel and fishing tackle. Two commenters were concerned that in order to create the new trophy suballocation for the Gulf of Maine trophy area, NOAA Fisheries would increase the Trophy bluefin allocation through an equivalent reduction of the subquota for large school/small medium bluefin subquota (bluefin that measure from 47 inches to less than 73 inches curved fork length (CFL)). They noted that the large school/small medium size class is an important component of the fishery. There were suggestions that NOAA Fisheries increase the quota allocation to the Angling category and to the trophy subquotas, particularly for New England and for the New York Bight.

Response:

NOAA Fisheries agrees that dividing the current Trophy North subquota area into two zones and providing allocation to the new area (Gulf of Maine) would make the fishery more equitable by providing a modest amount of trophy quota to anglers north of 42° N. lat. NOAA Fisheries agrees that the recreational HMS fishery is an important contributor to the economy. Under the preferred alternative, NOAA Fisheries would increase the portion of the Angling category quota allocated for trophy bluefin from 2.3 percent to 3.1 percent to provide quota to the new area. The source of that additional quota would be from the large school/small medium size range. Because the amount of school bluefin (27” - < 47”) that can be caught each year is limited in the codified regulations, and in compliance with ICCAT’s binding western Atlantic bluefin recommendation, to no more than 10 percent of the annual U.S. bluefin quota, any increase to the trophy subquota (73” or greater) would need to be balanced with an equivalent reduction of the subquota for large school/small medium bluefin subquota (47” - < 73”). NOAA Fisheries disagrees that the reduction in the relative amount of large school/small medium fish allocated would be problematic. There would be only a minor decrease in the amount of allocation for large school/small medium bluefin; the subquota would represent approximately 52 percent of the Angling category quota. In recent years, Angling category landings overall have averaged less than the Angling category quota, and in many years, landings of large school/small medium bluefin have averaged less than the available quota for those size classes. NOAA Fisheries disagrees that more quota should be allocated to the Angling category. In determining the scope of alternatives analyzed in Amendment 13, NOAA Fisheries decided not to consider making fundamental changes to the structure of the bluefin quota category allocations, as explained in response to Comment 25. The change to the structure of the Angling category trophy fishery is a relatively minor aspect of the recreational bluefin fishery. The primary intent of the recreational trophy allocation is to reduce discards of trophy bluefin, and not to support a directed fishery.

Comment 29:

NOAA Fisheries received several suggestions regarding the current geographic areas associated with the trophy fishery. There were suggestions to move the current Trophy North/South line from its current location in southern New Jersey (off Great Egg Inlet)

southward to Ocean City, Maryland, to create more opportunity for Maryland anglers, and to consider alternating the location of the line every other year. The Maryland Department of Natural Resources elaborated that they did not support any of the 'H' alternatives because they would continue to be inequitable to those fishing out of Ocean City, Maryland. They stated that Maryland is within the Trophy South area, but does not have access to the fish because the quota is caught (in areas to the south of Maryland) before the fish are accessible to Maryland. For this reason they felt the alternatives were not fair to anglers off of Maryland, Delaware, or southern New Jersey and, therefore, suggested moving the southern boundary of the Trophy North area southward to include Ocean City, Maryland. Another commenter suggested creation of another trophy geographic area and associated trophy subquota within the current Trophy South area, because the subquota is often filled off North Carolina and Virginia Beach, Virginia.

Response:

NOAA Fisheries disagrees that Amendment 13 should modify the southern boundary of the Trophy North area or create a new southern trophy area. In the past, the southern boundary of the Trophy North area was further to the south, and fishermen requested that NOAA Fisheries move the line to the north. Specifically, NOAA Fisheries implemented the boundary change from off Ocean City, Maryland to off Great Egg Inlet, New Jersey in a 2001 final rule, based on public comments, to reduce confusion regarding fishing areas and catch limits and to reduce the likelihood of vessels being excluded from participating in the trophy bluefin fishery (66 FR 42801, August 15, 2001). Given the highly dynamic nature of the fishery, there may be times during which a particular geographic area has less opportunity for trophy bluefin landings than during other times. Permit holders may fish for bluefin in any geographic location they choose, as long as they are fishing in an area that is open.

I Alternatives - Modifications to other Handgear Fishery Regulations

Comment 30:

Two commenters supported the alternative that would allow the use of harpoon gear by vessels issued an HMS Charter/Headboat permit, in order to provide flexibility and fishing opportunity. To address safety concerns, commenters suggested allowing only the vessel captain and crew – and not passengers – to use harpoon gear. Alternatively, the use of harpoon gear could be allowed on non-for-hire commercial trips only. Several commenters did not support prohibiting vessels with General category permits from using harpoon gear because landings in that permit category by harpoon gear were relatively low and therefore not a concern. Those commenters further noted that a prohibition on harpoon gear use by vessels in the General category would force vessels to obtain Harpoon category permits instead.

Response:

NOAA Fisheries disagrees that vessels fishing for bluefin issued an HMS Charter/Headboat permit should be allowed to fish with harpoon gear. In the 2008 rule on this subject, there

were public concerns about safety and the liability associated with allowing the use of harpoon gear on "for-hire-trips" (trips on which there are paying passengers aboard a vessel issued a Charter/Headboat permit, fishing under recreational rules). NOAA Fisheries does not believe that safety and liability concerns would be adequately addressed by limiting harpoon use only to the vessel captain and crew because such a restriction would be difficult to enforce, and charter clients are likely to include a variety of levels of boating and fishing experience. NOAA Fisheries also does not prefer allowing harpoon use on non-for-hire commercial trips, as there is adequate opportunity for vessels fishing commercially to utilize harpoon gear under the General or Harpoon category permits. NOAA Fisheries agrees that prohibiting General category permit holders from using harpoon gear is not necessary. Currently, both the General and Harpoon categories are authorized to use the gear, and bluefin landings by vessels using harpoon gear fishing in the General category comprise a relatively low percentage of the General category landings.

Comment 31:

Several commenters did not support the proposed measure to implement a retention limit for the Harpoon category. These commenters stated that it is important to maintain the ability to land as many fish per day as they can and that a retention limit hampers the ability to take advantage of the limited opportunities to catch bluefin during the window of time when bluefin are available to harpoon gear on the water's surface. The specific reasons the commenters did not support a retention limit varied and included: reliance by some participants on the fishery to make a living, the importance of being able to capitalize on good weather days to their overall business success, climate change reducing good weather fishing opportunities, and the need for the flexibility to catch many bluefin on a particular trip because on some days they will catch no fish. Some commenters stated that Harpoon category fishermen have shown the willingness and ability to voluntarily control catch based on market demand. One commenter said that the analysis should not rely on data from 2019 due to atypical high landings that year.

Response:

NOAA Fisheries agrees that some vessel owners rely on revenue from the Harpoon category fishery as part of their annual income, and that the opportunities to target bluefin using harpoon gear are limited by fish availability and weather. However, NOAA Fisheries disagrees that implementation of a retention limit on the total number of bluefin retained by vessels fishing in the Harpoon category would be problematic. A default trip limit set at 10 fish would likely constrain only a small percentage of trips, with the potential economic benefits of a longer season and/or associated extension of fishing opportunities to a greater number of Harpoon category participants. Furthermore, this alternative would allow NOAA Fisheries the ability to adjust the retention limit via inseason action to avoid closing the fishery. NOAA Fisheries closed the 2019 Harpoon category fishery effective August 8, 2019, when the adjusted quota of 91 mt was met; Harpoon landings for 2019 totaled approximately 102 mt (84 FR 39208, August 9, 2019). The determination that the retention limit is warranted does not rely solely on the presumption of high total landings (such as during 2019). The retention limit would be a useful management tool due to the

dynamic and diverse nature of the fishery. A retention limit of 10 bluefin may prevent a few vessels landing large numbers of bluefin from having a disproportionate impact on the rate of harvest of the limited quota, and reduce potential market issues associated with high landings during a short period of time.

Comment 32:

Several commenters did not support the preferred No Action alternative that would maintain the current Harpoon category start date of June 1, but instead supported the alternative that would move the start date earlier to May 1. They explained that bluefin, a cold water species, are no longer available at the surface to the harpoon fishery once surface waters warm during the summer. They state that in the past, bluefin remained at the surface in September and October, but recently are no longer on the surface by mid-August, and that given warmer surface temperatures associated with climate change, the harpoon season needs an earlier start date. Commenters indicated that bluefin migrate through southern New England in May and that a May 1 start date would allow opportunities for Harpoon category participants while minimizing potential gear conflicts or market competition with the General category. Some commenters supported the preferred No Action alternative to maintain the current June 1 Harpoon category fishery start date. They were concerned that an earlier opening date would result in earlier closure. They also noted concerns about equitable access to the fishery among different geographic regions (i.e., that an earlier start date would benefit participants in Southern New England to the detriment of northern participants, especially the traditional participants in Maine). One commenter also expressed concern about potential baiting activity behind fishing vessels using bottom trawls or dredges and the effect on early season surface accumulations of bluefin.

Response:

NOAA Fisheries disagrees that the current start of the Harpoon fishery should be moved from June 1 to May 1. Maintaining the current start date of June 1 for the Harpoon category, which coincides with the start date for the General category fishery, would facilitate enforcement and business planning, and provide greater certainty to participants regarding fishing opportunities and market conditions. Given the dynamic nature, geographic range, and diverse participants of the commercial handgear fishery for bluefin, maintaining the June 1 start date is likely to result in equitable fishing opportunities.

Comment 33:

Two commenters supported extending the ability for permit holders with an Atlantic Tunas permit in the General, Harpoon, or Trap category, or Atlantic HMS permit in the Angling or Charter/Headboat category, to change permit categories from within 45 days of purchase to the end of the fishing year as long as the vessel has not landed a bluefin.

Response:

NOAA Fisheries agrees that allowing applicants to change permit types as long as they had not landed a bluefin would give vessel owners more opportunity to change their permit type, and provide flexibility to account for mistakes made by permit applicants when choosing the permit type. Because vessels are not allowed to land bluefin in two quota categories within a fishing year, the restriction would still preclude vessels from gaining any sort of an advantage over vessels fishing under a single permit type within a fishing year.

General Comments on the IBQ Program and Pelagic Longline Fishery

Comment 34:

NOAA Fisheries received general comments regarding the current status of the pelagic longline fishery, as it relates to Amendment 13. The common themes of such comments were that the fishery is struggling and that it is very important to: maintain the viability of the fishery; fully utilize the U.S. swordfish quota; maintain domestic food production to decrease dependence on imports for national security; and have the United States continue to serve as a strong example internationally of a well-managed fishery. Commenters stated specifically that NOAA Fisheries needs to preserve the viability of the pelagic longline fishery by preserving its flexibility and allocating an adequate amount of IBQ allocation in order to account for sets with high bluefin catch and maintain opportunity to fish for swordfish and other target species. Commenters noted diverse challenges facing the industry including competition from imports, closed areas, declining participation, challenges for new entrants, the high cost of fishing gear, the cost of leasing IBQ allocation, a deterioration of the bluefin market, and difficulty in finding experienced, quality crew. One commenter stated that the proposed measures do not minimize the disadvantage to U.S. fishermen in relation to foreign competitors and do not minimize adverse social and economic impacts to the pelagic longline industry.

Response:

NOAA Fisheries agrees that the pelagic longline fishery faces numerous and serious challenges. The elements of Amendment 13 pertaining to the pelagic longline fishery focus on modifications to the IBQ Program to address some of the challenges. Amendment 13 would implement changes to the IBQ Program that would provide additional flexibility for the majority of pelagic longline vessels, including dynamic determination of IBQ shares, a more flexible means of regional designation of IBQ shares, and a low-share threshold in the Gulf of Mexico; an increase in the Longline category quota to 15.9 percent of the U.S. bluefin quota; and relaxing the requirement for mailing EM hard drives. Amendment 13 would also authorize the future development of a bluefin quota set-aside, if needed, for the pelagic longline fishery. The selection of preferred alternatives minimize the adverse social and economic impacts to the pelagic longline industry. NOAA Fisheries is open to future consideration of regulatory changes that would address other issues in the fishery, such as obtaining data from spatial management areas, and considering modifications to such areas to optimize the balance of protection of bycatch species and access to target species.

Comment 35:

NOAA fisheries received a comment from an environmental group that the reduction in bluefin bycatch under the IBQ Program has been a compelling success story, and that, since its implementation, the pelagic longline fishery has not exceeded its bluefin quota. One commenter stated that Amendment 13 would increase sustainability and transparency, and one commenter expressed appreciation for NOAA Fisheries' efforts to improve the pelagic longline fishery regulations.

Response:

NOAA Fisheries agrees that the IBQ Program has successfully reduced the incidental catch of bluefin substantially compared to previous levels, and agrees that Amendment 13 would further improve the IBQ Program.

General Comments on Amendment 13

Comment 36:

NOAA Fisheries received comments that the comment period was open during a busy fishing season and requesting that the comment period be extended a second time to March 2022, and the date of implementation postponed, so that the commenters would have time to read the Amendment 13 documents. They also stated that such extension of the comment period would provide NOAA Fisheries time to look into the issue of fishermen baiting and harpooning bluefin behind fishing vessels using bottom trawls or dredges. NOAA Fisheries received comments that the Agency did not address suggestions from some pelagic longline representatives regarding the Amendment 13 scoping document. One commenter expressed concern that the impacts of these management measures would force the species into extinction, and that the quota for bluefin should be zero. The EPA commented that they support efforts to reduce bluefin dead discards and that preventing wasteful bycatch will become increasingly important as various impacts of climate change on the ocean intensify impacts on marine resources.

Response:

The original comment period on the proposed rule was from May 21, 2021 through July 20, 2021, and then extended through September 20, 2021 (86 FR 38262, July 20, 2021). The four-month duration of the comment period provided reasonable opportunity for the public to comment on the proposed management measures. Amendment 13 did not analyze alternatives to address concerns about new fishing strategies in the harpoon fishery, but could consider this topic for future discussions at the HMS Advisory Panel. NOAA Fisheries did not analyze all of the suggestions for management measures that it received during the scoping phase of the development of Amendment 13, but did consider input from scoping and analyzed a reasonable range of alternatives. Measures under Amendment 13 do not alter, and are consistent with, the ICCAT-adopted western Atlantic bluefin quota and U.S. portion of the quota and the best scientific information available. Currently, the stock is not experiencing overfishing. NOAA Fisheries agrees that bycatch

reduction will continue to be important in the context of future climate change impacts on marine resources.

Management Options Considered but Not Further Analyzed

Comment 37:

NOAA Fisheries received comments on management options that were considered but not analyzed. There were multiple comments in support of annual accountability for quota debt under the IBQ Program. Commenters stated that the flexibility of annual accountability is needed to facilitate leasing of IBQ allocation throughout the year, which is particularly important if the Longline category does not receive any bluefin quota from the Purse Seine category quota reallocation. Commenters also stated that the current quarterly accountability is not needed because there are adequate deterrents with the IBQ Program to prevent targeting bluefin.

Response:

NOAA Fisheries disagrees that annual accountability should have been an alternative that was analyzed or preferred. Vessels have successfully accounted for bluefin catch under the quarterly accountability rules. Although annual accountability would provide substantial flexibility for vessel owners, this method of accountability may result in higher prices for IBQ allocation leases, a compressed market for IBQ allocation at the end of the year, and reduced incentive to avoid bluefin. The timing of quarterly accountability is likely to maintain incentives for vessels to utilize fishing strategies that minimize the likelihood of interactions with bluefin, and reduce the ability for vessels to accrue large amounts of quota debt. For example, a vessel that is not able to avoid bluefin catch and accrues quota debt would be constrained on a quarterly basis. A vessel with quota debt at the beginning of the quarter would not be able to lawfully fish with pelagic longline gear until it leased sufficient IBQ allocation to 'pay' for the quota debt. This requirement provides strong incentives to avoid catch of bluefin and could prevent the vessel from pelagic longline fishing if the vessel owner is not able to find affordable IBQ allocation to lease from another permit holder. In contrast, under annual accountability, a vessel would be able to accrue quota debt throughout the year, and therefore incentives to use a fishing strategy that avoids bluefin are weaker. Quarterly accountability provides a more appropriate balance between accountability and flexibility than annual accountability would. While leasing from the Purse Seine category will no longer be available, as explained in response to comment 22, Amendment 13 addresses leasing concerns by reallocating a portion of the Purse Seine category quota to the Longline category.

11.2 Appendix B: Bluefin Quota Management and Annual Quota Allocation

Table 11.1 Bluefin Base Quota Allocations and Annual Adjustments by Quota Category and example annual quota distribution for 2019

Category	Current Allocation (%)[1]	Current Quota (mt)[1]	Annual Adjustments, with Example Adjustments for 2019	Example Annual Quota Distribution: 2019
General	47.1	555.7		555.7
Harpoon	3.9	46		46
Purse Seine	18.6	219.5	+/- based on previous year's activity (-164.5)	55
Longline	8.1	95.6	+68; +25 NED	188.6
Trap	0.1	1.2		1.2
Angling	19.7	232.4		232.4
Reserve	2.5	29.5	+/- previous year's over/under harvest (127.3) +/- purse seine adjustment (+164.5)	321.3
TOTAL	100.0	1,179.9	68+25+127.3 = 220.3	1,400.2

[1] The allocations and quotas in this table reflect the allocation of the U.S. base quota minus 68 mt as described above in Chapter 2, Alternative F. Percentages have been calculated based on mt proportions. The Longline category row also does not reflect the annual 68-mt allocation.

The specific methodology for reallocation is as follows. Each Purse Seine fishery participant is given a fifth of the quota available to the category for the year (e.g., 219.5 mt divided by five participants equals 43.9 mt per participant). Next, NOAA Fisheries determines the annual quota available for use by each individual Purse Seine participant that year, based on the previous year's performance. Each participant has available either 25 percent, 50 percent, 75 percent, or 100 percent of its allocation share of the base Purse Seine quota, depending upon the level of their bluefin catch the previous year (see Table 11.2 and Figure 3.8). At a minimum, each participant has available 11 mt annually (25 percent), assuring them some level of fishing opportunity or IBQ trading each year. Using the 50, 75, and 100 percent thresholds provides an opportunity to increase the available Purse Seine quota allocation in the subsequent years and not lock-in low, or high, levels of allocation.

After individual allocations are made, NOAA Fisheries then determines how much category quota is available for reallocation to the Reserve category. If the cumulative catch for all of

the participants was high (i.e., greater than 70 percent of the baseline category quota), no Purse Seine category quota would be reallocated to the Reserve category. Conversely, if cumulative catch for all vessels was low (i.e., between 0 and 20 percent), a percentage of the category's cumulative baseline allocation would be available to reallocate to the Reserve category (Figure 3.8). Any quota not allocated to the Purse Seine category would be allocated to the Reserve category. For example, no Purse Seine category bluefin were landed in 2018, so allocations to Purse Seine category participants in 2019 were at the lowest level of 11 mt each, and 164.5 mt was transferred into the Reserve category (Table 3.3).

Table 11.2 Annual Reallocation of Bluefin Quota from Purse Seine Participants

Year A	Year A + 1		
Amount of Purse Seine Base Quota* *Caught* by Purse Seine Vessel	Amount of Purse Seine Base Quota *Allocated* to Purse Seine Vessel	Amount of Purse Seine Base Quota *Available for Reallocation* to other Categories per Vessel	Maximum Amount of Total Purse Seine Base Quota *Available for Reallocation* to other Categories
0 to 8.8 mt (0 to 20%)	11.0 mt 25% (minimum quota)	32.9 mt 75%	164.5 mt 75%
>8.8 to 19.8 mt (>20% to 45%)	22.0 mt 50%	21.9 mt 50%	109.5 mt 50%
>19.8 to 30.7 mt (>45% to 70%)	32.9 mt 75%	11 mt 25%	55 mt 25%
>30.7 to 43.9 mt (>70% to 100%)	43.9 mt 100%	0 mt 0%	0 mt 0%

* Using a Purse Seine base quota of 159.1 mt as an example; five purse seine participants receive 31.8 mt each (baseline amount, with no reallocation).

Table 11.3 Bluefin tuna base quotas, landings, and percent base quota landed for 2015-2019

Category Quota or Subquota	2015-2017 Base Quota (mt)	2015 Landings (mt)	2015 Base Quota Landed (%)	2016 Landings (mt)	2016 Base Quota Landed (%)	2017 Landings (mt)	2017 Base Quota Landed (%)	2018-2019 Base Quota	2018 Landings (mt)	2018 Base Quota Landed (%)	2019 Landings (mt)	2019 Base Quota Landed (%)
GENERAL TOTAL	466.7	614.8	131.7	751.5	161	695.3	149	555.7	784.4	141.2	814	146.5
General January-March	24.7	31.4	127.1	51.3	207.7	108.1	437.7	29.5	59.3	201	108.9	369.2
General June-August	233.4	182.7	78.3	233.4	100	331.2	141.9	277.9	327.9	118	277.6	99.9
General September	123.7	179.2	144.9	191.6	154.9	164.1	132.7	147.3	238.2	161.7	226.2	153.6
General October-November	60.7	210.5	346.8	275.2	453.4	73.7	121.4	72.2	144.3	199.9	178.6	247.4
General December	24.3	11	45.3	0	0	18.1	74.5	28.9	14.6	50.5	22.8	78.9
HARPOON	38.6	43.8	113.5	26.3	68.1	44.3	114.8	46	26.6	57.8	102.4	222.6
PURSE SEINE	184.3	33.7	18.3	0	0	0	0	219.5	0	0	0	0
LONGLINE*	148.3	71.4	48.1	86.2	58.1	105.1	70.9	163.6	88	53.8	86.4	52.8
TRAP	1	0	0	0	0	0	0	1.2	0	0	0.3	25
ANGLING	195.2	113.1	57.9	142.8	73.2	141.8	72.6	232.4	112.6	48.5	181.8 ?	78.2

Percent base quota landed >100 percent indicates that quota was transferred via an inseason action from the Reserve category to the quota category or subcategory.

Table 11.4 Comparison of purse seine catch and dead discards with and without an EFP providing an additional 15 percent tolerance for retention of large medium size bluefin

Metric	2013	2014 (with Exempted Fishing Permit)	2015 (with Exempted Fishing Permit)
Observer Coverage (%)	60	100	100
Landings (mt)	28.8	37.6	34.0
73" - <81"	1.85	9.57	11.6
81"or greater	26.9	28.1	22.5
Dead Discards (mt, % of catch)	13.7, 32.2	4.2, 10	4.9, 12.6
Total Bluefin Catch	42.5	41.8	38.9

All bluefin tuna (BFT) weights are in metric tons, ww. * = Min. 5% required by ICCAT, as measured in number of sets or trips.
Sources: Northeast Fisheries Observer Program (NEFOP), SAFIS

General Category Quota Management

This section provides background and context for the options regarding management of the General category fishery, focusing on how the bluefin quota is divided among time periods. In September 2017, NOAA Fisheries presented a background paper for consideration by the Highly Migratory Species (HMS) Advisory Panel entitled, "Management of the Atlantic Bluefin Tuna General Category 'January' Fishery." To access this paper, see the link on Day 2 tab of the 1:30 to 2:30 agenda item called: "Ongoing Issues: Bluefin Tuna General Category 'January' Fishery". That background paper summarized the regulations and management history of the General category quota and presented potential management actions and issues to consider. As the Advisory Panel was divided on how to modify General category management, NOAA Fisheries has not since taken action that would change how the baseline General category quota is allocated. Summarized information is provided in this document as well as information updated since September 2017.

Table 11.5 summarizes the evolution of how the General category quota was allocated (by percentage) to the time-period subquotas and the duration of those time periods, from 1995 to present.

Table 11.5 Evolution of General category time periods and subquotas (percentages), 1995 to Present

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1995						20%		40%	30%	10%		
1996						25%		35%	30%	10%		
1997-1998						60%			30%	10%		
1999						60%			30%	10% (through May of following year)		
2000-2002						60%			30%	10%		
2003-2005						60%			30%	10% (through Jan of following year)		
2006-2011	5.3%					50%			26.5%	13%		5.2%
2012 - present	5.3%					50%			26.5%	13%		5.2%

From 1999 through 2006, the fishing year was June through May, but reverted back to a calendar year as of 2007.

NOAA Fisheries changed the fishing year to a June through May period in the 1999 FMP final rule to give both NOAA Fisheries and fishery participants adequate time to develop and consider conservation and management measures that would implement International Commission for the Conservation of Atlantic Tunas (ICCAT) recommendations (made at ICCAT meetings that are held in November of each year) effectively. The General category subquota allocations remained as they had been, but with the final period extended as follows: June through August: 60%; September: 30%; and October through May: 10%. In a 2000 final rule, NOAA Fisheries clarified that December 31 was the end date for the General category season. In 2007, NOAA Fisheries reverted management of the fishery to a calendar year basis to establish consistent management cycles for all HMS. Therefore, there was an abbreviated fishing year or "bridge period" from June 1, 2007 through December 31, 2007. As of 2008, the fishing year coincided with the calendar year, and the January time period and associated fishing activities now occur at the beginning rather than the end of the General category season.

During and prior to the development of the 1999 Fishery Management Plan (FMP), the majority of General category fishing activity took place in the summer and fall off the New England and New York coasts. The General category quota was available to all commercial handgear tuna fishermen from the opening of the fishing year on June 1 through the end of

the season on December 31, as quota allowed. Due to high participation and limited quota, NOAA Fisheries used effort controls such as lower retention limits (Table 3.9 and Table 3.13), restricted fishing days (Table 3.9 and Table 3.13), and time-period subquotas (Table 11.5) to slow down the catch rate and distribute landings both geographically and over time. Despite the implementation of effort controls in the General category, the quota and subquotas were regularly caught and the General category often closed in late summer to early fall while bluefin were still off northern New England states. During the seasonal General category closure, a southern recreational bluefin fishery on large mediums and giants emerged off the coast of North Carolina during February and March. In later years, fish began to arrive in the region during the late fall/early winter, and interest in a commercial fishery developed.

During the development of the 1999 FMP, the emergence of a General category bluefin fishery in the mid/southern Atlantic region was extensively discussed by the HMS Advisory Panel and the public (NMFS, 1999). The HMS Advisory Panel did not agree on how the 1999 FMP should address the scope of a southern area late season General category bluefin fishery. NOAA Fisheries changed the fishing year to a wrap-around format (June through May) in the 1999 FMP final rule to give both NOAA Fisheries and fishery participants adequate time to develop and consider conservation and management measures that would implement ICCAT recommendations (made at ICCAT meetings that are held in November of each year) effectively. The General category subquota allocations remained as they had been, but with the final period extended through May (Table 11.5). In a 2000 final rule, NOAA Fisheries clarified that December 31 was the end date for the General category season and final subquota period.

In the early 2000s, NOAA Fisheries performed a number of inseason quota transfers of bluefin, consistent with the transfer criteria established in the 1999 FMP, which allowed the General category bluefin fishery to extend into the winter months (i.e., late November into December). In 2002, NOAA Fisheries received a Petition for Rulemaking from the North Carolina Division of Marine Fisheries to formalize this winter fishery and extend fishing opportunities for the General category into January. In December 2003, NOAA Fisheries extended the General category end date from December 31 to January 31 to address some of the concerns raised in the Petition for Rulemaking, as well as to increase fishing opportunities and optimum yield for the fishery overall.

Via the 2006 Consolidated HMS FMP, NOAA Fisheries modified the General category time-period subquotas to allow for a formalized winter fishery. These subquotas remain effective and are shown in Figure 3.4. The December and January time periods are currently allocated 5.2 percent and 5.3 percent of the General category base quota, respectively. NOAA Fisheries also reverted management of the fishery to a calendar year basis, versus the wrap-around model, to establish consistent management cycles for all HMS. Thus, as of 2008, the January time period and associated fishing activities now occur at the beginning rather than the end of the General category season.

2009 Advance Notice of Proposed Rulemaking (ANPR) and 2011 Regulatory Amendment

In the mid-2000s, in response to low catches of bluefin and swordfish, NOAA Fisheries published an Advance Notice of Proposed Rulemaking (ANPR), requesting specific comment on potential regulatory changes that would increase fishing opportunities (74 FR 26174, June 1, 2009). Following consideration of the wide range of comments received on the ANPR, both for and against relaxing regulations, NOAA Fisheries published a proposed rule in 2009, to increase fishing opportunities for bluefin within the existing U.S. quota (74 FR 57128, November 4, 2009).

In May 2010, the Center for Biological Diversity (CBD) petitioned NOAA Fisheries to list bluefin as threatened or endangered under ESA. NOAA Fisheries delayed issuing a final rule pending a new ICCAT bluefin stock assessment and subsequent ICCAT recommendation on bluefin conservation and management in the fall of 2010, as well as the decision on the CBD petition. In May 2011, NOAA Fisheries determined that listing bluefin as threatened or endangered under the ESA was not warranted, but listed bluefin as a species of concern.

NOAA Fisheries issued a final rule on the General and Harpoon category fishing opportunities on November 30, 2011 (76 FR 74003, NMFS, 2011). In the final action, NOAA Fisheries determined that the General category winter fishery were to remain open from January 1 until the subquota is reached or March 31, whichever comes first (thereby allowing the possibility of fishing past January 31, to catch the available January subquota). In addition to the ESA petition, CBD challenged the November 2011 final action in district court, alleging that it violated the Magnuson-Stevens Act, NEPA, and Administrative Procedure Act. The Defendants' (i.e., NOAA Fisheries') motion for summary judgment was granted in that case on March 28, 2013, and the case was dismissed.

Amendment 7 to the 2006 Consolidated HMS FMP (and the General category fishery)

Relevant to the management of the General category fishery, NOAA Fisheries considered three alternatives regarding modifying the subquota allocations in draft Amendment 7: (a) No action (allocations as shown in the table above), (b) establishing 12 equal monthly subquotas, and (c) providing additional flexibility for General category quota adjustment (preferred). NOAA Fisheries published the Amendment 7 Final Environmental Impact Statement in August 2014. During the review period on that document, the North Carolina Division of Marine Fisheries (NCDMF) reiterated support of the flexibility concept but suggested that the January fishery to remain open until May 31 or until the January time-period subquota is landed, as bluefin could be available to the General category off the North Carolina in the months of April and May. The South Atlantic Fishery Management Council made a similar comment. In the Amendment 7 final rule, NOAA Fisheries finalized the preferred alternative as proposed (i.e., NOAA Fisheries could proactively transfer quota from one subquota period to another, earlier in the calendar year). For example, NOAA Fisheries could transfer quota allocated for December of a particular year, to January of that year, to further fishing opportunities early in the calendar year. Because, relative to the other two alternatives NOAA Fisheries considered, the preferred alternative would result

in improved and fuller use of the General category quota overall and could result in beneficial economic impacts to early season General category participants. Since that time, participants in the winter fishery have continued to express interest in NOAA Fisheries providing additional quota for the January subquota time period. The idea of providing more quota to the January winter fishery, in conjunction with the concept of lengthening the January subquota time period associated with the January subquota is similar to, in its essence, a reallocation of quota.

Additional Background on General Category Subquotas

The General category season issue was raised again by some HMS Advisory Panel members at the Fall 2015 through Fall 2016 meetings, with discussion for and against a year-round fishery (divided or not into subperiods), as well as for and against allowing the January fishery to continue until the available quota is met. Figure 11.1 shows the amount of landings by quota subperiod, and the percentage of annual landings that each subquota period comprised. See Table 11.6 for a summary of General category daily retention limits, landings, subquota use, and inseason actions, by time period for 2015 through 2019.

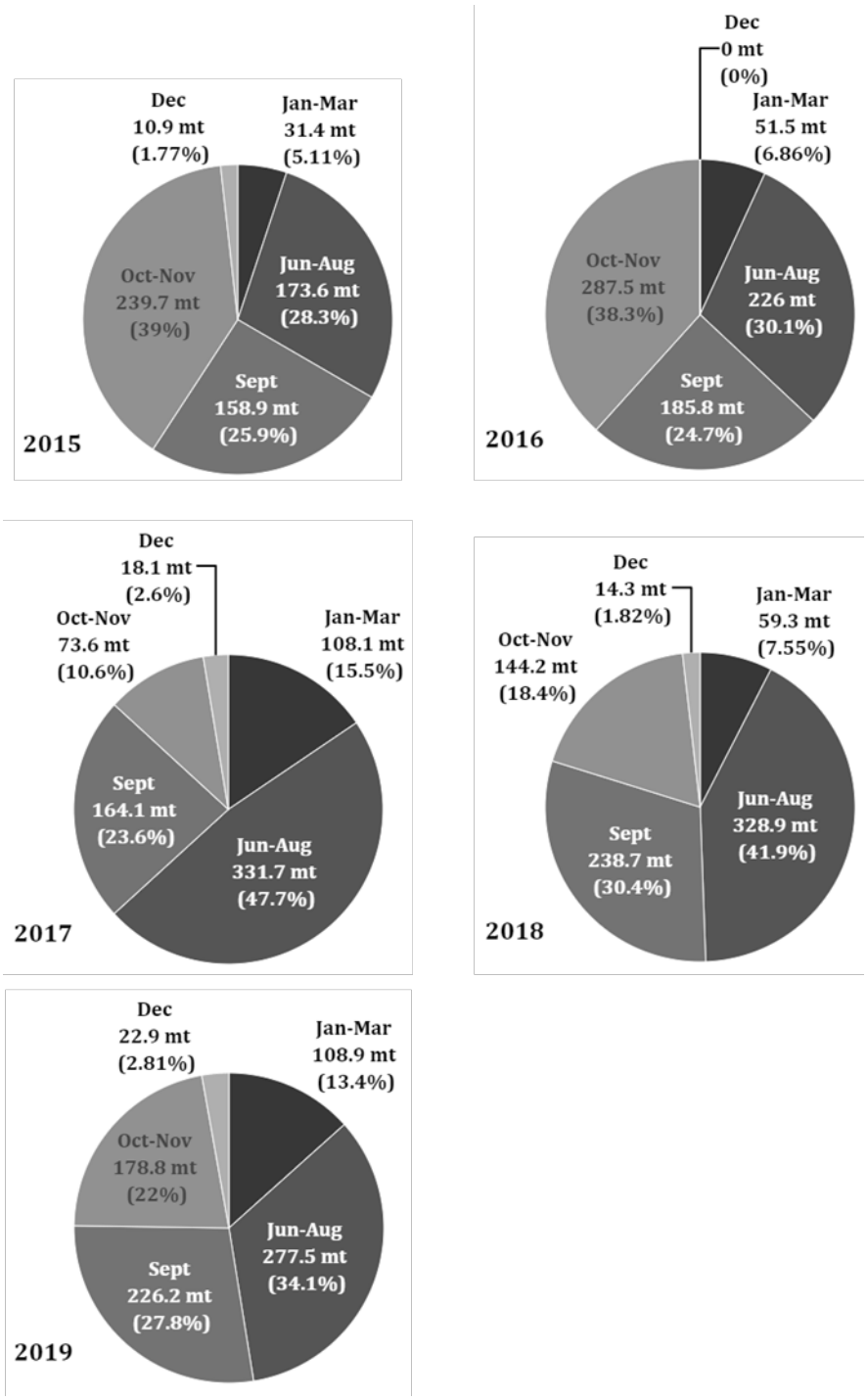

Figure 11.1 Landings (mt and percent of General category quota) during each General category time period from 2015-2019

In a December 12, 2016, letter to NOAA Fisheries commenting on management of the 2016 General category season (in which NOAA Fisheries needed to close the General category on November 4, 2016, after the adjusted General category quota was reached), the NCDMF requested that NOAA Fisheries manage the General category in the future through conservative retention limits during those periods of abundant landings to prevent

negative impacts on those fishing in following subquotas or months within a subquota. The General category quota was reached as a result of a combination of factors, including wide-scale abundance of bluefin, conducive weather for fishing, large amounts of fishing effort, and landing large numbers of fish. NCDMF stated that, due to the January and December quotas being at the beginning and end of the fishing year, respectively, under-harvest and transfers are often unavailable to these subquotas.

NOAA Fisheries took three inseason actions regarding the January 2017 subquota, as detailed in Table 11.6, resulting in an adjusted quota of 81 mt. NOAA Fisheries closed the January 2017 General category fishery on March 29, 2017, and landings were 108.1 mt.

At the May 2017 HMS Advisory Panel meeting, there was even further discussion surrounding the issue of potentially modifying the General category January fishery regulations. Those in support clarified that their request is for flexibility to use the January quota fully vs. a request for a subquota allocation increase. However, once again there were requests made from winter fishery participants and their elected officials to provide more quota to keep the fishery open. Thus raising concerns regarding a de facto suballocation change, and that political pressure associated with these sort of inseason actions (both for and against) was growing. In response to these concerns, some Advisory Panel members commented on the "fairness" and equity of inseason transfers in general. Inseason retention limits for 2015-2019 are shown in Table 3.3. Lastly, some Advisory Panel members cautioned against using terminology such as "traditional" participants when arguing for or against issues affecting quota allocation, stating that the fishery is a U.S. resource, managed by time versus geographical area, and that some vessels travel great distances from their principal fishing areas to participate at various times of year.

Table 11.6 2015-2019 Atlantic bluefin tuna (BFT) Retention Limits, Landings, and Quota Use, by General Category Subquota

	Daily Retention Limit (number of fish and date detail)	Landings (mt)	Subquota (mt) and use (%)	Notes
2015				
January-March	3	31.4	Base: 21.4 (147) Adjusted: 42.4 (74)	Transferred full Dec. 2015 subquota to Jan. 2015 effective Jan. 1
June-August	4	173.6	Base: 201.5 (86)	
September	4	158.9	Base: 106.8 (149)	
October-November	4: Oct. 1-Nov. 27 3: Nov. 28-30	239.7	Base: 52.4 (457) See Total for adjustment*	Transferred 65 mt from Reserve and 35 mt from Harpoon effective Oct. 30; transferred 80 mt from Reserve effective Nov. 25
December	3	10.9	Base: 21 Adjusted: 0	
TOTAL		614.8**	Base: 466.7 (132) Adjusted: 646.7 (95)	
2016				
January-March	3	51.5	Base: 24.7 (209) Adjusted: 49 (105)	Transferred full Dec. 2016 subquota to Jan. 2016 effective Jan. 1
June-August	5	226	Base: 233.3 (97)	
September	5	185.8	Base: 123.7 (150)	

	Daily Retention Limit (number of fish and date detail)	Landings (mt)	Subquota (mt) and use (%)	Notes
October-November	5: Oct. 1-8 4: Oct. 9-16 2: Oct. 17-Nov. 4 CLOSED Nov. 5-30	287.5 (97.2 at 5 BFT; 78.2 at 4 BFT; 112.1 at 2 BFT)	Base: 60.7 (474) See Total for adjustment*	Transferred 125 mt from Reserve effective Oct. 6; transferred 67 mt from Reserve and 18 mt from Harpoon effective Oct.14
December	CLOSED	0	Base: 24.3 (0) Adjusted: 0	
TOTAL		750.5**	Base: 466.7 (161) Adjusted: 676.7 (111)	
2017				
January-March	3: Jan. 1-Mar. 5 1: Mar. 6-29 CLOSED Mar. 30-31	108.1 (69.1 at 3 BFT; 39 at 1 BFT)	Base: 24.7 (436) Adjusted: 81 (133)	Transferred 16.3 of Dec. 2017 subquota to Jan. 2017 effective Jan. 1; transferred 40 mt from Reserve effective March 2
June-August	4: Jun. 1-Aug. 4 2: Aug. 5-16 CLOSED Aug. 17-31	331.7 (243.6 at 4 BFT; 88.1 at 2 BFT)	Base: 233.3 (139)	
September	1: Sep. 1-17 CLOSED Sep. 18-30	164.1	Base: 123.7 (133) See Total for adjustment*	156.4 mt from the Reserve category to cover previous overharvest. *

	Daily Retention Limit (number of fish and date detail)	Landings (mt)	Subquota (mt) and use (%)	Notes
October-November	1: Oct. 1-5 CLOSED Oct. 6-Nov. 30	73.6	Base: 73.6 (121)	25.6 mt from the Harpoon category*
December	1: Dec. 1-6 CLOSED Dec. 7-31	18.1	Base: 24.3 (74) Adjusted: 8 (226)	
TOTAL		695.5	Base: 466.7 (149) Adjusted: 688.7 (101)	June through November time-period subquotas were not adjusted; NOAA Fisheries covered overharvest through transfers.
2018				
January-March	1: Jan. 1- Mar. 2 CLOSED Mar. 3-31	59.3	Base: 29.5 (201) Adjusted: 49 (121) All 2018 subquotas reflect ICCAT-recommended increase.	Transferred 14.3 of Dec. 2018 subquota to Jan. 2018 effective Jan. 1; transferred 10 from Reserve effective March 2.
June-August	3: Jun. 1-Aug. 22 1: Aug. 23 -31	328.9 (253.7 at 3 BFT, 75.2 at 1 BFT)	Base: 277.9 (118)	
September	1: Sep. 1-23 CLOSED Sep. 24-30	238.7	Base: 147.3 (162) Adjusted: 207.3 (115)	Transferred 60 from Reserve
October-November	1: October 1-5 CLOSED Oct. 6-14	144.2	Base: 72.2 (200) Adjusted: 127.2 (113)	Transferred 55 (40 from Harpoon, and 15 from Reserve)

	Daily Retention Limit (number of fish and date detail)	Landings (mt)	Subquota (mt) and use (%)	Notes
	1: Oct. 15-16 CLOSED Oct. 17-30 1: Oct. 31-Nov. 2 CLOSED Nov. 3-11 1: Nov. 12-16. CLOSED Nov. 17-30			
December	1: Dec. 1-31	14.3	Base: 28.9 (49) Adjusted: 50 (29)	Transferred 139.1 (129.2 from Reserve, and 9.9 from Harpoon)*
TOTAL		785.4	Base: 466.7 (168) Adjusted to date: 819.9 (96)	
2019				
January-March	1: Jan. 1- Feb. 28 CLOSED Mar. 1-31	108.9	Base: 29.5 (369) Adjusted: 100 (109)	Transferred 19.5 of Dec. 2019 subquota to Jan. 2019 effective Jan. 1; transferred 26 mt from Reserve effective Feb. 8; transferred 25 mt from Reserve effective February 25.
June - August	1: Jun. 1 - Aug. 8 CLOSED Aug. 9 - 31	277.5	Base: 277.9 (100)	
September	1: Sep. 1-13 CLOSED Sept 14-30	226.2	Base: 147.3 (154) Adjusted: 207.3	Transferred 60 from Reserve effective Sep. 11

	Daily Retention Limit (number of fish and date detail)	Landings (mt)	Subquota (mt) and use (%)	Notes
October - November	1: Oct. 1-13 CLOSED: Oct. 14-Nov. 30	178.8	Base: 72.2 (248) Adjusted: 172.2	Transferred 100 mt from Reserve effective Oct. 1
December	1: Dec. 1-31	22.9	Base: 28.9 (79) Adjusted: 28.9	Transferred 19.5 from Reserve to make December “whole” effective Dec. 1

11.3 Appendix C: IBQ Program Metrics

Table 11.7 Bluefin Catch and Other Metrics of the IBQ Program (2015–2019)

Metric	2015	2016	2017	2018	2019
Permits eligible for IBQ shares	136	136	136	136	136
Number of vessels that fished with pelagic longline gear	104	85	89	76	67
Number of vessels landing bluefin	59	55	58	50	44
Total weight bluefin landed (lb, ww)	157,388	196,142	229,396	193,969	190,194
Total weight bluefin landed (mt, ww)	71.3	89.0	104.1	88	86.3
Landed in Gulf of Mexico (mt, ww)	3.7	3.5	5.7	3.3	2.1
Landed in Atlantic (mt, ww)	67.6	85.5	98.1	81.0	84.2
Number of bluefin landed	323	447	501	467	445
Number of landed in Gulf of Mexico	15	13	21	12	7
Number of landed in Atlantic	308	424	480	455	438
mt of NED* quota caught (max 25)	24.9	17.3	25	4	9.6
Total bluefin dead discards (mt, ww)	17.1	22.6	11.4	14.6	8.05
Discarded in Gulf of Mexico (mt, ww)	5.6	7.1	6.5	3.6	2.5
Discarded in Atlantic (mt, ww)	11.5	14.8	3.7	11	5.3
Discarded in NED* (mt, ww)	0	0.7	1.2	0	0.25
Number of trips with pelagic longline gear	1,124	1,025	1,078	921	870
Number of pelagic longline sets	7,769	6,885	7,305	5,635	4,803
Number of hooks	5,549,45	5,217,547	5,327,58	4,030,875	3,649
Number of trips (per VMS** prelanding reports)	1,030	990	793	936	910

Metric	2015	2016	2017	2018	2019
Number of sets based on VMS bluefin reports	5,472	5,921	6,507	5,479	3,748
Number of vessels with installed EM systems	111	113	112	112	110
Number of hard drives received	785	975	1,020	925	856
Number of vessels submitting hard drives	91 (Jun-Dec)	85	86	77	69

*NED = northeast distant area (See Figure 3.30), landings and dead discards.
**VMS = Vessel Monitoring System
Sources: Dead discard data: POP and UDP; Landings, effort, and IBQ leasing data: UDP and IBQ Systems; VMS data; EM data: Saltwater, Inc. (NOAA Fisheries contractor for installation and maintenance of EM Systems) and ERT Corp. (NOAA Fisheries contractor for review and storage of EM data). 2019 data from SAFE Report.

11.4 Appendix D: Pelagic Longline Fishery Data

Measures of effort used to describe the activity of fishing fleets include the magnitude of gear deployed and the number of fishing sets undertaken by vessels. In the pelagic longline fishery, vessels report the number of hauls deployed and the number of hooks set for each haul in the Pelagic Fisheries Logbook after a trip is completed. This reporting is required by all vessels participating in the fishery. This section provides a summary of effort data from the pelagic longline fleet as represented by the number of hooks deployed for the entire period since the implementation of the 2006 Consolidated HMS FMP through 2018, and provides a spatial reference for the difference in set locations through the seasons of the year.

Effort for the reported time period has been the greatest in the Gulf of Mexico, with a cumulative total in excess of 27.5 million hooks deployed. Generally, areas containing the waters nearest the contiguous United States received much higher effort levels from the pelagic longline fleet than those that are further from shore. Figure 11.2 shows total effort for each region and has an inset reference depiction of the HMS fishing areas. The figures that follow show the trend of effort through time for HMS areas CAR (Caribbean), FEC (Florida East Coast), GOM (Gulf of Mexico), and SAB (South Atlantic Bight) (Figure 11.3); NCA (North Central Area), SAR (South Atlantic Region), TUN, TUS (Figure 11.4); and MAB, NEC (Northeast Central), and NED (Figure 11.5).

Effort peaked in 2006 in the two areas accounting for more than half of the total effort during the time period (GOM and MAB). Most areas have seen a decrease in effort from 2006 to the late 2000s, with a notable increase in the early 2010s and a general decrease in effort in the most recent years of data. While still relatively high compared to most areas, fishing effort in the Gulf of Mexico in 2010 dropped to a third of the effort the region

experienced in the previous year, with more than 60% of the hooks being deployed prior to the explosion of the Deepwater Horizon drilling rig.

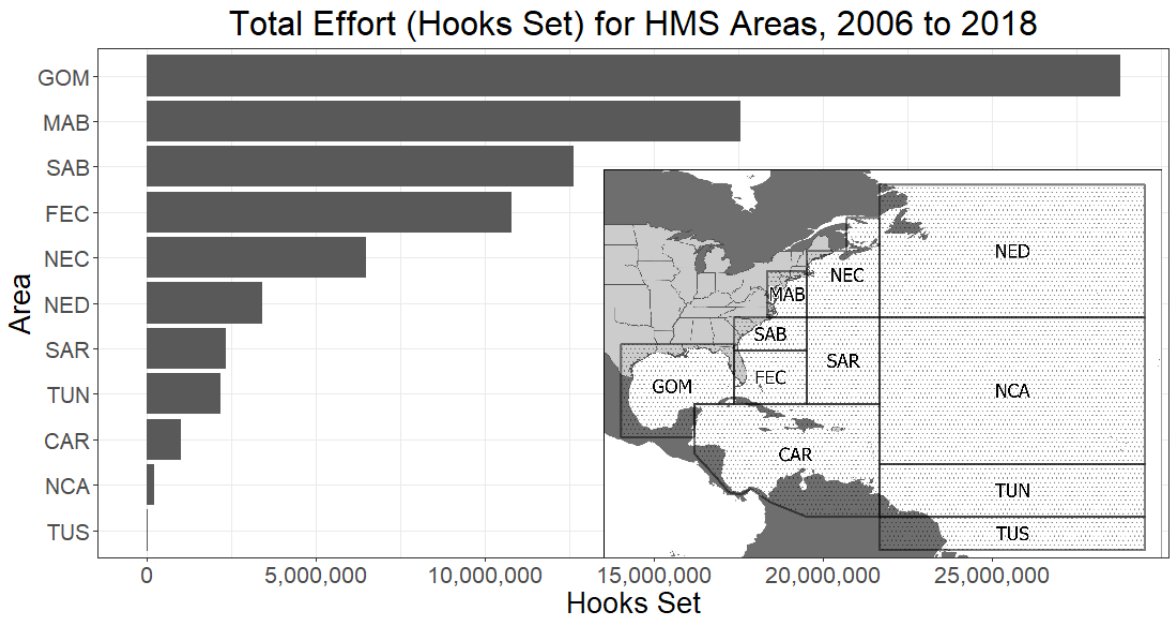

Figure 11.2 Total hooks set for all HMS areas from 2006 to 2018. Inset map shows delineated areas represented in the plot
Source: Pelagic Logbooks

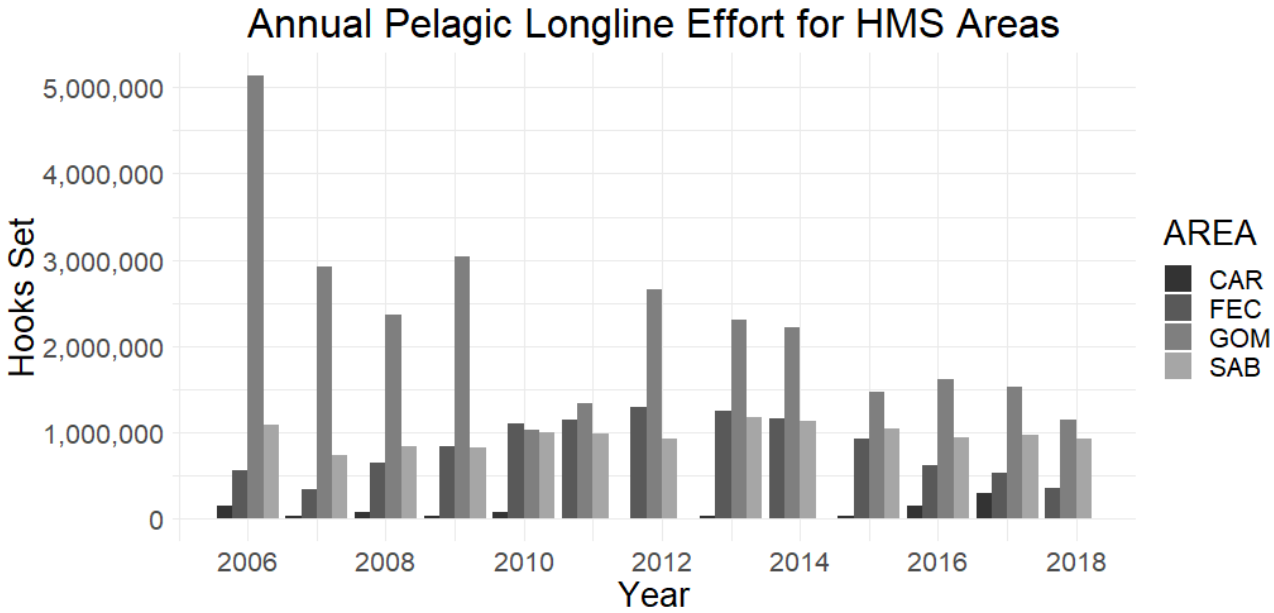

Figure 11.3 Total number of hooks set by the pelagic longline fleet in HMS areas CAR, FEC, GOM, and SAB, 2006 to 2018
Source: Pelagic Logbooks

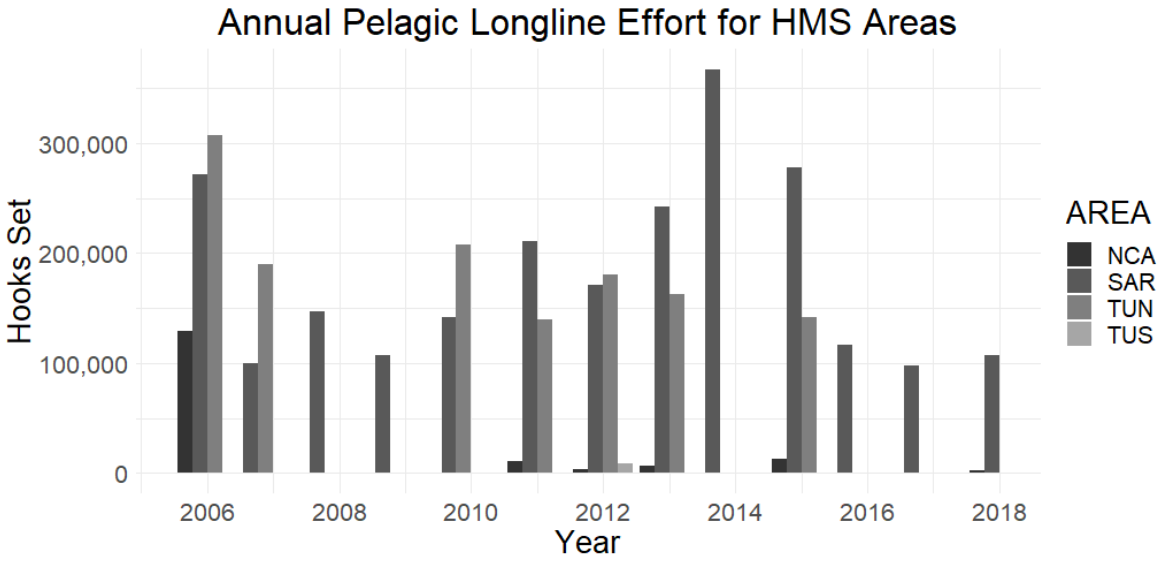

Figure 11.4 Total number of hooks set by the pelagic longline fleet in HMS areas NCA, SAR, TUN, TUS, 2006 to 2018
Source: Pelagic Logbooks

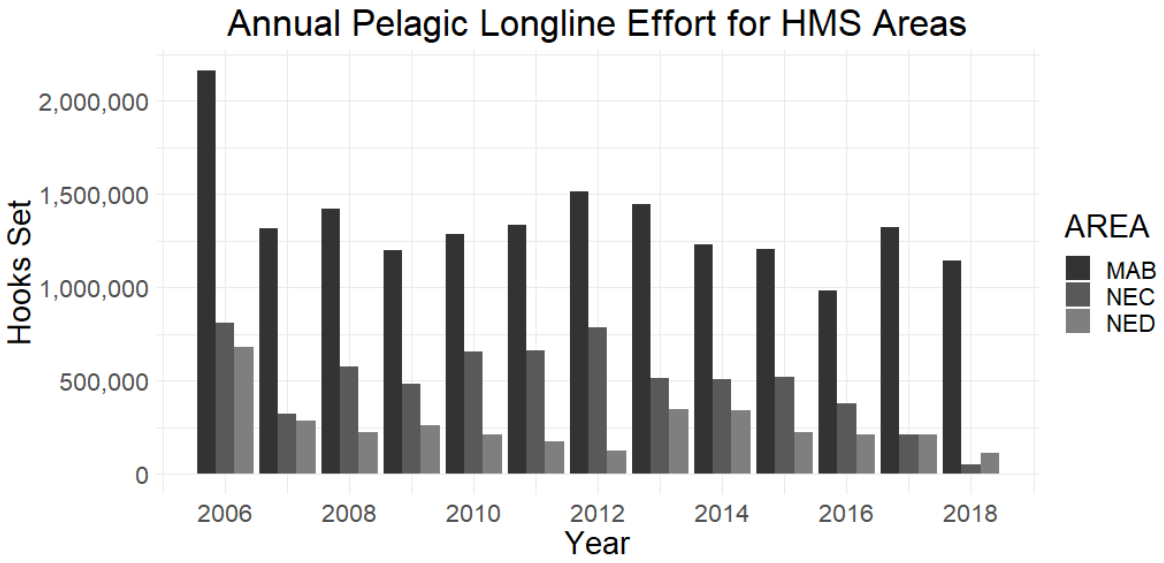

Figure 11.5 Total number of hooks set by the pelagic longline fleet in HMS areas MAB, NEC, NED, 2006 to 2018
Source: Pelagic Logbooks

Seasonal Effort

While there is relatively little variation between years for seasonal effort, seasonal variation within the fishing year does exist. Figure 11.6 provides a summary of the number of hooks set for each season. Seasonal effort for each HMS region, measured by the number

of sets deployed for the years 2006 through 2018, is shown in Figure 11.7. Figures 11.8 through Figure 11.11 below are "heat maps" of seasonal sets for the years 2006 through 2018, with warmer colors representing higher densities of sets. In the winter, sets are more concentrated in the western Gulf, off the east coast of Florida, and the Mid-Atlantic Bight. Effort shifts in the spring to include concentrations of sets in the South Atlantic Bight and towards the Northern Gulf. More fishing activity occurs in the Northeast Distant and Coastal areas in the summer and fall. Notably in the fall, more effort was concentrated in the Mid-Atlantic Bight.

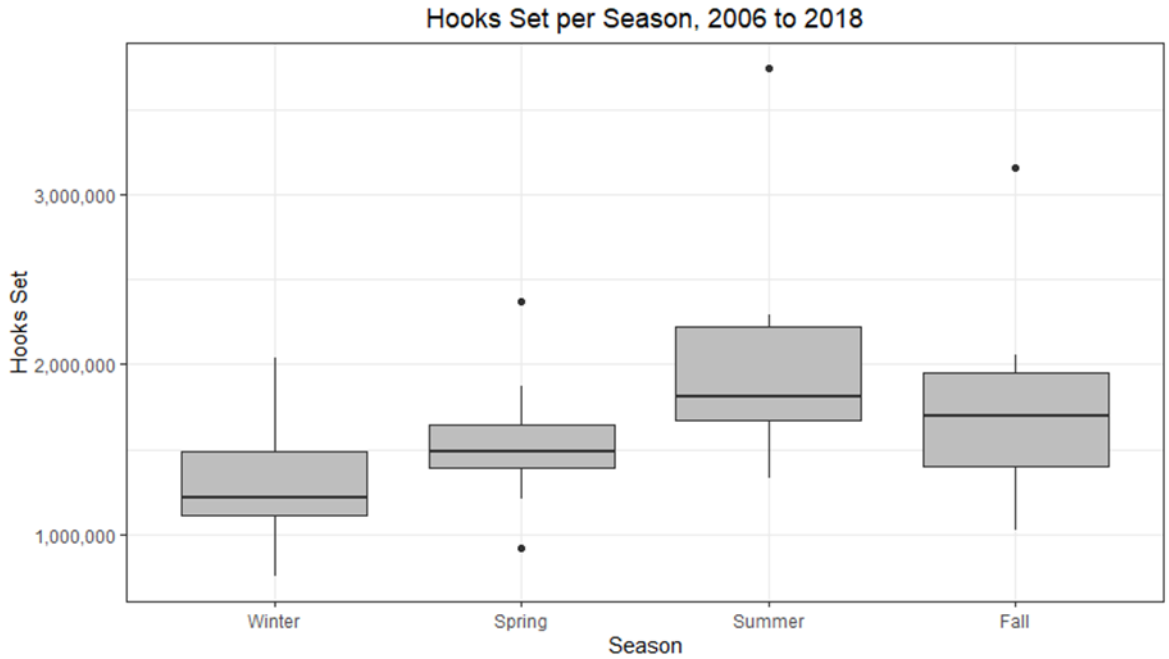

Figure 11.6 Boxplots showing the median (solid horizontal line), interquartile range containing 50 percent of the data points (shaded box), range (solid vertical lines) of effort per season from the pelagic longline fishery, and outliers (points)
Source: Pelagic Logbooks (2006 - 2018)

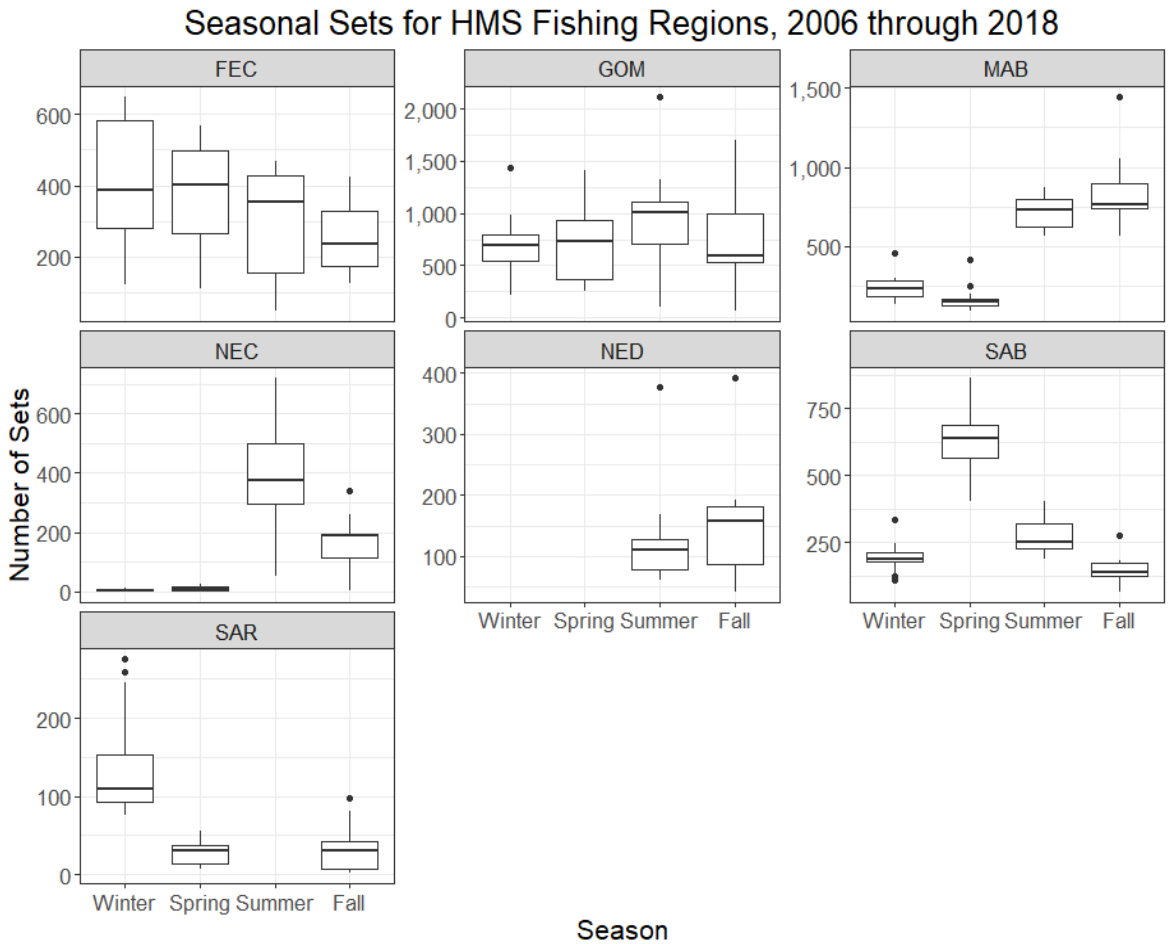

Figure 11.7 Boxplots showing the median (solid horizontal line), interquartile range containing 50 percent of the data points (shaded box), range (solid vertical lines), and outliers (points) of sets by the pelagic longline fleet for each season in selected fishing areas

Source: Pelagic Logbooks

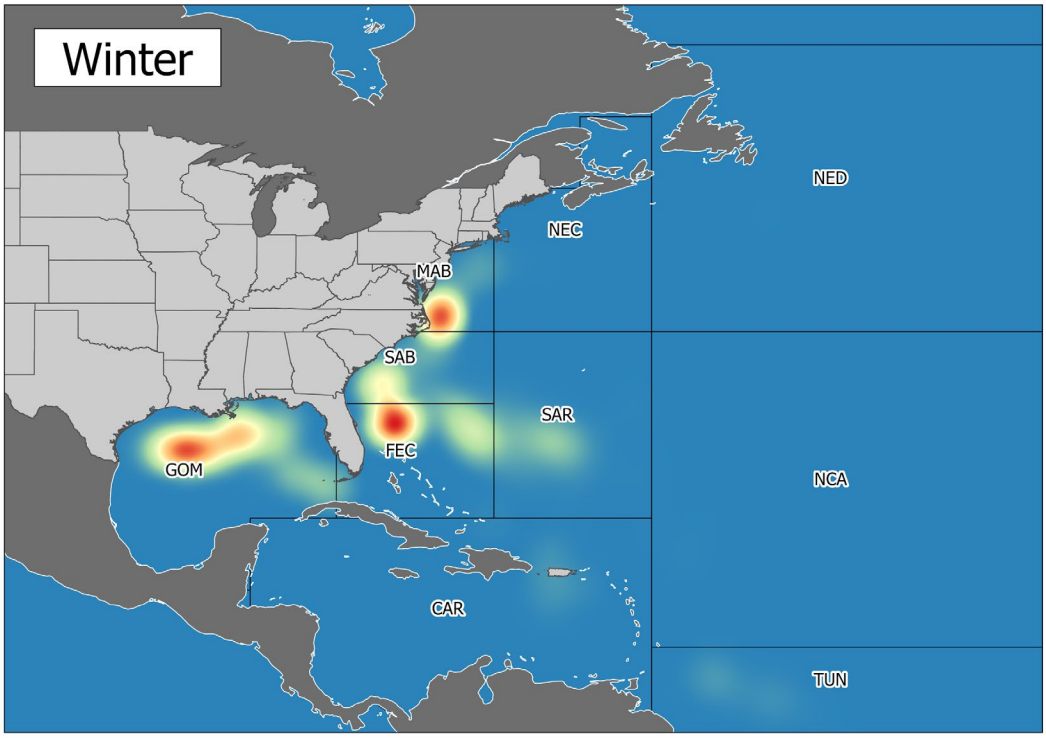

Figure 11.8 Point density heat map of sets deployed by the pelagic longline fleet in the winter (2006-2018)

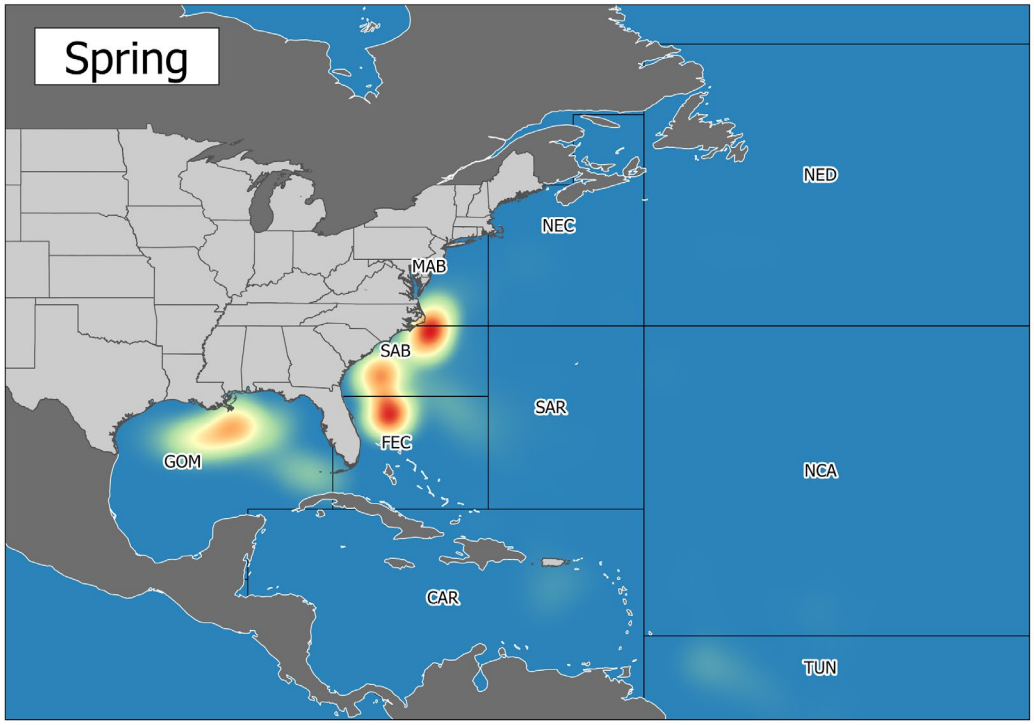

Figure 11.9 Point density heat map sets deployed by the pelagic longline fleet in the spring (2006-2018)

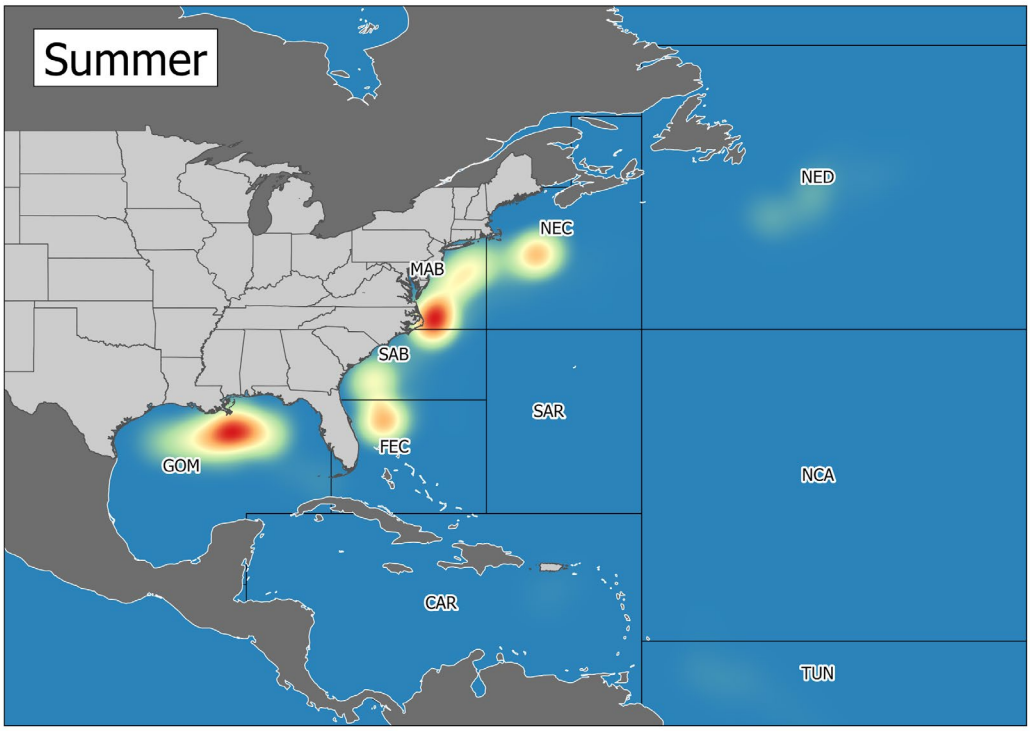

Figure 11.10 Point density heat map of sets deployed by the pelagic longline fleet in the summer (2006-2018)

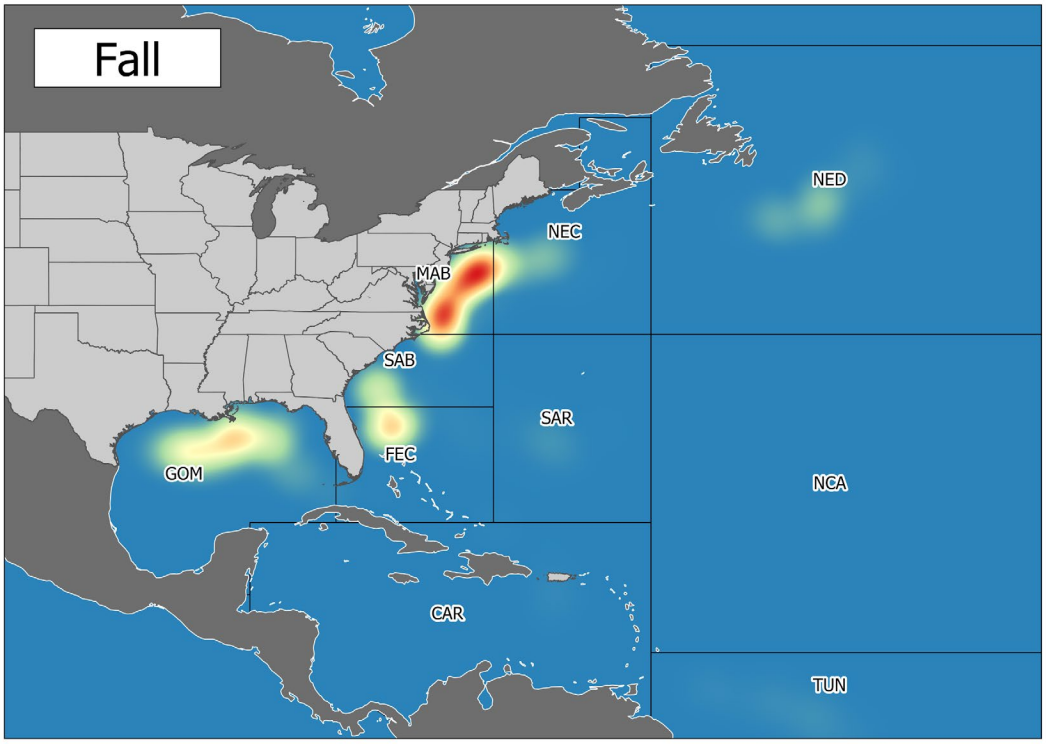

Figure 11.11 Point density heat map of sets deployed by the pelagic longline fleet in the fall (2006-2018)

Gear Deployments for Target Species in the Pelagic Longline Fishery

Participants in the pelagic longline fishery generally deploy gear in the morning or evening, and the gear is allowed to soak for around 8 hours on average, at which point the gear is retrieved, or hauled back. With exception to sets targeting dolphin fish and yellowfin tuna, sets are generally deployed and allowed to soak overnight. Figure 11.12 below shows the frequency of gear deployment throughout the hours of the day for common targets of the pelagic longline fishery. Fishing depth varies among targeted species, and is generally deepest when fishing for yellowfin. Figure 11.13 shows the depths fished for different target species in the pelagic longline fishery.

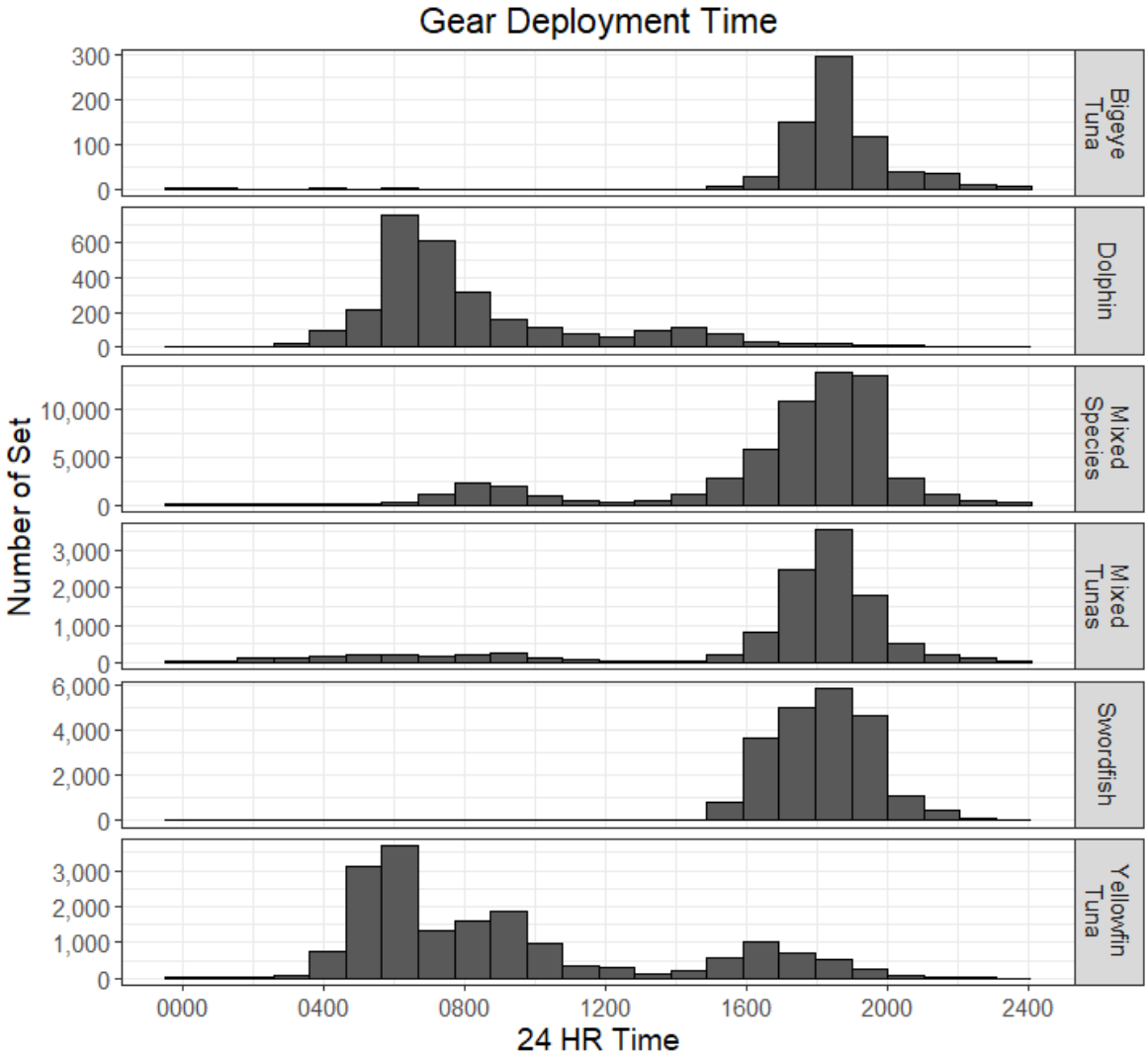

Figure 11.12 Time periods gear is deployed for common target species and species groups. Note the change in scale for each species group
Source: Pelagic Logbooks (2006-2018)

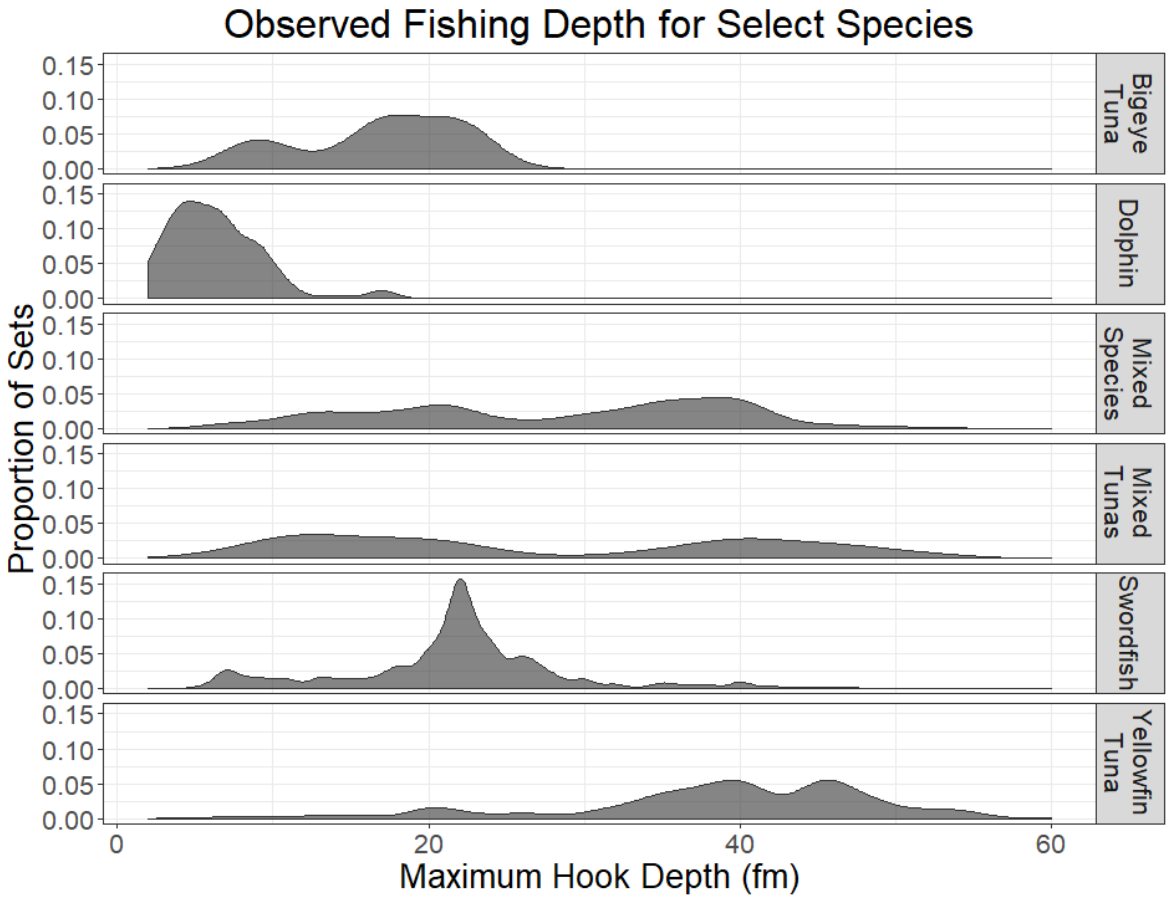

Figure 11.13 Density plots of maximum hook depth by target species/species groupings
Source: NOAA Fisheries Pelagic Observer Program

Select Gear Characteristics of the Pelagic Longline Fishery

Gear characteristics for swordfish and yellowfin targeted sets in the Gulf of Mexico and Atlantic excluding the Gulf are presented in Table 11.8. "Sets targeting" is the number of sets reported for each region and species, and "Prop. Lightsticks" is the proportion of these sets for each region that deployed lightsticks. Descriptive statistics (range, mean, and standard deviation) of mainline length, number of hooks set, gangion length, and floatline length are reported for each region and target.

Table 11.8 Descriptive statistics of gears used by vessels targeting yellowfin tuna and swordfish in the Gulf and Atlantic

	GOM						ATL					
	SWO			YFT			SWO			YFT		
Sets Targeting	3580			14786			18448			3028		
Prop. Lightsticks	0.974			0.258			0.952			0.097		
	Range (min,max)	Mean	Std. Dev	Range (min,max)	Mean	Std. Dev	Range (min,max)	Mean	Std. Dev	Range (min,max)	Mean	Std. Dev
Mainline Set (nm)	(7, 46)	23.97	6.69	(3, 77)	28.84	4.68	(2, 77)	27.03	8.62	(2, 50)	26	10.4
Hooks Set (n)	(64, 1400)	539.93	237.48	(22, 1500)	628.99	185.68	(50, 1800)	766.62	241.45	(60, 1765)	732.76	216.62
Gangion Length (fm)	(2, 40)	15.77	7.6	(1, 80)	29.57	7.07	(1, 90)	9.51	3.24	(1, 35)	10.26	2.54
Floatline Length (fm)	(4, 80)	9.66	2.86	(1, 80)	11.45	3.62	(1, 90)	7.54	3.3	(1, 50)	8.01	2.27

Source: Pelagic Logbooks (2006-2018)

Effort Density Calculations

Pelagic longline hook distribution, as expressed by the isopleths containing 50, 75, and 95 percentiles of the volumetric hook density (number of hooks set per square kilometer), from the pelagic longline fishery were calculated for the time periods 2006 to 2011 (Figure 11.14), 2012 to 2014 (Figure 11.15), and 2015 to 2018 (Figure 11.16) using data from pelagic logbooks. Isopleths were generated from logbook reported set points (Lat./Long.) and weighted by the number of hooks deployed at each set. Kernel density estimation was performed to calculate a surface with the number of hooks deployed for each unit of square area (square kilometers). The surface density volumes were then calculated and converted to lines that contain the corresponding values.

While the distribution of the areas with greatest fishing effort has changed little between the three time periods, the isopleth containing the 95th percentile now encompasses a larger area of the Sargasso Sea since 2012. More recently, a larger density of hooks have been set in the Northeast Distant statistical area and Caribbean areas.

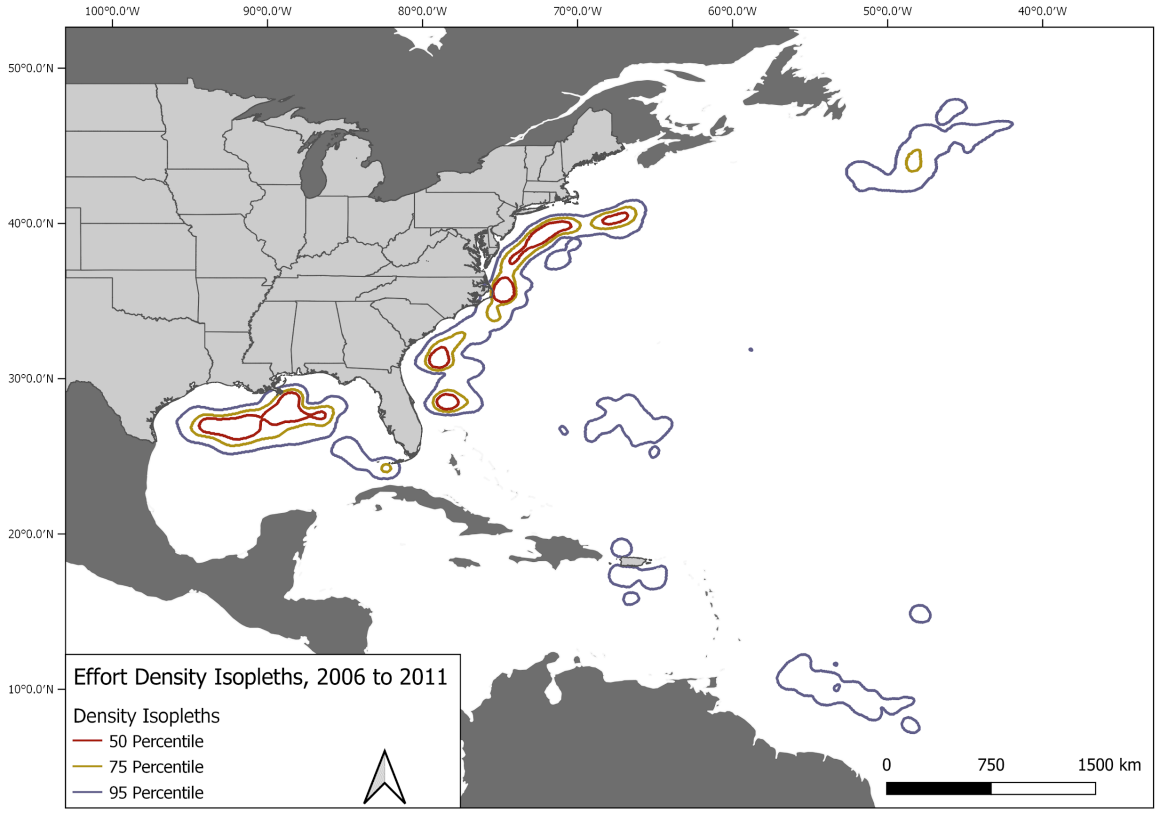

Figure 11.14 Effort (hook density) isopleths from the pelagic longline fishery, 2006 to 2011
Source: Pelagic Logbooks

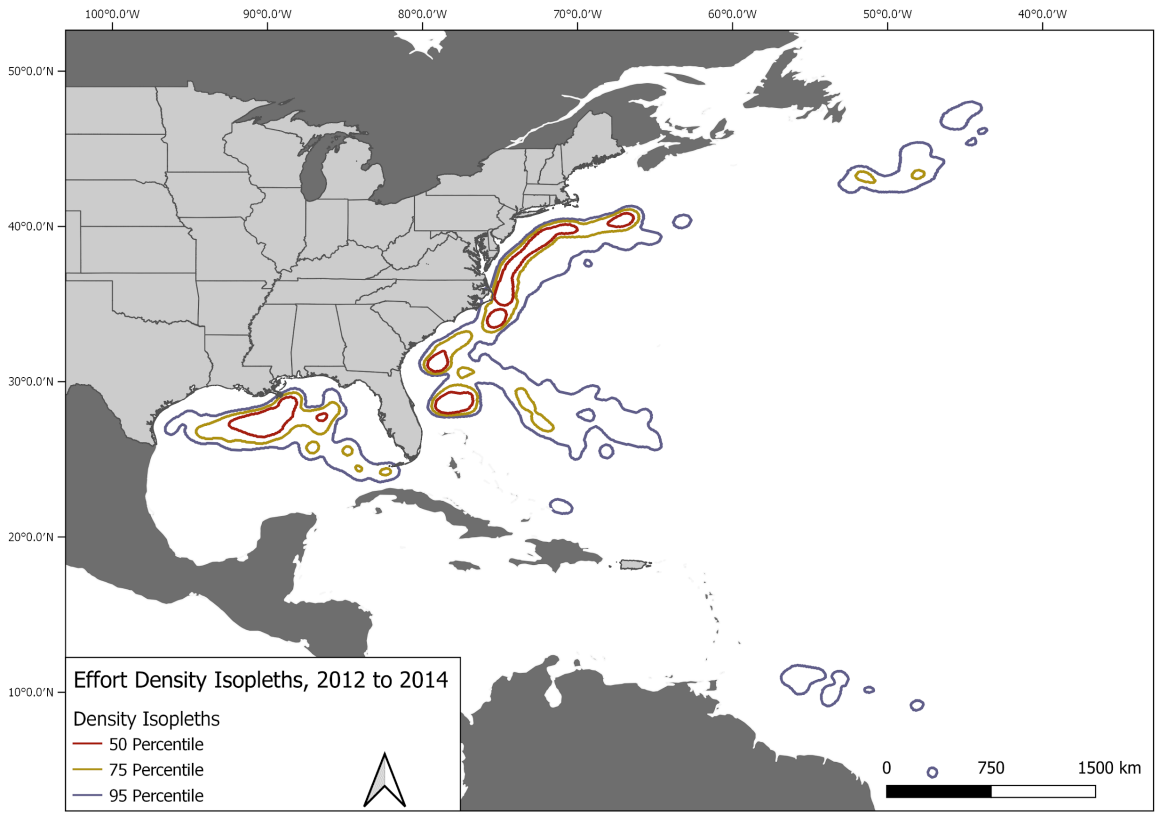

Figure 11.15 Effort (hook density) isopleths from the pelagic longline fishery, 2012 to 2014
Source: Pelagic Logbooks

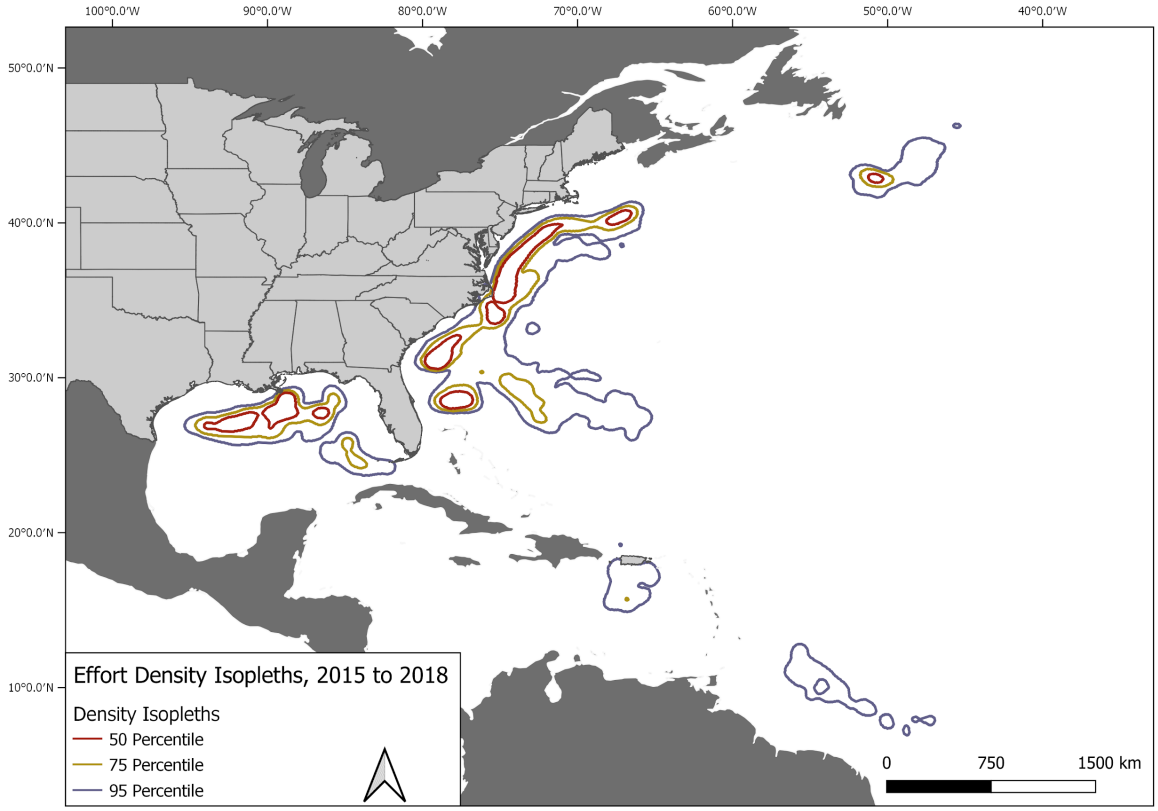

Figure 11.16 Effort (hook density) isopleths from the pelagic longline fishery, 2015 to 2018
Source: Pelagic Logbooks

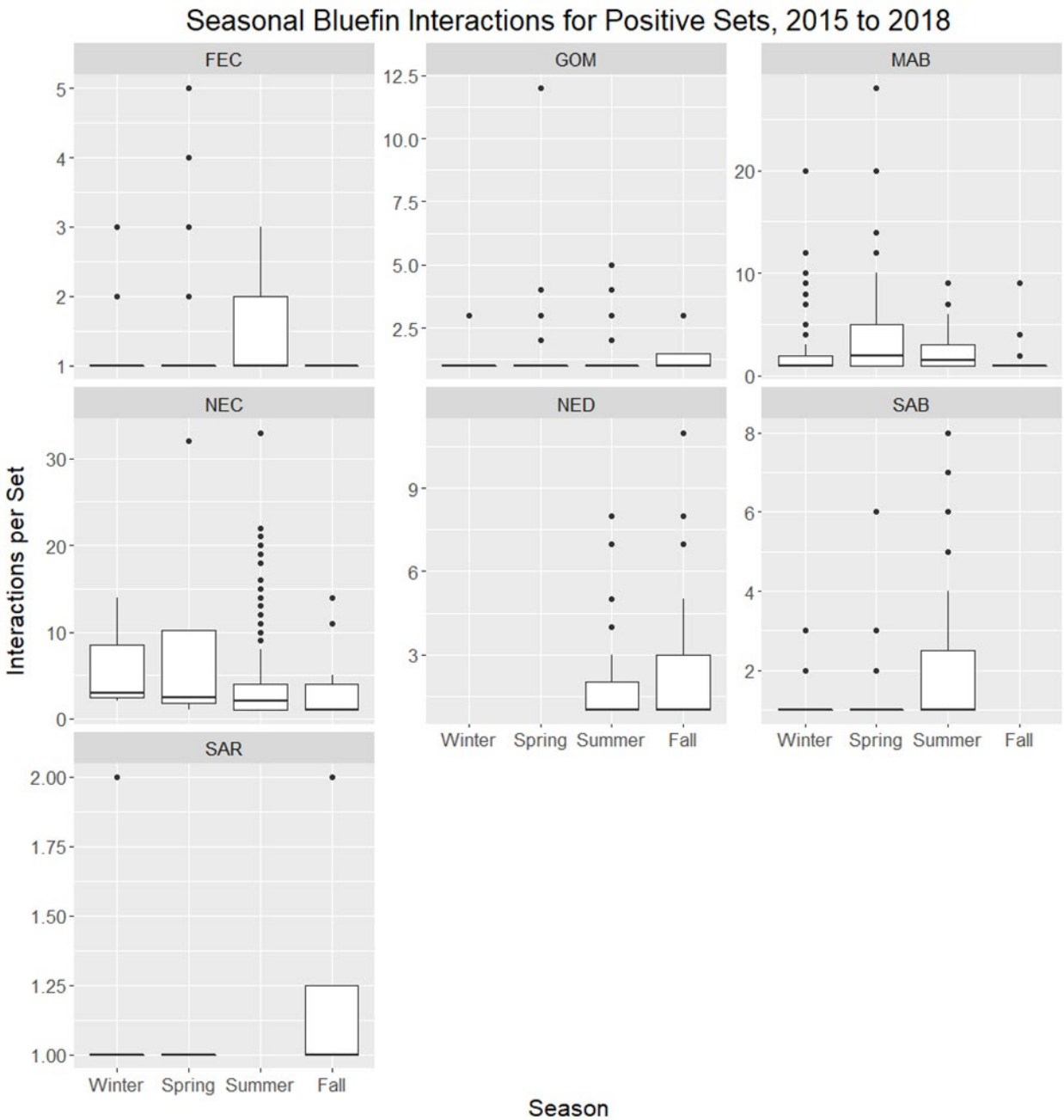

Figure 11.17 Bluefin CPUE of pelagic longline gear by season (2015-2018)
Source: Pelagic Logbooks

Seasonal catch of bluefin varies across HMS fishing areas. Table 11.9 below reports the total number of sets fished in each region and season, the percent of sets positive for bluefin, and number of bluefin interactions for the period 2015 through 2018. Sets were counted as positive for bluefin if at least one was caught during a set. The box plots in Figure 11.17 report seasonal set level interactions for bluefin positive sets for the specified region and season. Effort was generally highest in the winter for more southern areas (the Gulf of Mexico and the east coast of Florida) and shifted north as the seasons progressed.

Total bluefin interactions and the percent of sets positive for bluefin for all regions combined was highest in the summer. Fishing sets along the Mid-Atlantic Bight and in the Gulf of Mexico accounted for two-thirds of effort in the summer, but a larger number of interactions occurred in the Northeast Coastal region than both of those regions combined. The Northeast Coastal and Distant areas had the highest percent of sets positive for bluefin in the summer, and there were several sets in the Northeast Coastal area that caught over 10 bluefin. The largest number of bluefin per set also occurred in summer along the South Atlantic Bight.

In the fall, effort was once again concentrated in the Gulf and along the Mid-Atlantic Bight, but seasonal totals of bluefin interactions reported were less compared to any other season. The percent of positive sets along the Mid-Atlantic Bight was lowest in the fall compared to other seasons for the area, but due to the high amount of effort in the fall (higher than any other season and area) the area recorded the second most numerous bluefin interactions. There was a relatively small number of sets in the Northeast Distance area, but a majority of fall bluefin interactions were reported from this region and the number of interactions per set is higher than any other area in the fall.

Spring marked the second most numerous bluefin interactions. More than 40 percent of sets were deployed along the South Atlantic Bight, but this area accounted for only 11 percent of all bluefin interactions. Conversely, the Mid-Atlantic Bight saw less than 10 percent of the effort and accounted for 44 percent of bluefin interactions in spring. The number of bluefin interactions in the Gulf peaked in spring.

In the Gulf, there was comparable fishing effort in the winter and spring, but a much lower percent of sets had bluefin interactions in the winter. While relatively low compared with other areas, seasonal effort and bluefin interactions peaked in the Sargasso Sea during winter. The percent of bluefin positive sets in the Northeast Coastal area was the highest observed from any season or area, but there was a very small number of sets deployed. Waters along Florida's east coast recorded the highest number of bluefin interactions for winter, and the highest percent of positive sets for the region occurred in winter.

Table 11.9 Number of sets, percent of sets positive for bluefin, and number of interactions with bluefin for each HMS fishing area per season 2015 through 2018

	Winter			Spring			Summer			Fall		
AREA	Total Sets	Percent Positive	BFT Interactions	Total Sets	Percent Positive	BFT Interactions	Total Sets	Percent Positive	BFT Interactions	Total Sets	Percent Positive	BFT Interactions
FEC	1,349	11.41	189	1,138	8.61	120	475	4.63	34	625	0.48	3
GOM	1,745	1.56	31	1,525	6.30	131	2,978	2.52	100	1,920	0.21	6
MAB	801	7.24	151	546	15.02	293	3,025	7.60	486	3,176	1.01	44
NEC	19	28.57	19	30	13.33	38	911	16.03	617	325	3.38	40
NED	C	C	C	0	0.00	0	371	20.49	134	428	25.47	220
NCA	C	C	C	5	0.00	0	8	0.00	0	C	C	C
SAB	606	6.44	47	2,659	2.07	75	1,065	5.54	120	453	0.00	0
SAR	538	8.36	51	55	9.01	5	C	C	C	71	5.63	5
TUN	C	C	C	170	0.00	0	C	C	C	C	C	C
TUS	0	0.00	0	C	C	C	0	0.00	0	0	0.00	0
Total	5,058	6.40%	488	6,128	5.55%	662	8,833	6.88%	1,491	6,998	2.33%	318

A 'C' in a cell denotes data that cannot be displayed due to confidentiality.
Source: Pelagic Logbooks (2006-2018)

11.5 Appendix E: Allocation Alternatives

Table 11.10 Pelagic Longline category quota distributions and IBQ allocations 2015-2019

	Quota Distribution	IBQ (mt)	Date	IBQ to Each Eligible Shareholder* (lb)		
				High Tier (~1.2 %)	Medium Tier (~0.6 %)	Low Tier (~0.37 %)
2015	Annual allocation	137.3	January 1, 2015	3,616	1,808	1,124
	Transfer from Reserve category	34.0	July 28, 2015	551	551	551
	ICCAT baseline quota increase	11.0	August 28, 2015	292	146	90
	2015 Total	182.3		4,459	2,505	1,765
2016	Annual allocation	148.3	January 1, 2016	3,913	1,956	1,206
	Transfer from Reserve category	34.0	January 4, 2016	551	551	551
	2016 total	182.3		4,464	2,507	1,757
2017	Annual allocation	148.3	January 1, 2017	3,913	1,956	1,206
	Transfer from Reserve category**	45.0	March 2, 2017	1,102	1,102	1,102
	2017 total	193.3		5,015	3,058	2,308
2018	Annual allocation	148.3	January 1, 2018	3,913	1,956	1,206
	Transfer from Reserve category**	44.5	April 13, 2018	1,102	1,102	1,102
	ICCAT baseline quota increase	15.3	October 5, 2018	404	202	124
	2018 total	208.1		5,419	3,260	2,432
2019	Annual allocation	163.6	January 1, 2019	4,317	2,157	1,330

	Quota Distribution	IBQ (mt)	Date	IBQ to Each Eligible Shareholder* (lb)		
				High Tier (~1.2 %)	Medium Tier (~0.6 %)	Low Tier (~0.37 %)
	2018 total	163.6		4,317	2,157	1,330

* Only allocated to eligible shareholders, for which the valid permit was associated with a vessel.
** Transfer from Reserve Category to active vessels only (vessels with recent fishing activity). Source: NOAA Fisheries 2019

11.6 Appendix F: Deepwater Horizon Oceanic Fish Restoration Project (OFRP) Proxies

The tables below show information used in the analyses of the allocation alternatives that is relevant to the use of proxies for the Deepwater Horizon OFRP. Table 11.11 and Table 11.12 regarding hooks and sets are based on VMS data. The proxy values for landings (Table 11.13) (designated species landings) is based on eDealer landings data. The proxy value for the revised Amendment 7 allocation (Table 11.14) are based on logbook data.

Table 11.11 Values for Calculation of Proxy Number of Hooks for Participants in the Deepwater Horizon OFRP in the Gulf of Mexico

Metric	2017 (March-June)	2018 (January-June)	2019 (January-June)
Total number of hooks set in Gulf of Mexico during project (by non-participants)	362,518	437,425	220,694
Total number of non-participant vessels fishing in Gulf of Mexico	23	20	15
Average number of hooks per vessel (i.e., proxy number of hooks for each participating vessel)	15,762	21,871	14,713
Number of OFRP participants	7	10	11
Total number off proxy hooks	110,334	210,871	161,843

Source: eDealer

Table 11.12 Values for Calculation of Proxy Number of Sets for Participants in the Deepwater Horizon OFRP in the Gulf of Mexico

Metric	2017 (March-June)	2018 (January-June)	2019 (January-June)
Total number of sets in Gulf of Mexico during project (by non-participants)	487	576	279
Total number of non-participant vessels fishing in Gulf of Mexico	23	20	15
Average number of sets per vessel (i.e., proxy number of sets for each participating vessel)	21	29	19
Number of OFRP participants	7	10	11
Total number off proxy sets	147	290	209

Source: eDealer

Table 11.13 Values for Calculation of Proxy Landings for Participants in the Deepwater Horizon OFRP in the Gulf of Mexico; (Designated Species Landings)

Metric	2017 (March-June)	2018 (January-June)	2019 (January-June)
Total amount of landings in Gulf of Mexico during project (by non-participants) (lb)	395,515	371,393	241,666
Total number of non-participant vessels fishing in Gulf of Mexico	42	18	12
Average pounds per vessel (i.e., proxy landings for each participating vessel)	9,417	20,633	20,139
Number of OFRP participants	7	10	11
Total amount of Proxy Landings (lb)	65,919	206,328	221,527

Based upon eDealer data and 5 designated species

Table 11.14 Values for Calculation of Proxy Landings for Participants in the Deepwater Horizon OFRP in the Gulf of Mexico; (Revised Amendment 7 Allocation Alternative)

Metric	2017 (March-June)	2018 (January-June)
Total amount of landings in Gulf of Mexico during project (by non-participants) (lb)	278,531	268,775
Total number of non-participant vessels fishing in Gulf of Mexico	17	16
Average pounds per vessel (i.e., proxy landings for each participating vessel)	16,384	16,798
Number of OFRP participants	7	10
Total amount of Proxy Landings (lb)	114,688	167,980

Based upon logbook data and 7 designated species

11.7 Appendix G: Comparison of Dynamic Allocation Alternatives

The following tables contain data that compare various metrics among the allocation alternatives that were used in the evaluation of the impacts of the alternatives. The metrics include share percentages associated with quartiles, examples of IBQ allocations based on the share percentages and an annual Longline category quota of 360,656 pounds, and gains and losses compared to the No Action Alternative.

Table 11.15 Comparison of Share Percentages under Dynamic Allocation and No Action Alternatives

Alternative	Quartile 4	Quartile 3	Quartile 2	Quartile 1
hooks	2.05%	1.23%	0.73%	0.17%
sets	1.85%	1.35%	0.82%	0.17%
landings	2.09%	1.18%	0.64%	0.12%
equal	1.02%			
No Action	High Tier 1.2%	Medium Tier 0.6%	Low Tier 0.37%	No eligible 0 %

Table 11.16 Comparison of IBQ Allocations* (in pounds) under Dynamic Allocation and No Action Alternatives

Alternative	Quartile 4	Quartile 3	Quartile 2	Quartile 1
hooks	7,407	4,435	2,634	610
sets	6,665	4,880	2,944	609
landings	7,555	4,237	2,303	423
equal	3,680			
No Action	High Tier 4,317	Medium Tier 2,157	Low Tier 1,330	No eligible 0

* Based on an annual Longline quota of 360,656 pounds

Table 11.17 Gains and Losses associated with Dynamic Allocation based on Dynamic Allocation Alternatives Compared to the No Action Alternative

Metric	hooks	sets	landings	equal
Number of vessels gaining and losing IBQ allocation	66	66	57	61
	(31)	(31)	(42)	(37)
Average pounds of IBQ allocation (in pounds) gained or lost (lb)	2,362	2,369	2,873	1,944
	(1,867)	(1,884)	(1,668)	(637)
Average of lease value of IBQ allocation gained or lost*	$4,015	$4,028	$4,888	$3,305
	($3,174)	($3,203)	($2,836)	($1,083)
Sum of lease value of IBQ allocation gained or lost*	$264,997	$265,843	$278,384	$201,576
	($98,383)	($99,280)	($119,124)	($40,067)

*Based on Longline category allocation of 360,656 pounds and lease price of $1.70 per pound. Losses in parentheses.