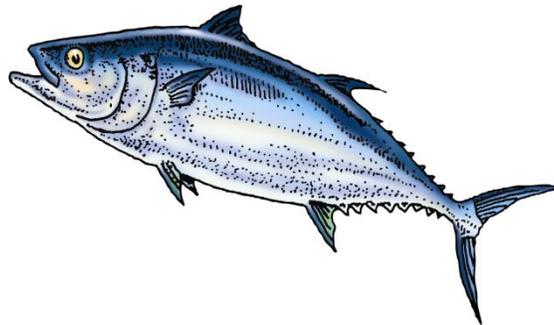


Predraft of

**Amendment 7 to the 2006 Consolidated Atlantic Highly
Migratory Species Fishery Management Plan**



Highly Migratory Species Management Division
Office of Sustainable Fisheries
National Marine Fisheries Service
September 2012

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1.0 INTRODUCTION

1.1 The Predraft and Amendment 7 Development

This document is a “Predraft” for Amendment 7 to the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) and a precursor to a Draft Environmental Impact Statement (DEIS). A Predraft document allows the National Marine Fisheries Service (NMFS) to obtain additional information and input from Consulting Parties and the public on potential alternatives prior to development of the formal DEIS and proposed rule. The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires NMFS to “consult with and consider the comments and views of affected Councils, commissioners and advisory groups appointed under Acts implementing relevant international fishery agreements pertaining to highly migratory species, and the HMS Advisory Panel in preparing and implementing any fishery management plan or amendment.” As such, we are requesting comments and views on this Predraft document for Amendment 7 to the 2006 Consolidated HMS FMP. An electronic version of the Predraft is also available on the website of the HMS Management Division at: <http://www.nmfs.noaa.gov/sfa/hms>.

As explained further in the Purpose and Need portion (Section 1.2) of this document, NMFS is developing Amendment 7 to the 2006 Consolidated HMS FMP in response to trends in the bluefin tuna fishery over the past few years, and public comment and suggestions that substantive changes to the 2006 Consolidated HMS FMP are warranted with regard to bluefin tuna management. NMFS anticipates that the proposed rule and DEIS will be available in early-2013 and that Final Amendment 7 to the 2006 Consolidated HMS FMP will be implemented in January 2014. NMFS requests receipt of any comments on this document by October 20, 2012. In addition to future HMS Advisory Panel input, public input and future analyses, there are other relevant events anticipated that may impact the development of Amendment 7, including an Atlantic bluefin tuna (BFT) stock assessment during the fall of 2012, a meeting of the Convention on the International Trade of Endangered Species (CITES) in the spring of 2013, revisiting the “species of concern” designation under the Endangered Species Act in 2013, and the annual meetings of the International Commission for the Conservation of Atlantic Tunas (ICCAT) in November 2012 and 2013.

Any written comments on the Predraft should be submitted to Tom Warren, HMS Management Division, National Marine Fisheries Service, 55 Great Republic Drive, Gloucester, MA, 01930 or faxed to (978) 281- 9340 by October 20, 2012. For further information, contact Tom Warren or Brad McHale at (978) 281-9260.

This Predraft includes the purpose and need (Section 1.2) of the amendment, a summary of the relevant background information (Section 2.0), and tables summarizing the potential environmental, social, and economic impacts of management alternatives that NMFS is considering at this time, and (Section 4.0). As further described in Section 4.0, in order to serve as a catalyst for discussion by the Advisory Panel, some of the management measures are characterized as “first tier measures” that NMFS is considering more favorably at this time than “second tier measures” for inclusion in a future proposed rule. In the future DEIS and proposed

rule, the first tier or second tier measures described in this document (Sections 4.1, and 4.2, respectively) may be included, modified, removed, or supplemented based on comments received, additional analyses, and new information, as appropriate. NMFS specifically solicits opinions and advice on the potential range of alternatives, the first tier measures, and whether there are additional alternatives that should be addressed and considered in the rulemaking process. Additionally, NMFS solicits opinions and advice on the impacts described for each alternative.

1.2 Purpose and Need for Action

The Agency is in the process of developing an amendment to the 2006 Consolidated HMS FMP, as a result of recent trends and characteristics of the bluefin fishery, and events of the past several years as described below. This section provides a summary explanation of why NMFS is developing an amendment. This Purpose and Need section contains some relevant background information on the bluefin fishery, but the reader will find more comprehensive information in Section 2.0 (Background).

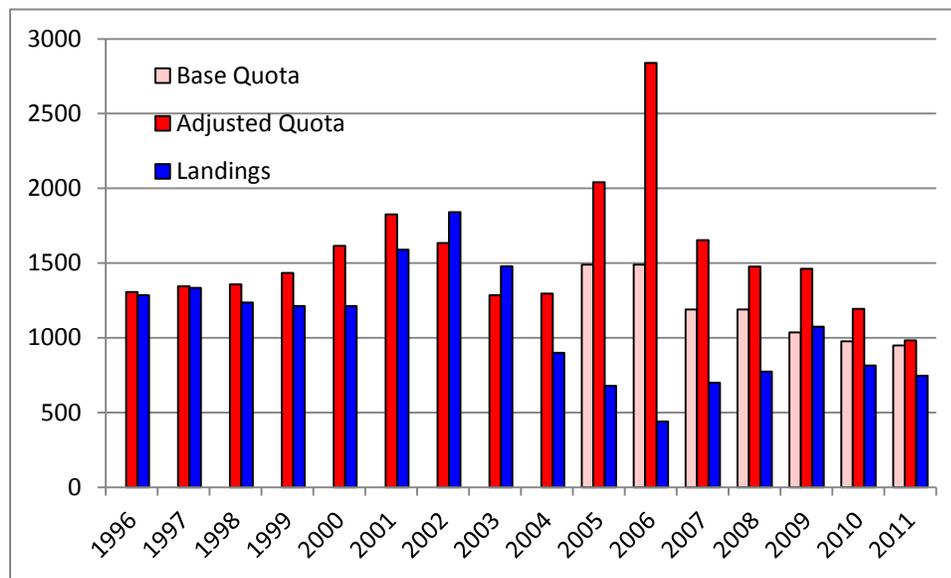
Under the 2006 Consolidated HMS FMP, the bluefin fishery is a quota-managed species. The management consists of allocating an annual bluefin quota (established by ICCAT) among the seven quota categories. The amount of quota allocated to each category is expressed as a percentage of the total quota, and was most recently specified by the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks (1999 FMP), based on landings from 1983-1991. Landings were the only portion of catch (i.e., catch = landings + discards) that were factored into the 1999 FMP percentage allocation analysis at that time, as dead discards were accounted for under a separate allowance per ICCAT recommendations. These allocations continued unchanged in the 2006 Consolidated HMS FMP. The separate dead discard allowance has since been discontinued (per ICCAT recommendation) and dead discards are to be accounted for within each country's annual quota allocations. In 2010, ICCAT implemented Recommendation 10-03, which reiterated that "All Contracting Parties, non-Contracting Parties, Entities and Fishing Entities shall monitor and report on all sources of bluefin fishing mortality, including dead discards, and shall minimize dead discards to the extent practicable." Specifically, the combined effect of the domestic quota system and ICCAT requirements result in an annual allocation/accounting challenge: How to both account for anticipated dead discards as well as optimize fishing opportunity for all categories in an equitable manner? As explained in more detail in the "Background" section of this document, the 2006 Consolidated HMS FMP provides some flexibility regarding the quota allocation system. For example, there is flexibility to transfer quota among categories, and there are not defined protocols regarding accounting for dead discards. Although the management plan and current regulations require accountability for dead discards, they do not require the dead discard estimate to be subtracted from the annual U.S. quota up front but offer limited alternatives for such accounting.

During the 2011 bluefin quota specifications (76 FR 39019; July 5, 2011) or "Quota Rule" process, which sets out the quota allocations domestically for the year, it became apparent that the adjusted quota for 2011 was insufficient to account for anticipated 2011 dead discards, while also providing base allocations for the directed fishing categories per the percentages outlined in the 2006 Consolidated HMS FMP. For example, the total U.S. baseline allocation was 923.7 mt, the baseline allocation for the Longline category was 74.8 mt, and the estimated amount of dead

discards in 2011 to account for was 122.3 mt, based on the most recent information (i.e., 2010 estimated dead discards, etc.). There were three factors that made accounting for anticipated discards in the 2011 Quota Rule more challenging than other previous annual bluefin specification rules. The factors were: 1) Adjustments to the ICCAT western Atlantic bluefin tuna management recommendations (including reductions in total allowable catch (TAC) and the amount of underharvest that can be carried forward (“carry-forward”) and the previous elimination of a dead discard allowance); 2) increases in domestic pelagic longline (PLL) dead discard estimates due to changes in estimation methodology and potentially an increase in bluefin interactions; and 3) recent increases in domestic bluefin landings, including PLL incidental landings.

After extensive public comment on a proposed rule, NMFS accounted for half of the estimated PLL dead discards “up front”, by deducting half the expected dead discards directly from the Longline category quota, to provide some incentive for PLL fishermen to reduce interactions that may result in dead discards. Secondly, NMFS applied half of the underharvest that was allowed to be carried forward to the Longline category, and maintained the other half in the Reserve category to provide maximum flexibility in accounting for 2011 landings and dead discards. The underlying premise was that full and final accounting for dead discards would occur at the end of the fishing year, and that such accounting would be possible due to the likelihood of unharvested quota at the end of the fishing year. Figure 1 below shows information on recent landings compared to base and adjusted quotas. The recent trend is a larger percentage of the adjusted quota being landed than during the mid-2000’s.

Figure 1. Bluefin Tuna Landings, Base Quota, and Adjusted Quota, 1996 – 2011 (mt).



The range of comments received on the proposed 2011 Quota Rule (March 14, 2011; 76 FR 13583), and discussions at HMS Advisory Panel meetings demonstrated the need for a comprehensive review of bluefin management. Many comments raised issues that were outside of the scope of that rulemaking and would require additional analyses because of the potential impacts on the fisheries and fishery participants. Some of the issues raised include: holding each quota category accountable for their own dead discards and revisiting the methodology used

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for estimating dead discards, the accounting for bluefin landings relative to the 2006 Consolidated HMS FMP percentage allocations, changing domestic allocations among fishing categories, reducing bluefin bycatch, modifying the permit structure for the fisheries, improving monitoring of catch in all bluefin fisheries, providing incentives to the Longline category to reduce interactions with bluefin, and reducing dead discards in the PLL fishery.

In May 2011, in response to a petition to list bluefin as threatened or endangered under the Endangered Species Act (ESA), NOAA determined that listing bluefin as threatened or endangered under the ESA was not warranted, however, bluefin was designated as a species of concern. This places the species on a watch list for concerns about its status and threats to the species. NOAA has committed to revisit this decision in 2013, when more information is expected to be available about the effects of the Deepwater Horizon oil spill, and the results of the 2012 bluefin stock assessment and any new or revised bluefin recommendations stemming from the 2012 ICCAT annual meeting are known.

In the final 2011 Quota Rule, NMFS stated “however, in light of the issues involving U.S. quotas and domestic allocations, Pelagic Longline discards, the need to account for dead discards that result from fishing with other gears, and bycatch reduction objectives, as well as public comment, NMFS intends to undertake a comprehensive review of bluefin management in the near future to determine whether existing management measures need to be adjusted to meet the multiple goals for the bluefin fishery.”

The management context of the above issues is the 2006 Consolidated HMS FMP, which contains a broad range of management objectives including (but not limited to) to prevent overfishing of Atlantic tunas, rebuild overfished Atlantic HMS stocks, monitor and control all components of fishing mortality so as to ensure long-term sustainability of the stocks and promote Atlantic wide stock recovery, minimize bycatch, manage for continuing optimum yield so as to provide the greatest overall benefit to the Nation, minimize to the extent practicable adverse social and economic impacts, provide a framework to take necessary action under ICCAT recommendations, and simplify HMS management and regulatory requirements to assist the regulated community.

NMFS began to address some of the above issues at the September 2011 meeting of the HMS Advisory Panel, by presenting a summary of some of the recent issues as well as a white paper on bluefin bycatch in the PLL fishery. The HMS Advisory Panel discussed issues related to the Longline category as well as issues in the BFT fishery as a whole and offered an array of suggested measures for NMFS’ consideration as potential solutions. The range of management measures in this predraft document is broad, which is consistent with the suggestion of the Advisory Panel to employ a broad suite of management measures.

On November 30, 2011, NMFS published a separate final rule (76 FR 74003) that implemented the following measures to increase management flexibility in the General and Harpoon categories: 1) Increased the General category *maximum possible* bluefin daily retention limit from 3 to 5 fish (with limit adjustments to be executed via inseason actions as appropriate); 2) allowed the bluefin General category season to remain open until the January subquota is reached, or March 31 (whichever happens first); and 3) increased the Harpoon category daily retention limit of 73” to 81” bluefin from 2 to 4 fish. The intent of that action was to enable

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more thorough utilization of available U.S. bluefin quota for the General and Harpoon permit categories; minimize bycatch and bycatch mortality to the extent practicable; expand fishing opportunities for participants in the commercial winter General category fishery as warranted; and increase NMFS' flexibility and range for setting the General category retention limit depending on available quota and other regulatory considerations. Subsequently, the Center for Biological Diversity filed a lawsuit regarding that final rule, alleging that the final rule violated the Magnuson-Stevens Act, the National Environmental Policy Act, and the Administrative Procedure Act. That lawsuit is ongoing.

In preparation for the formal process of evaluating potential changes to the fishery management plan, a preliminary version of a Scoping Document ("Preliminary White Paper") was presented by NMFS to the HMS Advisory Panel meeting at its March 2012 meeting for its consideration as a scoping document to begin the process of reviewing the current management of BFT (NMFS, March 2012). The HMS Advisory Panel expressed qualified support for further exploring and analyzing the range of measures in the Preliminary White Paper, and suggested several additional measures. Those additional measures were incorporated into a final Scoping Document (NMFS, April 2012). NMFS made the scoping document available to the public, concurrent with the publication of a Notice of Intent (NOI) in the Federal Register (78 FR 24161; April 23, 2012), which announced NMFS' intent to hold public scoping meetings to determine the scope and significance of issues to be analyzed in a DEIS, and a potential amendment to the 2006 Consolidated HMS FMP. The NOI stated that NMFS is examining the regulations that affect all BFT fisheries, both commercial and recreational, to determine if existing measures are the best means of achieving current management objectives and providing additional flexibility to adapt to management needs in the future. The NOI also announced the availability of the scoping document and notified the public of scoping meetings and consultations with regional fishery management councils. During May and June of 2012, NMFS conducted public meetings to present the scoping document and receive public comments in Toms River, New Jersey; Gloucester, Massachusetts; Belle Chasse, Louisiana; Manteo, North Carolina; and Portland, Maine. During June 2012, NMFS consulted with the Mid-Atlantic Fishery Management Council, the New England Fishery Management Council, and the South Atlantic Fishery Management Council, while the scoping document was shared with the Gulf of Mexico Fishery Management Council and the Caribbean Fishery Management Council. Details regarding the specifics of the hearings and consultations and the public comments are in Section 6.0 of this pre-draft document.

The objectives and measures listed in this document are intended to inform the HMS Advisory Panel and members of the public, but should not be viewed as a proposal or a decision. NMFS requests input from the HMS Advisory Panel on whether the measures may achieve the stated objectives, and further evaluate all measures. Any objectives and/or measures considered in an amendment to the current 2006 Consolidated HMS FMP must be compliant with all applicable statutes including the Magnuson-Stevens Act, the Atlantic Tunas Convention Act (ATCA), National Environmental Policy Act (NEPA), Administrative Procedure Act (APA), as well as other domestic and international obligations such as those pertaining to ICCAT.

In summary, an amendment to the 2006 HMS FMP to address bluefin tuna management is needed due to the recent trends and characteristics of the bluefin fishery and the need to comply with both domestic and international management objectives and obligations. Annual

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implementation of the domestic quota system has become more difficult due to increases in bluefin dead discards, a larger percentage of the adjusted quota being landed and changed ICCAT requirements regarding accounting for dead discards and allowable carry-forward of unused quota. Public comment has supported the contention that substantive changes to the 2006 Consolidated HMS FMP are warranted, and it is important to rebuild the fishery, ensure long-term sustainability, and to optimize fishing opportunity for all categories in an equitable manner.

2.0 BACKGROUND

2.1 Bluefin Tuna Management Overview

The HMS Management Division within NMFS develops regulations for HMS fisheries, and manages HMS species at the international, national, and in some instances, the state level because of the highly migratory nature of these species. Atlantic HMS are managed primarily under the authority of two Federal laws: 1) the Magnuson-Stevens Act and Management Act (Magnuson-Stevens Act) and 2) ATCA. Under the Magnuson-Stevens Act, NMFS must manage fisheries to maintain optimum yield (OY) by rebuilding overfished fisheries and ending overfishing. Under ATCA, the Secretary of Commerce shall promulgate such regulations as may be necessary and appropriate to carry out ICCAT Recommendations. ICCAT is an international regional fishery management organization, responsible for international conservation and management of tunas and tuna-like species. ICCAT has 49 members, including the United States, Canada, the European Union, Japan, and China, among others, that fish for tunas and tuna-like species throughout the Atlantic and its adjacent seas, including the Mediterranean. Since 1966, ICCAT's stated objective has been to "cooperate in maintaining the populations of these fishes at levels which will permit the maximum sustainable catch for food and other purposes." ICCAT provides binding management recommendations to the member nations.

The current conservation and management recommendations of ICCAT include Total Allowable Catches (TACs), sharing arrangements for member countries, minimum size limits, effort controls, time/area closures, data collection, catch and discard reporting, trade measures, compliance measures, and monitoring and inspection programs. If the United States accepts an ICCAT recommendation, ATCA provides the Secretary of Commerce with the domestic statutory authority to promulgate such regulations as may be necessary and appropriate to implement the recommendation (16 U.S.C. §971 *et seq.*). However, no regulation promulgated under ATCA may have the effect of increasing or decreasing any allocation or quota of fish or fishing mortality level to which the United States agreed pursuant to a recommendation of ICCAT (16 U.S.C. §971 (c)). ICCAT recommendations can be found on the internet at <http://www.iccat.es>.

NMFS primarily coordinates the management of HMS fisheries in Federal waters (domestic) and the high seas (international) while typically individual states establish regulations for HMS in state waters. Federal Atlantic tuna regulations apply by law in most state waters, and federally permitted HMS fishermen, as a condition of their permit, are required to follow Federal regulations in all waters, including state waters, unless the state has more restrictive regulations.

The domestic management of Atlantic tunas, swordfish, sharks, and billfish are currently combined into the 2006 Consolidated HMS FMP and its amendments. The background information below is limited in scope to information most relevant to the objectives and measures discussed in this document. Additional background information and documents may be found at the following link under the HMS website: <http://www.nmfs.noaa.gov/sfa/hms/Linkpages/documents.htm>.

2.2 Bluefin Tuna Quota Management

Atlantic bluefin tuna is managed domestically through a quota-based system, in conjunction with other management measures including gear restrictions, minimum fish sizes, closed areas, and trip limits. ICCAT recommendations include establishing an annual TAC of bluefin for the western Atlantic management area, as well as other management measures. Under existing recommendations, the U.S. portion of the ICCAT-designated western Atlantic TAC is 54 percent. NMFS implements the ICCAT quota recommendations, as required by ATCA, and further divides the quota among U.S. fishing categories through an annual specifications or quota rule. Through such a rule, NMFS divides the annual U.S. bluefin quota among several domestic categories based on allocation percentages first established in the 1999 FMP (See Table 1). Specifically, NMFS implements the quota recommendations through the domestic rulemaking process (i.e., proposed and final rules in the Federal Register). These annual bluefin specifications quantify the baseline allocation for each domestic quota category, measured in whole weight (metric tons), by calculating the allocation percentages against the overall U.S. bluefin quota. NMFS further subdivides these domestic category allocations into subquotas (*i.e.*, on a temporal, geographic, and/or size class basis) to further meet the objectives of the Magnuson-Stevens Act, ATCA, and the 2006 Consolidated HMS FMP. Also, pursuant to ICCAT recommendations, NMFS adjusts these base quotas on an annual basis to appropriately account for overharvest or underharvest during the previous year. NMFS also may allocate any remaining quota from the Reserve category to cover overharvests, consistent with specific determination criteria.

Quota Allocation

NMFS first established “base” quotas for the various commercial and recreational categories in the bluefin tuna fishery in 1992, based upon the historical share of landings in each of these categories during the period 1983 through 1991. These base quotas for each of the quota allocation categories are expressed as a percentage of the total U.S. quota, and are codified in the regulations. Prior to 1998, the ICCAT justification for allocation of bluefin quota was to collect the broadest possible array of scientific information and to optimize social and economic benefits. The use of a “scientific monitoring quota” had originated in 1982, when ICCAT adopted a low quota in response to stock declines. In 1998, an ICCAT recommendation changed the basis upon which the harvest of western Atlantic bluefin tuna was authorized. The focus on allocating quota for scientific monitoring purposes was replaced with a focus on rebuilding the stock and managing the fishery for continuing optimum yield. ICCAT continues to require all contracting parties, non-contracting parties, entities, and fishing entities to provide the best available data for the assessment of the stock by the Standing Committee on Research and Statistics (SCRS), including information on the catches of the broadest range of age classes possible.

In 1995, NMFS modified the original quota allocations, reducing the Purse Seine category by 51 mt ww and transferring 4 mt ww from the Incidental category (the name of the Longline category at that time) to the Angling category for the retention of large medium and giant bluefin. There were several reasons for the 1995 reduction in Purse Seine quota. The first was related to the role of quota allocation in providing scientific data in support of stock assessments,

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as described above. The Purse Seine category does not provide a catch per unit effort time series used to estimate trends in stock size, and this was the rationale for quota reduction. Other reasons for reducing the Purse Seine quota in 1995 were issues raised by constituents of “fairness and equity,” and the greater employment generated in the non-Purse Seine categories. In 1997, quota allocations were slightly modified from the 1995 base levels to more accurately reflect recent trends in fleet size, effort, and landings by category, and also to reflect the scientific monitoring nature of the west Atlantic quota. Table 1 below summarizes the quota allocations.

Table 1. Bluefin Base Quota Allocations by Quota Category – As a Percentage of U.S. Quota.

Category	Current Allocation (%)	Category	Current Allocation (%)
Angling	19.7	Purse Seine	18.6
General	47.1	Trap	0.1
Harpoon	3.9	Reserve	2.5
Longline	8.1		

Bluefin Quota Specification

In order to implement the binding quota recommendations of ICCAT, as required by ATCA, and achieve the requirements of the 2006 Consolidated HMS FMP under the Magnuson-Stevens Act, NMFS specifies annual quotas for the bluefin fishery. The quota specifications are based on the ICCAT quota recommendations for a particular year, the under/overharvest of the prior year, and the codified quota allocation percentages for each quota category. For example, if the total quota is 923.7 mt, and the codified Angling category quota is 19.7%, then the resultant quota specified for the Angling category would be 182 mt. Importantly, the annual quota specifications also account for dead discards of bluefin as well as adjustments for underharvest and overharvest as allowable and specified under the regulations.

2.3 ICCAT Recommendations

On the international level, NMFS participates in the stock assessments conducted by ICCAT’s SCRS and in the annual ICCAT meetings. The stock assessments and management recommendations or resolutions are listed on ICCAT’s website at <http://www.iccat.es/>. NMFS also actively participates in other international bodies that could affect U.S. fishermen and the fishing industry. The most pertinent type of ICCAT recommendations are those that establish the annual TACs which are usually recommended every few years. Examples of provisions in long-standing ICCAT recommendations include a prohibition against directed fishing in the Gulf of Mexico, which is the known spawning area for western Atlantic bluefin tuna, and minimum size restrictions. Table 2 lists some notable ICCAT recommendations regarding bluefin (not including annual TAC recommendations), and indicates whether they are currently active recommendations. Many of the historical recommendations that are not listed as active have been incorporated into more recent, active recommendations.

Table 2. Notable ICCAT Western Bluefin Recommendations.

ICCAT Rec	Description	Effective (Quota Year)
74-01	Minimum size limit of 6.4 kg (14 lb) with 15% tolerance	1975
81-01	Catches limited to 800 mt to enable scientific studies	1982
82-01	Limit of BFT < 120 cm set at 15% of TAC; No directed fishing on BFT in Gulf of Mexico	1983
91-01	If exceed quota (overage) deduction in following period; Minimum size of 30 kg (lb) or 155 cm (in) with 8% tolerance	1992
93-05	Unused quota can be carried over to the subsequent year	1994
96-04	Requirement to monitor and report discards, and minimize discards to the extent practicable	1997
98-07	Initiation of 20-year rebuilding program; Dead discards deducted from TAC: 79 mt or 2.82% of TAC (whichever is bigger); Dead discards distributed between the United States, Canada, and Japan (85.72%, 7.14%, and 7.14%, respectively); Small fish tolerance (8%) now to be an average over 4-years	1999
02-07	United States (25 mt) and Canada (15 mt) receive bycatch quotas to account for catch by longline vessels in vicinity of area boundary	2003
06-06	Limit carry-forward of underharvest to 50% of TAC; Elimination of dead discard allowance; Small fish tolerance now 10%, over 4 years	2007
08-04 (active)	Limit carry-forward of underharvest to 10% of TAC*; Small fish tolerance now over two subsequent years (2009-10)	2009; 2011*
10-03 (active)	If the SCRS stock assessment detects a serious threat of stock collapse, the Commission shall suspend all Bluefin fisheries in the Western Atlantic for the following year; Small fish tolerance (10%), over 2011 and 2012; Report catches of BFT to ICCAT monthly; Enhance biological sampling	2011
11-06 (active)	Exemptions for scientific institutions (20 mt research mortality allowance (RMA); size, gear, and closures) to allow research	2011

2.4 Quota Categories, Permit Types, and the Bluefin Tuna Fishery

2.4.1 Introduction

Discussions of bluefin management in this document are organized in several ways:

1) according to the type of gear used to catch the bluefin (fishery); 2) by quota category; or 3) by permit category/type. In the 2006 Consolidated HMS FMP, most descriptions of the bluefin fishery are organized according to the type of gear catching the bluefin, which is an important distinguishing aspect of the fishery. Discussions of management measures and regulations are usually organized by permit type or quota category. Description of the bluefin management can be confusing due to overlapping nomenclature describing the fishery, quota categories, and permit types. Regulations typically apply to a specific type of permit, but permit categories may

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cover several gears. Therefore, when discussing the bluefin fishery, it is important to distinguish between the type of gear used to capture bluefin, the quota category against which the catch is attributed, and the type of permit the vessel is issued.

The following discussion is organized by fishery gear types, in order to be consistent with the organizational structure of much of the historical information regarding bluefin. This section of the document provides a brief description of the fishery, but focuses on information regarding the quota category and relevant management measures that apply based on permit type.

2.4.2 Bluefin Tuna Size Nomenclature

The size of bluefin is an important attribute for management. Table 3 contains the names of bluefin size classes as used in management.

Table 3. Bluefin Size Class Nomenclature (in inches).

Size Class	Curved Fork Length (CFL) - inches	Notes
Young school	less than 27	May not retain
School	27 to less than 47	Recreational Size Range
Large School	47 to less than 59	
Small Medium	59 to less than 73	
Large Medium	73 to less than 81	Commercial Size Range
Giant	greater than 81	

2.4.3 Recreational Handgear (bluefin fishery description)

The recreational fishery is limited to using handgear to capture HMS, including bluefin. Legal gear to use while fishing under this permit type for Atlantic tunas, including bluefin, include rod and reel, handline, bandit gear (Charter/Headboat permit only), and Green-stick (Charter/Headboat only). Speargun use is allowed for the “BAYS” tunas (Bigeye, Albacore, Yellowfin, and Skipjack) only, not for bluefin tuna. The predominant gear is rod and reel. The recent size and retention limits for the Angling and Charter/headboat permit categories is summarized in Table 5. All restrictions are applied to the vessel, per day and/or trip. This fishery is highly variable due to the variable patterns of bluefin distribution and abundance. Details of operations, frequency and duration of trips, and distance ventured offshore by recreational fishermen vary widely. Recreational fishing for medium and giant bluefin tuna with rod and reel generally takes place between December and February off North Carolina, and in Cape Cod Bay, the Gulf of Maine, and other New England waters during summer and early fall. Smaller bluefin tuna are targeted off Virginia, Delaware and Maryland in early to mid-summer, with the center of activity moving northward into the New York Bight as the season progresses. Fishing usually takes place between eight and 200 km from shore. Beyond these general

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patterns, the availability of bluefin tuna at a specific location and time is highly dependent on environmental variables that fluctuate from year-to-year. Tournaments tend to concentrate fishing effort into a small area (NMFS, 1999). In recent years, school bluefin have been increasingly available to southern New England fisheries, in that school bluefin have been appearing and caught further north than in the past. Fishery landings and school bluefin availability generally decline in the fall with colder water temperatures and degrading fishing conditions (NMFS, December 2011).

2.4.4. Angling Category (quota category and permit type)

The Angling category is allocated 19.7 percent of the baseline bluefin quota. 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 4 contains the quota subdivisions. The Angling category quota is caught by private recreational fishermen, fishing under a federal permit (the HMS Angling permit) or HMS Charter/Headboat fishermen, fishing recreationally. Both the HMS Angling category and the Charter/Headboat permit categories are open access. Recreational fishing for Atlantic HMS, including bluefin is managed primarily through the use of size limits, retention limits, reporting requirements, as well as the quota itself. Table 5 contains recent retention limits for Angling and Charter/Headboat category permit holders.

Table 4. Angling Category Bluefin Quota Rules.

Description	Amount
Total Angling quota	19.7 % of total quota
Large medium or giant	No more than 2.3 % of annual Angling category quota
School	Over each two consecutive year period, no more than 10 % of annual U.S. BFT quota may be school BFT (27- 47")
Reserve school	18.5 % of school Angling category quota
After deducting the reserve the following quotas are calculated:	
School south	52.8 %
School north	47.2 %
Large school/small medium north	52.8 %
Large school/small medium south	47.2 %
Large medium/giant north	66.7 %
Large medium/giant south	33.3 %

Table 5. Recent Retention Limits for the Angling and Charter/Headboat Permit Categories.

Date Range	Permit Category	Restriction
Jan 1 to Jun 11, 2010	Angling & Charter/Headboat	1 BFT 27" to less than 73" 1 BFT greater than 73" ("Trophy")
June 12 to Dec 31, 2010	Angling	1 BFT 27" to less than 59"
	Charter/Headboat	1 BFT 27" to less than 47" and; 1 BFT from 47" to less than 59"
Jun 12, 2010	Angling & Charter/Headboat	Trophy South closed
Jul 18, 2010	Angling & Charter/Headboat	Trophy North closed
Jan 1 to Apr 1, 2011	Angling & Charter/Headboat	1 BFT 27" to less than 73"
Apr 2 to Dec 31, 2011	Angling	1 BFT 27" to less than 73"
	Charter/Headboat	1 BFT 27" to less than 73" and; 1 BFT 27" to less than 47" (47 to 73" prohibited)
Apr 2, 2011	Angling & Charter/Headboat	Trophy South closed
Jul 29, 2011	Angling & Charter/Headboat	Trophy North closed

2.4.5 HMS Charter/Headboat Category (permit type and fishery)

Vessels with an HMS Charter/Headboat category permit can fish for bluefin under the Angling category recreational rules or the General category commercial rules on a particular fishing trip. The rules that apply depend upon the size of the first bluefin retained on that particular trip. For example, if the first bluefin retained is a school, large school, or small medium, the Angling category rules would apply. If the first fish is a large medium or giant, the General category rules would apply, and the vessel would be required to abide by the size and retention limits applicable to the General category, and would be able to sell the fish. The bluefin caught count toward the respective category quota. Charter/headboats have been targeting school bluefin tuna off New York and New Jersey since the early 1900s. Small bluefin tuna are typically caught by trolling with artificial lures, although chunking has become popular in some areas, using rod and reel (NMFS, 1999). A survey of anglers that participated in the 1997 winter fishery off Cape Hatteras, NC found that 73 percent of 1,390 vessel trips for bluefin tuna were taken on charterboats (Ditton *et al.*, 1998).

2.4.6 Commercial Handgear (fishery description)

Commercial handgears, including handline, harpoon, rod and reel, buoy gear and bandit gear, are used to fish for Atlantic HMS, including bluefin by fishermen on private vessels, charter vessels, and headboat vessels. Rod and reel gear may be deployed from a vessel that is at anchor, drifting, or underway (*i.e.*, trolling). In general, trolling consists of dragging baits or lures through, on top of, or even above the water's surface. While trolling, vessels often use outriggers, kites, or greensticks to assist in spreading out or elevating baits or lures and to

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prevent fishing lines from tangling. For more information on green-stick fishing gear, and the configurations allowed under current regulations, please refer to the discussion of greenstick gear in Section 4.1.2 of this document. Operations, frequency and duration of trips, and distance ventured offshore vary widely. Most of the vessels are greater than seven meters in length and are privately owned by individual fishermen. The handgear fisheries are typically most active during the summer and fall, although in the South Atlantic and Gulf of Mexico fishing occurs during the winter months. Fishing usually takes place between eight and 200 km from shore and for those vessels using bait, the baitfish typically include herring, mackerel, whiting, mullet, menhaden, ballyhoo, butterfish, and squid. The commercial handgear fishery for bluefin traditionally occurred mainly in New England, but more recently has also flourished off the coast of southern Atlantic states, such as Virginia, North Carolina, and South Carolina, with vessels targeting large medium and giant bluefin. This fishery is highly variable due to bluefin distribution and abundance, which varies with oceanographic and ecological conditions, etc.

Vessels that wish to sell their Atlantic tunas must obtain a commercial handgear permit in one of the following categories: General (rod and reel, harpoon, handline, bandit gear), Harpoon (harpoon only), or HMS Charter/Headboat (rod and reel and handline). These vessels may also need permits from the states they operate out of in order to land and sell their catch. All commercial permit holders are encouraged to check with their local state fish/natural resource management office regarding these requirements. There are also U.S. Coast Guard safety regulations that apply to vessels with commercial permits. Permitted vessels are also required to sell their Atlantic tunas to federally permitted Atlantic tuna dealers.

2.4.7 General Category (quota category and permit type)

The General category is allocated 47.1 percent of the baseline U.S. quota. The General category quota is further subdivided into subquotas that are based upon historical fishery patterns and the seasonal distribution of bluefin. The General category bluefin fishery opens on January 1 of each year and remains open until either the January quota allocation has been caught, or until March 31, whichever comes first. The fishery then reopens on June 1 and remains open until December 31 or until the quota is filled, whichever happens first. The General category permit is an open access permit. Table 6 contains the subquotas for the General category.

Table 6. General Category Sub-Quotas by Month.

Months	Percentage of General Category Annual Quota
January *	5.3 %
June through August	50 %
September	26.5 %
October and November	13 %
December	5.2 %

*If this quota remains uncaught as of the end of January, the General category fishery remains open until the quota has been caught or the end of March, whichever occurs first.

As discussed further under Section 4.2.1, the current allocation system detailed in Table 6 was developed to reflect the seasonal distribution of bluefin as well as the historical fishery. The

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General category fishery has, over a number of years, landed a large percentage of the total bluefin landings (e.g., 62% in 2011; Figure 6). The fishery can be quite varied however, and in recent years, fishermen have noted a substantial decline in the availability of large medium and giant bluefin in the New England area (NMFS, December 2011). During certain periods, for example, between 2004 through 2008, the availability of commercial-sized bluefin to the commercial fisheries, particularly off New England appeared to have declined dramatically, while the Canadian commercial quota was approached or met (SCRS, 2010).

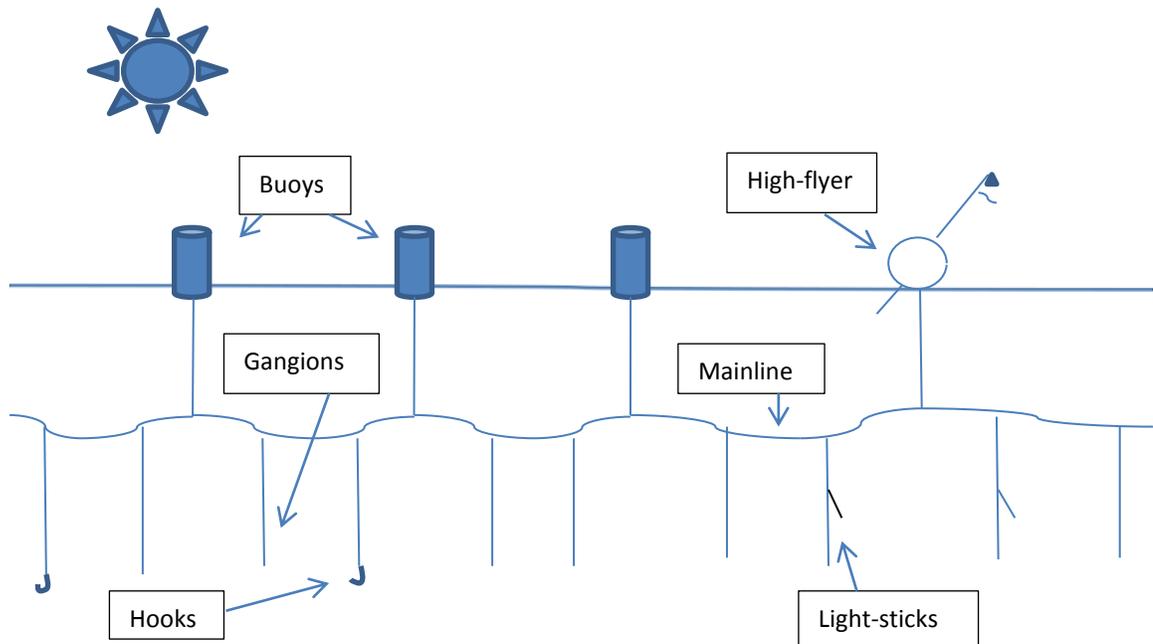
2.4.8 Harpoon Category (quota category and permit type)

The Harpoon category is allocated 3.9 percent of the U.S. baseline bluefin quota. 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 up to four bluefin measuring 73 inches to less than 81 inches curved fork length per vessel per trip per day while the fishery is open. There is no limit on the number of bluefin that measure 81 inches curved fork length or longer (“giant”), 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 and Massachusetts. Some harpoon category vessels work in conjunction with spotter planes to locate schools of bluefin.

2.4.9 Pelagic Longline (fishery)

The PLL fishery for Atlantic HMS primarily targets swordfish, yellowfin tuna, and bigeye tuna in various areas and seasons. Secondary target species include dolphin, albacore tuna, and, to a lesser degree, pelagic sharks. Although this gear can be modified (*e.g.*, depth of set, hook type, hook size, bait, *etc.*) to target swordfish, tunas, or sharks, 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 of each individual trip. PLL 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, such as billfish. PLL 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 is required to be released, regardless of whether the catch is dead or alive.

Figure 2. Typical U.S. Pelagic Longline Gear. Source: based on Arocha 1996.



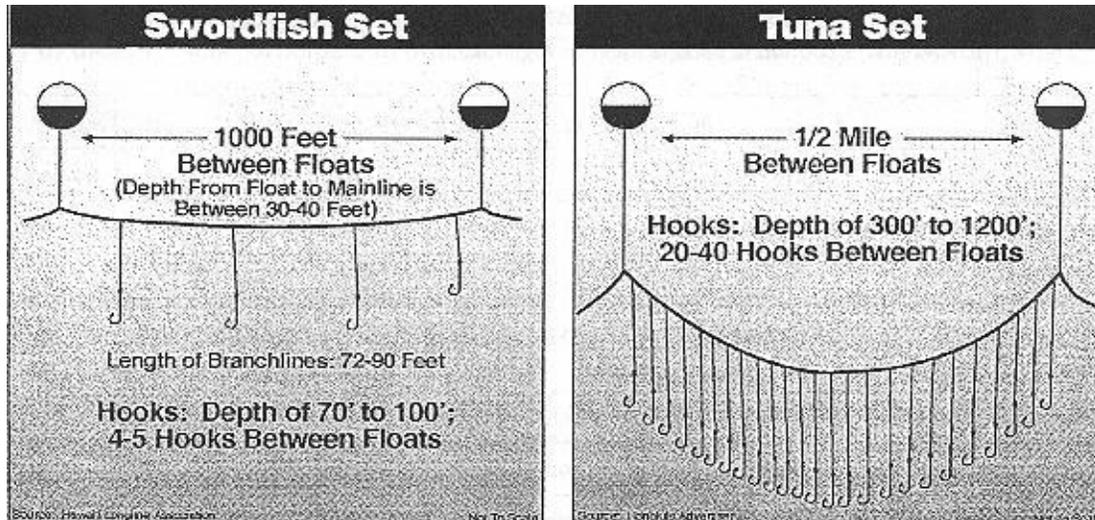
PLL gear is composed of several parts (Figure 2). The primary fishing line, or mainline of the longline system, can vary from five to 40 miles in length, with approximately 20 to 30 hooks per mile. Based upon observer reports from 2005 - 2006, the shortest length of a mainline set on an observed trip was 9.5 nautical miles (nm) while the longest set during a trip was 44.2 nm (NMFS, 2011). The depth of the mainline is determined by ocean currents and the length of the floatline, which 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 often 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).

When targeting swordfish, PLL gear is generally deployed at sunset and hauled at sunrise to take advantage of swordfish nocturnal near-surface feeding habits (NMFS, 1999). In general, longlines targeting tunas are set in the morning, fished deeper in the water column, and hauled back in the evening. Except for vessels of the distant water fleet, which undertake extended trips, fishing vessels preferentially target swordfish during periods when the moon is full to take advantage of increased densities of pelagic species near the surface.

Swordfish sets are buoyed to the surface, have fewer hooks between floats, and are relatively shallow. This same type of gear arrangement is used for mixed target species sets. Tuna sets use a different type of float placed much further apart. Compared with swordfish sets, tuna sets have more hooks between the floats and the hooks are set much deeper in the water column. It is believed that tuna sets hook fewer turtles than the swordfish sets because of the difference in fishing depth. In addition, tuna sets use bait only, while swordfish sets use a combination of bait and lightsticks. Regulatory Amendment 1 to the 1999 HMS FMP prohibited the use of live bait on pelagic longline gear in the Gulf of Mexico due to concerns over the incidental bycatch of

billfish. Compared with vessels targeting swordfish or mixed species, vessels specifically targeting tuna are typically smaller and fish different grounds.

Figure 3. Different Pelagic Longline Gear Deployment Techniques. Source: Hawaii Longline Association and Honolulu Advertiser.



NOTE: This figure is only included to show basic differences in pelagic longline gear configuration and to illustrate that this gear may be altered to target different species.

Alternative Gears

The use of greenstick gear and/or buoy gear to target yellowfin tuna, swordfish, or other non-bluefin tuna species instead of using PLL gear may result in the reduction of bluefin interactions and dead discards. It has been demonstrated that these gear types catch relatively few bluefin compared with PLL gear. Buoy gear is successfully used to commercially target swordfish, and greenstick gear is successfully used to commercially target yellowfin tuna and other tunas. Research has indicated that the use of buoy gear would provide opportunity to harvest swordfish, while reducing bycatch of many species, including bluefin tuna. Tended buoy gear has been associated with a high survival rate of catch species. Bycatch of bluefin by greenstick gear is relatively low, while the survival rate of bluefin caught is high. The use of either buoy gear or greenstick gear may result in less efficient catch of target species when compared with PLL gear (NMFS 2011). Additional information on the use of buoy gear and greenstick gear, as well as recent data on catches and discards is found in the 2011 SAFE Report (Sections 4.7 and 4.8) (http://www.nmfs.noaa.gov/sfa/hms/Safe_Report/2011/SAFE%20Report_FINAL_122011.pdf).

Regional U.S. Pelagic Longline Fisheries Description

The U.S. PLL fishery has historically been comprised of five relatively distinct segments with different fishing practices and strategies. These segments are: 1) the Gulf of Mexico yellowfin tuna fishery; 2) the South Atlantic-Florida east coast to Cape Hatteras swordfish fishery, 3) the Mid-Atlantic and New England swordfish and bigeye tuna fishery; 4) the U.S. distant water swordfish fishery; and, 5) the Caribbean Islands tuna and swordfish fishery. Each vessel type has different range capabilities due to fuel capacity, hold capacity, size, and construction. In

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addition to geographical area, these segments have historically differed by percentage of various target and non-target species, gear characteristics, and deployment techniques. Some vessels fish in more than one fishery segment during the course of a year (NMFS, 1999). Due to the various changes in the fishery, *i.e.*, regulations, operating costs, market conditions, species availability, etc., the fishing practices and strategies of these different segments may change over time.

The Gulf of Mexico Yellowfin Tuna Fishery

Gulf of Mexico vessels primarily target yellowfin tuna year-round; however, a handful of these vessels directly target swordfish, either seasonally or year-round. Longline fishing vessels that target yellowfin tuna in the Gulf of Mexico also catch and sell dolphin, swordfish, other tunas, and sharks. During yellowfin tuna fishing, few swordfish are captured incidentally. Many of these vessels participate in other Gulf of Mexico fisheries (targeting shrimp, shark, and snapper/grouper) during allowed seasons. Home ports for this fishery include, but are not limited to, Madeira Beach, Florida; Panama City, Florida; Dulac, Louisiana; and Venice, Louisiana (NMFS, 1999).

For catching tuna, the longline gear is configured similarly to swordfish longline gear but is deployed differently. The gear is typically set in the morning (between two a.m. and noon) and retrieved in the evening or night (4 p.m. to midnight). Fishing occurs in varying water temperatures; however, yellowfin tuna are generally targeted in the western Gulf of Mexico during the summer when water temperatures are high. In the past, fishermen have used live bait, however, NMFS prohibited the use of live bait in the Gulf of Mexico in an effort to decrease bycatch and bycatch mortality of billfish (65 FR 47214, August 1, 2000). This rule also closed the Desoto Canyon area (year-round closure) to PLL gear. In the Gulf of Mexico, and all other areas, except the Northeast Distant waters (NED), specific circle hooks (16/0 or larger non-offset and 18/0 or larger with an offset not to exceed 10 degrees) are currently required, as are whole finfish and squid baits. In 2011, NMFS implemented a requirement for PLL vessels fishing in the Gulf of Mexico to use "weak hooks" that are designed to release spawning bluefin while retaining yellowfin tuna and swordfish (76 FR 18653, April 5, 2011). This action will provide protection for spawning bluefin in the Gulf of Mexico and help to better align landings and dead discards of bluefin with the available Longline category bluefin subquota.

The South Atlantic – Florida East Coast to Cape Hatteras Swordfish Fishery

Historically, South Atlantic PLL vessels targeted swordfish year-round, although yellowfin tuna and dolphin fish were other important marketable components of the catch. In 2001 (65 FR 47214, August 1, 2000), the Florida East Coast PLL closed area (year-round closure) and the Charleston Bump PLL closed area (February through April closure) became effective. These PLL closures, implemented to reduce bycatch and bycatch mortality of protected species, non-target species, and undersized fish, effectively shut down a large portion of the PLL fishery in the South Atlantic.

Prior to the PLL closures, smaller vessels made short fishing trips from the Florida Straits north to the bend in the Gulf Stream off Charleston, South Carolina (Charleston Bump). Mid-sized and larger vessels in this segment of the fishery migrate seasonally on longer trips to areas ranging from the Yucatan Peninsula throughout the West Indies and Caribbean Sea. Some trips

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also range as far north as the Mid-Atlantic coast of the United States to target bigeye tuna and swordfish during the late summer and fall. Home ports (including seasonal ports) for this fishery include, but are not limited to, Georgetown, South Carolina; Charleston, South Carolina; Fort Pierce, Florida; Pompano Beach, Florida; and Key West, Florida. This segment of the fishery consists of small to mid-size vessels, which typically sell fresh swordfish to local high-quality markets (NMFS, 1999).

The Mid-Atlantic and New England Swordfish and Bigeye Tuna Fishery

Fishing in this area has evolved during recent years to focus almost year-round on directed tuna trips, with substantial numbers of swordfish trips as well. Some vessels participate in directed bigeye/yellowfin tuna fishing during the summer and fall months and then switch to bottom longline and/or shark fishing during the winter when the large coastal shark season is open. During the season, vessels primarily offload in the ports of New Bedford, Massachusetts; Barnegat Light, New Jersey; Ocean City, Maryland; and Wanchese, North Carolina (NMFS, 1999). In 1999, NMFS closed the Northeastern U.S. area in June to PLL gear to reduce bluefin discards (64 FR 29090, May 28, 1999). Section 7.7 of this document describes changes in discards of BFT and other species. Additionally, in 2009, NMFS published the final Pelagic Longline Take Reduction Plan (PLTRP) (74 FR 23349, May 19, 2009) to protect pilot whales and Risso's dolphins which included, among other measures, a requirement that a vessel notify NMFS at least 48 hours prior to a trip, and carry observers if requested.

The U.S. Atlantic Northeast Distant Water (NED) Swordfish Fishery

This fishing ground covers virtually the entire span of the western north Atlantic, from as far east as the Azores and the Mid-Atlantic Ridge. Large fishing vessels that fish in these distant waters operate out of Mid-Atlantic and New England ports during the summer and fall months targeting swordfish and tunas, and then move to Caribbean ports during the winter and spring months. Many of the current distant water operations were among the early participants in the U.S. directed Atlantic commercial swordfish fishery. These larger vessels, with greater ranges and capacities than coastal fishing vessels, enabled the United States to become a significant participant in the north Atlantic swordfish fishery. In the past, some of these vessels have also fished for swordfish in the south Atlantic (*i.e.*, south of 5° N. lat.).

The Northeast distant vessels traditionally have been larger than their southeast counterparts because of the greater distances to the fishing grounds. Thus, trips in this fishery tend to be longer than in the other longline fisheries. Ports for this fishery range from San Juan, Puerto Rico through Portland, Maine, and include New Bedford, Massachusetts, and Barnegat Light, New Jersey (NMFS, 1999). In recent years U.S. longline vessels have also offloaded catch in Canadian ports such as Trapassey and Bay Bull, Newfoundland. This segment of the fleet was directly affected by the L-shaped closure in 2000 and the Northeast distant closure implemented in 2001. A number of these vessels have returned to the Northeast distant fishery since the area was reopened pursuant to the issuance of the July 6, 2004, rule to reduce sea turtle bycatch and bycatch mortality (69 FR 40734, July 6, 2004). Vessels fishing in the Northeast distant area are required to use 18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel or squid baits. The northeast distant area is also specifically allocated a 25-mt BFT quota. Beginning in November 2003, NMFS allowed retention of 25 mt of bluefin caught

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incidentally to fishing under the Northeast distant experimental fishery (consistent with the 2002 ICCAT recommendation concerning western Atlantic bluefin) with no target catch requirements. NMFS believed that that the strict controls of the experiment could have the effect of preventing fishermen from meeting the target catch requirements and, as a result, all bluefin incidentally caught during the experiment would have to be discarded if the target catch requirements were in effect. To avoid a wasteful result, NMFS specified that only once the 25- mt limit was reached would the target catch requirements apply.

From 2004 until 2009, Northeast distant landings were less than the available quota for that area (25 mt), despite the lack of Northeast distant target catch requirements. In 2009, the 25 mt quota in the Northeast distant was met during the fishing year, while northern area longline activity was ongoing. As a result, the bluefin target catch requirements specified for the longline category became applicable in the Northeast distant from October 20 - December 31, 2009 (74 FR 53671, October 20, 2009). In 2010, Northeast distant landings were 9 mt. In July 2011, NMFS reinstated PLL target catch requirements for retaining bluefin in the Northeast distant area. The same target catch requirements now apply both inside and outside of the Northeast distant area (*i.e.*, one large medium or giant bluefin per vessel per trip may be landed, provided that at least 2,000 lb of species other than bluefin are legally caught, retained, and offloaded from the same trip and are recorded on the dealer weighout slip as sold; two large medium or giant bluefin may be landed incidentally to at least 6,000 lb of species other than bluefin; and three large medium or giant bluefin may be landed incidentally to at least 30,000 lb of species other than bluefin). The Northeast distant action was intended to address bluefin bycatch issues in PLL fisheries, including managing bluefin catch and landings within available quotas.

The Caribbean Tuna and Swordfish Fishery

In the past, this fleet has been similar to the southeast coastal fishing fleet in that it consisted primarily of smaller vessels making short, relatively near-shore trips, producing high quality fresh product (NMFS, 1999). The U.S. Caribbean fleet historically landed swordfish and tunas that supported the tourist trade in the Caribbean as well as a tuna canning industry that no longer exists. In recent years, yellowfin tuna have been the primary species of tuna landed using PLL gear, with additional landings of skipjack, bigeye, and albacore tunas. Because no Atlantic tunas Longline category permits are currently held by residents of Puerto Rico or the U.S. Virgin Islands, NMFS assumes that these tuna landings were reported by vessels fishing in the Caribbean, but based out of other U.S. ports.

Management of the U.S. Pelagic Longline Fishery

The U.S. Atlantic PLL fishery is guided by a swordfish quota that is divided between the North and South Atlantic (separated at 5° N. Lat.). Other regulations include minimum sizes for swordfish, yellowfin tuna, bigeye tuna, and bluefin; bluefin target catch requirements; shark quotas; observers, time/area closures, protected species incidental take limits; reporting requirements (including logbooks); gear and bait requirements; limited access vessel permits, and mandatory workshop requirements. Current billfish regulations prohibit the retention of billfish by commercial vessels, or the sale of billfish from the Atlantic Ocean. As a result, all billfish hooked on PLL gear must be discarded, and are considered bycatch. PLL is a heavily managed gear type and is strictly monitored. Because it is difficult for PLL fishermen to avoid

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undersized or prohibited fish in some areas, NMFS has closed areas in the Gulf of Mexico and along the U.S. East Coast. The intent of these closures was to decrease bycatch in the PLL fishery by closing areas with the highest bycatch rates. There are also time/area closures for PLL fishermen designed to reduce the incidental catch of bluefin and sea turtles. In order to enforce time/area closures and to monitor the fishery, NMFS requires all PLL vessels to report positions on an approved VMS.

In addition to the regulations mentioned above, to protect sea turtles, vessels with PLL gear onboard must, at all times, in all areas open to PLL fishing except the Northeast distant, 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 Northeast distant 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 PLL vessels must possess and use sea turtle handling and release gear in compliance with NMFS careful release protocols. Additionally, all PLL 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 - 24 workshops are conducted annually, and they are held in areas with significant numbers of PLL 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 PLL vessel operators fishing in the Cape Hatteras Special Research Area must contact NMFS at least 48 hours prior to a trip, and carry observers if requested. The PLTRP also established a 20 nm upper limit on mainline length for all PLL 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 PLL vessels in the Atlantic fishery.

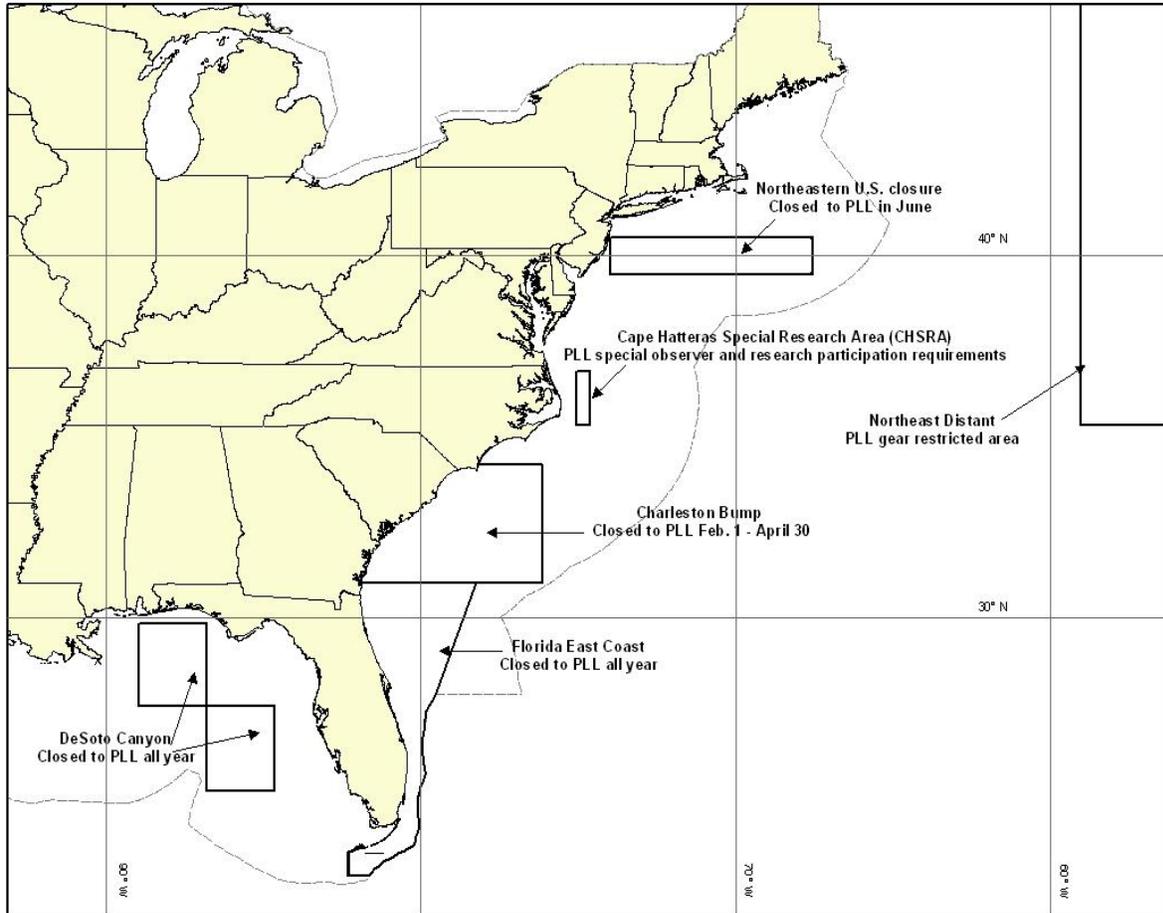
In April 2011, NMFS implemented a requirement for PLL vessels to use "weak hooks" - hooks that are designed to release spawning bluefin while retaining yellowfin tuna and swordfish - when fishing in the Gulf of Mexico (76 FR 18653, April 5, 2011). This action provided protection for spawning bluefin in the Gulf of Mexico and helps to better align landings and dead discards of bluefin with the Longline category bluefin subquota.

Pelagic Longline Permits

The 1999 FMP established six different limited access permit types: (1) directed swordfish, (2) incidental swordfish, (3) swordfish handgear, (4) directed shark, (5) incidental shark, and (6) Atlantic tunas longline. To reduce bycatch in the PLL fishery, these permits were designed so that the swordfish directed and incidental permits are valid only if the permit holder also holds both an Atlantic tunas longline and a shark permit. Similarly, the Atlantic tunas longline permit is valid only if the permit holder also holds both a swordfish (directed or incidental, not handgear) and a shark permit. This allows limited retention of species likely to be caught on PLL, that might otherwise have been discarded.

In order to minimize bycatch and bycatch mortality in the domestic PLL fishery, NMFS implemented regulations to close certain areas to this gear type (See Figure 4) and has banned the use of live bait by PLL vessels in the Gulf of Mexico.

Figure 4. Areas Closed to Pelagic Longline Fishing by U.S. Flagged Vessels.



2.4.10 Purse Seine Fishery

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 fish schools. The vessels might decide to not even leave the docks until suitable concentrations of fish are located. Although the fishing season officially opens August 15, the actual start of the purse seine fishing occurs when, after the season opens fish are available in schools large and dense enough to offset fishing costs. 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 powerblock, and the tunas are removed and placed onboard the larger vessel.

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A number of purse seine vessels targeted and landed bluefin off the coast of Gloucester, Massachusetts as early as the 1930s and purse seine vessels participated in the U.S. Atlantic tuna fishery continuously since the 1950s, although in recent years (2006 through 2011) there have been little or no landings purse seine landings. In 1958, continued commercial purse seining effort for Atlantic tunas began with a single vessel in Cape Cod Bay, Massachusetts and expanded rapidly into the mid-Atlantic region between Cape Hatteras and Cape Cod during the early 1960s. The purse seine fishery between Cape Hatteras and Cape Cod was directed mainly at small and medium bluefin, yellowfin, and skipjack tuna primarily for the canning industry. North of Cape Cod, purse seining was directed at giant bluefin. High catches of juvenile bluefin were sustained throughout the 1960s and into the early 1970s. These high catch rates by U.S. purse seine vessels are believed to have played a role in the decline in stock abundance during subsequent years.

A limited entry permit system with non-transferable individual vessel quotas for purse seining was established in 1982, effectively excluding any new entrants into this category. Equal baseline quotas of bluefin are assigned to individual vessels by regulation; the individual vessel quota system is possible given the small pool of ownership in this sector of the fishery, *i.e.*, five qualified participants. In 1996, the quotas were made transferable among the five entities provided they notified NMFS in writing. The 1999 FMP and its implementing regulations established bluefin baseline percentage quota shares for each of the domestic fishing categories. These percentage shares were based on allocation procedures that NMFS developed over several years. The baseline percentage quota shares established in the 1999 FMP were carried forward in the 2006 Consolidated HMS FMP (effective since June 1, 1999) and set the Purse Seine category allocation at 18.6 percent of the U.S. quota.

Vessels participating in the Atlantic tunas purse seine fishery are required to target the larger size class bluefin, more specifically the giant size class (81 inches or larger) and are granted a tolerance limit for large medium size class bluefin (73 to less than 81 inches); *i.e.*, large medium catch may not exceed 15 percent by weight of the total amount of giant bluefin landed during a season. These vessels may commence fishing starting on July 15 of each year and may continue through December 31, provided the vessel has not fully attained its individual vessel quota.

2.5 Reporting and Monitoring

The reporting requirements implemented in the 2006 Consolidated HMS FMP vary according to the permit category, as well as the relevant species. Reporting requirements regarding bluefin are summarized as follows:

General Category, Harpoon Category, Purse Seine, and Trap Category

Monitoring of the commercial bluefin tuna fishery is conducted primarily through the dealer reporting system. Dealer permits are required for the commercial receipt of Atlantic tuna, swordfish, and sharks. A separate dealer permit is required for each of the fisheries. Dealers are required to record each purchase of Atlantic bluefin tuna on a landing card and provide the information to NMFS within 24 hours of the purchase or receipt of the fish. The landing cards, which are used to monitor the bluefin tuna quota, include the following information: dealer number, dealer name, date the fish was landed, harvest gear, fork length, weight (whole or

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dressed), identification tag number, area where fish was caught, port where landed, Atlantic tuna permit number, vessel name, and the name and dated signature of the vessel's master. Discard information is not obtained. In 1998, NMFS began using FAX/Optical Character Recognition (OCR) technology for bluefin tuna landing cards in order to facilitate data entry and quota monitoring. Bluefin tuna dealers are also required to submit summary reports to NMFS on a biweekly basis, which provide additional economic data including the destination of the fish, price per pound, and quality rating. Permits for dealers to purchase species in the swordfish or shark management unit are issued by the NMFS Southeast Regional Office and permits for the Atlantic tuna fishery, including bluefin tuna, are issued by the NMFS Northeast Regional Office. Atlantic tuna dealer permits are issued for a calendar year (January 1 through December 31). Dealer reports must be submitted to NMFS twice a month for all swordfish, sharks and tunas. As of January 1, 2013, Federal Atlantic swordfish, shark, and tuna dealers will be required to report receipt of Atlantic sharks, swordfish, and bigeye, albacore, skipjack, and yellowfin tunas to NMFS through an electronic reporting system on a weekly basis (77 FR 47303; August 8, 2012). HMS dealers will not be required to report bluefin tuna through this electronic reporting system, as the previously described reporting system is in place for bluefin.

NMFS regulations for international trade of commercially landed bluefin tuna have permitting, documentation, and reporting components. These regulations implement recommendations of ICCAT and other regional fishery management organizations which were developed as a means to ensure that bluefin tuna entering into trade among member nations are harvested in a manner that does not diminish the effectiveness of ICCAT's bluefin tuna conservation and management measures. In the United States, each business importing or exporting bluefin tuna, swordfish, frozen bigeye tuna, or shark fins must obtain an International Trade Permit from NMFS, and submit biweekly reports summarizing trading activity. In addition, traders must ensure that each imported or exported shipment of bluefin tuna is accompanied by a bluefin tuna catch document, that includes data about the harvest and previous trade of the shipment. Although this tracking system is currently paper-based, ICCAT is developing an electronic system which is scheduled to be effective in 2014.

NMFS currently has the regulatory authority to select any vessel to which an Atlantic tunas or HMS permit has been issued for logbook reporting of information on fishing effort and landings and discard information. However, an administrative system is not in place to implement and maintain a specific HMS logbook reporting requirement for these categories, and therefore the regulatory authority has not been used to date. Implementation of an administrative system and selection of vessels to report through such a system would be equivalent to the development and implementation of a new logbook reporting management measure.

NMFS currently has the authority to select for at-sea observer coverage any vessel that has an Atlantic HMS tunas, shark, or swordfish permit (50 CFR § 635.7), but, as described below, currently only deploys observers on vessels fishing with PLL gear.

Longline Category

Vessel Monitoring System (VMS) Requirements

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All vessels with PLL on board must have a VMS unit installed and operating. The VMS unit must be a NMFS-approved Enhanced Mobile Transmitting Unit (E-MTU)(76 FR 75492; and 76 FR 75523; December 2, 2011). Although this requirement was temporarily suspended pending the resolution of technical issues, we anticipate that it will be in full effect in January 2013. VMS units are used to track the location and fishing activity of PLL vessels year-round, and must report vessel position at one hour intervals. At least two hours prior to each trip, the vessel owner must report to NMFS any HMS fishery in which the vessel will participate and the type(s) of fishing gear that will be on board the vessel (“hail out”). At least 3 hours prior to landing, a vessel owner or operator must report a notice of landing to NMFS (“hail in”). Vessels are allowed to turn off their VMS units once they return to port at the end of a fishing trip. If suspicious fishing activity is detected via a vessel’s VMS signal (including sudden failure of a vessel’s VMS unit to report positional information), NMFS Office of Law Enforcement and/or the U.S. Coast Guard may investigate, including at-sea boarding, overflight, or meeting the fishing vessel once it returns to port. VMS may be used to determine compliance with the closed area restrictions, and allows PLL vessels to transit through areas closed to the use of PLL gear. Owners or operators of vessels with VMS units may be eligible for reimbursement of the cost of their VMS unit up to \$3,100.

Logbook Requirement

In 1986, a comprehensive logbook program was initiated for the PLL fisheries in the Atlantic, Gulf of Mexico, and Caribbean. Because the PLL fishery uses gear deployed for a relatively long period (6 to 10 hours), catch and effort data are collected for each set. Thus, a separate form is required for each set. Fishermen are required to report the numbers of each species caught, the numbers of animals retained or discarded alive or discarded dead, the location of the set, the types and size of gear, and the duration of the set.

Because some of the needed catch/effort information for PLL fisheries remains the same for the entire trip (i.e., it would be redundant to report it for every set), a supplemental form is used to report this type of data. Information on the port of departure and return, unloading dealer and location, number of sets, number of crew, date of departure and landing are reported on the Trip Summary form. In addition, information on costs associated with the trip can be reported on this form. Through the logbooks, NMFS collects data on the disposition of bycatch species in addition to bluefin. In conjunction with the observer reports, the data are used to estimate the weight of bluefin dead discards, and post-release mortality of sea turtles and marine mammals.

Pelagic Observer Program

The Southeast Fisheries Science Center (Miami, Fla), has been managing NMFS’ pelagic observer program (POP) since 1992. POP observers monitor a mobile U.S. PLL fleet ranging from the Grand Banks to Brazil to the Gulf of Mexico while onboard fishing vessels. The POP targets an 8% level of coverage of the vessels based on the fishing effort of the fleet (8% of sets), and an expanded observer coverage with target coverage of 50-100% of the trips in the Gulf of Mexico has been implemented during the bluefin tuna spawning season since 2007 to better characterize the interaction of the U.S. pelagic longline fleet with this species. The POP information, which includes fish species, length, weight, sex, location, and environmental

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information, is used in conjunction with the logbook information to monitor retained bluefin and estimate discarded bluefin. The United States applies the SCRS-approved methodology to calculate and report dead discards for both stock assessment purposes and quota compliance purposes. The amount of dead discards is generated by estimating discard rates from data collected by the POP and extrapolating these estimates using the effort (number of hooks) reported in the Pelagic Logbooks. This methodology is applied within each time/area stratum (e.g., catch rates from the Gulf of Mexico are used to estimate discards from the Gulf of Mexico, not the Northeast Distant area).

During 2010, NMFS observers recorded 725 PLL sets for overall non-experimental fishery coverage of 9.7 percent (Garrison and Stokes, 2010). In the Pelagic Longline Take Reduction Plan, it was recommended that NMFS increase observer coverage to 12 to 15 percent throughout all Atlantic PLL fisheries that interact with pilot whales and Risso’s dolphins to ensure representative sampling of fishing effort. If resources are not available to provide such observer coverage for all fisheries, regions, and seasons, the Pelagic Longline Take Reduction Team recommended NMFS allocate observer coverage to fisheries, regions, and seasons with the highest observed or reported bycatch rates of pilot whales. The Pelagic Longline Take Reduction Team recommended that additional coverage be achieved either by increasing the number of NMFS observers who have been specially trained to collect additional information supporting marine mammal research, or by designating and training special “marine mammal observers” to supplement traditional observer coverage. Table 7 below contains information on the observer coverage of the PLL Fishery. In 2010, total observer coverage, including experimental sets, was 11.0 percent.

Table 7. Observer Coverage of the Pelagic Longline Fishery.

Year	Number of Sets Observed			Percentage of Total Number of Sets		
1999	420			3.8%		
2000	464			4.2%		
2001*	Total	Non-NED	NED	Total	Non-NED	NED
	584	398	186	5.4%	3.7%	100%
2002*	856	353	503	8.9%	3.9%	100%
2003*	1,088	552	536	11.5%	6.2%	100%
	Total	Non-EXP	EXP	Total	Non-EXP	EXP
2004**	702	642	60	7.3%	6.7%	100%
2005**	796	549	247	10.1%	7.2%	100%
2006	568	-	-	7.5%	-	-
2007	944	-	-	10.8%	-	-
2008	1,190	-	101***	13.6%	-	100%***
2009	1,588	1,376	212***	17.3%	15.0%	100%***
2010	884	725	159***	11.0%	9.7%	100%***

~ Background ~

*In 2001, 2002, and 2003, 100 % observer coverage was required in the Northeast Distant Area research experiment.

**In 2004 and 2005, there was 100% observer coverage in experimental fishing (EXP).

***In 2008 to 2010, 100% observer coverage was required in experimental fishing in the Florida East Coast Area, Charleston Bump Closed Area, and the Gulf of Mexico, but these sets are not included in extrapolated bycatch estimates because they are not representative of normal fishing.

Source: Yeung, 2001; Garrison, 2003b; Garrison and Richards, 2004; Garrison, 2005; Fairfield-Walsh and Garrison, 2006; Fairfield-Walsh & Garrison, 2007; Fairfield & Garrison, 2008; Garrison, Stokes & Fairfield, 2009; Garrison and Stokes, 2010, 2011.

Angling and Charter/Headboat Categories

Data used to monitor and manage the recreational bluefin fishery are collected through several programs, including programs in which vessels self-report, surveys administered by NMFS, and state administered programs. The owner of a vessel with an HMS Angling or HMS Charter/Headboat category permit must report all bluefin landings under the Angling category quota through an Automated Landings Reporting System (ALRS)(with the exception of tuna landings in North Carolina or Maryland). Individuals may report online (<http://www.hmspermits.gov/>) or through an interactive voice response telephone system (888-USA-TUNA). Reports must be made within 24 hours of the landing. If reporting by phone, the vessel owner must provide their name, phone number, HMS permit number, species caught, size of fish, fish released (both alive and dead), as well as some other data elements. The online program includes these same fields for providing this information. NMFS provides a confirmation number for the reported landing. Vessels landing in the states of North Carolina or Maryland must instead report BFT, and some other HMS, landed at state-operated reporting stations (catch-card programs).

Large Pelagic Survey

NMFS administers a recreational survey called the Large Pelagics Survey, LPS, which collects information during the period from June through October, covering the geographic area from Maine south to Virginia. If contacted on the dock or by phone, recreational anglers must participate in the survey as a condition of their permit. The LPS is specifically designed to collect information on recreational fishing directed at bluefin and large pelagic species (e.g., tunas, billfishes, swordfish, sharks, wahoo, dolphin, and amberjack). Offshore trips targeting large pelagics typically make up a relatively small proportion of all recreational fishing trips. Using this specialized survey design allows for higher levels of sampling large pelagic trips, which ultimately improves estimates of catch and effort for large pelagics. The LPS has been conducted since 1992.

The LPS includes two independent, complementary surveys which provide the effort and average catch per trip estimates needed to estimate total catch by species. The Large Pelagics Intercept Survey (LPIS) is a dockside survey of captains who have just completed fishing trips directed at large pelagic species. This survey is conducted at fishing access sites that are likely to be used by offshore anglers, and is primarily designed to collect detailed catch data. The Large Pelagics Telephone Survey (LPTS) collects fishing effort information directly from captains holding HMS permits. The LPTS is stratified by permit category: HMS Angling and

~ Background ~

Atlantic tunas General permits and HMS Charter/Headboat permits. Data from the phone survey are used to estimate the total number of boat trips on which anglers fished with rod and reel or handline for large pelagic species. The LPS differs from the standard marine recreational fishing surveys mainly in estimating effort and catch by boat, rather than by angler. Information on the number of anglers per boat-trip is collected by the LPIS, but the primary unit for all estimates is the boat-trip, or boat-day of fishing. Additional information collected during LPIS and LPTS interviews include target species, tournament participation, fishing method used, fishing location, water depth, and water temperature.

State of Maryland

In Maryland, NMFS worked with the Maryland Department of Natural Resources (MDNR) to implement an Atlantic Bluefin Tuna Catch Card and Tagging Program as an alternative method to the ALRS system, in 1999. In 2002, billfishes were added to the list of species required to be reported through MDNR's Catch Card and Tagging Program. Since 2002, the Bluefin/Billfish Catch Card and Tagging Program has supplied NMFS with bluefin and billfish landings in the State of Maryland. The objectives of the MDNR catch card program are: 1) Continue a long-term monitoring study of all recreationally landed Atlantic bluefin tuna and billfishes (white marlin, blue marlin, swordfish, and sailfish) in Maryland and supply those data to NMFS for use in their coastwide assessment; and 2) Continue development of program awareness among recreational anglers in order to increase compliance rates.

Anglers are responsible for completing a catch card when they return to port for each bluefin or billfish on board their vessel. A tag is provided for each completed catch card and the angler is required to place this tag around the tail of the fish before removing it from the vessel. Trailered boats cannot be removed from the water until the tag is in place. Nine marinas qualify as a Recreational BFT/Billfish Reporting Station. Marinas distribute and collect catch cards, issue tags, and return leftover supplies to MD at the conclusion of the fishing season. In addition to the marinas, an after-hours kiosk is available at the MD field office. Anglers that use the kiosk must complete the catch card and the attached receipt, which replaces the tag. The catch card is deposited into the locked box at the kiosk.

State of North Carolina

As part of a program launched in 1998, more than 25 reporting stations have been established in North Carolina. Angling category vessels landing bluefin in North Carolina are required to comply with the program requirements instead of the NMFS call-in or website reporting process. Vessel operators must report at one of the reporting stations, and are required to fill out a catch reporting card for each bluefin tuna, and must have a landing tag affixed to the tail before removing the fish from the vessel. Information on these angler catch cards is entered into a NMFS database.

If NMFS selects an Angling category vessel for observer coverage, the participation of the vessel is voluntary.

Purse Seine Category

Owners or operators of purse seine vessels directing on Atlantic tunas must have their fishing gear inspected for mesh size by a NMFS enforcement agent prior to commencing fishing for the season in any fishery that may result in the harvest of Atlantic tunas. The owner/operator must request such inspection at least 24 hours before commencement of the first fishing trip of the season. If NMFS does not inspect the vessel within 24 hours of such notification, the inspection requirement is waived. In addition, at least 24 hours before commencement of offloading any bluefin after a fishing trip, the owner/operator must request an inspection of the vessel and catch by notifying NMFS. If, after notification by the vessel, NMFS does not arrange to inspect the vessel and catch at offloading, the inspection requirement is waived. As indicated above, NMFS currently has the authority to select Purse Seine category vessels for at-sea observer coverage (50 CFR § 635.7).

2.6 Northern Albacore Tuna Management

The description of Northern Albacore management is included in Section 4.1.11.

2.7 Biological and Ecological Information

Stock Assessment Information

The Western Atlantic bluefin tuna stock was last assessed in 2010 by ICCAT's SCRS (SCRS, 2011), and included information through 2009. The most influential change since the 2008 assessment was the use of a new growth curve that assigns fish above 120 cm to older ages than did the previous growth curve. The stock assessment included the use of two alternative recruitment scenarios, one assuming low potential recruitment and one assuming high potential recruitment. Therefore, the stock assessment produced two sets of results, and the status of the stock depends upon which recruitment scenario is considered. Under the low recruitment scenario, the stock is not overfished and overfishing is not occurring and under the high recruitment scenario, the stock is overfished and overfishing is occurring. The SCRS, as stated in the stock assessment, has no strong evidence to favor either scenario over the other and notes that both are reasonable (but not extreme) lower and upper bounds on rebuilding potential.

~ Background ~

Table 8 below contains some of the relevant values of parameters characterizing stock condition. The stock assessment can be found online at: http://www.iccat.int/Documents/Meetings/Docs/2010_BFT_ASSESS_REP_ENG.pdf.

Table 8. Stock Assessment Summary Table for Western Atlantic Bluefin Tuna.

Current Relative Biomass Level	Minimum Stock Size Threshold	Current Relative Fishing Mortality Rate	Maximum Fishing Mortality Threshold	Outlook – From Status of Stocks for U.S. managed species*
*SSB ₀₉ /SSB _{MSY} = 1.1 (0.89-1.35) (low recruitment)	0.86 SSB _{MSY} (10,941t; low recruitment)	F ₀₆₋₀₈ /F _{MSY} = 0.73 (0.59-0.91) (low recruitment)	**F _{MSY} = 0.16 (0.14-0.18) (low recruitment)	Low recruitment scenario: Not overfished; overfishing is not occurring.
SSB ₀₉ /SSB _{MSY} = 0.15 (0.10-0.22) (high recruitment)	(78,872t; high recruitment)	F ₀₆₋₀₈ /F _{MSY} = 1.88 (1.49-2.35) (high recruitment)	F _{MSY} = 0.06 (0.06-0.07) (high recruitment)	High recruitment scenario: Overfished; overfishing is occurring
SSB ₀₉ /SSB ₇₅ = 0.34				

* Note: The Species Information System (SIS), which informs the Status of the Stocks Report, allows only one status determination per stock. Therefore, a joint distribution was calculated assuming equal plausibility of the high and low recruitment scenarios for Western Atlantic bluefin tuna. F_{current} refers to the geometric mean of the estimates for 2006-2008 (a proxy for recent F levels; median and 10th percentile-90th percentile shown). SSB₂₀₀₉/SSB_{MSY}: 0.48 (0.12-1.26); F_{current}/F_{MSY}: 1.15 (0.63-2.17); SSB_{MSY}: 38410 (12570-102460); F_{MSY}: 0.11 (0.06-0.18)
 ** Where F year refers to the geometric mean of the estimates for 2006-2008 (a proxy for recent F levels).

In accordance with the 1999 FMP, Overfishing is occurring when $F_{year} > F_{MSY}$; and a stock is Overfished when $B_{year}/B_{MSY} < \text{Minimum Stock Size Threshold}$. The following example describes the application of this stock status criteria to the assessment data in the above table: Under the low recruitment scenario, because the current relative biomass size (SSB₀₉/SSB_{MSY}) is 1.1, which is greater than the minimum stock size threshold of 0.86, the stock is not overfished. Similarly, under the low recruitment scenario, the current relative fishing mortality rate (ratio of F₀₆₋₀₈ to F_{MSY}) is 0.73, which indicates that F_{year} is < F_{MSY} so overfishing is not occurring.

Continuing research is important to reduce the uncertainty of the stock assessment. The Executive Summary of the 2011 SCRS Report on the 2010 stock assessment stated the following:

“The SCRS cautions that the conclusions of the 2010 assessment do not capture the full degree of uncertainty in the assessments and projections. An important factor contributing to uncertainty is mixing between fish of eastern and western origin. Limited analyses were conducted of the two stocks with mixing in 2008, but little new information was available in 2010. Based on earlier work, the estimates of stock status can be expected to vary considerably depending on the type of data used to estimate mixing (conventional tagging or isotope signature samples) and modeling assumptions

~ Background ~

made. More research needs to be done before mixing models can be used operationally for management advice. Another important source of uncertainty is recruitment, both in terms of recent levels (which are estimated with low precision in the assessment), and potential future levels (the "low" vs. "high" recruitment hypotheses which affect management benchmarks). Improved knowledge of maturity at age will also affect the perception of changes in stock size. Finally, the lack of representative samples of otoliths requires determining the catch at age from length samples, which is imprecise for larger bluefin tuna.”

Gulf of Mexico Oil Spill

On April 20, 2010, an explosion on the BP/Deepwater Horizon MC252 drilling platform in the Gulf of Mexico caused the rig to sink and oil began leaking into the Gulf. Before it was finally capped in mid-July, almost 5 million barrels of oil were released into the Gulf. The spill caused significant impacts to wildlife and the fishing community along the large coastal areas of Louisiana, Mississippi, Texas, Alabama, and Florida. The Federal response to the oil spill is a major multi-agency effort. NOAA is a lead federal trustee for coastal and marine natural resources, including marine and migratory fish, endangered species, marine mammals and their habitats. NOAA acted quickly to begin preliminary assessments and plan for restoration along the coast. To help determine the type and amount of restoration needed to compensate the public for harm to natural resources as a result of the spill, NOAA is conducting a Natural Resource Damage Assessment.

NOAA Fisheries scientists continue to study the possible effects the 2010 Deepwater Horizon/BP oil spill on Atlantic bluefin tuna. Since the April 2010 disaster, NOAA has been monitoring bluefin tuna in the Gulf of Mexico by collecting larval samples during the spring spawning season, analyzing reports from scientific observers aboard fishing vessels and tracking the movement of tagged bluefin tuna. SEAMAP surveys have been conducted since 1982, providing a long time-series of information on bluefin tuna larvae that helps scientists analyze trends in the data. April and May are the peak spawning months for the tuna, and scientists have been concerned about possible impacts of oil and dispersants used to clean up spilled oil on this important fish species.

In May 2010, NOAA scientists deployed satellite tags on four bluefin tuna caught in the vicinity of the oil spill. All fish completed their migration up to the Grand Banks and Gulf of St. Lawrence, where the tags separated from the fish on schedule after 90 days, floated to the surface, and reported data on the bluefin’s movements via satellites passing overhead. In 2011 researchers deployed additional tags as part of an expanded study to assess the range of depths inhabited by bluefin tuna and the length of time they spend in the Gulf of Mexico each year. The bluefin tagging studies will contribute to the understanding of their potential exposure to hazardous chemical compounds following the BP/Deepwater Horizon spill.

The annual SEAMAP research cruise sampled bluefin tuna larvae to evaluate its abundance in the Gulf, another important source of information about the potential impact of the oil spill on bluefin spawning in the Gulf. Although some bluefin tuna larval habitat was found in the vicinity of the oil spill, it appears the majority of historic bluefin tuna larvae habitat is located outside the spill area (<http://www.gulfspillrestoration.noaa.gov/>). Muhling, B.A., et al. (2012), studied the overlap between Atlantic Bluefin tuna spawning grounds and observed Deepwater

Horizon surface oil in the northern Gulf of Mexico, and their preliminary estimate of the effects of the spill on larval BFT mortality concluded that less than 12% of larval BFT were predicted to have been located within contaminated waters in the northern Gulf of Mexico, on a weekly basis. NOAA is continuing to study and assess the impacts and is expected to have a report published in the future.

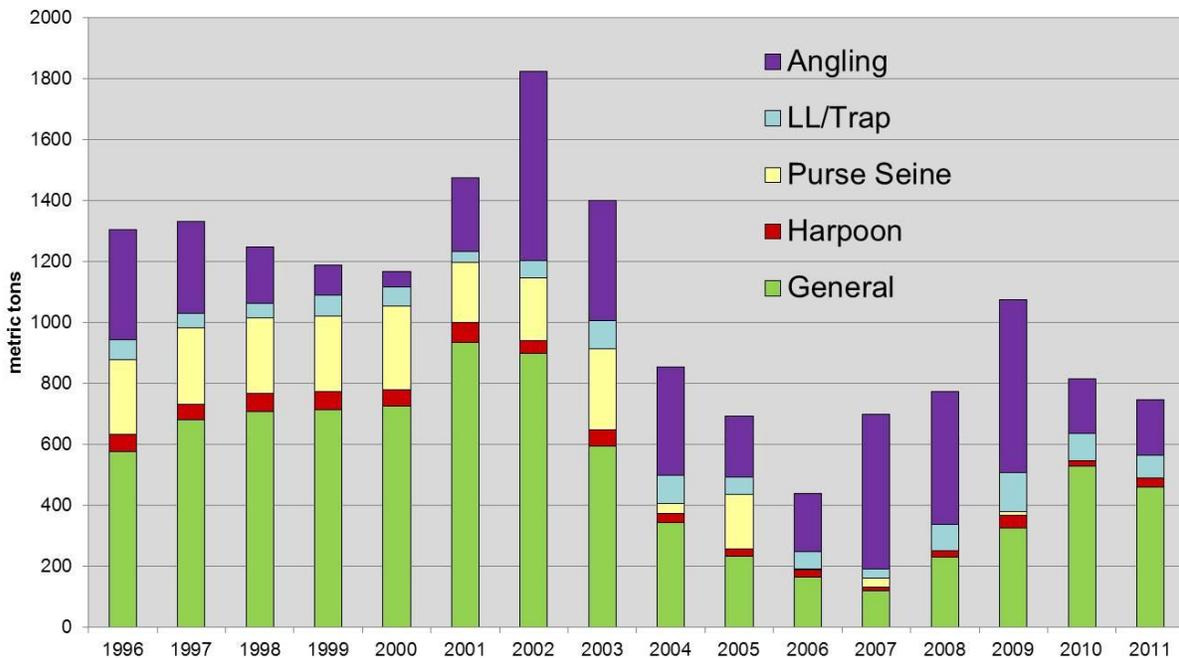
2.8 Fishery Data

This section provides summary data on the bluefin fishery. Additional information may be found in the 2011 SAFE Report (http://www.nmfs.noaa.gov/sfa/hms/Safe_Report/2011/SAFE%20Report_FINAL_122011.pdf).

2.8.1 Bluefin Landings by Quota Category

The relative amount of bluefin landings among the quota categories has changed over time, with the most noticeable pattern being changes in the landings of General category and Angling categories. Since 2006, the Angling category has increased, but decreased in 2010 and 2011, while the General category also increased (see Figure 5). The large proportion of Angling category landings from 2007 through 2009 was associated with a spike in large school/small medium BFT landings (see Table 9). Longline and Trap landings were combined because both are incidental fisheries and data at the beginning of the time series was combined. Landings can be influenced by the regulations that apply to each category (i.e., slot limits, etc.).

Figure 5. BFT Landings by Category (mt), 1996 to 2011.



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The pie charts in Figure 6 compare the fishery management plan allocations to the landings in 2011. Although the 2011 General category landings did not exceed the quota allocation (47.1%), they represent 62% of the total landings due to the lack of landings by the purse seine category. Similarly, the Angling category quota is 19.7% of the total allocation, but their landings represented 24% of the total landings in 2011.

Figure 6. FMP Allocations and 2011 Landings by Category as a Percentage of Total Landings.

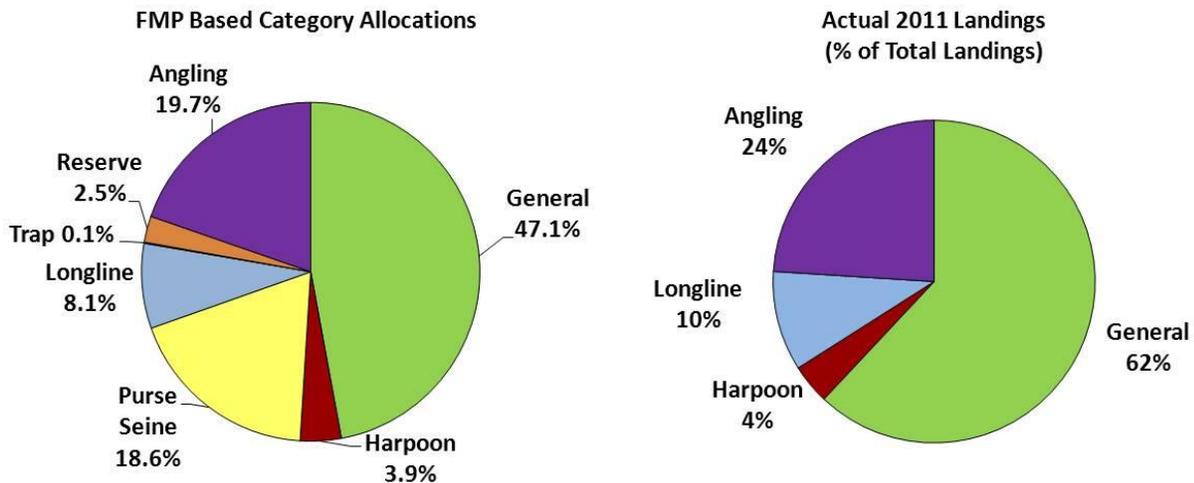


Table 9 shows the percentage of the adjusted quota that the quota categories have landed from 2006 through 2001, and the percentage of total quota, with and without discards included.

Table 9. Percentage of Adjusted Quota Landed by Category and Dead Discards (mt).

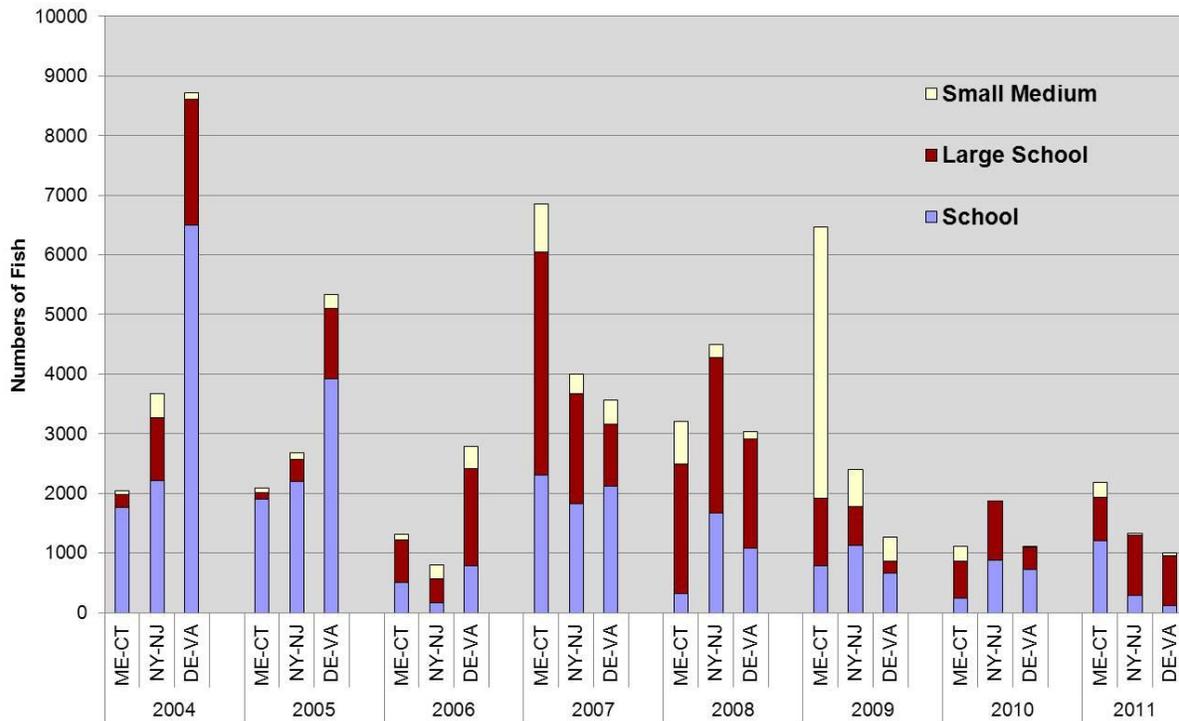
Category	2006	2007	2008	2009	2010	2011
General	14%	19%	31%	52%	98%	95%
Harpoon	18%	23%	36%	54%	41	81%
Longline	26%	16%	92%	132%	89%	87%
<i>Longline dead discards</i>	91 mt	90 mt	158 mt	204 mt	122 mt	145.2 mt
Trap	0	0	19%	0	0	0
Purse Seine	<1%	11%	0%	5%	0	0
Angling	50%	188%	141%	217%	79%	100%
Total Quota	16%	43%	45%	74%	68%	*76%
Total Quota including dead discards	19%	48%	56%	88%	78%	*91%

*reflects total quota accounting for one half of the estimated dead discards at the beginning of the fishing year (which is lower than U.S. Adjusted Quota for ICCAT accounting purposes)

Recreational landings by area and size class are shown in Figure 7. The source of the data is the Large Pelagic Survey, which is based on data from Maine south to Virginia. Angling category

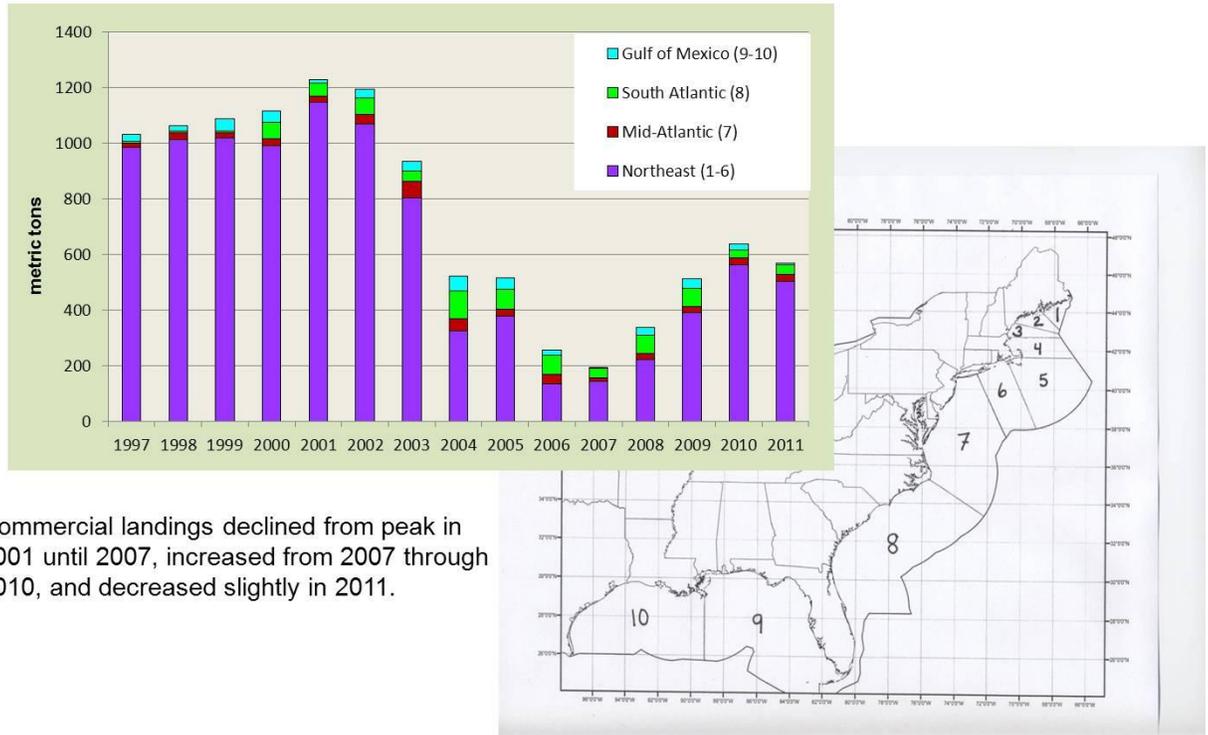
landings of small medium bluefin were prohibited from early June through the end of the year in 2010 and from early April through the end of the year in 2011.

Figure 7. Recreational Landings of Bluefin by Area and Size Class.



The trend in commercial bluefin landings (Figure 8) follows a similar pattern as the trend in the overall fishery (Table 9), an increasing percent of quotas caught. Since 1997, the predominant landings have been from the Northeast. These landings are mostly from the General category, with the location of the landings likely reflecting the ecology and habitat utilization of bluefin. In research designed to determine the extent, duration, and composition of seasonal aggregations of bluefin (Walli et al., 2009), high residence times were identified in four spatially confined regions on a seasonal scale. Additional discussion of the seasonality of bluefin and the relation to patterns of catch in the General category fishery is found in Section 4.2.1.

Figure 8. Commercial Bluefin Landings by Area (mt).

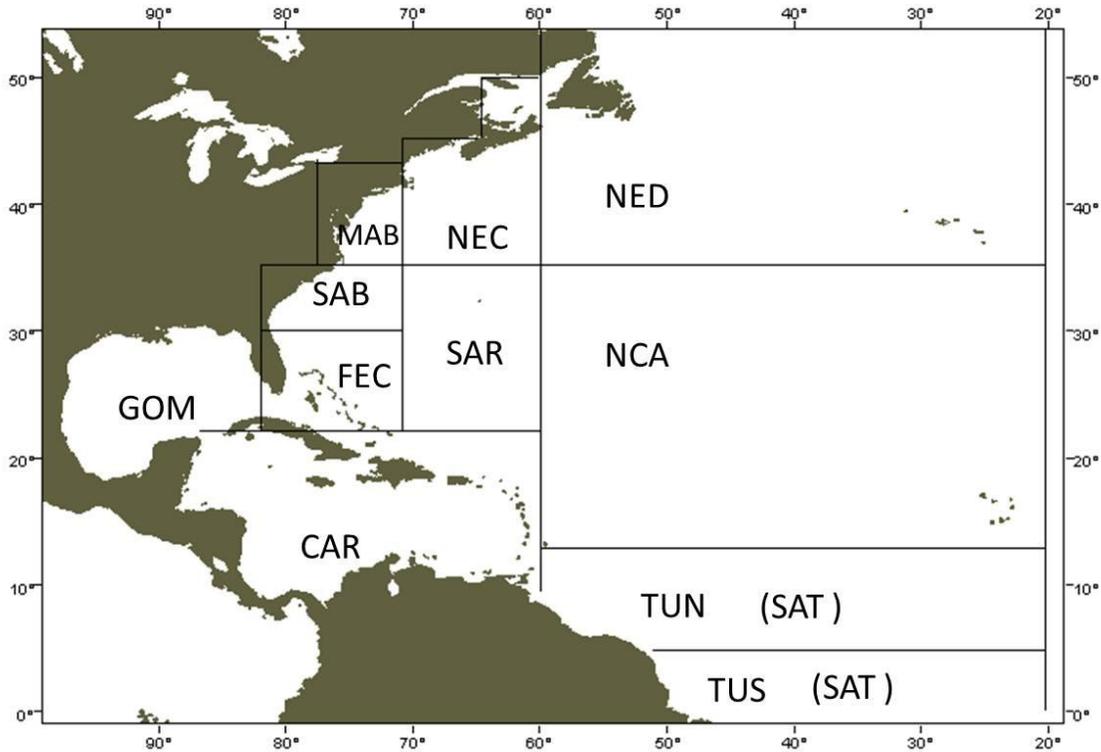


2.8.2 Pelagic Longline Fishery

Trends in Fishing Effort, Bluefin interactions, and Target Species Catch

Logbook data from the PLL fishery was compiled, including numbers of fish caught and discarded, and numbers of hooks fished, by year and geographic area, from 2002 through 2011. The geographic areas analyzed were those depicted in Figure 9.

Figure 9. Pelagic Longline Reporting Areas.



CAR: Caribbean; FEC: Florida East Coast; GOM: Gulf of Mexico; MAB: Mid-Atlantic Bight; NEC: Northeast Coastal; NCA: North Central Atlantic; Northeast Coastal; NED: Northeast Distant; SAB: South Atlantic Bight; SAR: Sargasso; SAT: South Atlantic Tuna

The total number of hooks fished by the PLL fishery shows a slight declining trend (Figure 10). The average number of hooks fished per year from 2002 through 2006 was 6,652,108, and the average number of hooks fished per year from 2007 through 2011 was 6,238,949. Figure 10 shows the number of hooks fished by year. Figure 11 shows the percentage of the total hooks fished by area from 2002 through 2011.

Figure 10. Number of Pelagic Longline Hooks Fished by Year (2002 – 2011; Logbook Data).

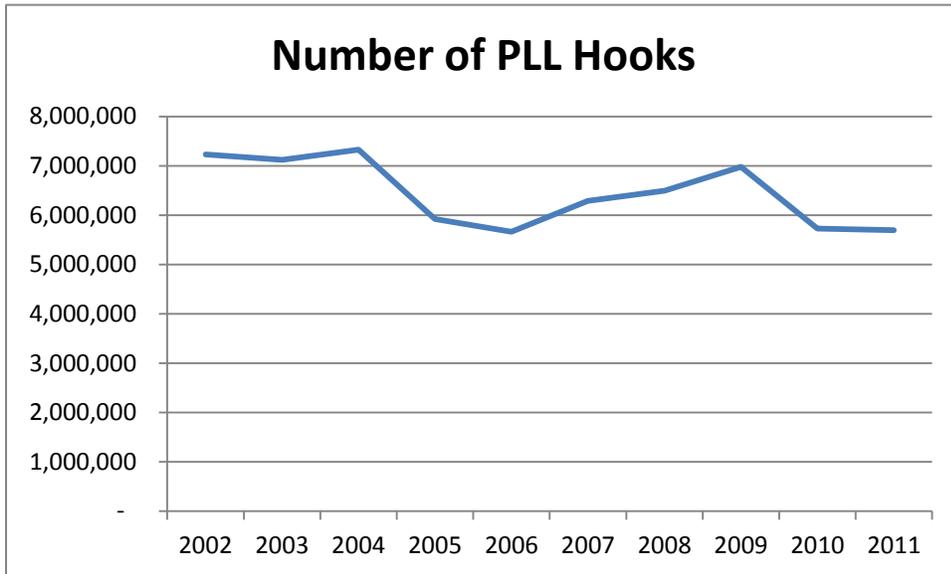
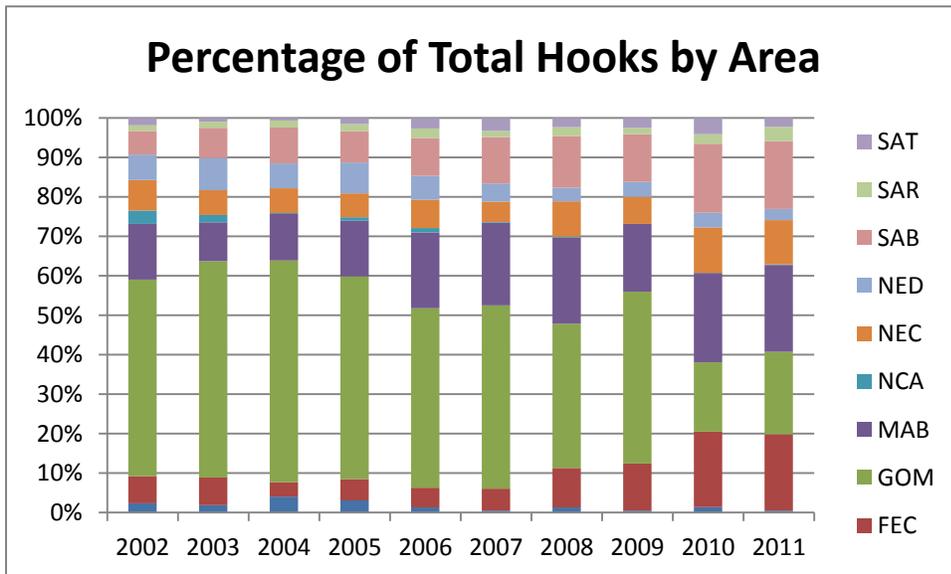


Figure 11. Percentage of Total Hooks Fished by Area (2002 – 2011; Logbook Data).



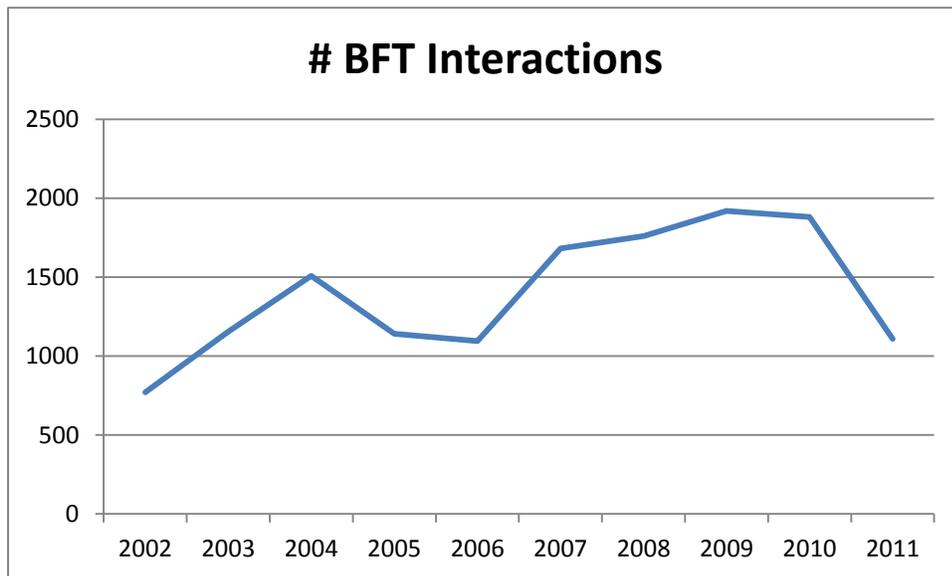
The areas with the greatest fishing effort are the Gulf of Mexico, Mid-Atlantic Bight, South Atlantic Bight, Florida East Coast, and the Northeast Coastal. Since 2002, there have been notable trends in the distribution of PLL fishing effort among the different areas. The percentage of total hooks fished in the Gulf of Mexico has declined, and the percentage of total hooks fished in the Florida East Coast, Mid-Atlantic Bight, and South Atlantic Bight have increased. Table 10 shows the average percentage of total hooks fished.

Table 10. Average Percentage of Total Hooks Fished by Area (Logbook Data; 2002 – 2011)

Area	Average Percentage of Hooks 2002 to 2006	Average Percentage of Hooks 2007 to 2011
GOM	52 %	33 %
FEC	6 %	13 %
MAB	14 %	21 %
SAB	8 %	14 %

The number of bluefin interactions (landings plus discards) by PLL vessels from 2002 through 2011 is shown in Figure 12. The trend in the number of interactions is increasing, with a notable decline in the number of interactions in 2011. The number of bluefin interactions ranges from 771 to 1,919 per year. From 2002 through 2006, the average number of bluefin interactions was 1,134. From 2007 through 2011, the average number of bluefin interactions was 1,670.

Figure 12. Number of Bluefin Interactions with Pelagic Longline Gear (Logbook Data; 2002 – 2011)



The proportion of total bluefin interactions by area from 2002 through 2011 is shown in Figure 13. The proportions of the total bluefin interactions for the five areas with the greatest number of interactions is shown in Figure 14.

Figure 13. Proportion of Total Bluefin Interactions by Area.

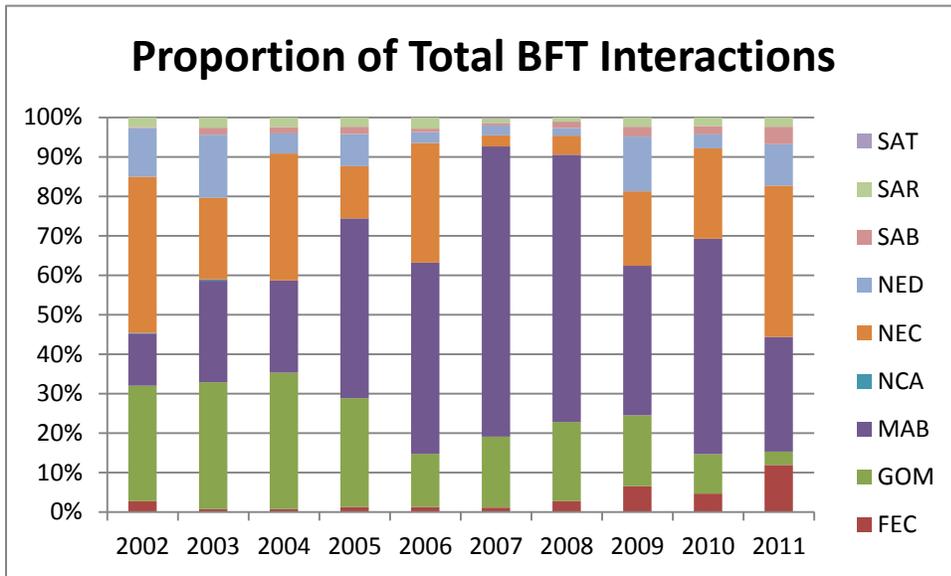
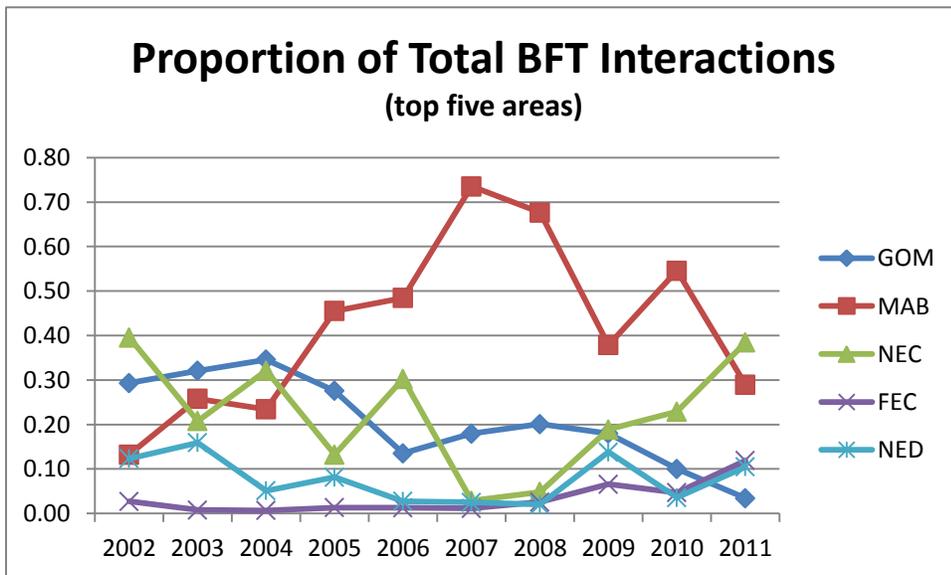


Figure 14. Proportion of Total Bluefin Interactions for the Top Five Areas.



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The average percentage of the total number of bluefin interactions from 2007 through 2011 is shown in Table 11.

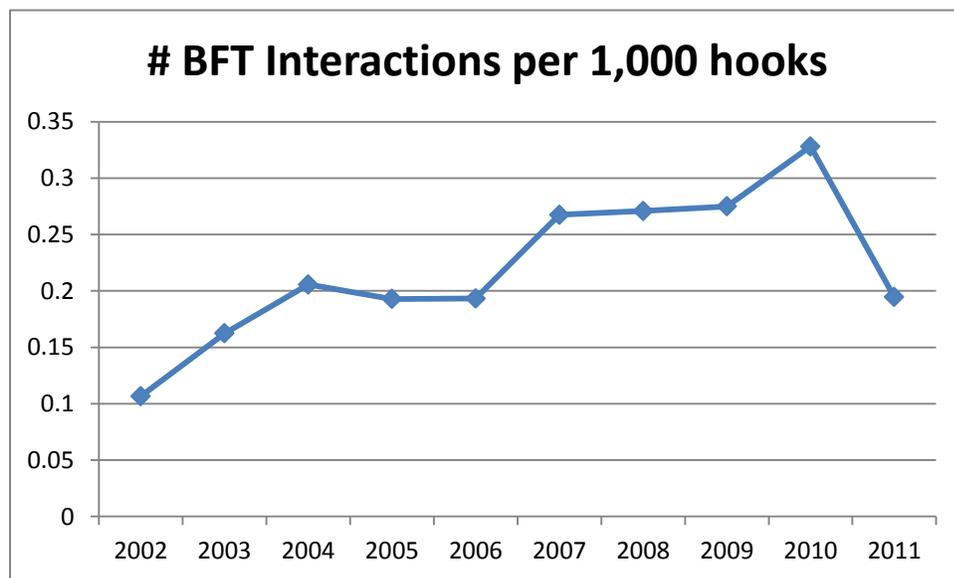
Table 11. Average Percentage of Total Interactions by Area

Area	Average Percentage of Total Interactions
MAB	53 %
NEC	18 %
GOM	14 %
NED	6 %
FEC	5 %
SAB	2.3%
SAR	1.8%
SAT	0.1%

Figure 14 and Table 11 include some notable trends, including a decline in the number of interactions in the Gulf of Mexico and Mid-Atlantic Bight, and increasing in the other areas. Although there has been a declining trend in the proportion of total bluefin interactions in the Mid-Atlantic Bight, the average proportion of total interactions is still relatively high (53 % for 2007 through 2011).

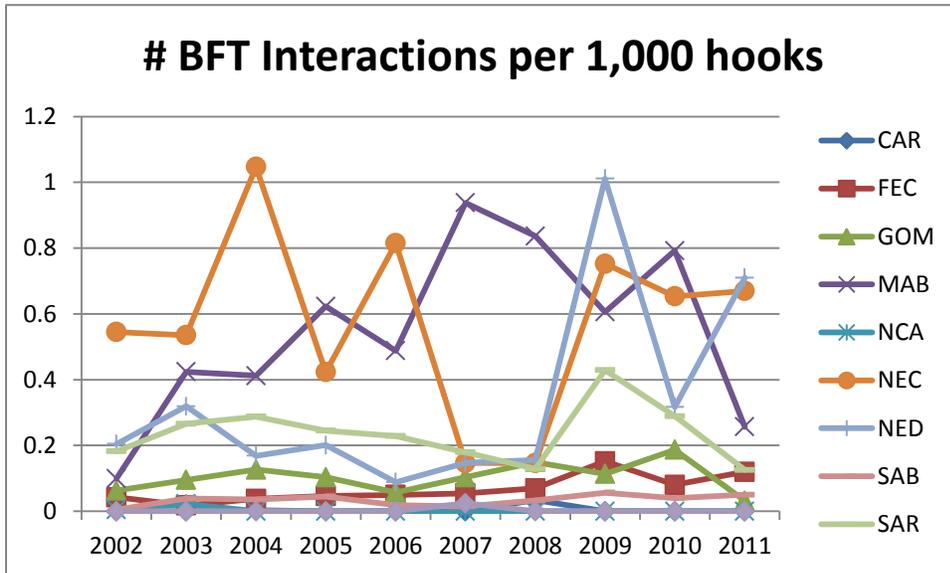
The rate of bluefin interactions with PLL gear was estimated by dividing the number of bluefin interactions by the number of hooks (for the relevant area and/or time period). Because the number of bluefin interaction per hook is low, in order to facilitate the presentation of data the calculations are expressed as the number of interactions per 1,000 hooks. The number of bluefin interactions per 1,000 PLL hooks for 2002 through 2011 is shown in Figure 15.

Figure 15. Number of Bluefin Interactions per 1,000 Hooks.



The rate of PLL gear interactions with bluefin since 2002 has shown an increasing trend, except for a notable decline in 2011. The rate of PLL gear interactions with bluefin by area, from 2002 through 2011 is shown in Figure 16.

Figure 16. Number of Bluefin Interactions per 1,000 Hooks by Area.



Although the areas with the higher rates of bluefin interaction show annual variability, certain areas show a pattern of a greater rate of bluefin interactions than other areas. Table 12 shows the average number of bluefin interactions per 1,000 hooks by area from 2007 through 2011.

Table 12. Average Number of Interactions per 1,000 Hooks by Area (2007-2011).

Area	Average # of BFT Interactions per 1,000 hooks
MAB	.69
NEC	.47
NED	.47
SAR	.23
GOM	.12
FEC	.10
SAB	.04
CAR	.01
NCA	< .01
SAT	< .01

Figure 17 and Table 13 provide an indication of the number of vessels that interact with bluefin based upon logbook data. As shown in Figure 17 and Table 13, a large percentage of vessels do not interact with bluefin. 2011 data should be considered preliminary.

Figure 17. Number of vessels interaction with bluefin between 2006 and 2011.

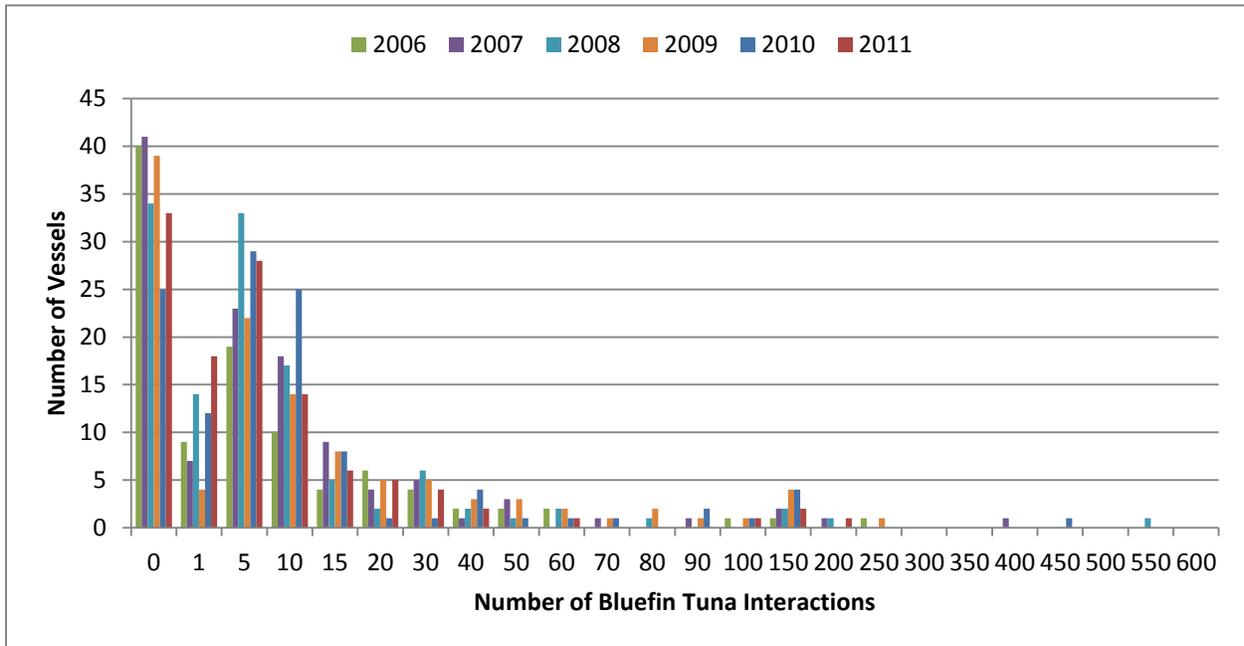
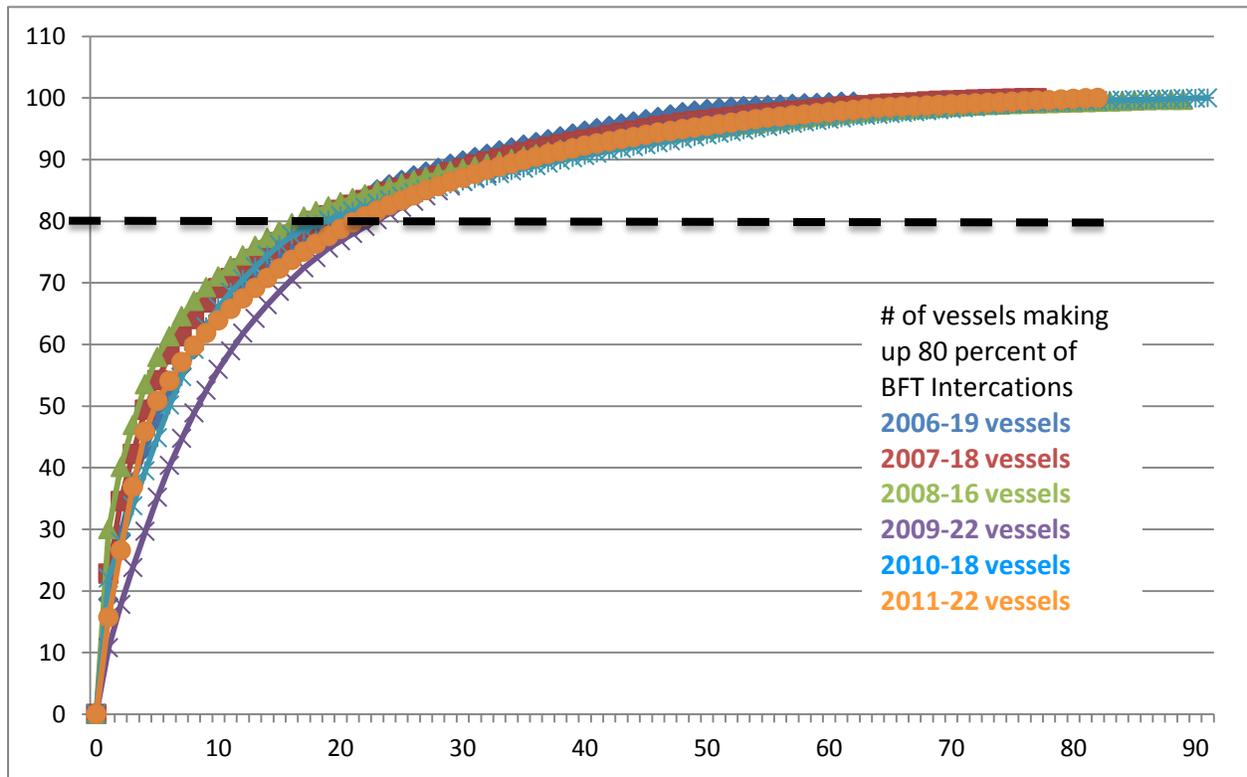


Table 13. Bluefin Interactions Across the PLL Fleet.

Year	Vessels Deploying PLL Gear	Vessels Reporting BFT Interactions	Percent w Interactions	Percent w/o interactions
2006	101	61	60	40
2007	117	76	65	35
2008	121	87	72	28
2009	115	76	66	34
2010	116	91	78	22
2011	116	82	71	29

Figure 18 shows the cumulative frequency distribution of bluefin interactions with PLL gear, and the number of vessels responsible for 80% of the interactions. The number of vessels is on the horizontal axis and the cumulative percentage of interactions is on the vertical axis. For example in 2011, 22 vessels were responsible for 80% of the interactions. The trend over all the years is that less than 10 vessels were responsible for between 50 and 70% of the interactions.

Figure 18. Cumulative Frequency Distribution of Bluefin Interactions and Number of Vessels.



2.8.3 General Category Fishery

Recent information on bluefin tuna landings by the commercial handgear fishery are included be in Table 14.

Table 14. Domestic Atlantic Landings of BFT for the General Category Commercial Handgear Fishery, by gear (mt whole weight).

Gear	2006	2007	2008	2009	2010	2011
Rod and Reel	164.1	120.8	226.6	301.7	515.1	419.1
Handline	0.3	0.0	0.6	0.1	2.7	0.8
Harpoon	30.3	22.5	30.2	66.1	29.0	42.4
Total	194.7	143.3	257.4	367.9	546.8	462.3

Source: NMFS 2011 (SAFE Report) and 2011 Atlantic Bluefin Tuna Fishing Year Summary.

2.8.4 Angling Category Fishery

Data on bluefin landings for the recreational rod and reel fishery are contained in Table 15.

Table 15. Bluefin Tuna Landings for the Recreational Rod and Reel Fishery in the Northwest Atlantic (mt, whole weight).

2006	2007	2008	2009	2010	2011
158.2	398.6	352.2	143.3	111.4	181.6

Source: NMFS 2011 (SAFE Report) and 2011 Atlantic Bluefin Tuna Fishing Year Summary.

2.8.5 Harpoon Category Fishery

Harpoon gear may be used to catch bluefin by vessels with a Harpoon category permit and by vessels with a General category permit. Table 16 shows bluefin landings by the Harpoon category fishery.

Table 16 Bluefin Landings by the Harpoon Category (mt).

2006	2007	2008	2009	2010	2011
22	12	22	41	18	29

Source: NMFS, March 2012 Advisory Panel Presentation.

2.8.6 Purse Seine Fishery

Purse seine landings historically represented approximately 20 percent of the total annual U.S. landings of bluefin, but recently account for only a small percentage of landings (

Table 17). In 2008, 2010, and 2011 the Purse Seine category did not harvest any Atlantic tunas. As described in Section 2.4.10, the purse seine fishery may only retain “giant” bluefin, 81 inches or greater in curved fork length (with a tolerance of large medium bluefin). The low landings trend can be attributed to a number of different reasons outside of the industry’s or NMFS’ control, such as lack of availability, schools of mixed size classes, high operating costs, vessel sales, etc. Data on size distribution of bluefin from the past several years supports the contention

~ Background ~

that relatively low availability of giant bluefin was an important factor in the recent low levels of purse seine landings.

Table 17. Bluefin Tuna Landings for the Purse Seine Fishery (mt whole weight).

2003	2004	2005	2006	2007	2008	2009	2010	2011
265.4	31.8	178.3	3.6	27.9	0	11.4	0	0

Source: NMFS 2011 (SAFE Report).

3.0 OBJECTIVES

NMFS developed the following objectives based upon the detailed suggestions and concerns expressed by the HMS Advisory Panel, members of the fisheries, and the public regarding management of the bluefin fishery over the last several years. It is important to note that these specific objectives are within the context of the larger objectives of rebuilding the stock, ending overfishing, and meeting the other objectives of the 2006 Consolidated HMS FMP and the international and domestic legal obligations and conservation and management goals/requirements. There were common elements among the wide range of ideas for management measures to address multiple concerns. The specific objectives below have not been modified from the April 2012 scoping document, and are as follows in Table 18. These may be modified based on Advisory Panel and public comment, further analysis, and new information as appropriate in the Draft Amendment.

Table 18. Amendment 7 Objectives

Amendment 7 Objectives
Broad Objectives
Rebuild the stock, end overfishing, meet other objectives and conservation and management goals and requirements of the 2006 Consolidated HMS FMP and the international and domestic legal obligations.
Optimize Fishing Opportunity and Account for Dead Discards
Optimize the ability for all permit categories to harvest their full quota allocations; account for mortality associated with discarded bluefin in all categories; maintain flexibility of the regulations to account for the highly variable nature of the bluefin fishery; and maintain fairness among permit/quota categories;
Enhance Reporting
Improve the scope and quality of catch data through enhanced reporting and monitoring to ensure that catch does not exceed the quota and to improve accounting for all sources of fishing mortality;
Reduce Bluefin Dead Discards
Reduce dead discards of bluefin and other non-target stocks and minimize reductions in target catch in both directed and incidental bluefin fisheries;
Other
Adjust other aspects of the 2006 Consolidated HMS FMP as necessary and appropriate.

Accounting for Discards vs. Reporting Discards, vs. Discarding

Most of the potential objectives address discarding of dead bluefin, but focus on three different aspects of discarding. The first objective addresses the fact that under the current fishery conditions and the 2006 Consolidated HMS FMP, dead discard accounting through the annual quota specification and accounting process is complex due to a variety of domestic and international obligations. In contrast, the focus of the second objective is to ensure the

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availability of dead discard information to support quota monitoring and accounting, because current procedures used in the monitoring and accounting are limited by the availability of current catch information. The third objective focuses on reducing dead discards, while minimizing any associated negative impacts. It is useful to parse out the different aspects of dead discard issues because management measures may address different (or several) aspects. For example, it is useful to consider the accounting aspect of discarding in conjunction with the objective of optimizing fishing opportunity because they are both closely related to the quota allocation. Clearly, all three aspects of the dead discard objectives are closely related. A management measure that reduces discarding (objective 3) may not alleviate the magnitude of the accounting challenge (landings + discards = total quota) (objective 1), unless the reduction in dead discards is documented, reported, and monitored (objective 2).

4.0 MANAGEMENT MEASURES

This section contains a broad range of management measures for possible consideration in a future DEIS and proposed rule to address the Amendment 7 objectives. The process of developing an amendment is iterative, with repeated opportunities for public input and repeated evaluation and analyses by NMFS. Consideration of the predraft document by the Advisory Panel, with additional opportunity for comment by the public provides an additional opportunity for input at a point in the process prior to the full development of a DEIS and the publication of a proposed rule. At this time (after the end of the comment period on the scoping document), NMFS has received and considered substantial public input, and has conducted preliminary analyses and evaluations of measures. In order to provide new information with which to solicit input from Consulting Parties on alternatives prior to development of the formal DEIS and proposed rule, this predraft document characterizes some measures as “first tier measures” and other measures as “second tier measures”. The first tier measures should be considered as those measures that, based upon the comments on the scoping document and our initial evaluation of strengths, weakness, and impacts, NMFS is considering more favorably *at this time* as the likeliest candidates for inclusion in the range of alternatives in a proposed rule because of their potential efficacy. Note, second tier measures are still under consideration by NMFS. It is our premise that the characterization of measures as first tier and second tier will solicit input from the HMS Advisory Panel that facilitates and informs NMFS’ continuing consideration of measures, and contributes toward the development of a proposed rule that effectively and equitably address the objectives of the amendment, while not foreclosing the consideration or evaluation any alternatives within a possible range at this still-early stage of the rulemaking process. The measures in this predraft document do not correspond precisely to the measures discussed in the Scoping Document (NMFS, April 2012), but represent the majority of measures from the Scoping Document, with some modifications based upon public comments and suggestions.

4.1 First Tier Measures for Review and Comment

4.1.1 Pelagic Longline Bluefin Catch Cap

Description of Measure

Implement an annual bluefin catch cap for incidental bluefin catch in the Longline category that would result in prohibiting the use of PLL gear when the annual Longline bluefin catch cap has been caught. Both bluefin landings and discards would count toward the catch cap. Sub-options described below include regional or individual catch caps. Because an annual catch cap would involve a threshold amount of catch triggering a prohibition on the use of PLL in-season, implementation of a catch cap would require additional reporting by vessel owners and additional monitoring by NMFS. The current reporting requirements are not sufficient to monitor a catch cap. Reporting and monitoring options in support of a catch cap are described in the section of this document called “reporting and monitoring”.

Objective and Rationale

The objective of this measure is to reduce bluefin dead discards. Under the 2006 Consolidated HMS FMP, once the annual PLL quota has been reached (based on the amount of bluefin landed), vessels using PLL gear are prohibited from retaining bluefin, but may continue to fish for other species (and discard bluefin). The current regulations have the net effect of limiting the amount of bluefin landed, and thus maximizing the incentive to avoid bluefin tuna, but ultimately have not effectively limited the number of bluefin caught and then discarded. A catch cap could provide NMFS the authority to prohibit fishing with PLL gear once the threshold amount of catch has been attained, and therefore limit the amount of landings and dead discards on an annual basis. If a catch cap were implemented, both landings and discarded bluefin would need to be monitored by NMFS in real time during the season, and count toward the catch cap, as opposed to estimating dead discards up front and doing a final accounting after the end of the season. When NMFS determines that the catch cap is reached (or a threshold portion of the catch cap), NMFS would implement an inseason action to prohibit the use of PLL gear. A successful catch cap should increase the accountability of the PLL fishery with respect to limiting the number of bluefin discards, but also provide flexibility for the vessels to remain operational, even if fishing with other gears.

Note, vessels in the Longline category are also currently restricted in the number of bluefin they may retain per trip (target catch requirements), based upon the amount of target species caught. Although this limits the amount of bluefin that are retained on a particular trip, it does not limit the amount of discards on a trip. The target catch requirements are considered under a separate management measure.

4.1.1.1 Catch Cap Sub-Option: Regional

Description of Measure

Create annual bluefin catch caps for each of the relevant geographic regions (e.g., regions defined to support the current Longline category reporting requirements; Caribbean (CAR), Gulf of Mexico (GOM), Florida East Coast (FEC), South Atlantic Bight (SAB), Mid-Atlantic Bight

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(MAB), Northeast Coastal (NEC), Northeast Distant (NED), North Central Atlantic (NCA) Sargasso (SAR), and Southern Atlantic Tuna (SAT)). When NMFS projects that the catch cap for a region has been caught (e.g., 95% of the regional cap), fishing with PLL gear would be prohibited. When fishing with PLL gear has been prohibited, the use of other authorized gear such as green-stick or buoy gear may continue.

The relative size of each of the regional catch caps could be based upon historical information on bluefin catch, or other considerations, and be expressed as a fixed percentage (of either the total PLL quota, or the northern sub-quota, or southern sub-quota, etc.). Although the percentage allocated to each region would be a fixed number, the value of the catch cap would be specified annually. The design of a regional catch cap based upon the above regions may be complicated by the fact that the current Longline category quota is divided into northern and southern sub-quotas, allocated 40 and 60 percent, respectively. The latitudinal line that separates the regions to which the northern and southern quotas apply (31° 00' N. Lat.) does not coincide with the junctions of the regions, but runs through the middle of the Sargasso Region and the North Central Atlantic Region, and is just north of the junction of the Florida East Coast Region and the South Atlantic Bight (at 30° 00' N. Lat.). Figure 9 above shows the regions. Furthermore, the Northeast Distant Region would continue to be allocated a separate amount of bluefin (25 mt) as consistent with ICCAT recommendations.

Objective and Rationale

The objective of this measure is to reduce bluefin dead discards and optimize fishing opportunity. A regional catch cap has distinct advantages over a single catch cap allocated for the entire Longline category, because catch caps associated with individual regions would be relatively independent from one another, and therefore reduce the potential for 'derby' fishing behavior (where there is the incentive for individual vessels to fish sooner rather than later). There is more accountability for those fishing in a particular region, because there would be limits in each region rather than a single limit, with no restriction on the relative number of bluefin that could be caught in a particular region.

Examples

Note, these examples of catch caps are based only on historical data, basing the amount (%) of quota allocated to a particular region upon the historical percentage caught (by numbers). In designing a catch cap measure, the relative amount of quota allocated to each region may want to reflect not only historical fishing patterns (interactions with bluefin and target catch), but also a management objective, such as reducing the relative number of bluefin interactions in a particular area. Other considerations may also include the anticipated benefits of another management measure such as a closed area. For example, if a closed area were implemented in conjunction with a regional catch cap, it may be reasonable to reduce the relative amount of bluefin quota allocated to the region containing the closed area.

The examples of regional catch caps below were derived using several methods, based on historical information regarding the numbers of bluefin interactions by area. The regional catch caps may be derived based on a particular region's historical share of the entire bluefin catch (by all vessels in the PLL fleet in all areas), or based upon a particular region's share of the sub-

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quota (north or south). Furthermore, with respect to the northern region, the calculation could exclude or include the Northeast Distant area.

The examples below were derived based only on numbers of interactions, and did not take into account weight of individual fish. Estimation of the relative amount of bluefin interactions in a region would differ if calculated taking into account the weight of individual fish (and regional differences in bluefin size). The numbers could be converted to weight prior to determining the relative amount of bluefin a particular region would be allocated. Larger fish in a particular region would have the effect of increasing the amount of allocation to that region. The following examples are intended to illustrate some of the relevant considerations in designing a regional catch cap, and are not specific proposals based upon refined methodology. Another caveat is that the historical bluefin catch data associated with the Sargasso or North Central Atlantic regions were not parsed out between the north and south when deriving regional catch caps that considered the northern and southern hierarchy (Table 20 and Table 21). Table 19 shows an example of regional catch caps, derived without separating out the Northeast Distant Area or consideration of the current allocations to the north and south.

Table 19. Regional Catch Caps (% , mt), Based on the Annual Percentage of Total Bluefin Interactions, including the Northeast Distant Area.

Region	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	Catch Cap (% of Total PLL quota)	Catch Cap (mt) (% x 6.1 mt)
CAR	0	0	0.2	0	0	0	0.03	0.03
FEC	1.3	1.1	2.6	6.6	4.7	11.9	4.7	4.0
GOM	13.5	18.0	20.1	18.0	10.0	3.4	13.8	11.9
MAB	48.5	73.5	67.7	37.9	54.6	29.0	51.8	44.6
NEC	30.3	2.9	4.8	18.9	22.9	38.5	19.7	17.0
NED	2.7	2.5	2.0	13.8	3.6	10.5	5.8	5.0
SAB	0.9	0.7	1.6	2.5	2.1	4.4	2.0	1.7
SAR	2.8	1.1	1.1	2.4	2.2	2.4	2.0	1.7
SAT	0	0.3	0	0	0	0	0.5	0.04
Total	100%	100%	100%	100%	100%	100%	100%	86.1

Calculation of mt based on 2011 PLL Quota of 86.1 (61.1 mt + 25.0 mt (NED))

For example, based on Table 19 above, the Gulf of Mexico region would have a catch cap of 13.8% of the total PLL allocation (based on historical number of bluefin interactions from 2006 to 2011), and if the total PLL quota was 86.1 mt (including the Northeast Distant area), the Gulf of Mexico's regional catch cap would be 11.9 mt. If, in contrast to Table 19 above, the catch caps are derived taking into consideration whether the region is part of the northern or southern quota allocation, as a percentage of either the northern or southern quotas, the catch caps would be as follows in Table 20.

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Table 20. Regional Catch Caps (%), Based upon the Annual Percentage of Total Bluefin Interactions in Northern or Southern Regions.

Region	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	Catch Cap (% of Southern quota)	Catch Cap* (mt) (% x 36.7 mt)
CAR	0	0	0.8	0	0	0	0.1	.05
FEC	8.6	5.9	11.3	26.8	31.9	77.6	27.0	9.9
GOM	91.4	94.1	88.7	73.2	68.1	22.4	73.0	26.8
Totals	100%	100%	100%	100%	100%	100%	100%	36.7
Region	2006	2007	2008	2009	2010	2011	Catch Cap (% of Northern quota)	Catch Cap** (mt) (% x 49.4 mt)
MAB	56.9	90.9	87.5	50.2	64.0	34.2	63.9	31.6
NEC	35.5	3.5	6.2	25.0	26.8	45.4	23.8	11.7
NED	3.2	3.1	2.6	18.3	4.2	12.4	7.3	3.6
SAB	1.1	0.8	2.1	3.3	2.5	5.2	2.5	1.2
SAR	3.3	1.3	1.4	3.2	2.6	2.8	2.4	1.2
SAT	0	0.4	0	0	0	0	0.061	.03
Totals	100%	100%	100%	100%	100%	100%	100%	49.4

*Based upon southern area quota of 36.7 mt; **Based upon northern area quota of 49.4 mt (including Northeast Distant area)

The above method may not be consistent with the ICCAT recommendation, because it results in an allocation to the Northeast Distant Region that is less than the ICCAT recommended 25 mt. Therefore, in Table 21, the Northeast Distant Area is not included in the calculation.

Table 21. Regional Catch Caps (%), Based on the Annual Percentage of North Interactions, not including the Northeast Distant area quota of 25 mt.

Region	2006	2007	2008	2009	2010	2011	Catch Cap (% of Northern quota)	Catch Cap (mt) (% x 24.4 mt)
MAB	58.8	93.8	89.8	61.5	66.8	39.1	68.2	16.7
NEC	36.7	3.6	6.4	30.6	28.0	51.8	26.2	6.4
NED	Na	25 mt						
SAB	1.1	0.8	2.1	4.1	2.6	6.0	2.8	0.7
SAR	3.4	1.4	1.4	3.9	2.7	3.2	2.7	0.7
SAT	0	0.4	0	0	0	0	.063	.02
Totals	100%	100%	100%	100%	100%	100%	100%	24.4

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Discussion

The relative percentages allocated to the regions would vary according to whether the northern and southern quotas are taken into consideration and whether the Northeast Distant area allocation is split out from the rest of the data. Calculating the percentage allocations to the regions based on the portion of northern or southern sub-quotas has the effect of decreasing allocations to the northern regions and increasing allocations to the southern regions. If numbers of fish are converted to metric tons using an estimate of weight per fish, the regional allocations would also be influenced by the particular weight conversion used. If, for example, a larger estimated weight per fish is used for the south, deriving the regional allocation percentages with the inclusion of a conversion of the number of interactions to weight, would have the effect of increasing the allocation to the south, and decreasing the allocation to the north if there is no separation by region. However, if the regions (north and south) were calculated separately, then there would be no difference due to the inclusion of a weight factor (if there is a single weight conversion factor for the north and a single weight conversion factor for the south).

To illustrate the effect of a regional catch cap, the Mid-Atlantic Bight is used as an example, from Table 20. Table 22 shows the number of interactions the associated conversion to mt and the cumulative amount in mt to indicate how long the catch cap would last, based on past catch patterns. This example uses a Mid-Atlantic Bight annual catch cap of 31.6 mt, based on Table 20, using the number of interactions by month in 2009, 2010, and 2011, and a conversion from numbers of interactions to mt of fish using a weight of 419 lb per fish. If a future catch cap were 31.6 mt, and the catch is similar to 2009 or 2010, the Mid-Atlantic Bight would close to the use of PLL gear in February, January, or April (in 2009, 2010, and 2011, respectively).

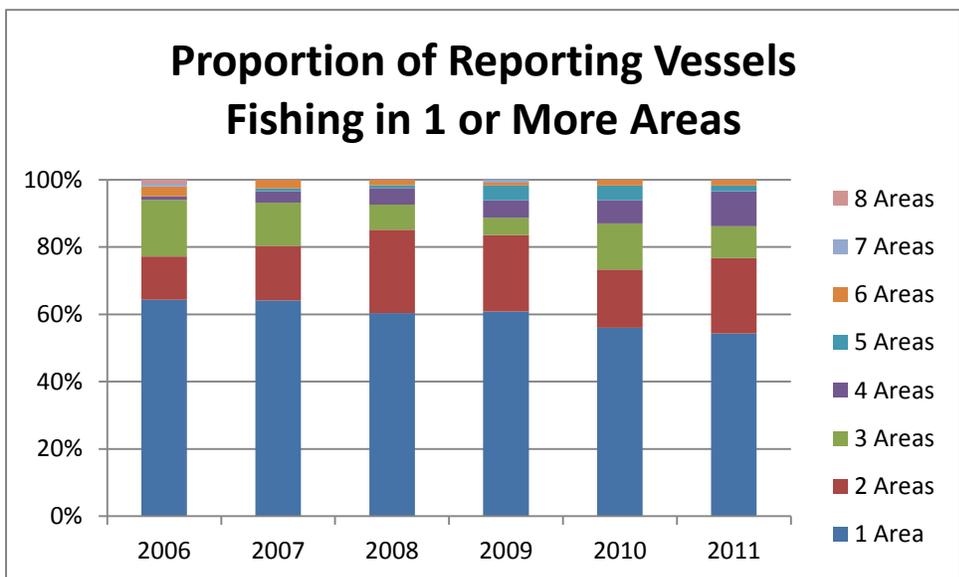
Table 22. Regional Catch Cap Exploration of Mid-Atlantic Bight Example. Number of Interactions and mt by Month.

Month	2009		mt (cumulative)	2010		mt (cumulative)	2011		mt (cumulative)
	#	mt		#	mt		#	mt	
Jan	94	17.7	17.7	168	31.7	31.7	33	6.2	6.2
Feb	147	27.7	45.5	226	42.6	74.3	35	6.6	12.8
Mar	87	16.4	61.9	247	46.6	121.0	1	0.2	13.0
Apr	83	15.7	77.6	7	1.3	122.3	134	25.3	38.3
May	11	2.1	79.6	33	6.2	128.5	17	3.2	41.5
Jun	8	1.5	81.1	8	1.5	130.0	37	7.0	48.5
Jul	28	5.3	86.4	17	3.2	133.2	7	1.3	49.8
Aug	1	0.2	86.6	0	0	133.2	2	0.4	50.2
Sep	0	0	86.6	11	2.1	135.3	0	0.0	50.2
Oct	17	3.2	89.8	19	3.6	138.9	2	0.4	50.6
Nov	109	20.6	110.4	275	51.9	190.8	29	5.5	56.0
Dec	142	26.8	137.2	15	2.8	193.6	24	4.5	60.6
Total	727		137.2	1026		193.6	321		60.6

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Because a regional catch cap would prohibit all fishing with PLL gear when the threshold amount of catch is reached, it would impact both vessels that have caught bluefin and those that have not. Members of the public have expressed the concern that, under a regional catch cap, some vessels may not fish in a manner that avoids bluefin, but may instead fish in an area, and if the threshold amount of bluefin is reached and the use of PLL is prohibited in that area, the vessel could move to another area to fish. Such a system may advantage those vessels that typically fish in more than one area. In contrast, an individual (per vessel) catch cap (see discussion below) would impact principally those vessels which interact with bluefin, and have little or no impact on vessels that do not interact with bluefin, and in fact there could be economic benefits to those vessels that do not need bluefin because they may be able to share their share of bluefin allocation/cap. Figure 19 provides information on the fishing patterns with respect to the frequency of vessels fishing in one or more regions, based on the location information submitted on logbooks.

Figure 19. Proportion of Vessels Fishing in One or More Areas.



As indicated by Figure 19, between 50 and 60 percent of vessels fish in only one of the defined regions (range from 54% to 64%). Between 13 and 25 percent of vessels fish in two regions, and between 9 and 17 percent of vessels fish in three regions. For each region, the ratio of vessels fishing only in that area to the total number of vessels fishing in the area was calculated (Table 23) and demonstrates different patterns of vessel ‘fidelity’ to the areas.

Table 23. Ratio of Vessels Fishing Exclusively in a Region to the Total Number of Vessels Fishing in the Region (average from 2006 to 2011).

Region	Ratio	Region	Ratio
CAR	0.02	NEC	0.05
FEC	0.23	NED	0.14
GOM	0.79	SAB	0.08
MAB	0.34	SAR	0.00
NCA	0.00	SAT	0.40

The higher the proportion of vessels fishing exclusively in a region to the total number of vessels fishing in the region shown in Table 23, the greater amount of fidelity to a particular region. For example, 79% of the vessels fishing in the Gulf of Mexico fished only in the Gulf of Mexico. In contrast, the other regions show a much lower level of vessel fidelity. Thirty four percent of the vessels fishing in the Mid-Atlantic Bight fished exclusively in that region. The socio-economic impacts of a catch cap may be different for a vessel that fishes exclusively in one region and a vessel that routinely fishes in more than one area. Based on the historical pattern of vessels that fish in multiple areas, approximately 50% of the vessels may fish in another area when an area is closed to the use of PLL gear. When the catch cap is reached, and the use of PLL is prohibited, vessels that fish in more than one area may be more likely or more able to continue to utilize PLL gear and fish in another area, instead of staying in the same region and switching to the use of other authorized gears. Furthermore, some vessels that have historically fished in only one region may modify their behavior and choose to fish in another area, instead of switching gears. Because of the varying degrees of fidelity vessels have to different geographic areas, a regional catch cap may impact vessels fishing in some areas more than others. For example, an average of 79 percent of vessels fishing in the Gulf of Mexico fish there exclusively. Therefore, it is possible that such vessels are more likely to switch to using alternative gears when PLL is prohibited, rather than fishing in an adjacent area.

4.1.1.2 Catch Cap Sub-Option: Individual Catch Caps

Description of Measure

An individual vessel could be allocated a portion of the Longline category bluefin quota (i.e., individual catch caps), expressed as a fixed percentage of the Longline quota. When the vessel has caught its allocation during a particular year, it may no longer use PLL gear (but may fish with other allowable gear such as buoy gear or greenstick gear). The allocation could be transferable among vessels within the Longline category, or within both the Longline and Purse Seine categories. Although the allocation to each vessel would be a fixed percentage, the value of the catch cap would be specified annually by NMFS based upon the annual quota(s). The catch cap program would be monitored regularly and evaluated after a specified period of time (e.g., 3 to 5 years) using simple performance indicators. To address concerns regarding the amount of bluefin caught in a particular geographic area such as the Gulf of Mexico or Mid-Atlantic Bight, some areas could be subject to a regional cap, in addition to the individual catch

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caps, or vessels fishing in a particular area could be subject to quota trading restrictions to limit the potential for disproportionate impacts in a particular area.

Objective and Rationale

A catch cap that is set at the level of an individual vessel could provide strong incentives to reduce dead discards at the level of an individual vessel. If individual catch caps are implemented, transferability of bluefin individual catch quota within the Longline category may be desirable. Specifically, vessels would need to match the amount of quota they have available with the amount of quota they need. The ability to transfer could provide flexibility and maximize opportunity for fishing opportunity and revenue, and make it more likely that allocations may be aligned with catch (i.e., vessels that catch bluefin may be able to obtain quota from those that do not encounter bluefin). Without trading, there would be no inseason means to adjust the amount of quota an individual vessel has and avoid a situation where some vessels (or quota categories) have more quota than they need and some vessels have less quota than they need. If trading with the Purse Seine category were allowed, it would provide additional flexibility for the PLL fishery to keep fishing if they are willing to purchase additional quota (and the purse seine fishery is willing to sell). Because a catch cap program could be controversial, and may have some unintended consequences, the program would be evaluated in the future. A successful individual catch cap should increase the accountability of the PLL fishery with respect to limiting the amount of BFT discards, but also provide flexibility for the vessels to remain fishing.

Examples

The three examples of individual catch caps below illustrate three potential catch cap allocation strategies: One based on equal catch cap allocations among vessels, one based strictly on historical catch, and a hybrid, that addresses the concern that an allocation based on historical catch would be rewarding vessels that did not avoid bluefin interactions in the past, and not providing adequate incentive to avoid bluefin in the future.

Bluefin Catch Cap based on Equal Shares

A catch cap allocation based on equal shares of the quota would divide the annual Longline quota among a designated set of PLL vessels. The quota could be allocated to either all valid PLL permit holders or the sub-set of active vessels (e.g. those landing any target species), or some other means, in order to allocate larger amounts of bluefin to each vessel. The first step in calculating equal shares is to divide the total Longline category quota by the number of vessels sharing the quota. Table 24 provides examples of individual catch caps based on equal shares and different numbers of vessels, and expresses the quotas as metric tons, pounds, and numbers of fish. The numbers of fish are estimated based on several different assumed fish sizes. As of October 2011, there were 242 vessels issued Longline category permits, and 116 active PLL vessels. For example, if there are 242 Longline category permits being allocated equal shares of bluefin, and the total Longline category quota is 74.8 mt, each vessel would be allocated .31 mt (about 681 lb), which equates to about one or two bluefin. In contrast, if the allocation is only to those active permits, approximately 120 vessels, the amount per vessel is approximately .62 mt (1,374 lb) or about two to three bluefin, depending upon the size of fish.

Table 24. Allocation of Equal Shares Based upon Number of Vessels Receiving Allocation.

# Vessels	Total PLL Quota (mt)	Individual Quota (Catch Cap) (mt)	Individual Quota (Catch Cap) (lbs)	Size fish (north) (lbs)	# fish (north)	Size fish (south) (lbs)	# fish (south)
242	74.8	0.309	681	459	0.48	589	1.2
242	74.8	0.309	681	415	1.64	492	1.4
120	74.8	0.6233	1,374	459	3.0	589	2.3
120	74.8	0.6233	1,374	415	3.3	492	2.8

Bluefin Catch Caps based on Historical Catch

A catch cap allocation based on historical catch would utilize data on vessel’s historical bluefin catch as the basis of allocating individual catch caps. Because the annual quota varies, and would need to be divided among a defined pool of participants, a specific number or weight of fish as a fixed allocation would not be feasible. Instead, the individual catch allocation would be expressed as a percentage of the Longline quota. An individual catch cap could be based upon a single year or an average of multiple years. Table 25 is illustrative of the underlying data that could be utilized in the development of a catch cap, and shows PLL logbook data on the distribution of bluefin interactions across the PLL fleet. Specifically Table 25 shows the number of vessels associated with the different ranges of bluefin interactions, by year.

Table 25. Distribution of Bluefin interactions among Individual Vessels by Year.

# Interactions	Number of Vessels					
	2006	2007	2008	2009	2010	2011
0	40	41	34	39	25	33
1	9	7	14	4	12	18
2 to 5	19	23	33	22	29	28
6 to 10	10	18	17	14	25	14
11 to 15	4	9	5	8	8	6
16 to 20	6	4	2	5	1	5
21 to 30	4	5	6	5	1	4
31 to 40	2	1	2	3	4	2
41 to 50	2	3	1	3	1	0
51 to 60	2	0	2	2	1	1
61 to 70	0	1	0	1	1	0
71 to 80	0	0	1	2	0	0
81 to 90	0	1	0	1	2	0
91 to 100	1	0	0	1	1	1
101 to 150	1	2	2	4	4	2
151 to 200	0	1	1	0	0	1

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# Interactions	Number of Vessels					
	2006	2007	2008	2009	2010	2011
201 to 250	1	0	0	1	0	0
251 to 300	0	0	0	0	0	0
301 to 350	0	0	0	0	0	0
351 to 400	0	1	0	0	0	0
401 to 450	0	0	0	0	1	0
451 to 500	0	0	0	0	0	0
501 to 550	0	0	1	0	0	0
Total	101	117	121	115	116	115

For example, if individual catch caps were based upon 2006 catches, Table 25 indicates that 40 vessels would have allocations based upon zero bluefin, 9 vessels would have allocations that would be based upon 1 bluefin, and so on. Note, Table 25 does not represent the allocations but summarizes some of the underlying logbook information. Additional calculations would be necessary in order to derive the percentage allocations. For example, if a vessel had 5 interactions with bluefin in 2006, and the total number of interactions in 2006 was 1,094, the 5 interactions represent 0.46 percent of the total number of interactions in 2006. That vessel's allocation (if based upon only its 2006 catch) would be 0.46 percent of the total allocation. If the annual Longline allocation is 74.8 mt, the vessel's allocation (0.0046 X 74.8 mt) would be 0.341 mt (754 lb). This allocation equates to approximately 1.6 bluefin if a single bluefin is 459 lb (NMFS annual landings data). Table 26 contains examples of possible individual allocations, based upon different amounts of bluefin as the basis of the allocations and various average weights of bluefin.

Table 26. Hypothetical Allocations Based on 1,094 total interactions and a quota of 74.8 mt.

# Interactions per vessel	(%)	(mt)	(lb)	# BFT (459 lb)	# BFT (589 lb)
5	0.46	0.341	754	1.6	1.3
10	0.91	0.684	1,507	3.3	2.6
20	1.8	1.37	3,015	6.6	5.1
50	4.6	3.42	7,537	16.4	12.8

Bluefin Catch Caps based on Equal Shares as Adjusted by Historical Catch

A third potential method of allocating individual catch caps could start with equal allocations (i.e., quota is divided equally among permitted vessels) but then be modified based on how much a particular vessel's historical catch has differed from an equal share of bluefin. This allocation method would address the concern that vessels with relatively high bluefin catch levels historically (i.e., greater than an equal share historically), not be 'rewarded' for their past catch of bluefin. That concern could be addressed if vessels that have historically caught more than an equal share are allocated less than the equal share, and vessels that have historically caught less

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than an equal share are allocated more bluefin (i.e., more than an equal share). The neutral amount of bluefin is simply an equal share of the total bluefin that may be caught. Table 27 presents a hypothetical calculation of this concept, using a total of 5 vessels, a historical catch of 75 bluefin total, and a theoretical quota of 75 bluefin in order to illustrate the distribution of allocation compared with equal shares and historical catch. In this example, because there are 5 vessels, equal shares of bluefin are one fifth (20%) of the total bluefin, or 15 fish per vessel.

Table 27. Individual Catch Caps based upon Equal Shares as Adjusted by Historical Catch.

Vessel	# Historical BFT Caught	# BFT Relative to Total	Equal Share of BFT (1/5)	Difference between equal share and historic catch	Catch Cap (portion of total)	Catch Cap (# BFT)
		column 3	column 4	column 5 (column 4 – 3)	column 6 (column 4 + 5)	
A	5	0.066	0.2	0.13	0.33	25
B	10	0.133	0.2	0.06	0.26	20
C	15	0.2	0.2	0	0.2	15
D	20	0.26	0.2	- 0.06	0.13	10
E	25	0.33	0.2	-0.13	0.06	5
Totals	75	1.0	1.0	0	1.0	75

Discussion of Individual Catch Caps

Based upon the logbook information in Figures 17 and 18, and in Table 25, the catch of bluefin by PLL vessels occurs by only a portion of the fleet, and a disproportionate number of interactions are associated with a very few vessels. The impacts of an individual catch cap on individual vessels would depend both on the allocation method used, as well as the individual vessel’s fishing practices. If an individual vessel routinely catches little or no bluefin, the individual catch cap may have little impact on that vessel’s fishing practices or their revenue. If such an individual is able to sell their individual catch cap to another vessel, they may increase their revenue. In contrast, a vessel that habitually interacts with many bluefin may be constrained by their individual catch cap and be required to either stop fishing with PLL gear or obtain additional bluefin quota.

4.1.1.3 Catch Caps Sub-Option: Control Date

A control date could be specified if individual catch caps are developed that rely on historical catch information or active participation in the fishery as the basis for individual allocations.

4.1.1.4 Catch Caps Sub-Option: Gear Types Authorized to Target Swordfish

The current regulations that restrict the use of buoy gear to target swordfish could be modified to allow more flexibility and mitigate the impacts of catch caps on vessels using PLL gear.

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Objective and Rationale

The current regulations restrict the use certain gear types by particular permit categories. Some of these restrictions could be modified in order to enable more flexibility and provide additional fishing opportunity to mitigate some of the negative socio-economic impacts of a pelagic longline catch cap.

4.1.1.5 Catch Cap Sub-Option: Fish under General Category Rules

When a bluefin catch cap is reached, vessels with an Atlantic tunas Longline category permit could be authorized to fish under the rules applicable to the General category, and target bluefin and other tunas, using other gears (non-PLL gear). The bluefin could be counted against either the Longline category or the General category allocation. Prior to each trip, PLL vessels that intend to fish under the General category rules would be required to declare such intent through VMS, and PLL gear would be required to be stowed.

Objective and Rationale

A strong concern expressed by participants in the PLL fishery was that attainment of a catch cap, and the resultant prohibition on the use of PLL gear, would severely restrict the availability of fishing opportunities throughout the year and thus their ability to obtain revenue throughout the year and employ crew. Authorization of other fishing opportunities, such as the ability to target bluefin or other tunas under the General category restrictions may mitigate some of the negative socio-economic impacts of a catch cap. Table 28 contains a brief summary of the ecological and socio-economic impacts of PLL catch caps.

Table 28. Impacts – Pelagic Longline Catch Caps.

Alternative	Ecological Impacts	Social/Economic Impacts
Regional Catch Cap based on numbers of BFT interactions or expressed as mt	Would limit fishing mortality of BFT caused by PLL gear on an annual basis, and would limit fishing mortality in specific geographic areas. There may be impacts of displaced effort.	May disrupt annual fishing behavior of all PLL vessels in an area if quota is reached (whether or not an individual vessel catches BFT). Vessels may then choose to either fish in another area, or utilize other gear types. Would be an additional source of uncertainty and make annual planning difficult.
Individual Catch Cap with equal shares of allocation	Would limit fishing mortality of BFT caused by PLL gear on an annual basis.	May disrupt annual fishing behavior of a particular vessel if individual quota is reached. Vessels may choose to either utilize other gear types, or obtain additional BFT quota, and may reduce revenue. Due to the equal allocation, may be perceived as more equitable and provide appropriate incentives. Simple to implement. Quotas may be subject to high price variability. Would be an additional source of uncertainty and make annual planning difficult.

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Alternative	Ecological Impacts	Social/Economic Impacts
Individual Catch Cap with shares based on historical catch	Would limit fishing mortality of BFT caused by PLL gear on an annual basis.	May disrupt annual fishing behavior of a particular vessel if individual quota is reached. Vessels may choose to either utilize other gear types, or obtain additional BFT quota, and may reduce revenue. Due to the historically based allocation, may be perceived as less equitable and provide incorrect incentives. More difficult to implement. Quotas may be subject to high price variability. Would be an additional source of uncertainty and make annual planning difficult.
Individual Catch Cap with shares based on a hybrid criteria of equal shares and historical catch	Would limit BFT interactions with PLL gear on an annual basis.	May disrupt annual fishing behavior of a particular vessel if individual quota is reached. Vessels may choose to either utilize other gear types, or obtain additional BFT quota, and may reduce revenue. Due to the element of equal allocation, may be perceived as more equitable and provide appropriate incentives. More difficult to implement. Quotas may be subject to high price variability. Would be an additional source of uncertainty and make annual planning difficult.
Individual Catch Cap including Trading with Purse Seine category	The number of potential BFT interactions may be increased if the additional quota needed is traded from the Purse Seine category.	Would provide the PLL fishery additional fishing opportunity, and increase the likelihood of a year round fishery, yet maintain strong incentives to reduce interactions with BFT. Quotas may be subject to high price variability. Would be an additional source of uncertainty and make annual planning difficult.
Modifications of Gear Types Authorized to Target Swordfish	Neutral	Would provide the PLL fishery additional flexibility and fishing opportunity, and mitigate some of the impacts of catch caps.
Authorize Vessels with an Atlantic Tunas Longline category Permit to fish under the General category rules, when a catch cap has been reached.	Neutral	Would provide the PLL fishery additional flexibility and fishing opportunity, and mitigate some of the impacts of catch caps. May be difficult to account for BFT caught. May be perceived as unfair by current participants in the General category fishery.

4.1.1.6 Catch Cap Sub-Option: Target Catch Requirements

Description of Measure

The current target catch requirements for PLL vessels would be eliminated. This measure could work in conjunction with an annual PLL catch cap. Currently, there is a requirement that restricts the number of bluefin a vessel may retain in relation to the amount of target species retained and sold. The current requirement is that vessels may retain one bluefin if they have 2,000 lb of target species, two bluefin with 6,000 lb, and three bluefin with 30,000 lb of target species onboard.

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Objective and Rationale

The objective of this measure is to reduce bluefin dead discards and optimize fishing opportunity for target species. The target catch requirement acts at the level of an individual trip, limiting bluefin retention, but does not prevent discarding of bluefin. The target catch requirement therefore contributes to the discarding of bluefin if the amount of target catch species is insufficient to retain the numbers of bluefin caught. If an annual PLL catch cap is implemented, elimination of the target catch requirement could reduce discarding, and enable vessels to fish for their target species in a more flexible manner. A vessel that has caught some bluefin but has insufficient target species to meet the target catch requirement may no longer have to choose between discarding bluefin or fishing for more target species, but may be able to stop fishing with any ratio of bluefin to target catch on board. The annual catch cap would replace the target catch requirement as the means of limiting the amount of bluefin caught on an annual basis, instead of on a per trip basis.

Discussion

Elimination of the target catch requirement is a measure that could be implemented in conjunction with an annual bluefin catch cap. Current regulatory discarding of bluefin is due to either the target catch requirement, the minimum fish size requirement, or attainment of the northern or southern quota. The effectiveness of eliminating the target catch requirement depends upon the amount of regulatory discarding due to the target catch requirement.

An analysis was conducted that utilized logbook data to explore patterns in bluefin retained and discarded in relation to the amount of target catch, and infer the reason for discarding on historical trips. Table 29 contains 2011 data on the number of trips landing bluefin (as well as the number of bluefin), organized according to the amount of bluefin allowed to be retained (per the target catch requirements). The underlying data was analyzed according to the amount of target species on a trip (all fish species landed, not including bluefin).

Table 29. Number of Trips on Which Bluefin were Kept by Amount of Allowed Bluefin per Trip (based on target catch retained per trip). 2011 Logbook Data.

Allowed BFT	# BFT Kept						Total Trips
	0 (BFT kept)	1	2	3	4	10	
0	242 (trips)	21	1	1			265
1	459	88	10		1	1	559
2	322	54	66	6			448
3	3			1			4
Total Trips	1026	163	77	8	1	1	1276

For example, in Table 29, for those trips on which the allowable amount of bluefin was zero (because those trips had less than 2,000 lb of target species retained), there were 242 trips with zero bluefin kept (which is compliant with the target catch requirement), but there were 23 trips that do not appear to be in compliance with the target catch requirements. NOAA's Office of Law Enforcement was made aware of this information. This data was used to derive a

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compliance rate for each year. This information was summarized for the years 2006 through 2011 and is shown in Table 30. Table 30 also includes the number of trips at each target catch level.

Table 30. Percentage of Trips Compliant with Target Catch Requirements and Number of Trips for Each Target Catch Level.

	2006	2007	2008	2009	2010	2011
Compliant trips	98 %	97 %	97 %	97 %	96 %	97 %
Non-Compliant trips	2 %	3 %	3 %	3 %	4 %	3 %
< 2,000 lb (0 BFT allowed)	295 (trips)	300	362	308	364	265
2,000 to 5,999 lb (1 BFT allowed)	524	724	686	631	603	559
6,000 to 29,999 lb (2 BFT allowed)	467	472	344	471	310	448
30,000 lb and over (3 BFT allowed)	2	8	7	12	7	4

According to the logbook data, a high percentage of the trips were in compliance with the target catch requirements with respect to the number of bluefin that were retained. As mentioned above, this logbook data was also utilized to infer the reason for discarding. To infer the reason for discarding, the analysis focused only on trips with discards. Two classifications of trips were created: 1) Discarding after the maximum allowable number of Bluefin had been retained, and; 2) discarded for another reason (if the maximum amount of bluefin had not been retained). The data were organized according to the allowable amount of bluefin that could be retained per trip, as well as the amount of bluefin retained per trip. For example, if a trip is allowed retention of two bluefin, but there was zero or one bluefin retained on the trip, and bluefin were discarded, it was concluded that the reason for discarding was not the target catch requirement (because the number of bluefin on that trip did not appear to be at the maximum amount). Similarly, trips on which bluefin were discarded and for which the number of retained bluefin was at the maximum allowed number, the discard reason was concluded to be the target catch requirement. Table 31 shows some of the data for 2011.

Table 31. Number of Trips on Which Bluefin Discarded, by Number of Bluefin Retained, for 2011 Trips on Which One and Two Bluefin Were allowed to be Retained.

	BFT Retained	BFT Discards	
		0	>0
1 BFT allowed to be retained	0	449 trips	10 trips
	1	75	13
	2	9	1
	4	0	1
	10	1	0
	Total	534	25
2 BFT allowed to be retained	0	312 trips	10 trips
	1	46	8
	2	46	20
	3	1	5
	Total	405	43

For example, based on Table 31, during 2011, on trips where 1 bluefin was allowed to be retained, there were 10 trips that discarded bluefin even though the trips had zero bluefin retained, and 13 trips that discarded bluefin that had retained 1 bluefin. Similarly, on trips where 2 bluefin were allowed to be retained, three were 10 trips that discarded bluefin even though the trips had zero bluefin retained, and there were 20 trips that discarded bluefin tuna where they had retained 2 bluefin. In Table 32, the type of data shown in Table 31 is summarized for trips with between 2,000 and 5,999 lb of target catch (Allowed bluefin = 1; and for trips between 6,000 and 29,999 lb (Allowed BFT = 2) to determine the reason for discarding bluefin. For trips with less than 2,000 lb of target catch (Allowed BFT = 0), the data was not summarized because the discard reason could not be inferred. There was very little data for trips with target catches of 30,000 lb or greater. The underlying data can be found in the Appendix.

Table 32. Percentage of Trips Discarding Due to Retaining the Maximum Allowable # Bluefin, or Other Reason for Discards

Discard Reason	Allowed BFT	Percentage of Trips					
		2006	2007	2008	2009	2010	2011
BFT maximum hit	1	80	67	77	79	61	60
Other Reason		20	33	23	21	39	40
BFT maximum hit	2	68	40	40	51	49	58
Other Reason		32	61	60	49	51	42

In other words, according to Table 32, the target catch requirement was the reason for discarding for between 60 and 80 percent of the trips on which one bluefin was allowed to be retained (target catch was between 2,000 and 6,000 lb, and one bluefin was retained). Similarly, it was

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concluded that the target catch requirement was the reason for discarding for between 40 and 68 percent of trips on which two bluefin were allowed to be retained (target catch was between 6,000 and 30,000 lb, and two bluefin were retained). It should be noted that any trip on which discards occurred and the retained amount of bluefin was less than the allowable amount, was counted as “Other Reason”, regardless of the number of bluefin discarded. Therefore, the percentage of trips associated with discards due to the target catch requirement may be underestimated (on such trips, some of the discarded may have been the result of the threshold). This data supports the hypothesis that elimination of the target catch requirement could reduce discarding.

4.1.1.7 Catch Cap Sub-Option: Mandatory Retention of Legal-Sized BFT

Description of Measure

The Longline category could be required to retain all legal-sized bluefin. This measure could function in conjunction with a cap catch and elimination of the target catch requirements. It could also function with an industry-funded observer program.

Objective and Justification

Requiring the retention of all legal-sized bluefin is intended to reduce dead discards. This measure could eliminate the situation where it is legal to discard a legal-sized bluefin in any condition (whether the fish appears to be dead, severely stressed, or moderately stressed). Because these fish could be retained, discards and the waste of fish could be decreased, and it may be more likely that such fish are accounted for, and result in a positive use (marketed, used for scientific information, etc.).

4.1.1.8 Catch Cap Sub-Option: Reduction of Bluefin Minimum Size

Description of Measure

With the possible exception of vessels fishing in the Gulf of Mexico, for vessels using Longline gear, the minimum size for bluefin could be reduced (to a size to be selected between the ICCAT minimum size of 47 and 73 inches; for example, 65 inches), or a certain number of bluefin (of the daily retention limit) could be allowed to be between 47 and 73 inches (currently, the large school and small medium size classes).

Objective and Justification

The objective of this measure is to reduce regulatory discards, while limiting interactions. Reduction of the minimum size would reduce regulatory discards, and could enable the sale of fish that would otherwise have been discarded. Because current data indicate that there is substantially less regulatory discarding of undersized bluefin in the Gulf of Mexico than in the Atlantic, there is less justification for reduction of the minimum size in the Gulf of Mexico than in the Atlantic.

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Discussion

Due to difficulty in predicting the ecological and socio-economic impacts of this measure, it may be appropriate for inclusion in the proposed rule in order to obtain additional public comment on the option, and enable further evaluation. Increasing the size-range of fish that may be legally retained, and potentially sold could result in the reduction of regulatory discards, as a result of the retention of fish that would otherwise have been discarded. Although it is possible that this measure could reduce the incentive for some vessels to avoid bluefin due to the expanded size range of fish that may be retained, in the context of a catch cap, there is likely to be sufficient incentives to avoid bluefin. The encounter rate with bluefin would likely fluctuate due to the variable distribution of bluefin more than the behavior of the majority of the PLL fleet. If patterns in bluefin encounters occur, closed areas may be considered to reduce such encounters. The public expressed concern regarding the potential impact of a reduction in minimum size on the population structure of bluefin, if the legal-sized commercial fish includes some portion of immature bluefin. A discussion of the relationship between the minimum size and the maturity size range may be more relevant for fish that are targeted, than incidentally caught fish. All fish caught would contribute toward the Longline quota, and it is possible that harvest of a greater size range of fish could accelerate attainment of the quota, which is not a desirable outcome. Table 33 summarizes the impacts of the measures associated with a catch cap.

Table 33. Impacts – Measures Associated with a Catch Cap.

Alternative	Ecological Impacts	Social/Economic Impacts
Elimination of target catch requirement for PLL vessels.	Would reduce regulatory discarding caused by the target catch requirement. It is difficult to predict whether the total number of BFT interactions and discards per trip would increase or decrease due to the number of other factors which are related to fishing behavior and the incentives to avoid BFT.	There would be a positive impact due to the reduction of regulatory discarding and waste, and a potential increase in revenue from BFT. Regulations would be simplified
Mandatory retention of legal-sized BFT for PLL vessels.	It is difficult to determine the net effect of this measure on fishing mortality because of inadequate information on current discard rates of legal-sized fish (both live and dead) and a lack of information on the survival rate of BFT released alive. However, because there are currently strong incentives to retain legal BFT, it is not likely that this measure would result in the retention of substantial numbers of BFT that otherwise would have been released alive.	Although there may be some positive impacts due to the reduction of discarding and waste, mandatory retention would reduce the flexibility for fishers to discard legal-sized fish for valid reasons. A regional or individual catch cap may be attained more quickly, triggering associated impacts. This measure would enhance a measure such as an industry-funded observer program.
Reduction of Minimum Size for PLL vessels with the exception of GOM	Expanding the size-range of fish that may be legally retained could reduce regulatory discards, as a result of the retention of fish that would otherwise have been discarded. The net impact on fishing mortality is likely to be minimal, unless fishing behavior is modified and vessels target BFT. The majority of vessels are not likely to target BFT because BFT is not a target species, and a catch cap would	There would be a positive impact due to the reduction of discards, a regional or individual catch cap may be attained more quickly, triggering associated

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	provide additional incentives to avoid BFT. Although it is possible that this measure could reduce the incentive for some vessels to avoid BFT due to the expanded size range of fish that may be retained, in the context of a catch cap, there is likely to be sufficient incentives to avoid BFT. The encounter rate with BFT will likely fluctuate due to the variable distribution of BFT more than the behavior of the majority of the PLL fleet. If patterns in BFT encounters occur, closed areas may be considered to reduce such encounters.	impacts.
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4.1.2 Closed Areas

Description of Measure

Modify contours of existing PLL closed areas and/or implement new closed area(s) in a defined geographic area during a specified time period. Such areas would be closed to the use of PLL, but other currently authorized gear types would be allowed. The contours of current closed areas could be increased in order to further reduce interactions with bluefin, or reduced/modified in order to provide additional fishing opportunity to target species. A new closed area could be implemented in order to reduce interactions with bluefin. The measures in Amendment 5 to the 2006 Consolidated HMS FMP may be considered in the design and evaluation of closed areas in Amendment 7 in order to take advantage of potential efficiencies and simplify the regulations. For example, a closed area implemented by Amendment 5 may be also considered for, or in conjunction with, Amendment 7. Hypothetically, a single pelagic longline closed area, if it achieved both Amendment 5 and 7 objectives, might be better than two closures (i.e., achieve a better overall balance of costs and benefits).

Objective and Rationale

The objective of a closed area (closed to the use of PLL gear) is to reduce bluefin interactions resulting in dead discards and optimize fishing opportunity. A time/area closure that applies to the use of PLL gear may be effective in reducing dead discards of bluefin, while limiting impacts on the catch of target species. The effectiveness of the measure depends upon the time and area of the closure coinciding with the presence of bluefin within the closed area, as well as the availability of the target species in the area outside of the closed area. Closure of a geographic area in which there is a high likelihood of catch of bluefin can effectively reduce dead discards, while minimizing disruption of the fishery. A successful closed area balances the benefits of the closure (reduction in bluefin discards) with the costs (reduction in PLL fishing opportunity for target species). Although secondary costs and benefits (both ecological and socio-economic) are relevant to the consideration of a PLL closed area and would be evaluated, the primary factors are reduction in bluefin discards and reduction in PLL fishing opportunity for target species.

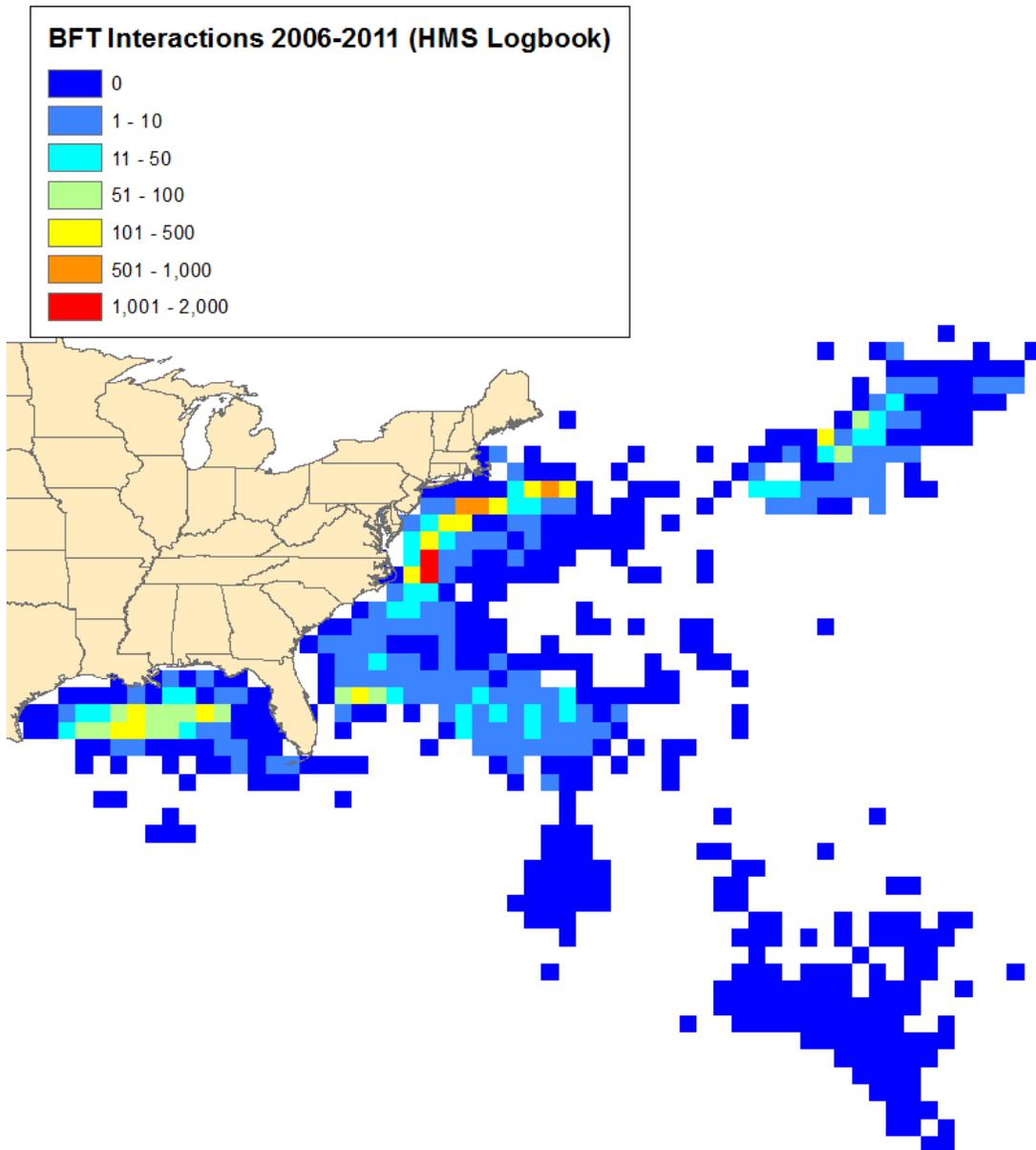
Evaluation of Potential Closed Areas

The figures below are intended to introduce the reader to some of the information that may be used, in conjunction with other information, to evaluate and analyze potential closed areas. The figures are based upon PLL logbook data from 2006 through 2011 and mapped on a grid to explore which areas have a high number of PLL and bluefin interactions (BFT retained or discarded). In the future DEIS, the logbook data that are the basis for Figures 20 through 25

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could be used in conjunction with other relevant information to evaluate and analyze the impact of a revised or new closed area. An analysis of the impacts of a particular closed area would evaluate several factors such as bycatch of bluefin, bycatch of protected species such as turtles, the catch rate of target species, potential displacement of fishing effort, and economic impacts. Potential displacement of fishing effort could undermine some of the reductions in dead discards from a particular closed area, and an analysis of potential displacement of effort is an important component of an estimate of impacts resulting from a possible closed area. The evaluation would include consideration of the various trade-offs associated with the alternatives. The charts below are meant only as illustrations of ways to display data. The figures of bluefin tuna interactions include all dispositions on the HMS logbook, including kept, discarded alive, and discarded dead bluefin. The individual set data has been aggregated into one degree by one degree cells to maintain confidential data requirements. Figure 20 shows cumulative interactions between PLL gear and bluefin, by one degree areas, from 2006 through 2011.

Figure 20. Bluefin Interactions with PLL Gear by One Degree Areas



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Based upon Figure 20, it is clear that there are geographic regions where the PLL interactions with bluefin are concentrated, and therefore, such areas may be evaluated further in the DEIS as potential closed areas to the use of PLL gear.

4.1.2.1 Closed Areas Sub-Option: Closed Area Adjustment Authority

This closed areas sub-option would allow NMFS to adjust or eliminate closed areas via framework adjustment. If there are data that indicate relatively low numbers of bluefin would be present during the time and area specified as a closed area (relative to open areas), NMFS could modify the boundaries or open closed areas to the use of PLL through proposed and final rulemaking. The data would have to clearly demonstrate that the change in closed area, based on bluefin distribution patterns over time is warranted. If an area were modified or opened this way, NMFS would be able to re-implement the closure (in its pre-existing configuration and timing) if warranted. Criteria could be developed that specify some of the factors and types and quality of information NMFS would consider when determining if changes are justified. This authority is intended primarily to respond to changes in the distribution of bluefin across years, rather than to short-term changes in the location of bluefin. The development of alterations to closed areas would be through a rulemaking process similar to the annual specification of quota (or in conjunction with quota specifications). This measure would allow NMFS to respond relatively quickly to new information as warranted. This measure should not be confused with dynamic area management, which occurs on a different time scale (dynamic area management is the inseason designation of closed areas based on real-time information).

Objective and Rationale

This measure is responsive to the fact that the distribution of bluefin is variable due to their migratory nature. This measure would address the fact that the effectiveness of closed areas in reducing PLL interactions with bluefin depends upon the presence of bluefin within the boundaries of the closed area during the period of the closure. If patterns of bluefin distribution shift over time, or other ecological, biological, or management changes occur, the objectives of the closed area may not be achieved if the closed area remains in effect. The objectives of the closed areas are both reductions in interactions with bluefin as well as optimization of fishing opportunity to target species. Full analysis of this measure in Amendment 7 could facilitate the analysis and implementation of modifications to closures in the future, and clarify in the FMP that NMFS has such authority.

4.1.2.2 Closed Areas Sub-Option: Closed Area Data Collection

Vessels are authorized to obtain an Experimental Fishing Permit (EFP) or conduct research under a Scientific Research Permit (SRP) and fish in a closed area in order to collect information relevant to the objectives of the closed area and the management of bluefin.

Objective and Rationale

This measure would support research designed to evaluate the effectiveness of closed areas. This measure is responsive to the fact that the distribution of bluefin is variable due to their migratory nature. This measure would address the fact that the effectiveness of closed areas in

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reducing PLL interactions with bluefin depends upon the presence of bluefin with the boundaries of the closed area during the period of the closure. If patterns of bluefin distribution shift over time, or other ecological, biological, or management changes occur, the objectives of the closed area may not be achieved if the closed area remains in effect. The objectives of the closed areas are both reductions in interactions with bluefin as well as optimization of fishing opportunity for target species. In the absence of this measure, there would be little or no relevant data from within the closed area with which to evaluate how the closed areas are performing compared with other potential closed areas. Although an existing closed area will clearly provide some reduction in dead discards, provided there are some bluefin present in the closed area during the time of the closure, a differently defined area may be more effective. It is useful to have data with which to compare an existing closed area with a hypothetical closed area.

4.1.2.3 Closed Areas Sub-Option: Northeastern U.S. Closed Area

Modify the existing Northeastern U.S. Closed Area boundaries and/or the current time period (June).

Objective and Rationale

Modification of the closed area (changing boundaries; expanding, or shrinking the area; or changing the timing) could result in a better balance in the reduction in bluefin discards with minimizing reductions in target catch. If the area adjacent to the Northeastern Closed Area has a relatively high rate of interaction between bluefin and PLL gear, expanding the current closed area could reduce the number of such interactions and reduce dead discards. If historically there are relatively few bluefin within the current boundary during June (compared with areas outside of the Northeastern U.S. Closed Area), reducing the area could result in an increase in target catch, without a substantial loss of protection for bluefin. There could have been a shift in bluefin distribution over time. In recent years, the Mid-Atlantic Bight region has been one of the two regions with the highest number of bluefin interactions, relative to the total number of interactions.

Discussion

The Northeast U.S. Closed Area is located in two areas defined as the Mid-Atlantic Bight, and the Northeast Coastal Area. The Mid-Atlantic Bight and the Northeast Coastal are regions where the PLL fishery has high numbers of interactions with bluefin, as well as high rates of interactions (taking into account the number of hooks fished). Based upon logbook information from 2007 through 2011, the Mid-Atlantic Bight was the region with the highest percentage of bluefin interactions (53%), relative to the total number of interactions (Table 11), and the Northeast Coastal Area was the region with the second highest percentage of interactions (47%). The Mid-Atlantic Bight and Northeast Coastal area were also the two regions with the largest number of bluefin interactions per 1,000 hooks (0.69 and 0.47, respectively) (Table 12). Logbook data from this area plotted with Geographic Information System are shown in Figure 21. Tables 34 and 35 provide data on the seasonality of interactions in the Mid-Atlantic Bight and Northeast Coastal region (respectively) that supports the contention that the interactions with bluefin follow a pattern, and therefore a closed area could be an effective tool to reduce PLL

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interactions with bluefin. Data on the distribution of the number of hooks set by month in the Mid-Atlantic Bight is in Table 79 in the Appendix.

Table 34. Percentage of Annual Bluefin Interactions by Month for the Mid-Atlantic Bight, 2006 to 2011. Shaded cells are months with at least 10% of annual interactions.

Month	2006	2007	2008	2009	2010	2011	Avg
Jan	1	0	7	13	16	10	5
Feb	17	8	8	20	22	11	9
Mar	29	33	0	12	24	0	19
Apr	24	20	24	11	1	42	13
May	1	1	1	2	3	5	3
Jun	3	2	3	1	1	12	7
Jul	2	1	3	4	2	2	2
Aug	0	0	0	0	0	1	0
Sep	0	0	0	0	1	0	0
Oct	3	4	1	2	2	1	7
Nov	17	10	4	15	27	9	21
Dec	4	21	49	20	1	7	13

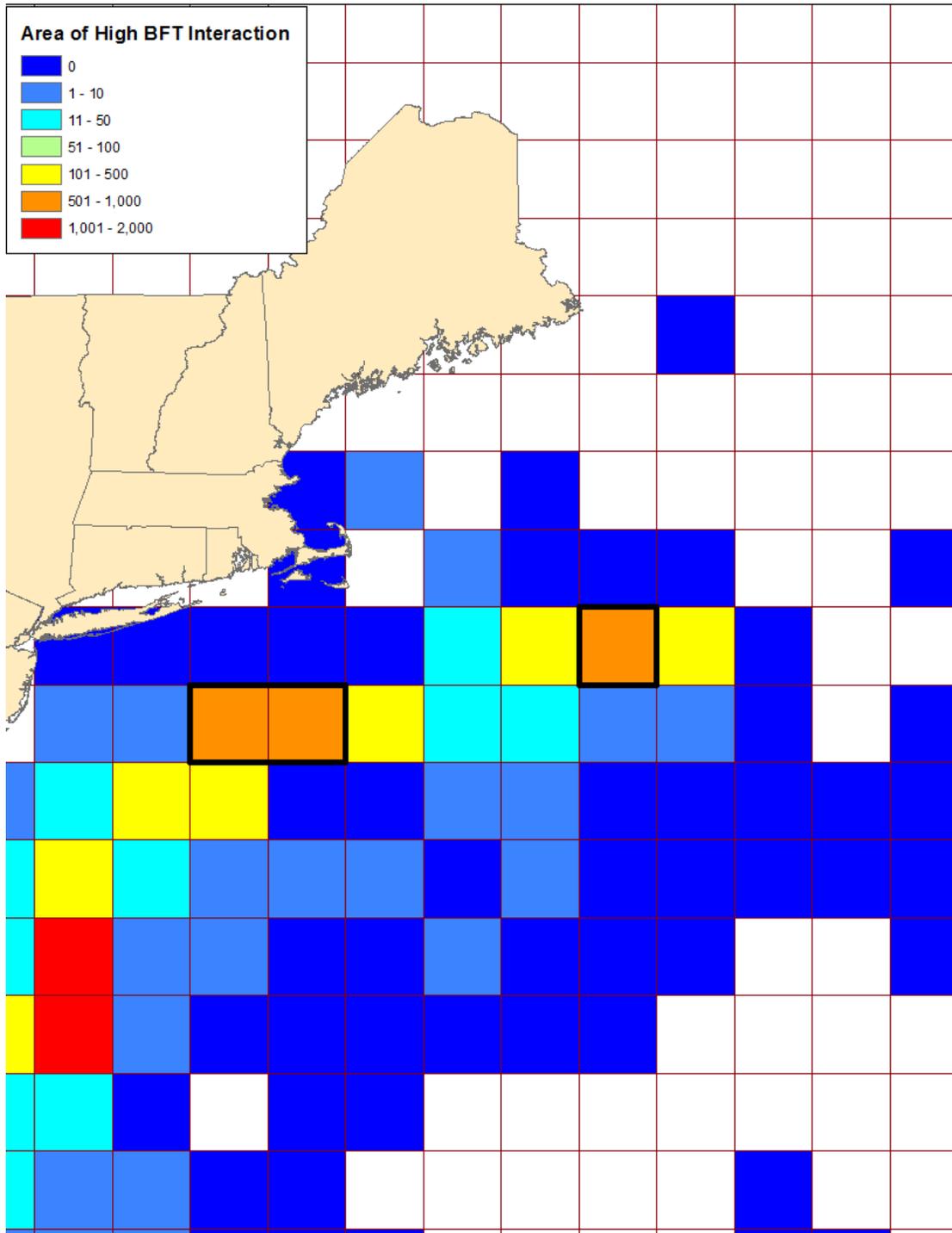
Table 35. Percentage of Annual Bluefin Interactions by Month for the Northeast Coastal area, 2006 to 2011. Shaded cells are months with at least 10% of annual interactions.

Month	2006	2007	2008	2009	2010	2011	Avg
Jan	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0
Apr	0	0	0	0	0	1	1
May	3	0	0	0	11	7	3
Jun	66	23	5	39	70	70	50
Jul	10	27	36	17	15	12	21
Aug	2	17	16	0	3	2	5
Sep	0	10	13	35	0	1	6
Oct	0	23	13	5	0	0	6
Nov	19	0	15	3	0	6	7
Dec	0	0	1	0	0	1	0

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Figure 21 shows cumulative interactions between PLL gear and bluefin, by one degree areas, from 2006 through 2011 in the Northeast Coastal and Mid-Atlantic Bight areas. The orange areas outlined in bold are those areas with the highest number of interactions.

Figure 21. Bluefin Interactions with PLL Gear by One Degree Areas in the Northeast Coastal and Mid-Atlantic Bight.



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Table 36 shows the cumulative interactions by month and year in one degree squares with relative high numbers of bluefin interactions, in the Northeast Coastal area. Specifically, Table 36 shows the interactions from the 3 square orange cells in Figure 21. For example, in the three orange areas, during July, there were 18 bluefin interactions in 2006, and a total of 147 interactions cumulatively during July from 2006 through 2011.

Table 36. Cumulative Interactions by Month and Year, in One Degree Cells with High Numbers of Bluefin Interactions in the Northeast Coastal Area, 2006 to 2011.

Month	2006	2007	2008	2009	2010	2011	Month Total
May	8					8	16
June	98	0	1	61	253	55	468
July	18	1	34	22	63	9	147
August	0	6	2	1	8	6	23
September	1	1	9	55	3	1	70
October	6	36	8	11	12	2	75
November	25	2	42	95	86	45	295
December	13		517	120		10	660
Total	169	46	613	365	425	136	1754

4.1.2.4 Closed Areas Sub-Option: Charleston Bump Closed Area

Modify the existing Charleston Bump closed area boundary and/or time period

Objective and Justification

Modification of the closed area (changing boundaries; expanding, or shrinking the area; or changing the timing) could result in a better balance in reducing bluefin discards while minimizing reductions in target catch). If the area adjacent to the current Charleston Bump Closed Area has a relatively high rate of interaction between bluefin and PLL gear, expanding the current closed area could reduce the number of such interactions and reduce dead discards. If historically, there have been relatively few bluefin within the current boundary (compared with areas outside of the area), then reducing the area could result in an increase in target catch, without a substantial loss of protection for bluefin.

Discussion

The Charleston Bump Closed Area is located in the area defined as the South-Atlantic Bight. The Charleston Bump Closed Area was implemented to reduce discards of undersized swordfish, billfish, sharks, and other species. The South-Atlantic Bight is a region with relatively low numbers of interactions between PLL gear and bluefin, and a low rate of interaction (taking into account the number of hooks). Based upon logbook information from 2007 through 2011, the

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average number of bluefin interactions in the South-Atlantic Bight was 2% of the total number of bluefin interactions by pelagic longline vessels (Table 11). The average number of interactions per 1,000 hooks was 0.04 (Table 12). Table 37 provides data on the seasonality of interactions in the South Atlantic Bight that supports the contention that the interactions with bluefin follow a pattern, and therefore modification of the closed area based on data, could be an effective tool to optimize fishing opportunity, without increasing bluefin discards. Data on the distribution of the number of hooks set by month is in in the Appendix (Table 82).

Table 37. Percentage of Annual BFT Interactions by Month for the South Atlantic Bight, 2006 to 2011. Shaded cells are monthly with at least 10% of annual interactions.

Month	2006	2007	2008	2009	2010	2011	Avg
Jan	0	0	0	0	5	24	9
Feb	0	0	0	6	15	22	11
Mar	10	0	11	17	18	16	8
Apr	0	18	7	2	3	2	8
May	60	45	25	52	28	27	32
Jun	30	27	57	23	25	8	28
Jul	0	9	0	0	0	0	1
Aug	0	0	0	0	0	0	0
Sep	0	0	0	0	0	0	0
Oct	0	0	0	0	0	0	0
Nov	0	0	0	0	5	0	1
Dec	0	0	0	0	3	0	1

4.1.2.5 Closed Areas Sub-Option: Cape Hatteras Closed Area

Implement a new closed area (for a portion of the year or year-round) in the vicinity of the Cape Hatteras Special Research Area. The size, configuration, and timing of the closed area could depend upon the seasonality and location of the bluefin interactions with PLL vessels, as well as data regarding target species, other bycatch concerns (e.g., Amendment 5) and enforcement considerations.

Objective and Justification

If the area in the vicinity of the Cape Hatteras has a relatively high rate of interaction between bluefin and PLL gear, creating a new closed area could likely reduce the number of such interactions and reduce dead discards.

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Discussion

The Mid-Atlantic Bight off Cape Hatteras is a region with relatively high numbers of interactions between PLL gear and bluefin, and a high rate of interaction (taking into account the number of hooks). Based upon logbook information from 2007 through 2011, an average of 53% of the total number of bluefin interactions in the pelagic longline fishery were in the Mid-Atlantic Bight (Table 11). The average rate of bluefin interactions per 1,000 hooks was .69 (Table 12). Table 34 above provides data on the seasonality of interactions in the Mid-Atlantic Bight (respectively) that supports the contention that the interactions with bluefin follow a pattern, and therefore modification of the closed area could be an effective tool to optimize fishing opportunity, without increasing bluefin discards. Data on the distribution of the number of hooks set by month is in Table 79 in the Appendix. Figure 22 below shows cumulative interactions between PLL gear and bluefin, by one degree areas, from 2006 through 2011 in the Mid-Atlantic Bight. The red areas outlined in bold are those areas with the highest number of interactions.

Figure 22. Bluefin Interactions with PLL Gear by One Degree Areas in the Mid-Atlantic Bight

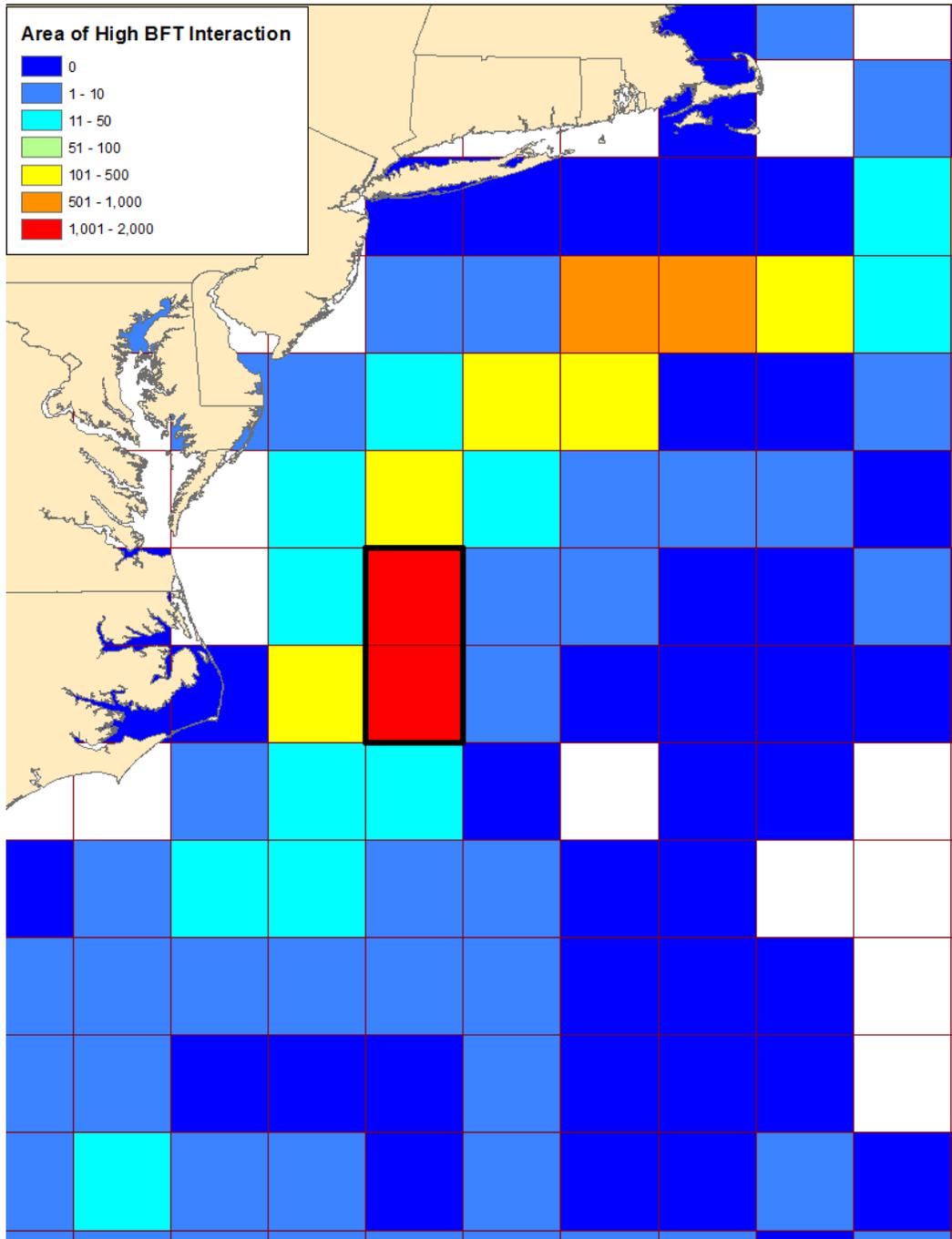


Figure 23 shows the cumulative interactions between PLL gear and bluefin in the Atlantic, by 1 degree squares, and overlays 3 different depth contours (100, 200, and 2,000 meters) to provide a topographical/oceanographic feature that appears to show a relationship to the distribution of bluefin interactions and therefore may be relevant to the development of a closure option.

Figure 23. Bluefin Interactions with PLL Gear by One Degree Areas in the Atlantic, Showing Selected Depth Contours.

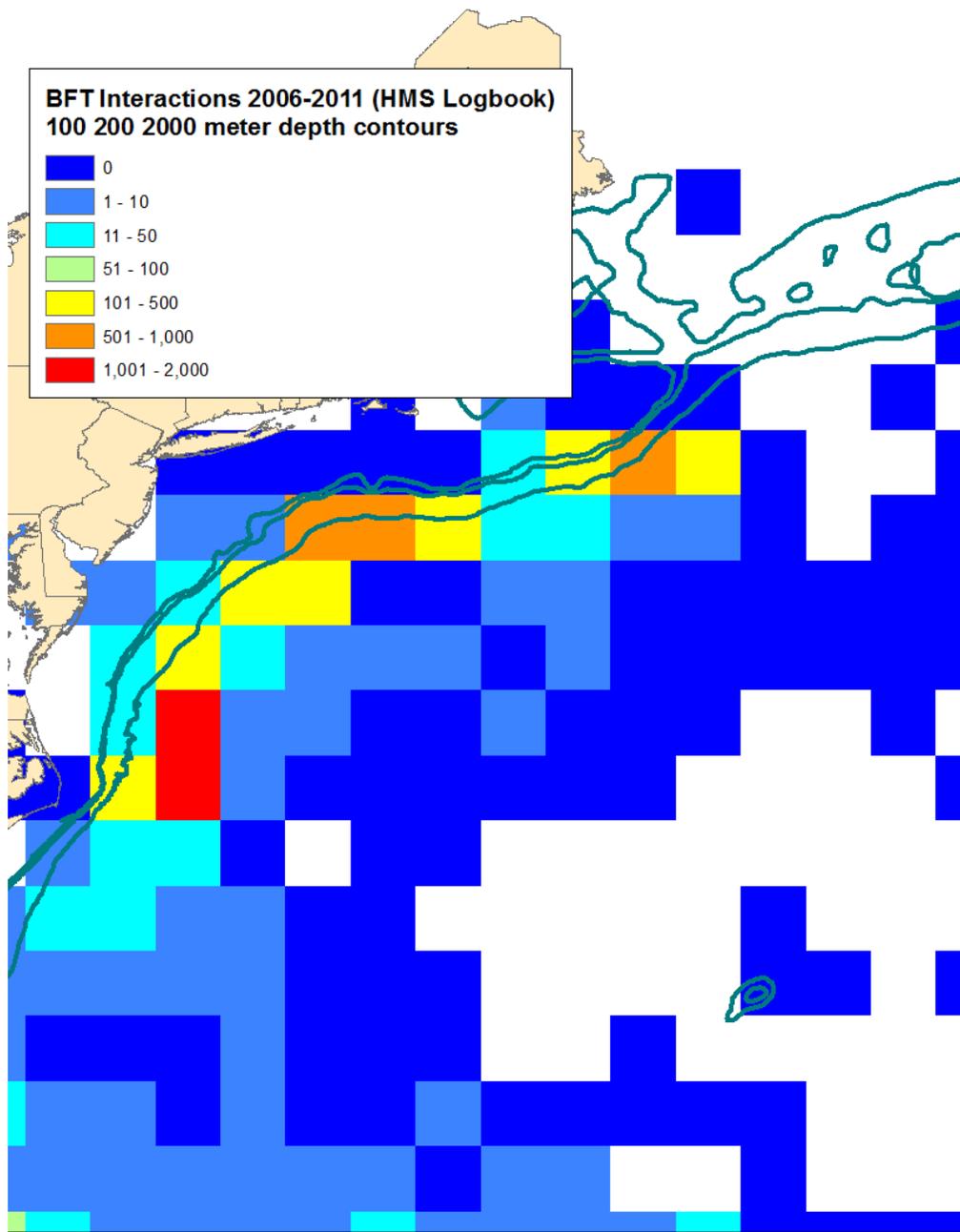


Table 38 shows the cumulative interactions by month and year in one degree squares with relative high numbers of bluefin interactions, in the Mid-Atlantic Bight. Specifically, Table 38 shows the interactions from the 2 square red cells in Figure 22. For example, in the 2 red areas, during March, there were 154 bluefin interactions in 2006, and a total of 890 interactions cumulatively during March from 2006 through 2011.

Table 38. Cumulative Interactions by Month and Year of One Degree Cells with High Numbers of Bluefin Interactions off Cape Hatteras, 2006 to 2011.

Month	2006	2007	2008	2009	2010	2011	Month Total
January	4	4	84	94	158	0	344
February	88	98	92	144	226	0	648
March	154	410	2	77	247	0	890
April	124	242	285	83	4	1	739
May	7	14	10	9	33	0	73
June	6	7	12	4	5	0	34
July	5	4	0	22	0	0	31
August	0	0	2	0	0	0	2
September	0	0	0	0	0	0	0
October	1	0	0	0	0	0	1
November	1	37	2	0	5	0	45
December	0	264	21	0	11	0	296
Total	390	1080	510	433	689	1	3103

4.1.2.6 Closed Areas Sub-Option: Amendment 5 Closed Area Regulations

The measure could implement closed areas consistent with any pelagic longline closure areas eventually adopted in a future final rulemaking for Amendment 5 to the 2006 Consolidated HMS FMP, which addressed sharks. This would take advantage of any potential efficiencies from having common closed areas serving multiple objectives.

Objective and Rationale

High levels of interactions with dusky sharks occur with PLL gear in certain times and areas. If Amendment 5 adopts PLL area closures that are designed to avoid such dusky shark “hotspots” also effectively reduce discards of bluefin (because there would be no PLL fishing in such areas, and thus no bycatch of bluefin), additional closures in Amendment 7 may not be necessary. Socio-economic impacts could be reduced as a result of a single closed area instead of two closures. A single closed area may be better than two closed areas because there would likely be less of a reduction in target catch because of the smaller scope of closed area. Hypothetically, a single pelagic longline closed area, if it achieved both Amendment 5 and 7 objectives, might be better than two closures (i.e., achieve a better overall balance of costs and benefits). Furthermore, one area is more readily enforced than two separate areas. Amendment 5 will provide analyses on the impacts of any proposed closures on various species, including bluefin. Determination of whether any Amendment 5 closure would be sufficient to meet bluefin management objectives would be a part of the Amendment 7 DEIS analyses, where any closure(s) would be analyzed in the context of other Amendment 7 measures.

4.1.2.7 Closed Area Sub-Option: Gulf of Mexico Seasonal Closure

Implement a new closed area in the Gulf of Mexico, for a time period based on the number of PLL gear interactions with bluefin, during peak abundance of bluefin (e.g., March through May). The precise size, configuration, and timing of the closed area would depend upon the seasonality/timing and location of the bluefin interactions with PLL gear, as well as data regarding target species, non-target species and enforcement considerations.

Objective and Rationale

If the area in the Gulf of Mexico has a relatively high rate of interaction between bluefin and PLL gear, even after implementation of the weak hook requirement, creating a new closed area might be warranted and could reduce the number of such interactions and reduce dead discards even more. Protection of sexually mature or spawning bluefin in the Gulf of Mexico would be another benefit.

Discussion Although in certain areas of the Gulf of Mexico during certain months, the number of bluefin interactions is notable, in recent years the number of bluefin interactions in the Gulf of Mexico relative to the total number of bluefin interactions has been declining (Figure 14). Based upon logbook information from 2007 through 2011, the average percentage of total interactions in the Gulf of Mexico was 14% (compared to 53% for the Mid Atlantic Bight). The average number of interactions per 1,000 hooks was 0.12 (compared with 0.69 for the Mid Atlantic Bight, 0.47 for the Northeast Coastal and Northeast Distant, and 0.23 for the Sargasso)(Table 12). Table 39 provides data on the seasonality of interactions in the Gulf of Mexico (respectively) that supports the contention that the interactions with bluefin follow a pattern, and therefore a closed area could be an effective tool to reduce PLL interactions with bluefin. Data on the distribution of the number of hooks set by month is in the Appendix (Table 81). Logbook data from this area plotted with Geographic Information System is shown in Figure 24.

Table 39. Percentage of Annual Bluefin Interactions by Month for the GOM, 2006 to 2011. Shaded cells are monthly with at least 10% of annual interactions.

Month	2006	2007	2008	2009	2010	2011	Avg
Jan	1	3	4	4	11	5	5
Feb	3	15	7	8	6	3	7
Mar	14	25	9	7	30	0	16
Apr	18	19	25	32	40	21	28
May	38	21	51	33	8	37	29
Jun	2	11	3	14	4	11	6
Jul	1	3	0	1	0	3	1
Aug	0	0	0	1	0	0	1
Sep	7	0	0	0	0	5	2
Oct	0	0	0	0	0	0	0
Nov	0	2	0	0	0	0	1
Dec	16	3	0	1	1	16	4

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Figure 24 shows cumulative interactions between PLL gear and bluefin, by one degree areas, from 2006 through 2011 in the Gulf of Mexico. The yellow areas outlined in bold are those areas with the highest number of interactions.

Figure 24. Bluefin Interactions with PLL Gear by One Degree Areas in the Gulf of Mexico.

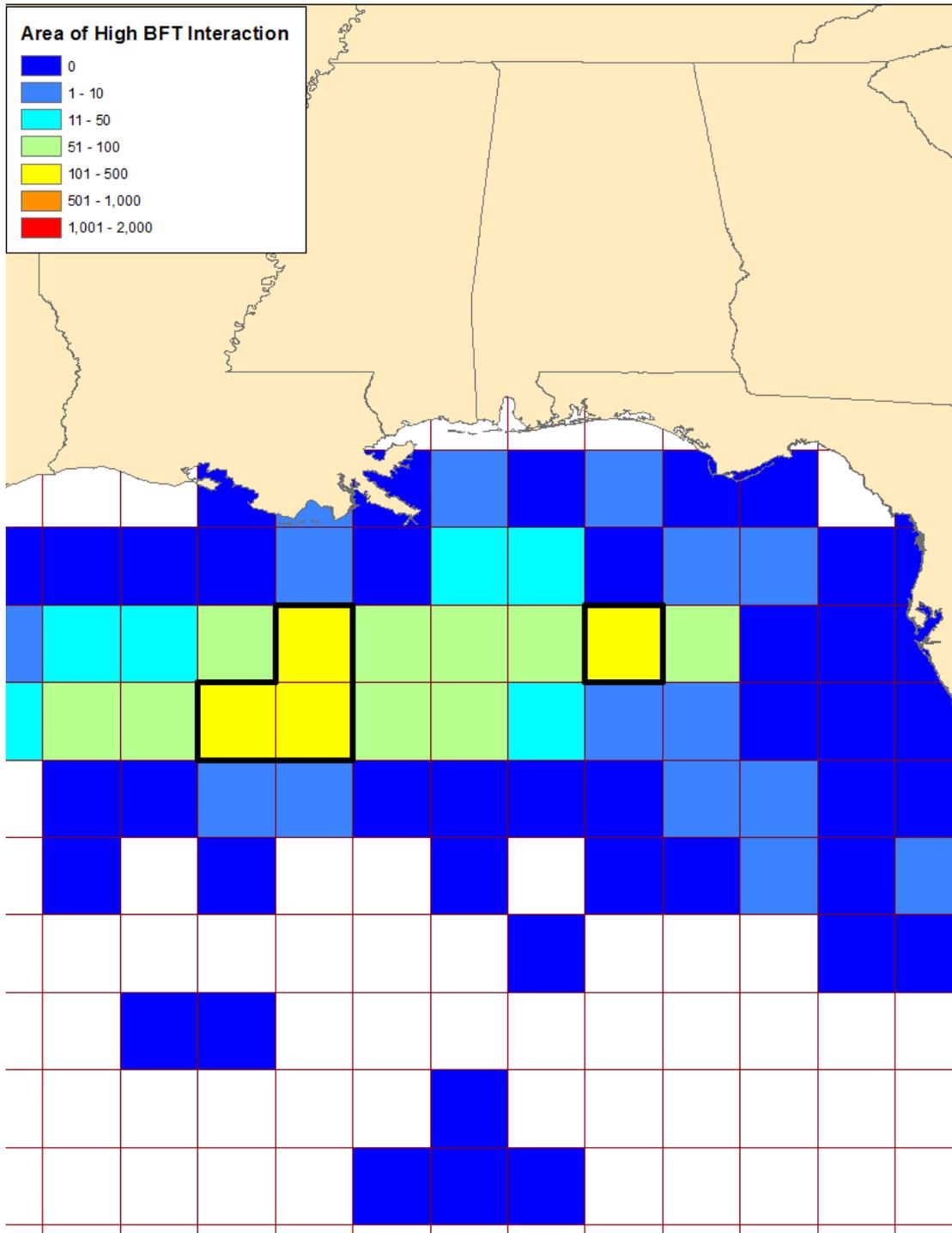


Table 40 shows the cumulative interactions by month and year in one degree squares with relative high numbers of bluefin interactions, in the Gulf of Mexico. For example, in the 4

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yellow areas during April there were 24 bluefin interactions in 2006, and a total of 219 interactions cumulatively during April from 2006 through 2011.

Table 40. Cumulative Interactions by Month and Year in One Degree Cells with High Numbers of Bluefin Interactions in the Gulf of Mexico, 2006 to 2011.

Month	2006	2007	2008	2009	2010	2011	Month Total
January	2	3	1	2	9	0	17
February	1	8	5	24	4	1	43
March	11	31	11	17	20	2	92
April	24	15	54	106	20	0	219
May	25	10	60	39	1	3	138
June	0	2	1	8	0	0	11
July	0	0	0	2	0	0	2
August	0	0	0	0	0	0	0
September	0	0	0	0	0	0	0
October	0	0	0	0	0	0	0
November	0	0	0	0	0	0	0
December	1	2	0	1	0	0	4
Total	64	71	132	199	5	6	526

4.1.2.8 Closed Area Sub-Option: Gulf of Mexico Year-Round Closure

Implement a new closed area in the Gulf of Mexico, year round (i.e., prohibit the use of PLL in the Gulf of Mexico, year-round).

Objective and Rationale

If the area in the Gulf of Mexico has a relatively high rate of interaction between bluefin and PLL gear, prohibiting the use of PLL year-round would reduce the number of such interactions and reduce dead discards. Protection of sexually mature or spawning bluefin in the Gulf of Mexico would be a secondary benefit.

Discussion

Although in certain areas of the Gulf of Mexico during certain months the number of bluefin interactions is notable, in recent years the number of bluefin interactions in the Gulf of Mexico relative to the total number of bluefin interactions has been declining (Figure 14). Based upon logbook information from 2007 through 2011, the average percentage of total interactions in the Gulf of Mexico was 14% (compared to 53% for the Mid-Atlantic Bight; Table 11). The average number of interactions per 1,000 hooks was 0.12 (compared with 0.69 for the Mid-Atlantic bight, 0.47 for the Northeast Coastal and Northeast Distant, and 0.23 for the Sargasso) (Table 12).

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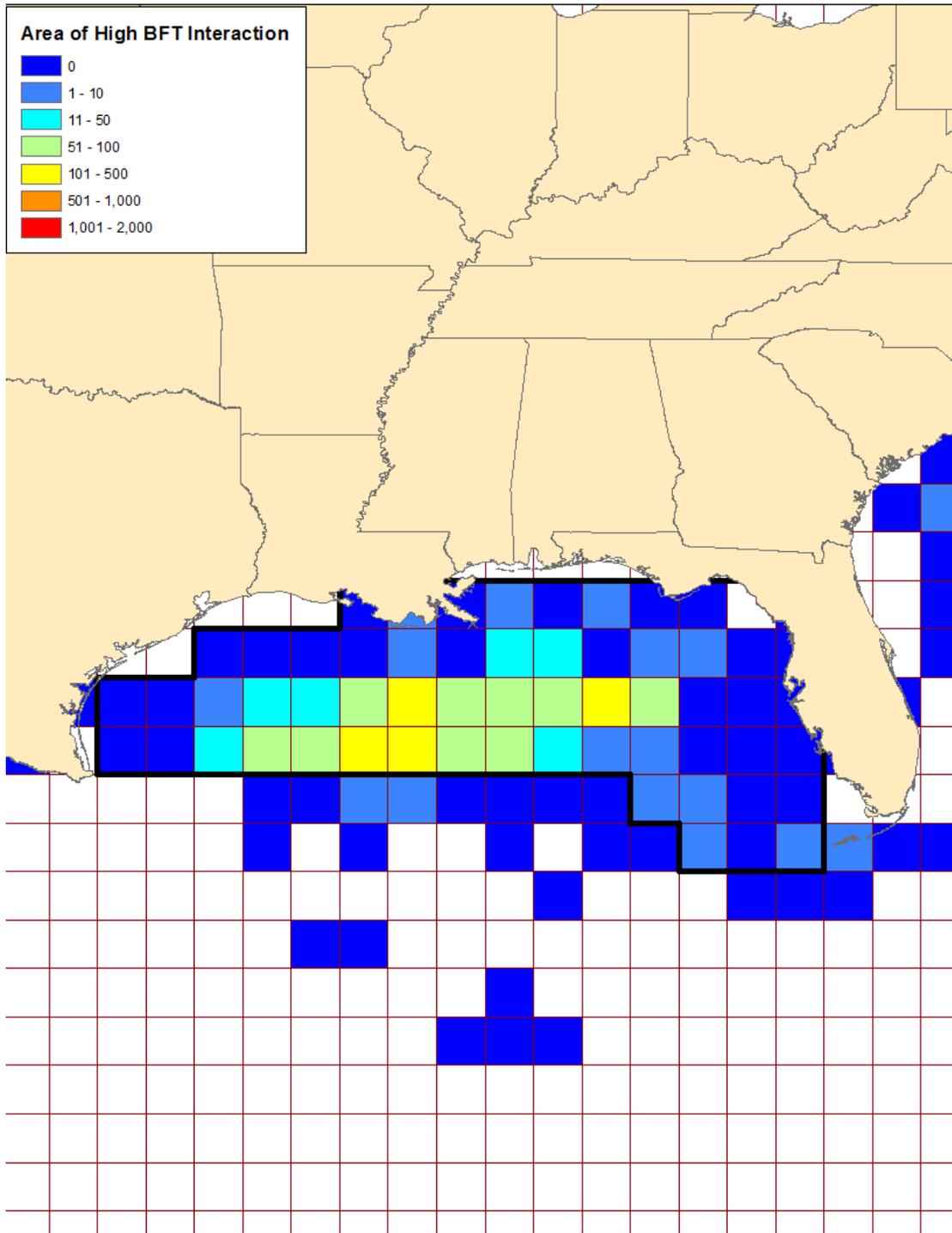
Logbook data from this area plotted with Geographic Information System are shown in Figures 24 and 25.

A discussion of the potential merits of a closed area in the Gulf of Mexico and a comparison to closures in the Atlantic ocean is warranted because the Gulf of Mexico is of particular concern due to its ecological importance to many species, and in particular bluefin. Secondly, the 2010 oil spill in the Gulf of Mexico has likely had negative ecological impacts, although the scope and duration of those impacts are not clear at this time, and will only be more fully understood with the completion of scientific research and the passage of time.

A comparison of potential closed areas between the Gulf of Mexico and the Atlantic is difficult due to the number of differences among various geographic regions. There are differences between the Gulf of Mexico and the Atlantic in the oceanographic conditions, the nature of the PLL fishery, the ecological function of the region with respect to bluefin, as well as the stock composition and characteristics of the bluefin (e.g., size, maturity, origin, etc.).

As the data indicate in some of the background information in this document (and in the discussion of the catch cap measures), there are many differences between the Gulf of Mexico and Atlantic in the nature of the PLL fishery (e.g., target species, fishing patterns, and number of interactions with bluefin and other species). Due to these fishery differences and other variables mentioned above, comparison and analysis of different closed areas is difficult (i.e., “confounding variables”). Information on target species is found in Tables 46, 47, and 48. Figure 25 shows cumulative interactions between PLL gear and bluefin, by one degree areas, from 2006 through 2011 in the Gulf of Mexico. The area outlined in bold are those areas for which data was compiled in Table 41.

Figure 25. Bluefin Interactions with PLL Gear by One Degree Areas in the Gulf of Mexico.



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Table 41 shows the cumulative interactions by month and year in one degree squares in a large area of the Gulf of Mexico. For example, during April there were 27 bluefin interactions in 2006, and a total of 362 interactions cumulatively during April from 2006 through 2011.

Table 41. Cumulative Interactions by Month and Year in a Large Area of the Gulf of Mexico, 2006 to 2011.

Month	2006	2007	2008	2009	2010	2011	Month Total
January	2	8	11	13	18	2	54
February	5	45	26	26	12	1	115
March	20	74	30	24	56	2	206
April	27	56	88	110	73	8	362
May	56	62	181	114	15	14	442
June	3	33	12	49	6	4	107
July	1	9	0	2	0	1	13
August	0	0	0	3	0	0	3
September	10	0	0	1	0	2	13
October	0	0	0	0	0	0	0
November	0	6	0	0	0	0	6
December	24	9	1	3	1	8	46
Total	148	302	349	345	181	42	1367

Target Catches by Region

In order to gauge the relative importance of the geographic regions to the PLL fishery, the amount of target species retained (swordfish, and other tunas) was compiled. The tables below show the amount of target catch by area relative to the total target catch, based on logbook data.

Table 42. Percentage of Total Swordfish (Kept) by Region by Year.

Region	2006	2007	2008	2009	2010	2011
Gulf of Mexico	15	18	14	19	9	14
Mid-Atlantic Bight	17	22	16	14	12	15
Northeast Coastal	10	9	15	14	15	11
South-Atlantic Bight	30	28	27	23	30	26

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Table 43. Percentage of Total BAYS (Kept) by Region by Year.

Region	2006	2007	2008	2009	2010	2011
Gulf of Mexico	33	36	31	42	11	19
Mid-Atlantic Bight	44	43	41	28	43	42
Northeast Coastal	9	5	7	5	12	13
South-Atlantic Bight	2	2	3	3	5	2

Table 44. Percentage of Total Swordfish and BAYS, combined (Kept) by Region by Year.

Region	2006	2007	2008	2009	2010	2011
Gulf of Mexico	27	29	23	32	10	17
Mid-Atlantic Bight	35	34	29	22	31	33
Northeast Coastal	9	7	11	9	13	13
South-Atlantic Bight	12	12	14	12	15	11

Table 45. Impacts - Measures Associated with Closed Areas.

Alternative	Ecological Impacts	Social/Economic Impacts
Use of greenstick gear or buoy gear in closed area	Would reduce interactions with, and discarding of, BFT. Would reduce interactions with other species caught incidentally by PLL gear.	Likely to reduce catch of target species and reduce revenue (compared with the use of PLL gear). Would provide more fishing opportunity and revenue than a full closure (i.e., not fishing in area by vessels with a Longline permit).
Closed Area Adjustment Authority	May result in some loss of protection of BFT. Even if relatively high interactions are not anticipated as a result of removing the closed area, some interactions with BFT or other bycatch species are likely. Ecological impacts would be mitigated by the ability to reclose the area if necessary.	May increase fishing industry support for closed areas if it is clear that NMFS has authority to remove, and criteria were developed. Would enhance the achievement of the goal of both providing fishing opportunity and reducing BFT discards.

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Table 46. Impacts – Closed Areas.

Alternative	Ecological Impacts	Social/Economic Impacts
Northeastern U. S. Closure modification	Modification of the Northeastern U.S. Closure could retain most or all of the benefits of the current closed area (i.e., prevention of BFT interactions with PLL gear).	Modification of the Northeastern U.S. Closure could provide economic benefits by optimizing the location or timing of the area and increasing fishing opportunity for target species.
Charleston Bump Closure modification	Modification of the Charleston Bump Closure could retain most or all of the benefits of the current closed area with respect to BFT, but may have reduced effectiveness in reducing discards of undersized swordfish, and other species.	Modification of the Charleston Bump Closure could provide economic benefits by optimizing the location or timing of the area and increasing fishing opportunity for target species.
Cape Hatteras Special Research Area	Historically, a high percentage of the total interactions between PLL gear and BFT have occurred in this area. There would be no interaction between PLL gear and BFT within the closed area(s) during the time of the closed area, and therefore, large reductions of dead discards could be achieved. The protection of BFT from capture in specific areas and during specific time periods may also provide indirect biological benefits to the stock and augment stock rebuilding.	Implementation of a seasonal closure may reduce revenue from target species. This management tool is relatively simple to implement and enforce, and because it is consistent over time, can be taken into consideration by vessels in their planning.
Gulf of Mexico Seasonal	There would be no interaction between PLL gear and BFT within the closed area(s) during the time of the closed area, and therefore some reduction of dead discards could be achieved. The protection of mature BFT from capture in the GOM may also provide indirect biological benefits to the stock and augment stock rebuilding.	Implementation of a seasonal closure may reduce revenue from target species and may create market disruptions. Because vessels fishing in the GOM tend to fish only in the GOM, this closure may impact vessels more than closures in the Atlantic. This management tool is relatively simple to implement and enforce, and because it is consistent over time, can be taken into consideration by vessels in their planning.
Gulf of Mexico Year Round	There would be no interaction between PLL gear and BFT within the GOM, and therefore meaningful reductions of dead discards could be achieved. The protection of mature BFT from capture in the GOM may also provide indirect biological benefits to the stock and augment stock rebuilding.	Implementation of a GOM closure will substantially reduce revenue from target species, and is likely to create market disruptions. Because vessels fishing in the GOM tend to fish only in the GOM, this closure may impact vessels more than closures in the Atlantic. This management tool is relatively simple to implement and enforce. PLL vessels that currently fish in the GOM may have difficulty adapting.

4.1.3 Reduction in Bluefin Minimum Size - Commercial Categories

Description of Measure

For the commercial General, Harpoon, and Purse Seine categories, and for the Charter/Headboat category when fishing commercially, the current minimum size could be reduced to a size (to be selected) between the ICCAT minimum size of 47 and 73 inches (for example, 65 inches); or a certain number of bluefin could be allowed to be retained between 47 and 73 inches (currently, the large school and small medium size classes). A measure describing reduction in bluefin minimum size for the Longline category is described under Section 4.1.1.8, in association with the pelagic longline catch cap.

Objective and Justification

The objective of this measure would be to reduce discards and optimize fishing opportunity for target species. A reduction in the minimum size could reduce the amount of regulatory discarding by allowing vessels to retain and sell bluefin of smaller size classes.

Discussion

Reduction in the minimum size of bluefin that may be retained could decrease regulatory discards in commercial categories. Because these fisheries target larger bluefin, this measure may result in changes in fishing behavior (targeting of small bluefin, or decreased avoidance of small bluefin) that may increase the number of interactions with bluefin less than 73” and may increase catch of the smaller size-range of fish. The overall benefits of this measure may not outweigh the costs, if the measure may result in a negative impact on the size structure of the bluefin stock.

Table 47. Impacts – Reduction in BFT Minimum Size – (commercial; non-PLL).

Alternative	Ecological Impacts	Social/Economic Impacts
Reduction in BFT Minimum Size for Other Commercial Categories (non-PLL)	If changes in fishing behavior result in increased number of interactions with BFT less than 73”, the fishing mortality on this size range of fish may increase.	Reduced regulatory discarding and waste, and the potential for increased revenue. May cause conflicts between the commercial and recreational fisheries due to overlapping size range of target bluefin.

4.1.4 Deduct Bluefin Dead Discards during Annual Quota Specification

Description of Measure

This measure would specify in the regulations that NMFS may deduct an estimate of dead discards from each quota category upfront during the annual specification of quota, and with the

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exception of the Longline category, would set the default amount of deduction (in the absence of an estimation) for each category at zero until there are reliable bases for estimation. The Longline category would not have a default amount of discards because currently collected data support the calculation of an annual discard estimate. If NMFS determines that there is sufficient data to estimate an amount of dead discards greater than zero for a particular category, NMFS may, through proposed and final rulemaking, deduct that amount of estimated discards during the annual quota specification process.

In other words, NMFS would clarify the regulations to make it clear that accounting for estimated dead discards may be a part of the annual specification process, in conjunction with allocation of quota among the fishing categories according to the respective baseline allocations and applicable rollover, if sufficient information exists. For each quota category for which dead discards are not currently estimated and deducted, a method could be developed to either estimate an amount of expected annual dead discards or to develop a proxy. The dead discard deduction could be specified as either a percentage of the category's quota, or a specific amount. The estimate would be based upon the best available information regarding historical dead discard rates, with other possible considerations including live-release survival rates, gear type, size of the quota, anticipated amount of fishing activity, location, season, and other relevant factors. If dead discards are highly uncertain and anticipated to change, a proxy of dead discards may be more appropriate than an estimate. Although it is conceivable that dead discard estimates or proxies may be modified during the fishing year to take into account new information or revised due to modifications in fishing practices or behavior, such adjustments would need to be supported by data.

Objective and Justification

In order to account for dead discards, a deduction of an estimated amount of dead discards, up front, during the annual quota specification process ensures that dead discards would be accounted for, and the adjusted quota would be set appropriately to help ensure the total U.S. quota is not exceeded. However, the default amount of deduction for all categories with the exception of the Longline category may be zero, because the amount of information on dead discards is variable among quota categories, and is highly uncertain, given current data collection programs.

Deduction of Dead Discards from the Angling Sub-Quota

It may not be possible in the short-term to estimate with a reasonable level of certainty the appropriate amount of discards that should be deducted upfront from the Angling sub-quota. There is some information on discarded fish in the recreational fishery from both the Automated Landings Reporting System and the Large Pelagic Survey (Tables 52 and 53). The Large Pelagic Survey data (including private vessels and charter/party) suggests that there are relatively few bluefin released dead, however the Proportional Standard Errors (PSE) for that dataset are large. In contrast, the PSEs for the bluefin landed and released alive, although variable, are substantially lower in general.

Table 48. Automated Landings Reporting System Recreational Data on Bluefin Landings and Discards.

Year	# BFT Landed	# BFT Released Alive	# BFT Released Dead
2006	665	0	0
2007	1591	37	4
2008	846	748	62
2009	858	685	108
2010	430	555	28
2011	404	573	17
2012	288	356	13

Table 49. Large Pelagic Survey Recreational Data on Bluefin Discards (Private and Charter/Party; Maine south to New Jersey).

Year	# BFT Landed	# BFT Released Alive	# BFT Released Dead
2006	5,347	13,538	171
2007	14,938	12,297	109
2008	11,418	10,932	86
2009	11,381	7,798	0
2010	7,035	9,127	43
2011	8,975	7,450	0

Deduction of Dead Discards from the Commercial Sub-Quotas (non-PLL)

Due to the current data collection programs, it is not possible to develop a robust estimate for the appropriate amount of dead discards to deduct from the General, Harpoon, Purse Seine, or Trap categories at this time. Section 4.1.6 contains options for enhanced reporting of bluefin.

Discussion

This measure would make the regulations clear that NMFS may deduct dead discards, and if sufficient information exists, would deduct estimated dead discards on a category-specific basis through the annual process of “quota specifications” via proposed and final rulemaking. The data in Table 53 make it clear that a large number of recreationally caught bluefin are released alive relative to the number landed. Depending upon the survival rate of bluefin released alive, it is likely that some portion of the released fish die. The large amount of variability in the fishing practices and conditions of the recreational fishery may make it difficult to develop robust estimates of survival rates of released bluefin. The current practice of not subtracting any estimate of bluefin dead discards in the annual specification or accounting procedures (with the

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exception of the Longline-derived estimates) is equivalent to assuming that there is 100% survival rate of bluefin released alive. This measure could, in conjunction with the Amendment 7 monitoring measures, as well as future research and data, enhance the ability to account for all sources of fishing mortality, as appropriate.

Table 50. Impacts – Deduction of Dead Discards

Alternative	Ecological Impacts	Social/Economic Impacts
Deduct BFT Dead Discards in Conjunction with Annual Quota Specification	Comprehensive accounting for all sources of fishing mortality through the annual specification process, as appropriate, would contribute toward achieving the biological goals of the fishery management plan.	Quota categories that do not currently have an estimate of dead discards, may have deductions in the future, resulting in less available quota for landing. Whether the net amount of landings increases or declines in the future, compared with historical levels would depend upon the amount of discards estimated and the total amount of quota.

4.1.5 Revise Bluefin Tuna Allocations

Description of Measure

Modify current base allocations for quota categories (i.e., percentages of U.S. quota) in order to address limitations and issues that have resulted from the current allocation scheme under recent fishery conditions. Two basic strategies in addition to the status quo could be considered: an immediate change in allocation, or a phased-in implementation of allocations over several years. Under each of these approaches, there are different options that could be used regarding the basis for reallocations. This document illustrates four potential options: (A) Revise quota allocations based upon two factors: current allocation and recent catch; (B) Create landings allocations (at a percentage lower than the current allocation) for the Longline, General, Angling, Purse Seine, and Harpoon categories to take into account anticipated landings and dead discards; (C) Redistribute quota, annually or permanently, from quota categories for which recent catch has been low (relative to their landings and/or allocations) to categories that potentially have insufficient quota to account for dead discards; or (D) Allocate 68 mt (based on a past ICCAT recommendation) to the Longline category (derived from all categories).

Objective and Rationale

The purpose of this measure would be to optimize fishing opportunity and account for dead discards. Under the 2006 Consolidated HMS FMP, each quota category is allocated a percentage of the total U.S. quota. Current allocations are based upon historical landings during the period 1983 to 1991, and do not consider dead discards. The limitations of the current quota allocation system have become apparent recently as changes to the size and availability of bluefin have changed over time, and ICCAT recommendations have changed. From 2004-2006, U.S. landings declined substantially; however, since 2006, there has been a general trend of some increase in landings from year to year although not equally across all categories. Concurrently, the percentage of under-harvest that may be carried forward has declined (due to ICCAT recommendations), resulting in smaller adjusted quotas. Therefore, the relative amount of

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adjusted quota that may be utilized to account for dead discards has declined. If base allocations are modified in order to redistribute the allocation of bluefin quota, accounting for discards could be accomplished in a straightforward manner and reduce uncertainty in the fisheries, while maintaining fishing opportunities and equity among the various user groups.

4.1.5.1 Revise Bluefin Allocations Sub-Option: Incorporate Recent Catch Data

Quota allocations could be revised based upon current allocation and recent catch data. The relative weight given to each variable (current allocation and recent catch) could determine the size of the revised allocation. The total amount of dead discards accounted for under this measure would depend upon the weighting of the two factors (and the time period selected to represent recent catch). Under this example, due to the influence of recent catch, the Longline and Angling categories could have an increased allocation, while the General, Purse Seine, and Harpoon categories could have a decreased allocation. If the intent of reallocation is principally to account for dead discards, and not provide new fishing opportunities, categories with an increased allocation could be subject to a cap on landings. If the landings were capped at the current allocation levels (e.g., 8.1% for the Longline category), potential disparities in the changes to fishing opportunity among categories may be minimized. For instance, an increase in allocation may not result in any additional fishing opportunities, but may realign allocations to reflect more current information about interaction rates. Alternatively, a landings cap could be set at a level lower than the current allocation (i.e., less than 8.1%).

An example of how a revised allocation could be calculated is as follows. This is only an example; the percentages are for demonstration purposes only: For a weighting of 70% current allocation and 30% recent catch, the formula to derive the allocation would be: (.70 X current allocation) + (.30 X recent catch). Therefore, using the Longline category as an example, if the average bluefin catch (landings and dead discards, not including Northeast Distant) from 2008 through 2010 by the Longline category represents 22% of the total U.S. catch and the current Longline allocation is 8.1%, the revised allocation under a 70% :30% weighting scenario would be: (.70 X .081) + (.30 X .22) = 0.122 (i.e., 12.2%) (Table 55). Essentially a revised Longline category allocation of 12.2% would be established to account for landings and discards. Taking this example one step further, landings could be capped at 8.1% landings (the current allocation) at which point the PLL fishery could be closed to all HMS fishing.

Table 51. Revision of Quota Allocations based upon Recent Catch and Current Allocations.

Category	Current Allocation (%)	Revised Allocations (%) Based Upon Weighting of Current Allocation to Recent Catch				Landings Cap (current allocation)
		70:30	50:50	30:70	10:90	
General	47.1	44.0	42.0	39.9	37.9	-
Harpoon	3.9	3.5	3.3	3.0	2.7	-
Purse Seine	18.6	13.1	9.5	5.8	2.1	-
Longline	8.1	12.2	14.9	17.7	20.4	8.1
Trap	0.1	.07	.06	.04	.02	-
Angling	19.7	25.3	29.1	32.8	36.5	19.7
Reserve	2.5	2.5	2.5	2.5	2.5	-
*Total	100	100	100	100	100	

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*Totals add up to slightly more than 100% due to rounding

Please remember, the above percentages are for demonstration purposes only, and do not represent proposed allocations.

4.1.5.2 Revise Bluefin Allocations Sub-Option: Landings allocations

Create landings allocations for the Longline, General, Angling, Purse Seine, and Harpoon categories to take into account anticipated dead discards. For example, set a landings allocation 20% lower than the current allocation for the Longline category; and 10% lower for the General, Purse Seine, Angling, Harpoon categories. The revised allocations could be landings allocations, and the Reserve category could be increased proportionally in order to account for dead discards. The reductions in allocations could be relative to the size of the current category allocation (not the total U.S. quota). The Longline category could be reduced more due to the relative magnitude of historical dead discards by that category. For example, a 10% reduction to the size of the current General category allocation (47.1%) would be a reduction of 4.71 %, with the revised landing allocation of 42.4% (47.1% - 4.71%). Depending upon the amount and quality of discard information available, the amount of reductions may be based upon discards estimates or proxies. The amount of total changes to allocations could determine the total amount of dead discards that are accounted for. This type of revision to the allocation system may be analogous to a quota specification method of deducting anticipated dead discards from the base allocation, because the current quota allocations would be reduced to account for dead discards (however one would occur annually, and the other would be permanent reallocation). During the fishing year, quota could be transferred from the Reserve category to other categories using the determination criteria located at 635.27((a)(8) (up to an amount equaling the current allocation) if there was information indicating low discard rates. The following example in Table 52 shows this method of revising allocations. The percentage reductions below are not based on category-specific discard estimates but simply illustrate how the magnitude of reductions relate to the total amount of quota reduction (and discards accounted for).

Table 52. Revision of Quota Allocations – Landings Allocations.

Category	Current Allocation (%)	*Current Allocation (mt)	Percent Reduction	Revised (Landings) Allocation (%)	Revised (Landings) Allocation (mt)	*Net Reduction (mt)
General	47.1	435.1	10%	42.4	391.6	43.5
Harpoon	3.9	36.0	10%	3.5	32.3	3.7
Purse Seine	18.6	171.8	10%	16.7	154.3	17.5
Longline	8.1	74.8	20%	6.5	60.0	14.8
Trap	0.1	0.9	(none)	(same)	0.9	00
Angling	19.7	182.0	10%	17.7	163.5	18.5
Reserve	2.5	23.1	(400 % increase)	12.7	117.3	Na
Total amount of quota reduction (discards accounted for)						98 mt

*Current Allocation and Net Reduction based on total quota of 923.7 mt

4.1.5.3 Revise Bluefin Allocations Sub-Option: Redistribution of Quota.

Starting from the current allocations, quota could be redistributed from one category to another category in order to account for anticipated dead discards, and align the quota with recent levels

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of catch (landings and dead discards). For example, in order to account for dead discards and align quotas with recent catch, quota could be redistributed from quota categories for which recent catch has been low relative to their allocations to categories that have insufficient quota to account for catch (i.e., from the Purse Seine category to the Longline category). This option assumes that no dead discards are accounted for through the use of quota that is carried forward from one year to the next. A phased-in approach could include a step-wise reduction or increase in quota allocations over several years. Another option could be to either implement this measure permanently or during a single fishing year. Because the intent of reallocation could be to account for dead discards only, and not provide new fishing opportunities, categories with an increased allocation could be subject to a cap on landings. The amount of dead discards that could be accounted for could determine the amount of allocation change. In the example in Table 53, 14% of the total quota could be reallocated from the Purse Seine category to the Longline category (.14 X 923.7 mt = 129 mt). Therefore, approximately 129 mt of dead discards could be accounted for (under this scenario of a total quota of 923.7 mt). The measure may not need to account for as large an amount of anticipated dead discards if implemented in conjunction with a measure that reduces discards (e.g., time/area closure, catch caps, reduction in commercial minimum size, etc.).

Table 53. Revision of Quota Allocations – Redistribution of Quota.

Category	Current Allocation	Revised Allocation	Landings Cap (current allocation)
General	47.1	same	-
Harpoon	3.9	same	-
Purse Seine	18.6	4.6	-
Longline	8.1	22.1	8.1
Trap	0.1	same	-
Angling	19.7	same	-
Reserve	2.5	same	-

4.1.5.4 Revise Bluefin Allocations Sub-Option: Allocation of 68 mt

Description of Measure

This measure would allocate 68 mt of bluefin to the Longline category in order to explicitly account for bluefin discards by the PLL fishery. Each quota category would ‘contribute’ a portion of the 68 mt in accordance with its current share of the total bluefin quota (Table 54). During the annual specifications, the 68 mt would be taken off the top, prior to allocation to each quota category, with the effect of reducing the allocations to all categories, with the exception of the Longline category. This would be considered in the FMP as a permanent reallocation, implemented on an annual basis. For example, the General category would have its allocation reduced by 32 mt (47.1% of 68 mt). The pelagic longline allocation would be increased by approximately 63 mt (68 mt – 5.508 mt).

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Table 54. Revision of Quota Allocations – 68 mt.

Category	Current Allocation (%)	Current Allocation (mt)*	Portion of 68 mt (mt)	Revised Allocation to Deduct (**or add) Portion of 68 mt
General	47.1	435.1	32.028	403.0347
Harpoon	3.9	36.0	2.652	33.3723
Purse Seine	18.6	171.8	12.648	159.1602
Longline	8.1	74.8	5.508	**137.3117
Trap	0.1	0.9	0.68	0.8557
Angling	19.7	182.0	13.396	168.5729
Reserve	2.5	23.1	1.7	21.3925
Totals		923.7	68	923.7

*based on a U.S. quota of 923.7

Objective and Rationale

The 68 mt was the U.S. portion of a Western Atlantic bluefin dead discard set-aside established by ICCAT in 1998 (Rec 98-07) to account for bluefin dead discards in the U.S. fishery. Specifically, 79 mt was set aside for dead discards, and the U.S. share of the dead discard allowance was 85.72%. This amount was included when determining the 1999 FMP allocation percentages. As of 2006 (Rec 06-06), the ICCAT recommendations no longer included a set-aside, and therefore reallocating to the Longline category to account for their incidental bluefin catch may be warranted.

Discussion (of all reallocation measures)

Reallocation of quota could result in the redistribution of quota among categories, and could account for anticipated dead discards. The size of the changes to allocations may have to be relatively large in order to fully account for recent estimates of dead discards if this were to be the only measure implemented. However, the measure may not need to account for as large an amount of anticipated dead discards if implemented in conjunction with a measure that reduces dead discards (e.g., time/area closure, catch caps, reduction in commercial minimum size, etc.). An alternative strategy could be to rely upon transferrable quota to enable temporary leasing or permanent sale of quota share that would allow for redistribution of quota among categories. A strategy combining both reallocation and trading/leasing pelagic longline quota between the Purse Seine and the Longline categories may also be considered.

For each of the quota reallocation management measures described above, there are many facts that may be relevant to evaluation of the measure. A determination whether a measure meets its objectives in an equitable manner is not as self-evident as it may appear with only superficial scrutiny and limited discussion. For example, one of the relevant factors in a discussion of the level of purse seine fishing activity is the size distribution of bluefin available to the fishery. The purse seine fishery may only retain ‘giant’ bluefin, 81 inches or greater in curved fork length.

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Therefore, if the abundance of giant bluefin is insufficient to be commercially viable due to the size structure of the bluefin population, the purse seine fishery may not operate. Data on size distribution of bluefin from the past several years supports the contention that relatively low availability of giant bluefin was an important factor in the recent low levels of purse seine landings. Similarly, the landings histories of the other commercial categories and the recreational category have been affected by changes in the relative abundance and availability of various bluefin size classes, as well as the bluefin retention and minimum size restrictions.

Other suggested factors for inclusion in the socio-economic effects evaluation of these measures include historical importance of the fishery (economically or in the ICCAT realm), current economic value, etc. Evaluation of the measures in this predraft should consider the potential impacts, how the measures compare with other measures with similar objectives, and whether the measures achieve their objectives in an equitable manner. Some of the reallocation measures may not be fully consistent with or contribute towards the following objectives of this Amendment: maintain flexibility of the regulations to account for the highly variable nature of the bluefin fishery; and maintain fairness among permit/quota categories. For example, if reallocation from the purse seine category is justified on the basis of its recent low levels of activity, and that level of activity is due in part to the variable nature of the fishery, reallocation may not be consistent with the above two objectives.

Table 55. Impacts – Quota Reallocation.

Alternative	Ecological Impacts	Social/Economic Impacts
Revise allocations based upon current allocations and recent catch	The ecological impacts could be neutral or slightly positive if reallocation results in more stable and predictable allocations among quota categories, and improved accounting for discards.	The Longline and Angling categories would have increased allocations, and the Purse Seine, General, Harpoon, Trap categories would have reduced allocations compared to the status quo. Therefore there would be losses and gains in fishing opportunity.
Create landings allocations	The ecological impacts could be neutral or slightly positive if reallocation results in more stable and predictable allocations among quota categories, and improved accounting for discards.	All categories with the exception of the trap and reserve categories allocations would have reduced allocations. The magnitude of the reductions may have to be relatively large in order to account for recent estimates of dead discards. The net effect of this measure may be similar to deducting dead discards during the annual specification process, but could rely on revision of the quota allocations instead to account for dead discards. There could be improved alignment between the amounts of allocation and recent catch (landings and dead discards). Increasing the amount of quota in the Reserve may facilitate flexibility and could provide available quota for other domestic objectives.
Redistribution of Quota Among Categories	The ecological impacts could be expected to be neutral or slightly positive if reallocation results in more stable and predictable allocations among quota categories, and improved accounting for discards.	The Purse Seine category could be affected more than other categories due to the larger loss in harvesting potential. The Purse Seine category may be unable to harvest BFT in an amount that approaches their historical harvest level. The Longline category would gain additional flexibility to maintain a fishery year-round under a catch cap measure.

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Allocation of 68 mt	The ecological impacts could be expected to be neutral or slightly positive if reallocation results in more stable and predictable allocations among quota categories, and improved accounting for discards.	Would provide Longline category with the anticipated catch levels when the 1999 FMP allocation percentages were established. The reductions in allocations for the directed categories would be a negative short-term impact, but, if combined with other measures to reduce discarding, could result in reduced uncertainty in the fishery.
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4.1.6 Enhance Reporting of Bluefin Tuna

Description of Measure

All or selected permit categories would be subject to new reporting requirements to provide additional information on catch or submit data in a more timely manner. Measures would focus on bluefin, and may include information on numbers and size of fish, capture location, kept, released (live, dead), etc. New requirements could be targeted to the some or all permit categories, which currently have reporting requirements that may not be providing NMFS with information needed to more fully meet the objectives of the 2006 Consolidated HMS FMP and relevant statutes.

Objective and Rationale

In order to work toward the objective of accounting for all sources of fishing mortality, analogous data from all segments of the fishery (if necessary), as well as optimize fishing opportunity, accurate information regarding the amount of catch (dead discards and landings combined) continues to be important. Enhanced reporting could improve the monitoring of the fisheries and optimize the level of catch by increasing the likelihood that the desired amount of total catch would be attained but not exceeded.

4.1.6.1 Enhanced Reporting Sub-Option: PLL VMS Reporting

Vessels fishing with PLL gear, and subject to the current requirement to use a VMS could report daily the number and size of bluefin retained, and discarded, fishing effort, as well as the number of other bycatch species/protected species caught that day. This data could subsequently be verified using logbook and observer data. Secondly, prior to each trip on which PLL gear will be deployed, vessels could declare through VMS their intent to fish PLL gear, prior to departing from port.

Objective and Justification

This measure is intended to support the implementation of a PLL catch cap. The current PLL reporting requirements and the monitoring program that provide data on PLL discards were not designed to support in-season management of bluefin. More timely information on catch would be necessary in order to monitor a PLL catch cap. More timely information on retained bluefin will improve the current monitoring of bluefin landings. Although the current information on bluefin discards from the PLL fishery, which is obtained through the observer program is sufficient to estimate bluefin discards on an annual basis, the time lag associated with the current discard information submitted by the observer program is too slow to be useful for “real-time”

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in-season monitoring of a bluefin catch cap. Specifically, there is a time lag between the time the field information is recorded by the observer during the fishing trip, and the time the data is entered into a database, and the time the data are finalized (after a process of quality control) and available for use. Information on the size of the fish would enhance the ability of NMFS to monitor and manage the fishery, and more timely information on other bycatch or protected species could contribute toward their management and protection. A trip declaration requirement could be necessary in order for NMFS to obtain timely information on PLL fishing effort, and interpret and utilize the bluefin data in the context of the fishery as a whole. It is anticipated that in the near future the PLL fishery will be equipped with VMS units that are capable of transmitting such information, pursuant to recently implemented regulations (76 FR 75492; and 76 FR 75523; December 2, 2011).

4.1.6.2 Enhanced Reporting Sub-Option: Automated Landings Reporting System

General category, Harpoon, and Charter/Headboat categories (commercial handgear vessels) targeting bluefin could report their catch through an automated landings reporting system (ALRS; web-based, or via an interactive voice response telephone system, or via a smartphone application) during or at the end of their trip.

Objective and Rationale

Although bluefin landings by commercial vessels are currently reported by dealers, and sufficient for NMFS to monitor the landings (which count toward the relevant sub-quotas) NMFS does not obtain information on bluefin that may be discarded as a result of the capture of fish that are less than the required minimum size.

Discussion

Discard information from the commercial permit categories that do not currently report would enhance the ability to more fully and accurately account for all sources of fishing mortality. Additional catch information from these categories could result in more equitable data collection among the diverse participants in the bluefin fisheries and enhance management. Such a system that is simple and practical to use could be successful to collect necessary information. For example, a smartphone application is a method that could be considered. Regardless of how a program would be implemented, verification of data collected would be key to success.

4.1.6.3 Enhanced Reporting Sub-Option: Expand Large Pelagic Survey

The Large Pelagic Survey is currently the principal means by which NMFS monitors the Angling category quota from Virginia, north to Maine. The program currently collected data for the period June through October. The scope of the program could be expanded to include the months of May, November, and December, or it could be expanded geographically, to include more states, as funding and resources permit.

Objective and Rationale

The Large Pelagic Survey currently is used in conjunction with data from the states of North Carolina and Maryland, and the Automated Landings Reporting System data, to estimate

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landings of recreationally caught bluefin, and to monitor the Angling category quota. Expanding the duration or geographic scope of the survey could increase the amount of data collected and improve estimates derived from this data.

Discussion

Although it is clear that accurate and timely information on landings and discards is integral to the management of bluefin, it can be difficult to evaluate potential enhancements to reporting requirements due to uncertainties such as costs, compliance, accuracy, etc.. It may be difficult to anticipate the costs of reporting the fishery participants would incur, as well as the costs NMFS would require to implement and maintain enhanced monitoring programs. The rate of compliance with any new reporting requirements and the data quality are other unknowns that must be accounted for. Without some type of verification process included in the program, it can be extremely difficult to determine if there are flaws with the program, or if lack of compliance is compromising its effectiveness. In the case of bluefin, there are already programs in place to monitor recreational bluefin catch. It may be difficult to assess the impact of enhancements to the monitoring programs on the quantity or quality of data, without some inclusion of verification. Although angler compliance with current reporting requirements (ALRS) appears to be low, without being able to verify, education and public outreach may be the best means to improve the data collection process.

Table 56. Impacts – Enhanced Reporting.

Alternative	Ecological Impacts	Social/Economic Impacts
PLL Requirement to Report Bycatch through VMS	Would support a BFT catch cap and therefore contribute toward limiting the fishing mortality associated with BFT catch by the PLL gear.	There would be some labor and time involved in learning and utilizing the VMS for reporting purposes. Secondly, there is a fee associated with data transmission. The fee is not likely to be substantial due to the relatively limited amount of data submitted. The cost of installing VMS units capable of electronic transmission is not considered part of this measure because there is currently a regulation in place that requires such units. NMFS would need to develop the computer software for the VMS units, as well as computer systems to receive, store, and retrieve the data
Automated Landings Reporting System for commercial vessels	Would contribute toward more accurate and timely accounting for all sources of fishing mortality, and therefore reduce management uncertainty.	Vessel operators would be required to report BFT catch information on an on-going basis and therefore would experience additional demands on their time and resources. NMFS would need to develop the computer system to receive, store, and retrieve the data.
Expand the Scope of the Large Pelagic Survey for Angling Category Vessels	Would contribute toward more accurate and timely accounting for all sources of fishing mortality, and therefore reduce management uncertainty.	More anglers would be required to participate in the survey, and would experience additional demands on their time. NMFS would need to deploy the resources needed to expand and maintain the program.

4.1.7 Use Bluefin Revenue to Fund Observers or Research

Description of Measure

This measure would authorize NMFS to develop a program that would utilize revenue from the sale of bluefin caught by PLL vessels to increase the level of observer coverage in the fishery and/or support designated research. Amendment 7 would not implement such a program, but would simply authorize the future development of a program. Future development of a program could be done by NMFS in close coordination with the PLL fishery and the public, through proposed and final rulemaking. Specifically, Amendment 7 would implement a specific objective in the fishery management plan, and describe and analyze some example concepts to inform the public of current ideas for future detailed program development. If successful, the program could be expanded to include other categories or gear types.

Objective and Rationale

The goal of this measure would be to enhance the monitoring of the PLL fishery. The long-term objective of this measure is to make use of revenue associated with the sale of incidentally caught bluefin for the enhancement of bluefin management. Due to the number and complexity of policy, legal, and logistical issues that development of a cost-sharing or industry funded program would involve, full development of a program in Amendment 7 likely would not be anticipated at this time. If Amendment 7 authorizes NMFS to develop a program, the future regulatory process could be facilitated. Specifically, Amendment 7 could develop an objective, and describe and analyze some example concepts to inform the public of current ideas for future detailed development, and provide authorization and justification for further development by NMFS.

Discussion

Revenue from the sale of incidentally caught bluefin may represent an opportunity to enhance the management of bluefin through the use of such funds to enhance observer coverage or support bluefin research. It may be possible to make progress in the development of such a program through the exploration of an objective and potential concepts in Amendment 7 analyses, and by providing NMFS the authority in the 2006 Consolidated HMS FMP to implement such a program. This measure would require that all or a portion of the revenue from the sale of bluefin by PLL vessels be used to fund the deployment of observers on PLL trips, or to fund designated research. This measure is conceptual at this time, and not a detailed description of a specific method. There are several industry-funded observer programs that could serve as models for the development of a program that would augment the current level of observer coverage. Two principal types of programs have existed: 1) Programs where the fishing industry has contracted directly with the observer provider; and 2) programs where NMFS contracts the observer programs, and the fishing industry pays NMFS. In all cases, industry pays for direct at-sea costs only and not training, travel, data management, and other NMFS observer program costs. NMFS would continue to need appropriated funds to cover training, travel, and data management. For example:

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North Pacific Fishery Management Council

Except for small vessels less than 60 feet and halibut vessels, all vessels fishing for groundfish in federal waters are required to carry observers, at their own expense, for at least a portion of their fishing time. In the past, the industry had contracted with observer providers to pay for at-sea observer costs. In October 2010, the Council approved a motion to restructure the observer program for vessels and processors that are determined to need less than 100% observer coverage in the Federal fisheries, including previously uncovered sectors such as the commercial halibut sector and <60' groundfish sector. The Council recommended restructuring the program such that NMFS would contract directly with observer companies to deploy observers according to a scientifically valid sampling and deployment plan, and industry would pay a fee equal to 1.25% of the ex-vessel value of the landings included under the program. (The Magnuson-Stevens Act authorizes collection of an ex-vessel fee of up to 2%.) As all sectors benefit from the resulting data, the Council chose to apply the same fee percentage to all restructured sectors, in order to develop a fee program that is fair and equitable across all sectors in the restructured program (<http://www.fakr.noaa.gov/npfmc/conservation-issues/observer-program.html>).

Atlantic Sea Scallop Dredge fishery

In 2007, NMFS permanently reactivated an industry funded program in the Atlantic sea scallop fishery (72 FR 32549; June 13, 2007). First implement in 1999, vessel owners contract directly with observer providers and additional harvest set-asides are allocated to vessels in order to offset the cost of observer coverage.

Direct industry funding for observer coverage.

This is the most commonly used industry funding scenario in the United States. In this case, vessel/permit owners work directly with and pay observer providers directly for observer coverage. Observer providers are certified or approved by NMFS and are authorized to contract directly with vessel owners. Examples: North Pacific groundfish fishery, Atlantic sea scallop fishery.

Fees are collected from industry and used to pay for observer coverage.

This approach has not been used before and is being implemented for the first time in the North Pacific in 2013. NOAA will collect fees from industry that will be used to establish contracts with observer providers. Specific authorization to collect fees is required and was provided through specific Magnuson-Stevens Act language. Example: restructured North Pacific groundfish observer program on vessels with < 100% coverage.

Table 57. Impacts – Authorize NMFS to Develop a Program to use BFT Revenue.

Alternative	Ecological Impacts	Social/Economic Impacts
Authorize NMFS to develop a program to	In the long-term, would contribute toward the monitoring of the PLL fishery	In the short-term, authorization of a program without knowledge of the future specifics may cause uncertainty in the fishery, but would have no economic impacts. In

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use BFT revenue to fund observers or research.	and may enhance the management of various species due to increased data collection.	the long-term, if a program is developed the industry may face loss of revenue associated with the sale of BFT.
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4.1.8 Modification of Angling Category Sub-Quota Distribution

Description of Measure

The allocation of the Angling category quota could be revised to allocate a portion of the trophy south sub-quota to create a distinct sub-quota for the Gulf of Mexico. Alternatively, this measure could revise the relative amounts of quota allocated to the north and south.

Objective and Rationale

The objective of this measure would be to optimize fishing opportunity for recreational vessels, reduce discards, and account for incidentally caught bluefin. Currently, trophy sized bluefin (> 73" CFL) caught by recreational vessels in the Atlantic and Gulf of Mexico count against either one of two sub-quota allocations, depending upon where the fish are landed. Trophy bluefin landed north of 39° 18' North latitude (N. lat.) count toward one quota, and bluefin landed south of 39° 18' N. lat count toward the other. The dividing line was intended to provide a more equitable geographic and temporal distribution of recreational fishing opportunities by separating each bluefin size-class subquota into two geographic regions. As a result of the quota allocation and regulatory structure, bluefin from either the Gulf of Mexico or the Atlantic south of 39° 18' N. lat. count toward the same sub-quota (the southern), and are managed together. Pursuant to ICCAT recommendations, targeting of bluefin in the Gulf of Mexico by either commercial or recreational vessels has been prohibited for many years. Therefore, recreational vessels fishing in the Gulf of Mexico are subject to different bluefin regulations than vessels fishing in the Atlantic. Recreational vessels fishing in the Gulf of Mexico may not target bluefin, but may retain one trophy-sized bluefin per year if the southern trophy sub-quota has not been attained. Recreational vessels fishing in the Atlantic may target bluefin, subject to the size and daily retention limits in effect, provided the relevant sub-quota has not been attained.

Under current regulations, a situation may be created whereby the whole southern trophy quota could be filled by catch from the Atlantic first, and leave no remaining quota to allow for the incidental catch and retention of trophy bluefin in the Gulf of Mexico by the recreational fishery. It may be more equitable to split the southern sub-quota for trophy bluefin to separate out the Gulf of Mexico. A separate quota allocation for the Gulf of Mexico could improve the success of the quota system by increasing the likelihood that there will be recreational trophy bluefin quota available to account for incidental catch of such fish (while still providing incentives not to target bluefin). Table 58 contains data on the number of trophy sized Angling category fish caught in the Gulf of Mexico, the area to which the southern quota applies (minus the Gulf of Mexico), and from the area to which the northern quota applies. This information is based upon Automated Landings Reporting System and North Carolina catch card data.

Table 58. Number of Trophy BFT Landed by the Angling Category in the Gulf of Mexico, South (excluding the Gulf of Mexico) and North, 2006 to 2011.

Year	GOM	South	North
2006	4	2	3
2007	0	9	7
2008	3	6	8
2009	0	0	5
2010	0	26	16
2011	0	30	12

Discussion

As indicated in Table 58, trophy bluefin caught in the Gulf of Mexico and in Atlantic have contributed towards the Angling category southern sub-quota. Attainment of the southern sub-quota has resulted in the closure of the trophy fishery on April 2, 2011, and on April 7, 2012, prior to any landings of trophy bluefin from the Gulf of Mexico. Although shifting quota allocation into the Gulf of Mexico may reduce discarding in the Gulf of Mexico, it may not affect the amount of overall discards that occur because discarding of trophy bluefin in the Atlantic could increase if the southern sub-quota allocated is decreased in conjunction with the allocation to the Gulf of Mexico. The net result of this measure may be more equitable distribution of the trophy bluefin allocation. This data does not provide information on whether the differences in bluefin catch between the Gulf of Mexico and the Atlantic are due to differences in the activity level or characteristics of the recreation fishery, or differences in the distribution of trophy bluefin.

The 2011 quotas for the Angling trophy sub-quota (north and south) were set at 1.4 and 2.8 mt, respectively, and were filled by 12 bluefin and 30 bluefin, respectively. Based on 2011 catch information (30 bluefin), and the current size Angling category quota, if between 10 and 20 percent of the southern quota were allocated to the Gulf of Mexico, that would represent between 3 and 6 fish, which would be adequate to account for the range of numbers of trophy bluefin landed in the Gulf of Mexico historically. This implication of allocating a fixed *percentage* to the Gulf of Mexico is that the total weight of fish allocated to the Gulf of Mexico would increase if the overall Angling quota increases. If the intent of the measure is to allocate a *de minimus* amount of bluefin to the Gulf of Mexico to account for incidental catch of trophy bluefin, it may be better to simply allocate a certain number of fish to the Gulf of Mexico annually. That number could be a fixed number of trophy bluefin set in the fishery management plan, or be set during the annual specifications process through proposed and final rulemaking.

Table 59. Impacts – Modification of Angling Category Sub-Quota Distribution.

Alternative	Ecological Impacts	Social/Economic Impacts
Modification of Angling Category Sub-Quota Distribution	The effectiveness of quota management will be enhanced if the sub-quota is managed more precisely	Fishing opportunity may be optimized, and recreational anglers may perceive that the quota management is more equitable

4.1.9 Inseason Adjustment of Harpoon Category Retention Limit

Description of Measure

NMFS would be provided the authority to increase or decrease the daily retention limit of large-medium bluefin (greater than 73” and less than 81”) to within a range from zero to four fish. The adjustment would be based upon the current inseason determination criteria in the regulations (635.27(a)(8)) including: The usefulness of information obtained from catches in the particular category for biological sampling and monitoring of the status of the stock; 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; 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; the estimated amounts by which quotas for other gear categories of the fishery might be exceeded; effects of the adjustment on BFT rebuilding and overfishing; effects of the adjustment on accomplishing the objectives of the fishery management plan; variations in seasonal distribution, abundance, or migration patterns of BFT; 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; and review of dealer reports, daily landing trends, and the availability of the BFT on the fishing grounds, as well as any other relevant factors.

Objective and Rationale

The objective of this measure would be to optimize fishing opportunity within the directed fishing category within the allowable available quota limits. Currently, persons aboard a vessel permitted in the Atlantic tunas Harpoon category may retain an unlimited number of giant bluefin per day (of 81” CFL), and are limited to an incidental retention limit of four large medium bluefin (73” to 81”) per vessel per day. NMFS currently does not have the authority to adjust this retention limit in-season. In contrast, for the General category, NMFS has the authority to increase or decrease the daily retention limit for large medium of giant bluefin within a specified range. This measure would enhance the ability of NMFS to more precisely manage the catch rate of large medium bluefin by the Harpoon category, and therefore optimize opportunity for the fishery while preventing catch from exceeding the quota. The determination criteria for inseason adjustments would be the same as for the General category because they are both commercial categories, with similar regulatory and fishery conditions.

Discussion

On November 30, 2011, NMFS published a final rule (76 FR 4003) that increased the Harpoon category daily retention limit of large medium BFT from its previous maximum of 2 fish, to 4 fish, in order to increase management flexibility. That action, however, did not provide NMFS the authority to make further in-season adjustments to the daily retention limit.

Table 60. Impacts – NMFS Authority to Adjust Harpoon Category Retention Limit Inseason.

Alternative	Ecological Impacts	Social/Economic Impacts
Provide NMFS inseason authority to adjust Harpoon category retention limit	The effectiveness of quota management may be enhanced if the quota is managed more precisely	The overall amount of BFT available to the Harpoon category is determined principally by the amount of total quota. Although this measure may reduce the amount of BFT that may be retained by a particular vessel on a daily basis, and could change the distribution of catch among vessels (depending upon when a vessel fishes and when a particular retention limit is in effect), the authority to modify the daily retention limit is likely to enhance the ability of the Harpoon fishery to harvest its quota because it enables more precise in-season management.

4.1.10 Modify Permit Rules Regarding Permit Category Changes

Description of Measure

A vessel owner would be allowed to modify the category of HMS permit issued for a time period greater than 10 calendar days (e.g., 30, 45, or 60 days), provided the vessel has not fished.

Objective and Rationale

The current regulations prohibit a vessel issued an HMS permit from changing the category of the permit issued after 10 calendar days from the date of issuance. This current restriction is meant to preclude vessels from fishing in more than one category during a year and to discourage speculative use of fishing permits. However, limiting the time period during which a vessel may change permit categories to 10 days may be overly restrictive, and may not allow the flexibility to resolve the problems of a permit issued by mistake or based on an incomplete understanding of the regulations. The measure could achieve a better balance of allowing flexibility for vessel owners, while still preventing fishing in more than one permit category during a fishing year.

Table 61. Impacts – Modify Permit Rules Regarding Permit Category Changes.

Alternative	Ecological Impacts	Social/Economic Impacts
Modify Permit Rules Regarding Permit Category Changes	None. This measure will have no ecological impacts because it is focused on the administration of a permit program and is not likely to impact fishing behavior or catch.	Vessels would be provided more flexibility to correct mistakes in permit issuance. It may be difficult for NMFS to enforce the condition associated with this measure, that is to determine if a vessel fishes under the first permit issued.

4.1.11 Implement U.S. North Atlantic Albacore Quota and Establish Specifications Provisions

Description of Measure

Implement the U.S. annual quota of North Atlantic albacore (also called “northern albacore”) recommended by ICCAT and establish provisions for the accounting of overharvest and

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underharvest of the quota via annual specifications. Under ICCAT Recommendation 11-04 (Supplemental Recommendation by ICCAT concerning the North Atlantic Albacore Rebuilding Program), the maximum amount of underharvest that an ICCAT party may carry forward in a given year is 25% of its initial quota. If and when implemented, the codified U.S. northern albacore quota may be adjusted for prior year catch, including delayed or multiyear adjustments, consistent with ICCAT recommendations. In addition to implementing the northern albacore quota and developing a methodology to account for under and overharvests, NMFS may explore establishing the authority to implement and adjust future northern albacore management measures via framework regulatory adjustments. These framework adjustments may include: actions to implement ICCAT recommendations, as appropriate; refining domestic allocation of the U.S. quota; establishing retention limits; implementing effort restrictions, etc. Framework adjustment may lend flexibility and efficiency to the regulatory process by allowing NMFS to make time-critical changes in the regulations, without amending the 2006 Consolidated HMS FMP. Framework adjustments are intended to make it possible to manage fisheries and meet the objectives of the FMP more responsively under conditions requiring timely management actions and as with an FMP amendment, framework adjustments must go through extensive public and analytical review, including development and review by the HMS Advisory Panel.

Justification and Rationale

Since 1998, ICCAT has made recommendations regarding the North Atlantic albacore fishery. A multi-year management measure for northern albacore was first adopted in 2003, setting the TAC at 34,500 mt.

At the latest northern albacore stock assessment (2009), ICCAT's Standing Committee on Research and Statistics concluded that the northern albacore stock continues to be overfished with overfishing occurring, and recommended a level of catch no more than 28,000 mt to meet ICCAT management objectives by 2020. In 2009, ICCAT established a North Atlantic albacore rebuilding program via Recommendation 09-05, setting a 28,000-mt TAC and including several provisions to limit catches by individual ICCAT parties (for major and minor harvesters) and reduce the amount of unharvested quota that could be carried forward from 50% to 25% of a party's initial catch quota. The 2009 recommendation expired in 2011.

In 2011, ICCAT Recommendation 11-04 set a TAC of 28,000 mt for 2012 and for 2013 and contained specific recommendations regarding the North Atlantic albacore rebuilding program, including an annual TAC for 2012 and 2013 allocated among the European Union, Chinese Taipei, the United States, and Venezuela. The U.S. quota for 2012 and 2013 is 527 mt. The recommendation limits Japanese North Atlantic albacore catches to 4% in weight of its total Atlantic bigeye tuna longline catch, and limits the catches of other ICCAT parties to 200 mt. The recommendation specifies that quota adjustments for underharvest or overharvest during a given year be made for either two or three years from the subject year (e.g., adjustments based on 2013 catches would be made for either 2015 or 2016). Pursuant to this recommendation, it is appropriate for the United States to implement the U.S. quota and establish provisions to adjust the base quota via annual quota specifications.

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Discussion

In the United States, albacore tuna are caught and landed primarily in rod and reel and pelagic longline fisheries. Catch in the pelagic longline fishery is typically opportunistic as vessels interact with schools of albacore tuna while targeting swordfish or other pelagic tunas in the northwest Atlantic Ocean. Rod and reel fisheries target albacore tuna in the northwest Atlantic and Caribbean Sea. Reported commercial catches were relatively low prior to 1986; however, these catches increased substantially and have remained at higher levels throughout the 1990s, with nearly all of the production coming from the northeastern U.S. coast. The U.S. landings from the Caribbean increased in 1995 to make up over 14% of the total U.S. harvest of albacore, but have since remained below 4% of the total (NMFS, U.S Report to ICCAT, 2012).

Scientific studies on albacore in the North Atlantic have shown trends in environmental variability having a serious potential impact on albacore stocks, affecting fisheries by changing the fishing grounds (as well as recruitment levels and potential Maximum Sustainable Yield of the stocks which may be a factor in availability to U.S. vessels.

Total catches have been variable since 2000, ranging from 189 mt/year to 646 mt/year. The U.S. quota and annual landings for the last 5 years are as follows:

Table 62. U.S. Northern Albacore Quota, Adjusted Quota, and Landings (mt).

	Quota	Adjusted Quota	Landings
2007	607	910.5	532
2008	538	672.5	248
2009	538	672.5	188
2010	527	658.8	315
2011	527	658.8	449

Source: Annual Report of the United States to ICCAT, 2012.

U.S. catches approached our current initial quota (607 mt) in 2007 with 532 mt of catch. However, U.S. catches have been less than the adjusted quotas for the last several years now.

Table 63. Impacts – Establish Quota and Rollover for Northern Albacore Tuna.

Alternative	Ecological Impacts	Social/Economic Impacts
Implement Quota and Establish Specifications Provisions for North Atlantic Albacore Tuna	Implementation of a quota for northern albacore would contribute towards the implementation of a more comprehensive management system for northern albacore.	If the future northern albacore tuna quota is similar to the size recommended for 2012 and 2013 (527 mt), and the 25% limit on the amount of unused quota that can be carried forward is maintained, it would have little impact on the fishery because recent catches have been less than the U.S. adjusted quota.

4.1.12. Modify General Category Sub-Period Allocations

Description of Measure

Modify the General category sub-period allocations to achieve a new seasonal distribution of allocation. For example, some General category participants are proponents of allocating the General category quota equally among the 12 months instead of the current allocation method.

Justification and Rationale

The objective of this measure is to optimize fishing opportunity and account for dead discards. Modification of the General category sub-period allocation would alter the distribution of quota among seasons and could be perceived as supporting equitable fishing opportunities objectives, but may not recognize the traditional fishing patterns.

Discussion

Some fishery participants may benefit from enhanced fishing opportunities, while some fishery participants may experience decreased fishing opportunities. It is difficult to develop a single optimal allocation scheme among seasons, given the temporal and geographic variability of bluefin availability on the fishing grounds. The current allocation system of January (5.3%), June through August (50%), September (26.5%), October through November (13%) and December (5.2%) was developed to reflect the seasonal distribution of bluefin as well as the historical fishery. In research designed to determine the extent, duration, and composition of seasonal aggregations of bluefin from 1996 through 2006 (Walli et al., 2009), high residence times were identified in four spatially confined regions on a seasonal scale. These high-use areas included waters off North Carolina where fish were consistently tracked for 94 ± 35 days per year. The months of highest residency in this region were December through March. A second high-use area was in the Northern Western Atlantic (Gulf of Maine, Georges Bank, and south of Nova Scotia), where fish were consistently tracked for 164 ± 62 days per year. The months of highest residency in the Northern Western Atlantic region were June through October. Although there will be shifts in the distribution patterns of bluefin over time, due to environmental factors such as the distribution of abundant prey, the current sub-period allocation remains aligned with the general distribution of bluefin. Recent changes to the regulations were implemented to optimize the opportunity for the General category. Specifically, the November 2011 modification to General category regulations (76 FR 74003; November 30, 2011) increased the time period during which the January sub-quota would be available (through March, if the quota is not caught) and increased the maximum possible daily retention limit to five fish per vessel. These changes expanded fishing opportunities for participants in the winter General category fishery, including vessels fishing out of North Carolina, increased NMFS's flexibility for setting the General category retention limit depending upon available quota, and enabled a more thorough utilization of the available bluefin quota. Although the current sub-period allocation appears to be aligned with the special and temporal distribution of bluefin and reflective of the historical fishery, an alternate distribution such as 12 equal months could be analyzed further. At this time it is uncertain whether such an allocation would result in a more

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complex quota system that harvests less of the total General category quota (due to more time periods during which the quota would be either underharvested, or caught quickly).

Table 64. Impacts – Modify General Category Sub-Period Allocations.

Alternative	Ecological Impacts	Social/Economic Impacts
Modify General Category Sub-Period Allocations	The ecological impacts would be neutral. This measure would not alter the total General category quota.	The impacts are dependent upon the distribution of BFT. Some participants in the General category fishery may experience an increase in fishing opportunity, and some a decrease.

4.2 Second Tier Measures

As a result of input during the scoping process and further consideration, NMFS currently considers these measures as second tier measures with respect to inclusion in the proposed rule. As previously stated, NMFS has made no decision at this time regarding measures to be included in the proposed rule, but is categorizing measures in order to solicit additional comments.

4.2.1 Angling Category – Maximum Bluefin Catch Limit

Description of Measure

A maximum catch limit for bluefin (including kept and discarded fish) would be set for the HMS Angling category and for the HMS Charter/Headboat category (when fishing recreationally), in order to limit the number of fish caught and released and therefore potential post-release mortalities. The catch limit could be specified in relation to the retention limit (e.g., two, or three times the retention limit). For example, if the retention limit is one bluefin per trip and the maximum catch limit was set at twice the retention limit, the vessel could catch a total of two fish, and therefore could retain one legal-sized fish and release one fish, or release two fish.

Objective and Rationale

The objective of this measure would be to reduce bluefin dead discards. Meaningful reductions in the number of bluefin caught and released, which could result in post-release mortalities, may be achievable. Measures for reducing activities that may result in dead discards or post-release mortality should be considered for all quota categories.

Discussion

This measure could limit the amount of potential post-release mortalities or dead discards on a particular trip, due to size restrictions, improper gear, or high-grading (or other reason). Such a measure may provide incentives to limit excessive discarding in certain situations, and may reduce the amount of overall discards. This measure could be difficult to enforce, and may be perceived by recreational fishermen as excessively restrictive or contrary to the positive incentives and fishing practices inherent in current tag-and-release or catch-and-release programs. Some operators of charter vessels commented that the measure would reduce

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incentives for customers to book charters, reduce the quality of fishing experience, and result in loss of revenue. NMFS considers this measure a second tier measure at this time due to difficulty in enforcing this measure and the potential negative impacts on the recreational fishery.

Table 65. Impacts – Angling Category; Maximum BFT Catch Limit.

Alternative	Ecological Impacts	Social/Economic Impacts
Angling Category – Maximum BFT Catch Limit	If the results in curtailing fishing when the catch limit is reached, discarding would be reduced, with a potential secondary impact of reducing fishing mortality.	The impact would be neutral, or negative, depending upon the values of the recreational fisher and fishing behavior.

4.2.2 Modification of Tolerance Rules for Purse Seine Vessels

Description of Measure

The annual tolerance of large medium bluefin (no more than 15% of the total amount of giant bluefin (81 inches or greater) per year, by weight for the Purse Seine category) or the Purse Seine tolerance for targeting mixed tuna schools (bluefin smaller than 73 inches may not constitute more than 1% per trip of the skipjack and yellowfin tuna, by weight) could be modified. The amount of large medium bluefin that the Purse Seine category is allowed to harvest could be increased in order to reduce dead discards and/or the tolerance for possession of small bluefin could be increased to allow the fishery to pursue schools of mixed tuna species.

Objective and Justification

The objective of this measure would be to reduce bluefin dead discards. Modification of the purse seine tolerances could reduce discards and provide more flexibility in optimizing fishing opportunities the fishery.

Discussion

If this measure does not modify fishing behavior, then it may reduce discards. If, under this measure, a purse seine vessel is no more likely to set on a school of mixed sized (large medium and giant) bluefin than before, discards may be converted into landings. However, if increasing the tolerance has the effect of modifying fishing behavior such that a vessel is more likely to set on school of mixed size fish, the measure may have the effect of increasing the amount of large medium bluefin harvested. Increasing the amount of large medium bluefin harvested would increase the amount of ‘overlap’ between the purse seine fishery and the other commercial categories because the other commercial categories fish exclusively on large medium bluefin. An owner of a purse seine vessel commented in support of this measure and suggested that the tolerance percentage should be increased to 30%. They stated that if during recent years the tolerance level were increased, the Purse Seine fishery would have caught more of their quota. NMFS considers this measure a second tier measure at this time because the amount of overlap between the commercial handgear fisheries and the Purse Seine fishery may increase, and there may be negative ecological impacts.

Table 66. Impacts – Modification of Tolerance Rules for Purse Seine Vessels.

Alternative	Ecological Impacts	Social/Economic Impacts
Modification of Tolerance Rules for Purse Seine vessels.	May reduce discards of large medium BFT, or increase catch of large medium BFT, therefore, either neutral, or slightly negative ecological impacts.	May decrease discards and increase revenue slightly. May provide additional incentive to set on schools of mixed sized BFT (large medium and giants), or cause conflict between different segments of the fishery due to increased overlap.

4.2.3 Allow Storage of Unauthorized Gear When Fishing for Bluefin

Description of Measure

A vessel with a General category permit would be allowed to have both HMS species and gear that is not authorized to capture HMS on board the vessel at the same time. For example, a vessel could fish for groundfish (Northeast Multispecies) using a trawl or gillnet, but also fish for bluefin using a rod and reel on the same trip, provided unauthorized gear was stowed, in accordance with the governing regulations for that gear type/fishery.

Objective and Justification

The objective of this measure would be to provide additional flexibility for vessels in order to fish more efficiently. Under current regulations, a General category vessel may not possess HMS and any gear that is not authorized under the 2006 Consolidated HMS FMP. This measure could eliminate that restriction in order to allow a vessel greater flexibility to fish more efficiently and catch bluefin when they are available.

Discussion

It is possible that vessels may capture bluefin with unauthorized gear such as otter-trawl, bottom-tending gillnet, or mid-water trawl. This measure could reduce the enforceability of the gear restrictions because it may be difficult to determine whether bluefin had been caught using authorized gear or not. If this measure markedly facilitates fishing for bluefin, an increase in fishing effort on bluefin is possible, and there may be associated concerns such as availability of quota, and fairness. The perception regarding fairness is that vessels with non-HMS permits would be provided flexibility to participate in the bluefin fishery, while vessels with only an HMS permit may perceive a lack of access to non-bluefin fisheries. This measure is considered a second tier measure at this time due to the concerns regarding enforceability as well as the potential for an increase in fishing effort, and concerns regarding fairness.

Table 67. Impacts – Allow Storage of Unauthorized Gear.

Alternative	Ecological Impacts	Social/Economic Impacts
Allow Storage of Unauthorized Gear When Fishing for BFT	Neutral if BFT caught are reported by the dealer and monitored by NMFS.	Would provide additional flexibility for General category vessels that fish in multiple fisheries. Would be difficult to enforce, and complicate the regulations.

4.2.4 Define and Authorize the Use of Bait Nets While Fishing for Bluefin

Description of Measure

A vessel with a General, Angling, or Charter/Headboat category permit could be allowed to have on board and deploy a bait net for the capture of fish intended as bait for bluefin.

Objective and Rationale

Vessels operators may wish to capture baitfish on the same trip on which they intend to fish for bluefin, but current gear restrictions preclude this practice. Under current regulations, a General category vessel may not possess HMS and any gear that is not authorized under the 2006 Consolidated HMS FMP. For example, because gillnets are not authorized for bluefin, they cannot be onboard. Therefore, fishermen must either fish for bait using a gillnet on a separate trip, catch it in another manner, or purchase bait. The use of a small bait net is not likely to have any impact on bluefin.

Discussion

A large net or net that is not tended could potentially impact bluefin, and therefore if the use of a bait net is allowed, the allowable range of bait net specifications should be defined, and the net should be tended. It may be difficult to develop a useful specification that is consistent with fishing practices, as there are many interpretations as to what constitutes a “bait net” (e.g., gillnet, cast net, mid-water trawl, bottom trawl, herring seine, etc.). Enforcement of a bait net regulations may be difficult.

Table 68. Impacts – Authorize the Use of Bait Nets.

Alternative	Ecological Impacts	Social/Economic Impacts
Define and Authorize the Use of Bait Nets While Fishing for BFT	The ecological impacts would depend upon the size and configuration of the net, and the method of deployment.	Vessel operators would be allowed to capture bait fish on a target BFT trip, and therefore fish more efficiently or eliminate the need to purchase bait fish. Sellers of bait fish may be negatively impacted.

NMFS considers this measure as a second tier measure at this time due the likely difficulty in developing useful specifications as well as enforcement concerns, although it invites additional public comment.

4.2.5 Real-time Monitoring and Closure of Hot-Spots

Description of Measure

NMFS would implement a real-time bluefin monitoring system and utilize the information to take inseason actions to close geographic areas with high rates of bluefin interaction with PLL gear.

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Objective and Rationale

The objective of this measure is to reduce interactions and discarding of bluefin by the PLL fleet. Real-time monitoring by NMFS to detect the occurrence of high numbers of interactions, and inseason closure of such areas to the use of PLL gear could prevent the continuation of those interactions.

Discussion

A reporting and monitoring system to support this measure does not currently exist, and NMFS' experiences with in-season dynamic closure systems have had mixed results. In addition to real-time information on bluefin landings and discards, such a system would require detailed information on the location of the bluefin catch. The development and administration of such a system would be complex and require substantial resources. Given the other reporting and monitoring needs in the bluefin fishery, such a system may not be feasible at this time. If the reporting and monitoring of the pelagic longline fishery are enhanced through Amendment 7, it may facilitate the consideration of such a system in the future. NMFS is considering this measure as a second tier measure at this time due to these information, infrastructure, and resource concerns, although it invites additional public comment.

Table 69. Impacts – Real-Time Monitoring and Closure of Hotspots.

Alternative	Ecological Impacts	Social/Economic Impacts
Real-time monitoring and closure of hot-spots.	Neutral or positive. Interactions with BFT may be reduced.	Vessels would be subject to additional reporting requirements and inseason closures, and therefore be subject to additional costs and potential revenue loss. The potential for such closures would represent an additional source of uncertainty, and make annual planning difficult.

4.2.6 Facilitation of an Industry-Based Bluefin Avoidance System

Description of Measure

In conjunction with a catch cap, NMFS could work with the PLL fishery to facilitate the communication of “hot-spots” by developing of a fishery-based “bluefin avoidance system” where PLL vessels voluntarily provide real-time information regarding the location of bluefin. A fishing industry organization or a third party such as an academic or research organization could compile the fleet information and email the locations of hot-spots back to the fleet. Based on this information, Longline category vessels could avoid fishing in locations with relatively higher availability of bluefin.

Objective and Rationale

The objective of this measure would be to reduce bluefin discarding. Enhanced knowledge of the location of bluefin may enable vessels to avoid interactions with bluefin. An analogous

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system has been useful in other fisheries, and the use of a third party could address sensitivities in sharing this information or may preserve the integrity of the information shared by the fleet.

Discussion

Amendment 7 is intended to develop regulatory changes that will enhance the management of the bluefin fishery. Although NMFS fully supports the concept of fishing industry members collaborating and communicating in an effort to avoid and reduce interactions with bluefin, NMFS believes such a system would work best if it were voluntary, and had the full support of those involved. Attempts to regulate such a system may not be effective or represent the best use of limited Federal resources. If a catch cap is in place, the incentive for individuals to cooperate may be greater under a system with regional catch caps than under individual catch caps. Therefore NMFS is considering this measure as a second tier measure. NMFS invites additional comments on this measure.

Table 70. Impacts –Facilitation of an Industry-Based Bluefin Avoidance System.

Alternative	Ecological Impacts	Social/Economic Impacts
Facilitation of an Industry-Based BFT Avoidance System	Would reduce discards, and augment rebuilding.	Would enhance cooperation, reduce interactions with BFT, and reduce the likelihood that catch caps (if implemented) would result in regional closures.

4.2.7 Decrease Minimum Size for Purse Seine Category

Description of Measure

The minimum size bluefin that vessels with a Purse Seine permit are allowed to retain would be reduced to be consistent with the other commercial permit categories. For example, the Purse Seine category would be able to retain bluefin greater than 73 inches. In association with this change, a modification to the tolerance rules may be appropriate. The tolerance of large medium bluefin is no more than 15% of the total amount of giant bluefin (81 inches or greater) per year, by weight for the Purse Seine category. Secondly, the Purse Seine tolerance for targeting mixed tuna schools (bluefin smaller than 73 inches) is that they may not constitute more than 1% per trip of the skipjack and yellowfin tuna, by weight.

Objective and Rationale

The objective of this measure would be to reduce bluefin discards and optimize fishing opportunity. Currently, purse seine vessels may retain an unlimited number of giant bluefin (81 inches), and are limited to specific tolerance amounts of bluefin tuna less than 81 inches.

Discussion

This measure would increase the size range of bluefin that the purse seine vessels are able to target and represent additional fishing effort on bluefin in the large medium size range.

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Table 71. Impacts – Decrease Minimum Size for Purse Seine Category.

Alternative	Ecological Impacts	Social/Economic Impacts
Decrease minimum BFT size for purse seine category	Neutral, or negative if the additional fishing effort on the small size class of BFT has a negative impact on the size structure of the population	Would provide additional fishing opportunity and revenue for the Purse Seine category. Would represent new competition with the other commercial categories for same size class of fish, and may increase the potential for conflicts over fishing grounds. May impact the availability of large medium BFT for other commercial categories.

NMFS considers this measure as a second tier measure at this time because the amount of overlap between the commercial handgear fisheries and the Purse Seine fishery may increase, and there may be negative ecological impacts. NMFS invites additional public comment on this measure.

5.0 REFERENCES

- Arocha, F. 1996. Taken from Hoey and Moore's Captains Report: Multi-species catch characteristics for the U.S. Atlantic pelagic longline fishery. August 1999.
- Ditton, R. B., B.L. Bohnsack, and J.R. Stoll. 1998. A Social and Economic Study of the Winter Recreational Atlantic Bluefin Tuna Fishery in Hatteras, North Carolina. 82 pp.
- Garrison, L.P. and P.M. Richards. 2004. Estimated bycatch of marine mammals and turtles in the U.S. Atlantic pelagic longline fleet during 2003. National Oceanic and Atmospheric Administration Technical Memorandum. NMFS-SEFSC-527. 57 pp.
- Garrison, L.P. 2005. Estimated bycatch of marine mammals and turtles in the U.S. Atlantic pelagic longline fleet during 2004. National Oceanic and Atmospheric Administration Technical Memorandum. NMFS-SEFSC-531. 52 pp.
- Muhling, B.A., et al. Overlap between Atlantic Bluefin tuna spawning grounds and observed Deepwater Horizon surface oil in the northern Gulf of Mexico. *Mar, Polut, Bull.* (2012), doi 10.1016.j.marpolbul2012.01.034.
- NMFS, 1999. Final Fishery Management Plan for Atlantic Tunas, Swordfish and Sharks. Silver Spring, MD: U.S. Department of Commerce, National Marine Fisheries Service, Highly Migratory Species Management Division.
- NMFS, 2006. Consolidated Atlantic Highly Migratory Species Fishery Management Plan. Silver Spring, MD: U.S. Department of Commerce, National Marine Fisheries Service, Highly Migratory Species Management Division.
- NMFS, 2011. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species. Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD 20910. 294 pp.
- NMFS, December 2011. Environmental Assessment for a Rule to Adjust the Atlantic Bluefin Tuna General and Harpoon Category Regulations. U.S. Department of Commerce, National Marine Fisheries Service, Highly Migratory Species Management Division.
- NMFS, 2012. Annual Report of the United States to ICCAT, 2012. U.S. Department of Commerce, National Marine Fisheries Service, Highly Migratory Species Management Division.
- NMFS, March 2012. A Preliminary White Paper. Issues and Possible Alternatives for the Future Management of Atlantic Bluefin Tuna. Silver Spring, MD: U.S. Department of Commerce, National Marine Fisheries Service, Highly Migratory Species Management Division.
- NMFS, April 2012. Scoping Document: Issues and Possible Alternatives for the Future Management of Atlantic Bluefin Tuna. Silver Spring, MD: U.S. Department of Commerce, National Marine Fisheries Service, Highly Migratory Species Management Division.

NMFS, September 2012. Draft Amendment 5 to the Consolidated Highly Migratory Species Fishery Management Plan. Silver Spring, MD: U.S. Department of Commerce, National Marine Fisheries Service.

SCRS. 2010. Report on the Standing Committee on Research and Statistics, ICCAT Standing Committee on Research and Statistics, October 4-October 8, 2010.

SCRS. 2011. Report of the Standing Committee on Research and Statistics. ICCAT SCRS. Madrid, Spain, October 3-7, 2011

State of Hawaii. 2006. Commercial Marine Landings, Division of Aquatic Resources, Department of Land and Natural Resources

U.S. Dept. of Commerce, Office of Inspector General. March 2004. NMFS Observer Programs Should Improve Data Quality, Performance Monitoring, And Outreach Efforts. Final Audit Report No. IPE-15721

Walli A, Teo SLH, Boustany A, Farwell CJ, Williams T, et al. (2009). Seasonal Movements, Aggregations and Diving Behavior of Atlantic Bluefin Tuna (*Thunnus thynnus*) Revealed with Archival Tags. PLoS ONE 4(7): e6151. doi:10.1371/journal.pone.0006151

Yeung, C. 2001. Estimates of marine mammal and marine turtle bycatch by the U.S. Atlantic pelagic longline fleet in 1999 - 2000. NOAA Technical Memorandum NMFS-SEFSC-467. 43 pp.

6.0 SUMMARY OF COMMENTS RECEIVED DURING SCOPING

6.1 Comments from Scoping Meetings

As shown in Table 72, NMFS conducted 5 public scoping meetings and presented a condensed version of the scoping document (NMFS, April 2012). The public was notified through publication in the Federal Register (77 FR, 24161; April 23, 2012 and 77 FR 34025; June 8, 2012), emails, and the HMS website. Meeting attendees were encouraged to record their name and affiliation on a sign-in sheet. More persons attended the meetings than chose to put their names on the sign-in sheet. Meetings were digitally recorded. Paper copies of the scoping document and the PowerPoint presentation were available for the public at each meeting.

Table 72. Public Scoping Meeting Information.

Date, Location, and Time (PM)	Number of individuals on the sign-in sheet
May 8, 2012; Toms River New Jersey Toms River Library (Mancini Hall); 6:15 to 8:45	8
May 16, 2012; Gloucester Massachusetts National Marine Fisheries Service; 6:00 to 9:00	22
May 21, 2012; Belle Chasse, Louisiana Plaquemines Parish Government Community Center; 6:00 to 9:00	38
May 23, 2012; Manteo, North Carolina Dare County Administration Building; 6:00 to 9:00	86
June 18, 2012; Portland, Maine Holiday Inn by the Bay; 6:30 to 9:00	20

As shown in Table 73, NMFS gave summary presentations of the scoping document to three Regional Fishery Management Councils. The scoping presentation was a scheduled agenda item. NMFS requested, but did not receive inclusion on the June meeting agenda of the Gulf of Mexico Fishery Management Council. However, the scoping document was shared with the Gulf and Caribbean Councils.

Table 73. Dates and Locations of Regional Fishery Management Council Consultations.

Location and Date
*June 13, 2012; Mid-Atlantic Fishery Management Council New York, New York Hilton Hotel (*due to a fire and hotel evaluation, this presentation occurred June 14 instead of on June 13 as scheduled)
June 15, 2012; South Atlantic Fishery Management Council Orlando, Florida Renaissance Orlando Airport Hotel
June 19, 2012; New England Fishery Management Council Portland, Maine Holiday Inn by the Bay

There were a wide variety of oral public comments at the scoping meetings that addressed many topics. Some generalizations from those meetings include the following points of view: Little support for size reduction (commercial or recreational); Broad support for reducing discards; Support for industry communication of hot spots; Some support for revised allocations; Support for PLL catch caps, but advise to be careful of impacts (e.g., Don't stop the PLL fishery; need year round fishery; when closed due to catch cap, allow to fish as General category); Support of new closure; Trim current closures where possible; Hold PLL fishery accountable; Implement comparable reporting among categories; Support gear transition in Gulf of Mexico – British Petroleum should pay for the transition; Don't extend weak hook requirement to Atlantic; General category – divide quota into 12 equal months – use data to monitor bluefin presence/absence for PLL effort; Consider economics; and Protect the Gulf of Mexico ecosystem.

6.2 Written Public Comments During Scoping

There were two types of written public comments that were received during the comment period on the scoping document (April 23, 2012 through July 15, 2012)-single letters from individuals and organizations, and mass mailings (letter campaigns) where there were many (usually in the thousands) copies of identical or similar letters. The focus of the letter campaigns were comments to: Prohibit use of PLL in Gulf of Mexico year-round; encourage more selective gear; and establish a bycatch cap in the Atlantic (at the level of the current quota allocation of 8.1%). Eight different organizations submitted bulk comments through letters, cards, and a petition, as listed in Table 74.

Table 74. Scoping Comments Submitted via Mass Submission

Organization	Method	Number
Center for Biological Diversity	Letters (Regulations.gov)	32,262
Center for Biological Diversity	Petition (Regulations.gov)	58,460 (signatures)
EarthJustice	Letters (Regulations.gov)	22,117
Gulf Restoration Network	Letters (Regulations.gov)	4,328
National Resources Defense Council	Letters via FAX	~5,900
Oceana	Letters (Regulations.gov)	29,338
PEW	Letters (Regulations.gov)	16,502
PEW	Cards- hand delivered	3,752
Save Our Environment (in coordination with PEW)	Letters (Regulations.gov)	16,227
Shark Stewards/Turtle Island Network	Letters (Regulations.gov)	2,177
Total		~ 191,000

251 comment letters were received from 182 individuals and businesses, and from 69 organizations including environmental organizations, fishing industry associations, and municipalities. The following opinions were expressed in the majority of the letters; (*or was the opinion of the few letters that addressed the particular issue):

- Promote transition from pelagic longline gear to more selective gear; use oil spill funds
- Close the Gulf of Mexico to the use of pelagic longline gear year-round
- Support catch cap for the Atlantic, with landings and discards limited to 8.1%
- Increased level of observer coverage (industry-funded)
- Improve reporting: VMS transmission of information to achieve real-time reporting
- Mandatory retention of legal-sized fish
- Eliminate pelagic longline target catch requirements
- Support Atlantic closures for pelagic longline gear

- *Maintain a year-round pelagic longline fishery
- *Don't reduce minimum sizes
- *Don't support reallocation
- *Don't support limiting catch of angling category
- *Don't support use of weak hooks in the Atlantic

Other comments were wide-ranging, and included the following suggestions: Protect the 2003 year class; allow PLL category to hold General category permits; closed areas are the only effective means to reduce bluefin discards; prohibit use of PLL in Gulf of Mexico from December to June, or during peak catch per unit effort periods (March to May or June); avoid quota redistribution from fisheries that target mixed bluefin stocks (Eastern and Western Atlantic) to fisheries that target primarily western fish (due to poorer status of western stock); allocate to the PLL category 28.12%, but not less than 291 mt; divide the PLL quota into 2 semi-annual quotas; open parts of existing closed areas – offshore edges of Charleston Bump and Florida East Coast; enhance reporting of discards; focus on top 1 to 3 % (“top producers”) of commercial permit holders; e.g., logbook, observers, vessel monitoring system; create a separate Gulf of Mexico angling category allocation (in addition to north and south); support a landings allocation for each category to account for dead discards; catch cap is best way to reduce PLL discards; if individual catch caps, suggests control date of 2003; PLL closure in Gulf of Mexico in the Habitat Area of Particular Concern from April to June (or Gulf of Mexico closure year-round); Gulf of Mexico catch cap; and set closure trigger at 75% of recent 5 year average to provide incentives.

APPENDIX

Table 75. Percentage of Annual Hooks Set by Month in the MAB.

Month	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Avg
Jan	5	3	2	4	4	4	2	3	3	3	3
Feb	3	2	2	2	2	2	4	2	2	1	2
Mar	3	4	3	3	3	3	1	1	0	0	2
Apr	5	3	3	2	3	3	2	2	2	1	3
May	7	6	3	4	5	3	4	5	3	4	4
Jun	9	6	8	7	7	7	7	7	4	9	7
Jul	13	9	7	7	9	11	17	13	17	14	12
Aug	9	12	6	17	9	11	17	16	17	12	12
Sep	15	1	12	19	20	17	10	16	12	17	15
Oct	14	15	25	14	17	25	17	18	24	19	19
Nov	11	22	21	14	14	10	11	12	13	13	14
Dec	5	7	8	8	7	5	9	4	3	9	6

Table 76. Percentage of Annual Hooks Set by Month in the NEC.

Month	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Avg
Jan	2	0	0	0	0	0	0	0	0	0	0
Feb	2	0	0	0	0	0	0	0	0	0	0
Mar	1	0	0	0	0	0	0	0	0	0	0
Apr	2	0	0	1	0	0	0	0	0	0	0
May	4	2	1	2	3	2	1	2	0	2	2
Jun	15	14	20	9	16	9	4	17	18	24	15
Jul	25	20	18	37	32	28	23	29	30	26	27
Aug	24	21	27	22	31	34	30	16	25	20	25
Sep	16	19	18	12	5	18	20	19	20	16	16
Oct	6	19	8	11	7	8	19	9	5	4	10
Nov	2	5	8	6	5	1	2	9	1	5	4
Dec	1	0	0	0	0	0	0	0	0	2	0

Table 77. Percentage of Annual Hooks Set by Month in the GOM.

Month	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Avg
Jan	8	7	8	12	7	9	8	7	23	3	9
Feb	4	6	6	10	5	8	8	5	16	4	7
Mar	4	8	8	10	6	9	5	7	27	3	9
Apr	8	8	10	11	7	6	6	6	17	4	8
May	9	11	12	14	9	7	11	11	6	4	9
Jun	10	10	10	11	11	6	13	10	3	6	9
Jul	11	10	12	5	9	11	14	10	1	10	9
Aug	12	11	9	10	12	9	9	12	2	12	10
Sep	7	7	4	3	10	9	2	12	1	15	7
Oct	9	8	9	3	7	8	7	7	1	13	7
Nov	8	7	8	6	9	9	9	6	1	13	8
Dec	8	6	4	4	9	9	7	6	1	13	7

Table 78. Proportion of Annual Hooks Set by Month in the SAB.

Month	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Avg
Jan	.07	.07	.08	.08	.11	.10	.09	.05	.08	.07	.08
Feb	.02	.05	.03	.03	.01	.01	.05	.04	.03	.04	.03
Mar	.10	.03	.07	.03	.03	.06	.07	.13	.09	.10	.07
Apr	.13	.03	.05	.05	.08	.09	.10	.12	.12	.16	.09
May	.21	.34	.38	.39	.37	.31	.35	.32	.33	.35	.34
Jun	.20	.23	.18	.20	.23	.15	.15	.13	.14	.10	.17
Jul	.09	.04	.11	.08	.03	.05	.03	.03	.02	.04	.05
Aug	.05	.05	.03	.04	.02	.04	.01	.01	.02	.03	.03
Sep	.02	.04	.00	.02	.01	.01	.02	.02	.01	.03	.02
Oct	.06	.02	.02	.02	.01	.02	.02	.03	.02	.04	.02
Nov	.03	.05	.00	.05	.01	.07	.04	.08	.09	.03	.04
Dec	.04	.06	.04	.02	.08	.10	.08	.04	.05	.01	.05

Table 79. Number of Trips by BFT Retained and by Number of BFT That May be Retained; 2006.

# BFT Allowed	Number of Reported BFT Kept							Total
	0	1	2	3	4	9	18	
0	286	9						295
1	446	64	12	1			1	524
2	384	36	42	2	2	1		467
3	2							2
Total	1118	109	54	3	2	1	1	1288

Table 80. Number of Trips by BFT Retained and by Number of BFT That May be Retained; 2007.

# BFT Allowed	Number of Reported BFT Kept								Total
	0	1	2	3	4	5	6	12	
0	286	13		1					300
1	611	93	17	2			1		724
2	367	57	40	4	1	1	1	1	472
3	4	3		1					8
Total	1268	166	57	8	1	1	2	1	1504

Table 81. Number of Trips by BFT Retained and by Number of BFT That May be Retained; 2008.

# BFT Allowed	Number of Reported BFT Kept							Total
	0	1	2	3	4	15	19	
0	350	11	1					362
1	542	120	20	2	1	1		686
2	257	49	36	1			1	344
3	6		1					7
Total	1155	180	58	3	1	1	1	1399

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Table 82. Number of Trips by BFT Retained and by Number of BFT That May be Retained; 2009.

# BFT Allowed	Number of Reported BFT Kept															Total
	0	1	2	3	4	5	6	7	15	20	22	23	35	44	52	
0	302	6														308
1	496	107	23	1	1			1	1		1					631
2	350	51	61	3		1		1		1		1	2			471
3	6	1			1	1	1							1	1	12
Total	1154	165	84	4	2	2	1	2	1	1	1	1	2	1	1	1422

Table 83. Number of Trips by BFT Retained and by Number of BFT That May be Retained; 2010.

# BFT Allowed	Number of Reported BFT Kept									Total
	0	1	2	3	4	8	11	12	15	
0	331	31		1		1				364
1	465	120	17		1					603
2	211	45	51	1	1			1		310
3	5						1		1	7
Total	1012	196	68	2	2	1	1	1	1	1284

Table 84. Number of Trips by BFT Retained and by Number of BFT That May be Retained; 2011.

# BFT Allowed	Number of Reported BFT Kept						Total
	0	1	2	3	4	10	
0	242	21	1	1			265
1	459	88	10		1	1	559
2	322	54	66	6			448
3	3			1			4
Total	1026	163	77	8	1	1	1276

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Table 85. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch < 2,000 lb. 2006.

# BFT Kept	BFT Discarded								Total
	0	1	2	3	4	5	26	40	
0	275	6	1	2	1	1			286
1	6		1				1	1	9
Total	281	6	2	2	1	1	1	1	295

Table 86. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch < 2,000 lb. 2007.

# BFT Kept	BFT Discarded								Total
	0	1	2	3	4	6	13	32	
0	271	7	3	1	2	1		1	286
1	8	1			1	2	1		13
2									
3	1								1
Total	280	8	3	1	3	3	1	1	300

Table 87. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch < 2,000 lb. 2008.

# BFT Kept	BFT Discarded								Total
	0	1	2	3	6	13	20	113	
0	334	9	2	3	1		1		350
1	7		2		1	1			11
2								1	1
Total	341	9	4	3	2	1	1	1	362

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Table 88. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch < 2,000 lb. 2009.

# BFT Kept	BFT Discarded							
	0	1	2	14	16	22	90	Total
0	296	2	1	1	1		1	302
1	4	1				1		6
Total	300	3	1	1	1	1	1	308

Table 89. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch < 2,000 lb. 2010.

# BFT Kept	BFT Discarded																		226	Total
	0	1	2	3	4	5	6	7	8	9	12	20	30	34	45	46	58			
0	307	7	4	2		1	1	2	1	1	1		1	1		1		1	1	331
1	21	2	2	1		1		1				1			1			1		31
2																				
3	1																			1
8	1																			1
Total	330	9	6	3	0	2	1	3	1	1	1	1	1	1	11	1	1	1	1	364

Table 90. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch < 2,000 lb. 2011.

# BFT Kept	BFT Discarded							Total
	0	1	2	3	4	6	8	
0	237		2	1	1	1		242
1	15	5			1			21
2	1							1
3							1	1
Total	253	5	2	1	2	1	1	265

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Table 91. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 2,000 to 5,999 lb. 2006.

# BFT Kept	BFT Discarded																	Total
	0	1	2	3	4	5	7	8	9	10	11	15	17	22	49	58	67	
0	438	2	2		1	1	1			1								446
1	40	4	4	2	3		1	2		2	1	1	1	1	1	1	1	64
2	5	3	2	1		1												12
3					1													1
8	1																	1
Total	484	9	8	3	5	2	1	1	2	1	2	1	1	1	1	1	1	524

Table 92. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 2,000 to 5,999 lb. 2007.

# BFT Kept	BFT Discarded																	
	0	1	2	3	4	5	6	8	9	10	12	15	16	18	21	26	29	34
0	593	3	4	1	1	1	2			1			1	1		1		
1	59	8	3	4	5			1	2	1	1	1			1		1	1
2	15	1			1													
3	2																	
6	1																	
Total	670	12	7	5	7	1	2	1	2	2	1	1	1	1	1	1	1	1

Table 93. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 2,000 to 5,999 lb. 2007 continued.

# BFT Kept	BFT Discarded						Total
	41	43	46	115	135	210	
0			1	1			611
1	1	1			1	1	93
2							17
3							2
6							1
Total	1	1	1	1	1	1	724

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Table 94. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 2,000 to 5,999 lb. 2008.

# BFT Kept	BFT Discarded																				Total	
	0	1	2	3	4	5	6	7	8	9	10	11	13	14	16	18	37	42	74	135		172
0	528	4	4	1	1	1									1			1			1	542
1	84	9	5	5	2	2	2	1	1	1	1	1	2	1	1	1	1					120
2	12	1	1		1		1		1				1						1	1		20
3	1		1																			2
4	1																					1
15														1								1
Total	626	14	11	6	4	3	3	1	2	1	1	1	3	2	2	1	1	1	1	1	1	686

Table 95. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 2,000 to 5,999 lb. 2009.

# BFT Kept	BFT Discarded																			
	0	1	2	3	4	5	6	7	8	9	10	11	12	15	16	19	21	25		
0	483	1	2	1	2	1	1					1				1		1		
1	72	12	5	4		2	1	1	1		1	1	2	1	1					
2	12	3	1	1	1		1	1		1	1									
3	1																			
4		1																		
7	1																			
15									1											
22																				
Total	569	17	8	6	3	3	3	3	1	1	2	2								

Table 96. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 2,000 to 5,999 lb. 2009 continued.

# BFT Kept	BFT Discarded						Total
	30	37	41	46	52	163	
0		1		1			10
1	1		1		1		19
2						1	9
3							3
4							4
7							7
15							16
22							23
Total	1	1	1	1	1	1	91

Table 97. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 2,000 to 5,999 lb. 2010.

# BFT Kept	BFT Discarded																Total	
	0	1	2	3	4	5	7	8	10	13	17	23	25	40	41	70		104
0	447	11	1		2	1						1		1		1		465
1	97	7	5	1	1	1	2	1	1	1	1		1		1			120
2	12	1	1	1	1												1	17
4	1																	1
Total	557	19	7	2	4	2	2	1	1	1	1	1	1	1	1	1	1	603

Table 98. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 2,000 to 5,999 lb. 2011.

# BFT Kept	BFT Discarded															Total
	0	1	2	3	4	5	6	8	11	15	23	26	28	32	105	
0	449	5	1			1							1	1	1	459
1	75	3	4		1		1	1	1		1	1				88
2	9							1								10
4										1						1
10	1															1
Total	534	8	5		1	1	1	2	1	1	1	1	1	1	1	559

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Table 99. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 6,000 to 29,999 lb. 2006.

# BFT Kept	BFT Discarded																
	0	1	2	3	4	6	9	12	14	16	17	24	25	37	54	95	Total
0	379	3	1			1											384
1	33		1		1						1						36
2	26		1	1		2	1	2	1	2	1	1	1	1	1	1	42
3	1			1													2
4	2																2
9	1																1
Total	442	3	3	2	1	3	1	2	1	2	2	1	1	1	1	1	467

Table 100. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 6,000 to 29,999 lb. 2007.

# BFT Kept	BFT Discarded																
	0	1	2	3	4	5	6	7	8	9	11	21	24	32	67	77	Total
0	353	5	1	3	1		1	1			1			1			367
1	46	3	2	2	2					1			1				57
2	27	4	2			1			3		1	1				1	40
3	3	1															4
4	1																1
5															1		1
6	1																1
12																	1
Total	431	13	5	5	3	2	1	1	3	1	2	1	1	1	1	1	472

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Table 101. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 6,000 to 29,999 lb. 2008.

# BFT Kept	BFT Discarded												Total
	0	1	2	3	4	6	8	18	32	35	44	266	
0	244	4	4	1	3	1							257
1	38	4	1	4				1				1	49
2	22	1	2	3	1	3	1		1	1	1		36
3			1										1
19							1						1
Total	304	9	8	8	4	4	2	1	1	1	1	1	344

Table 102. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 6,000 to 29,999 lb. 2009.

# BFT Kept	BFT Discarded																				Total		
	0	1	2	3	4	5	6	9	10	11	12	14	15	18	22	25	30	32	35	40		43	
0	329	8	1	2	3	1	2			1	1		1			1							350
1	41	6	1	1											1			1					51
2	34	6	2	4	2		3	1	1		1	1		1		1	1		1	1	1		61
3	2	1																					3
5	1																						1
7					1																		1
20	1																						1
23									1														1
35			1	1																			2
Total	408	22	5	7	6	1	5	1	2	1	2	1	1	1	1	2	1	1	1	1	1	1	471

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Table 103. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 6,000 to 29,999 lb. 2010.

# BFT Kept	BFT Discarded																				Total	
	0	1	2	3	4	5	6	7	8	9	13	15	18	23	27	36	42	44	45	48		78
0	196	9	2		1	1			1				1									211
1	36	2	1	1		2				1								1		1		45
2	29	7	2			1	1	2	1	1		1		1	1	1	1		1		1	51
3	1																					1
4	1																					1
12																						1
Total	263	18	5	1	1	4	1	2	2	2	1	1	1	1	1	1	1	1	1	1	1	310

Table 104. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch 6,000 to 29,999 lb. 2011.

# BFT Kept	BFT Discarded																Total
	0	1	2	3	4	5	6	9	11	13	15	21	24	36	71	108	
0	312	5	2	2						1							322
1	46	3	2	1			1	1									54
2	46	5	4	3	1	1		1	1		1		1	1	1		66
3	1	1			1	1						1				1	6
Total	405	14	8	6	2	2	1	2	1	1	1	1	1	1	1	1	448

Table 105. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch \geq 30,000 lb. 2006.

BFT Kept	BFT Discarded	
	0	Total
0	2	2
1		
2		
3		0
Total	2	2

~ Appendix ~

Table 106. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch \geq 30,000 lb. 2007.

	BFT Discarded	
BFT Kept	0	Total
0	4	4
1	3	
2		
3	1	1
Total	8	8

Table 107. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch \geq 30,000 lb. 2008.

	BFT Discarded	
BFT Kept	0	Total
0	6	6
1		
2	1	1
Total	7	7

Table 108. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch \geq 30,000 lb. 2009.

	BFT Discarded			
BFT Kept	0	1	2	Total
0	5		1	6
1	1			1
4	1			1
5	1			1
6		1		
44	1			1
52	1			1
Total	10	1	1	12

~ Appendix ~

Table 109. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch \geq 30,000 lb. 2010.

	BFT Discarded		
BFT Kept	0	1	Total
0	5		5
11	1		1
15		1	1
Total	6	1	7

Table 110. Number of Trips by BFT Discarded and by Number of BFT Retained on Trips with Target Catch \geq 30,000 lb. 2011.

	BFT Discarded		
BFT Kept	0	52	Total
0	3		3
3		1	1
Total	3	1	4

~ END ~