

North Atlantic Shortfin Mako Shark Emergency Interim Final Rule

Environmental Assessment



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

Proposed Action:	Emergency Interim Final Rule to Address Overfishing of North Atlantic Shortfin Mako Shark
Type of statement:	Environmental Assessment (EA)
Lead Agency:	National Marine Fisheries Service, Office of Sustainable Fisheries
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Abstract:	<p>The National Marine Fisheries Service (NMFS) is taking emergency action in response to a new stock assessment for shortfin mako sharks (<i>Isurus oxyrinchus</i>) and measures required by the International Commission for the Conservation of Atlantic Tunas (ICCAT). The stock assessment indicated that the North Atlantic population of shortfin mako sharks is overfished and experiencing overfishing. In November 2017, ICCAT adopted management measures (Recommendation 17-08) to address this overfishing determination. The emergency measures in this action are in response to this Recommendation and to meet U.S. obligations under ICCAT, the Atlantic Tunas Convention Act, and the Magnuson-Stevens Fishery Conservation and Management Act. The measures are intended to reduce fishing mortality on North Atlantic shortfin mako sharks to address the U.S. contribution to overfishing. The cumulative ecological impacts of the preferred alternatives are expected to be minor and beneficial, while the socioeconomic impacts are expected to be minor and adverse.</p>

LIST OF COMMONLY USED ACRONYMS

AA	Assistant Administrator for Fisheries	dw	Dressed weight
ABC	Acceptable biological catch	EA	Environmental assessment
ACCSP	Atlantic Coastal Cooperative Statistics Program	EEZ	Exclusive economic zone
ACL	Annual catch limit	EFH	Essential fish habitat
ACS	Angler consumer surplus	EFP	Exempted fishing permit
ACT	Annual catch target	EIS	Environmental impact statement
ALWTRT/P	Atlantic Large Whale Take Reduction Team/Plan	EO	Executive order
AM	Accountability measure	ESA	Endangered Species Act
ANPR	Advanced notice of proposed rulemaking	F	Instantaneous fishing mortality
AOCTRP	Atlantic Offshore Cetacean Take Reduction Plan	FAD	Fish aggregating device
AP	Advisory panel	FAO	Food and Agriculture Organization
APA	Administrative Procedure Act	FEC	Florida East coast
ASMFC	Atlantic States Marine Fisheries Commission	FEIS	Final environmental impact statement
ATCA	Atlantic Tunas Convention Act	FL	Fork length
B	Biomass	FMP	Fishery management plan
BAYS	Bigeye, albacore, yellowfin, skipjack tunas	F _{MSY}	Instantaneous fishing mortality rate expected to yield maximum sustainable yield
BFT	Bluefin tuna	FMU	Fishery management unit
BiOp	Biological opinion	F _{OY}	Fishing mortality rate expected to yield optimum yield
BLL	Bottom longline	FR	Federal Register
B _{MSY}	Biomass expected to yield maximum sustainable yield	FRFA	Final regulatory flexibility analysis
B _{OY}	Biomass expected to yield optimum yield	GOM	Gulf of Mexico
CAR	Caribbean	GSAFF	Gulf and South Atlantic Fishery Foundation
CFMC	Caribbean Fishery Management Council	GMFMC	Gulf of Mexico Fishery Management Council
CFL	Curved fork length	GULFSPAN	Gulf of Mexico Shark Pupping and Nursery survey
CFR	Code of Federal Regulations	GSMFC	Gulf States Marine Fisheries Commission
CHB	Charter/headboat	GRA	Gear Restricted Area
CIE	Center for Independent Experts	HAPC	Habitat area of particular concern
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora	HMS	Highly migratory species: Atlantic sharks, tunas, swordfish, and billfish
COASTSPAN	Cooperative Atlantic States Shark Pupping and Nursery survey	HMS FMP	Consolidated Highly Migratory Species Fishery Management Plan
CPC	Contracting parties, non-contracting parties, entities, or fishing entities	IBQ	Individual bluefin [tuna] quota
CPUE	Catch per unit effort	ICCAT	International Commission for the Conservation of Atlantic Tunas
CSFOP	Commercial shark fishery observer program	IMO	International Maritime Organization
CZMA	Coastal Zone Management Act	IPOA	International plan of action
DEIS	Draft environmental impact statement	IRFA	Initial regulatory flexibility analysis
DPS	Distinct population segment	ITP	International trade permit
		ITQ	Individual transferable quota

ITS	Incidental take statement	PRA	Paperwork Reduction Act
IUU	Illegal, unreported, unregulated	Reg Flex Act	Regulatory Flexibility Act
LAP	Limited access permit	RFMO	Regional Fishery Management Organization
LCS	Large coastal sharks	RIR	Regulatory Impact Review
LOA	Letter of acknowledgment	RPA	Reasonable and Prudent Alternatives
LPS	Large Pelagics Survey	RPMs	Reasonable and Prudent Measures
LWTRT/P	Large Whale Take Reduction Team/Plan	SAB	South Atlantic Bight
MAB	Mid Atlantic Bight	SAFE	Stock Assessment and Fishery Evaluation
MAFMC	Mid-Atlantic Fishery Management Council	SAFMC	South Atlantic Fishery Management Council
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act	SAR	Sargasso
MFMT	Maximum fishing mortality threshold	SBRM	Standardized bycatch reporting methodology
MMPA	Marine Mammal Protection Act	SCRS	Standing Committee for Research and Statistics
MPA	Marine protected area	SCS	Small coastal sharks
MRFSS	Marine Recreational Fishing Statistics Survey	SDC	Status determination criteria
MRIP	Marine Recreational Information Program	SEFSC	Southeast Fisheries Science Center
MSST	Minimum stock size threshold	SEIS	Supplemental environmental impact statement
MSY	Maximum sustainable yield	SERO	Southeast Regional Office
mt	Metric tons	SEW	Stock evaluation workshop
NCA	North Central Atlantic	SFA	Sustainable Fisheries Act
NEC	Northeast Coastal	SFL	Straight fork length
NED	Northeast Distant Waters	SRP	Scientific research permit
NEFMC	New England Fishery Management Council	SSB	Spawning stock biomass
NEFSC	Northeast Fisheries Science Center	SWO	Swordfish
NEPA	National Environmental Policy Act	TAC	Total allowable catch
GARFO	Greater Atlantic Regional Fisheries Office	TAL	Total allowable landings
NGO	Non-governmental organization	TCs	Terms and Conditions
nmi	Nautical mile	TL	Total length
NOA	Notice of Availability	TUN	Tuna North
NMFS	National Marine Fisheries Service	TUS	Tuna South
NOAA	National Oceanographic and Atmospheric Administration	USCG	United States Coast Guard
NOI	Notice of Intent	USFWS	United States Fish and Wildlife Service
NPOA	National Plan of Action	UVI	Unique Vessel Identifier
NS	National Standards	VMS	Vessel monitoring system
NWGB	National Working Group on Bycatch	VTR	Vessel trip report
OSF	Office of Sustainable Fisheries	WTP	Willingness to pay
OY	Optimum yield	ww	Whole weight
PLTRT/P	Pelagic Longline Take Reduction Team/Plan	YOY	Young of the year
PLL	Pelagic longline		
POP	Pelagic observer program		
OPR	Office of Protected Resources		

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ENVIRONMENTAL ASSESSMENT

1.0 INTRODUCTION AND BACKGROUND

Atlantic highly migratory species¹ (HMS) are managed under the dual authority of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act (ATCA). Under the Magnuson-Stevens Act, the National Marine Fisheries Service (NMFS) must, consistent with ten National Standards, manage fisheries to maintain optimum yield on a continuing basis while preventing overfishing. Under ATCA, the Secretary of Commerce shall promulgate such regulations as may be necessary and appropriate to carry out International Commission for the Conservation of Atlantic Tunas (ICCAT) recommendations. The emergency management measures in this environmental assessment and associated rulemaking, which address overfishing of shortfin mako sharks, are taken under the authority of the Magnuson-Stevens Act and ATCA. Management measures must also be consistent with other applicable laws including, but not limited to, the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the Coastal Zone Management Act (CZMA). This document is prepared, in part, to comply with our responsibilities under NEPA, as implemented by the regulations published by the Council on Environmental Quality, 50 C.F.R. Parts 1501-1508, and NMFS Administrative Order 216-6A.

Under the Magnuson-Stevens Act, NMFS is responsible for managing Atlantic HMS and must comply with all applicable provisions of the Act when it prepares and amends fishery management plans (FMPs) or amendments and implementing regulations (16 U.S.C. § 1852(a)(3)). NMFS must prevent overfishing while achieving, on a continuing basis, the optimum yield for each fishery (16 U.S.C. § 1851(a)(1)). Where a fishery is determined to be in or approaching an overfished condition, NMFS must include in its FMP conservation and management measures to prevent or end overfishing and rebuild the fishery, stock, or species (16 U.S.C. §§ 1853(a)(10); 1854(e)). In preparing and amending an FMP, NMFS must, among other things, comply with the Magnuson-Stevens Act's ten National Standards, including a requirement to use the best scientific information available as well as to consider potential impacts on residents of different States, efficiency, costs, fishing communities, bycatch, and safety at sea (16 U.S.C. § 1851 (a)(1-10)). The Magnuson-Stevens Act also has a specific section that addresses preparing and implementing FMPs for Atlantic HMS (16 U.S.C. § 1854 (g)(1)(A-G)), including diligently pursuing comparable international fishery management measures with respect to HMS and ensuring conservation and management measures take into consideration traditional fishing patterns of U.S. fishing vessels.

The North Atlantic shortfin mako shark (*Isurus oxyrinchus*) is a highly migratory species that ranges across the entire North Atlantic Ocean and is caught by numerous countries. These sharks are a small but valued component of U.S. recreational and commercial shark fisheries, and the U.S. fisheries are managed under the 2006 Consolidated Atlantic HMS Fishery Management Plan and its amendments. In recent years, U.S. catch represents only

¹The Magnuson-Stevens Act, at 16 U.S.C. 1802(14), defines the term “highly migratory species” as tuna species, marlin (*Tetrapturus* spp. and *Makaira* spp.), oceanic sharks, sailfishes (*Istiophorus* spp.), and swordfish (*Xiphias gladius*).“

approximately 11 percent of the species' total catch in the North Atlantic by all reporting countries. International measures are, therefore, critical to the species' effective conservation and management.

In August 2017, ICCAT's Standing Committee on Research and Statistics (SCRS) conducted a new benchmark stock assessment on the North Atlantic shortfin mako stock. At its November 2017 annual meeting, ICCAT accepted this stock assessment and determined the stock to be overfished, with overfishing occurring. On December 13, 2017, based on this assessment, NMFS issued a status determination finding the stock to be overfished and experiencing overfishing using domestic criteria. The assessment specifically indicated that biomass (B_{2015}) is substantially less than the biomass at maximum sustainable yield (B_{MSY}) for eight of the nine models used for the assessment ($B_{2015}/B_{MSY} = 0.57\text{-}0.85$). In the ninth model, spawning stock fecundity (SSF) was less than SSF_{MSY} ($SSF_{2015}/SSF_{MSY} = 0.95$). Additionally, the assessment indicated that fishing mortality (F_{2015}) was greater than F_{MSY} (1.93-4.38), with a combined 90-percent probability from all models that the population is overfished, with overfishing occurring.

The 2017 assessment estimated that total North Atlantic shortfin mako catches across all ICCAT parties are currently between 3,600 and 4,750 mt per year, and that total catches would have to be at 1,000 mt or below (72-79 percent reductions) to prevent further population declines and that catches of 500 t or less currently are expected to stop overfishing and begin to rebuild the stock. The projections indicate that a total allowable catch of 0 mt would produce a greater than 50 percent probability of rebuilding the stock by the year 2040, which is approximately equal to one mean generation time. Research indicates that post-release survival rates of Atlantic shortfin mako sharks are high (70 percent); however, the assessment could not determine if requiring live releases alone would reduce landings sufficiently to end overfishing and rebuild the stock.

Based on this information, ICCAT adopted new management measures for Atlantic shortfin mako (Recommendation 17-08), which the United States must implement as necessary and appropriate under the Atlantic Tunas Convention Act. These measures largely focus on maximizing live releases of Atlantic shortfin mako sharks, allowing retention only in certain limited circumstances, increasing minimum size limits, and improving data collection in ICCAT fisheries. In November 2018, ICCAT will review the catches from the first six months of 2018 and decide whether these measures should be modified. In 2019, the SCRS will evaluate the effectiveness of these measures in ending overfishing and beginning to rebuild the stock. SCRS will also provide rebuilding information that reflects rebuilding timeframes of at least two mean generation times. Also in 2019, ICCAT will establish a rebuilding plan that will have a high probability of avoiding overfishing and rebuilding the stock to B_{MSY} within a timeframe that takes into account the biology of the stock.

The new shortfin mako shark stock assessment, recommendations, and other supporting documents that form the basis for this action can be found on the ICCAT website at <https://www.iccat.int/>.

1.1 PURPOSE AND NEED OF THE ACTION

The purpose of this action is to implement emergency measures that would immediately reduce fishing mortality on North Atlantic shortfin mako sharks in U.S. fisheries and address the U.S. component of overfishing consistent with ICCAT Recommendation 17-08. The action is needed to address overfishing of shortfin mako consistent with the stock assessment and U.S. responsibilities under ATCA and the Magnuson-Stevens Act. These emergency management measures need to be implemented immediately to ensure that the first six months of 2018 shortfin mako shark catch data that are reported to ICCAT reflect these changes to U.S. fishing, given the six-month reporting requirement in the Recommendation.

This document, which describes the action and its impacts, was developed in accordance with the Magnuson-Stevens Act and NEPA.

1.2 EMERGENCY ACTION PROCESS

Under the Magnuson-Stevens Act, if the Secretary determines that an emergency exists, NMFS may implement temporary or interim final regulations necessary to address the emergency. The temporary regulations may remain in effect for no more than 180 days, but may be extended for an additional 186 days as described in section 305(c) of the Magnuson-Stevens Act. NMFS policy guidelines for the use of emergency interim final rules (August 21, 1997; 62 FR 44421) specify the following three criteria that define what an emergency situation is, and justification for such rules: (1) The emergency results from recent, unforeseen events or recently discovered circumstances; (2) the emergency presents serious conservation or management problems in the fishery; and (3) if the emergency action is being implemented without prior public comment, the emergency can be addressed through emergency regulations for which the immediate benefits outweigh the value of advance notice, public comment, and deliberative consideration of the impacts on participants to the same extent as would be expected under the normal rulemaking process. NMFS policy guidelines further provide that emergency action is justified for certain situations where emergency action would prevent significant direct economic loss, or to preserve a significant economic opportunity that otherwise might be foregone. Section 6.1.2 of this document describes how this action meets the criteria of the Magnuson-Stevens Act and NMFS policy guidelines for use of interim final rules.

As this interim final rule may only be effective for up to 366 days, NMFS is currently developing a new regulatory amendment to the 2006 Consolidated HMS Fishery Management Plan that will consider and evaluate additional management options to address longer-term the U.S. contribution to overfishing and rebuild the North Atlantic shortfin mako shark stock. This amendment is expected to be implemented prior to the expiration of this emergency interim final rule.

2.0 MANAGEMENT ALTERNATIVES

This chapter includes a range of reasonable alternatives considered by the agency, which were designed to meet the purpose and need for the action described in Chapter 1. To warrant detailed evaluation, an alternative must be reasonable and meet the purpose and need for the action. Screening criteria are used to determine whether an alternative is reasonable (46 FR 18,026, Mar. 23, 1981). The environmental, economic, and social impacts of these alternatives are discussed in later chapters.

The 2017 ICCAT stock assessment for shortfin mako sharks indicated that the North Atlantic stock is overfished and that overfishing is occurring. ICCAT Recommendation 17-08 largely focuses on maximizing live releases of shortfin mako sharks, only allowing retention under limited circumstances, increasing minimum size limits, and improving data collection in ICCAT fisheries. Importantly, the Recommendation specifies that the measures will be reviewed by ICCAT in November to determine whether additional measures are needed and encourages countries to implement measures as soon as possible. This EA includes a range of alternatives and prefers an alternative that will achieve the objectives of this interim final rule to immediately end overfishing on North Atlantic shortfin mako sharks through measures adopted by ICCAT.

Alternative 1 No Action. Do not implement management measures to address overfishing for shortfin mako sharks in Atlantic HMS fisheries.

Under Alternative 1, the No Action alternative, NMFS would maintain the current commercial and recreational regulations that pertain to shortfin mako sharks established in the 2006 Consolidated HMS FMP and amendments. In commercial fisheries, directed or incidental shark limited access permit holders are allowed to land and sell shortfin mako sharks to an authorized dealer, and are subject to the pelagic shark commercial quota.

In recreational fisheries, recreational fishermen would continue to be limited to one shark from the list of authorized species, which includes shortfin mako sharks, greater than 54 inches FL per vessel per trip.

Alternative 2 Require live release of shortfin mako sharks in the commercial pelagic longline fishery, prohibit landings of shortfin mako sharks by commercial fishermen using any other gear type, and establish a recreational size limit of 71 inches (180 cm) FL for male and 83 inches (210 cm) FL for female shortfin mako sharks.

This alternative would require changes in HMS commercial and recreational fisheries in order to implement ICCAT Recommendation 17-08. Specifically, under this alternative, fishermen using pelagic longline gear would be required to release all live shortfin mako sharks with a minimum of harm, while giving due consideration to the safety of crew members. Retention of a shortfin mako shark may only occur if the shortfin mako shark is dead at haulback, the vessel was using pelagic longline gear, and the vessel has a functional electronic monitoring system. This

alternative would prohibit all other retention of shortfin mako sharks caught by commercial fishermen (i.e., catch prohibited when using bottom longline, gillnet, handgear, etc).

In recreational fisheries (vessels with HMS Angling or Charter/Headboat permits, or Atlantic Tunas General category and Swordfish General Commercial permits when participating in a registered HMS tournament), this alternative would increase the minimum size limit for the retention of shortfin mako sharks from 54 inches FL of all shortfin mako sharks to 71 inches (180 cm) FL for male and 83 inches (210 cm) FL for female shortfin mako sharks.

- Alternative 3** **(Preferred) Require live release of shortfin mako sharks in the commercial pelagic longline fishery, prohibit landings of shortfin mako sharks by commercial fishermen using any other gear type, and establish a recreational size limit of 83 inches (210 cm) FL for all shortfin mako sharks.**

This alternative would require changes in HMS commercial and recreational fisheries in order to implement ICCAT Recommendation 17-08. Specifically, under this alternative, fishermen using pelagic longline gear would be required to release of all live shortfin mako sharks on vessels with a minimum of harm, while giving due consideration to the safety of crew members. Retention of a shortfin mako shark may only occur if the shortfin mako shark is dead at haulback, the vessel was using pelagic longline gear, and the vessel has a functional electronic monitoring system. This alternative would prohibit the retention of all shortfin sharks caught by commercial fishermen using gear other than pelagic longline (e.g., bottom longline, gillnet, handgear, etc).

In recreational fisheries (vessels with HMS Angling or Charter/Headboat permits, and Atlantic Tunas General category and Swordfish General Commercial permits when participating in a registered HMS tournament), this alternative would increase the minimum size limit for the retention of shortfin mako sharks from 54 inches FL to 83 inches (210 cm) FL, without distinguishing between male or female sharks.

- Alternative 4** **Prohibit landing of shortfin mako sharks in all Atlantic HMS fisheries (catch and release only).**

This alternative would place shortfin mako sharks on the prohibited species list to prohibit the retention of shortfin mako sharks in both the commercial and recreational HMS fisheries. HMS permit holders would be prohibited from landing shortfin mako sharks recreationally or commercially.

In recreational fisheries (vessels with HMS Angling or Charter/Headboat permits, or Atlantic Tunas General category and Swordfish General Commercial permits when participating in a registered HMS tournament), recreational fishermen would only be authorized to catch and release shortfin mako sharks.

3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

This chapter describes the affected environment (the fishery, the gears used, the communities involved, *etc.*), and provides a view of the current condition of the fishery, which serves as a baseline against which to compare potential impacts of the different alternatives. This chapter also provides a summary of information concerning the biological status of the shortfin mako shark stock, the marine ecosystems in the fishery management unit, the social and economic condition of the fishing interests, fishing communities, and fish processing industries, and the best available scientific information concerning the past, present, and possible future condition of shark stocks, ecosystems, and fisheries.

3.1 Summary of Highly Migratory Species Management

The authority to manage Atlantic HMS fisheries was designated to NMFS by the Secretary of Commerce. The HMS Management Division develops regulations for Atlantic HMS fisheries within NMFS. HMS fisheries require management at the international, national, and state levels because of their highly migratory nature. NMFS manages HMS fisheries in federal waters (domestic) and the high seas (international), while individual states establish regulations for some HMS in their own waters. However, there are exceptions to this generalization. For example, as a condition of their permit, federally-permitted shark fishermen are required to follow federal regulations in all waters, including state waters, unless the state has more restrictive regulations, in which case the state regulations prevail. Additionally, in 2005, the Atlantic States Marine Fisheries Commission (ASMFC) agreed to develop an interstate coastal shark Fishery Management Plan (FMP). This interstate FMP coordinates management measures among all states along the Atlantic coast (Florida to Maine). NMFS participated in the development of this interstate shark FMP, which was effective in 2010.

On the international level, NMFS participates in the stock assessments conducted by ICCAT's scientific body (SCRS) and in ICCAT meetings. NMFS implements conservation and management measures adopted through ICCAT and through other relevant international agreements, consistent with ATCA and the Magnuson-Stevens Act. ICCAT has assessed the Atlantic blue and the shortfin mako shark stocks, participated with the International Council for the Exploration of the Sea (ICES) on a joint porbeagle assessment, and has conducted several ecosystem risk assessments for various shark species, among other things. Stock assessments and management recommendations or resolutions are listed on ICCAT's website at <http://www.iccat.int>. As described below, in recent years ICCAT has adopted several shark-specific recommendations, to address sharks caught in association with ICCAT fisheries.

Sharks are managed along with other Atlantic HMS species. Thus, management of the shark fishery is presented in FMPs along with Atlantic billfish, Atlantic tunas, and Atlantic swordfish. This section provides a brief history of fisheries management of Atlantic sharks. For more information on the complete HMS management history as it relates to sharks, please refer to the 2006 Consolidated HMS FMP (NMFS 2006a) and Amendments 2, 3, 5a, 5b, 6, and 9 to the 2006 Consolidated HMS FMP, which address shark conservation and management. Relevant proposed rules, final rules, and other official notices can also be found in the Federal Register at: <https://www.federalregister.gov/>. Supporting documents, including the original FMPs, can be

found on the HMS Management Division's webpage at <https://www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species>. Documents can also be requested by calling the HMS Management Division at (301) 427-8503.

Seventy-three species of sharks are known to inhabit the waters along the U.S. Atlantic coast, including the Gulf of Mexico and the waters around Puerto Rico and the U.S. Virgin Islands. Forty-two species are managed by NMFS' HMS Management Division based upon their need for conservation and management. Based on ecology and fishery dynamics, NMFS divided HMS sharks into five species groups or complexes for purposes of HMS management: (1) large coastal sharks (LCS), (2) small coastal sharks (SCS), (3) pelagic sharks, (4) prohibited species, and (5) smoothhound sharks (Table 3.1). Shortfin mako sharks are included in the pelagic shark complex.

Table 3.1. Common names of shark species included within the five species complexes.

Species Complex	Shark Species Included
LCS (11)	Sandbar+, silky*, tiger, blacktip, bull, spinner, lemon, nurse, smooth hammerhead*^, scalloped hammerhead*°^, and great hammerhead*^ sharks
SCS (4)	Atlantic sharpnose, blacknose, finetooth, and bonnethead sharks
Pelagic Sharks (5)	Shortfin mako, thresher, oceanic whitetip*^, porbeagle*^, and blue sharks
Prohibited Species (19)	Whale^, basking^, sand tiger, bigeye sand tiger, white^, dusky, night, bignose, Galapagos, Caribbean reef, narrowtooth, longfin mako, bigeye thresher, sevengill, sixgill, bigeye sixgill, Caribbean sharpnose, smalltail, and Atlantic angel sharks
Smoothhound Sharks (3)	Smooth dogfish, Florida smoothhound, and Gulf smoothhound

*Prohibited from commercial retention on pelagic longline gear and recreationally if swordfish, tunas, and/or billfish are also retained

+ Prohibited from retention with the exception of vessels selected to participate in the shark research fishery

° Distinct population segment (DPS) in the central and southwest Atlantic Ocean listed as threatened under the Endangered Species Act

^ Listed under CITES Appendix II

§ Must be released when caught alive on pelagic longline gear and recreationally if swordfish, tunas, and/or billfish are also retained

3.2 International Shortfin Mako Shark Management

ICCAT recommendations are binding instruments for Contracting Parties, while ICCAT resolutions are non-binding and express the will of the Commission. All ICCAT recommendations and resolutions are available on the ICCAT website at <http://www.iccat.int>. Under ATCA, NMFS has authority to promulgate regulations as necessary and appropriate to implement ICCAT measures. ICCAT generally manages tuna and tuna-like fisheries and

bycatch in those fisheries but also conducts research and has adopted measures related to shark species caught in association with other ICCAT fisheries.

In 2008, an updated stock assessment for blue and shortfin mako sharks was conducted by ICCAT's SCRS. The SCRS determined that while the quantity and quality of the data available for use in the stock assessment had improved since the 2004 assessment, they were still uninformative and did not provide a consistent signal to inform the models used in the 2008 assessment. The SCRS noted that if these data issues could not be resolved in the future, their ability to determine stock status for these and other species would continue to be uncertain. The SCRS assessed blue and shortfin mako sharks as three different stocks: North Atlantic, South Atlantic, and Mediterranean. However, the Mediterranean data was considered insufficient to conduct the quantitative assessments for these species. In 2012, the SCRS conducted another stock assessment for shortfin mako sharks. The results indicated that both the North and South Atlantic stocks of shortfin mako sharks were healthy and the probability of overfishing was low. However, the high uncertainty in past catch estimates and deficiency of some important biological parameters, particularly for the Southern stock, were still obstacles for obtaining reliable estimates of current status of the stocks.

As described in Chapter 1, ICCAT's SCRS recently completed a new stock assessment for shortfin mako sharks. In contrast to past assessments, the 2017 assessment determined that the North Atlantic shortfin mako shark stock was overfished and experiencing overfishing, and large reductions in fishing mortality would be necessary to end overfishing. More detail on stock status is provided in section 3.3 below. In response to the new stock assessment, ICCAT adopted new management measures for shortfin mako sharks (Recommendation 17-08).

3.3 Status of the North Atlantic Shortfin Mako Shark Stock

The thresholds used to determine the status of Atlantic HMS are presented in Chapter 2 of the 2017 SAFE Report. Atlantic shark stock assessments for large coastal sharks and small coastal sharks are generally completed by the SouthEast Data, Assessment, and Review (SEDAR) process. All SEDAR reports are available at <http://sedarweb.org/>. ICCAT's SCRS has assessed blue, shortfin mako, and porbeagle sharks. All SCRS final stock assessment reports can be found at www.iccat.int/en/assess.htm. The shortfin mako ICCAT SCRS report from 2017 can be found at http://iccat.int/Documents/Meetings/Docs/2017_SCRS REP ENG.pdf

The 2017 stock assessment included significant updates to inputs and model structures compared to the 2012 shortfin mako shark assessment. In addition to including a new model structure, the new assessment also used improved and longer catch time series (1950-2015), sex-specific biological parameters, updated length composition data, and new tagging data. One of the primary changes in data for the new stock assessment was a new estimate of the fishing mortality rate largely derived from satellite tagging research (Byrne et al. 2017). For this research, forty shortfin mako sharks were tagged and then tracked in the North Atlantic between 2013 and 2016 for periods of 81-754 days. Of these tagged sharks, 12 (30 percent) were captured by fishing vessels (Figure 3.1). These direct observations of mortality resulted in fishing mortality rate

estimates of 0.19-0.53, which are significantly higher than the estimates of 0.015-0.024 used in previous assessments (SCRS 2012).

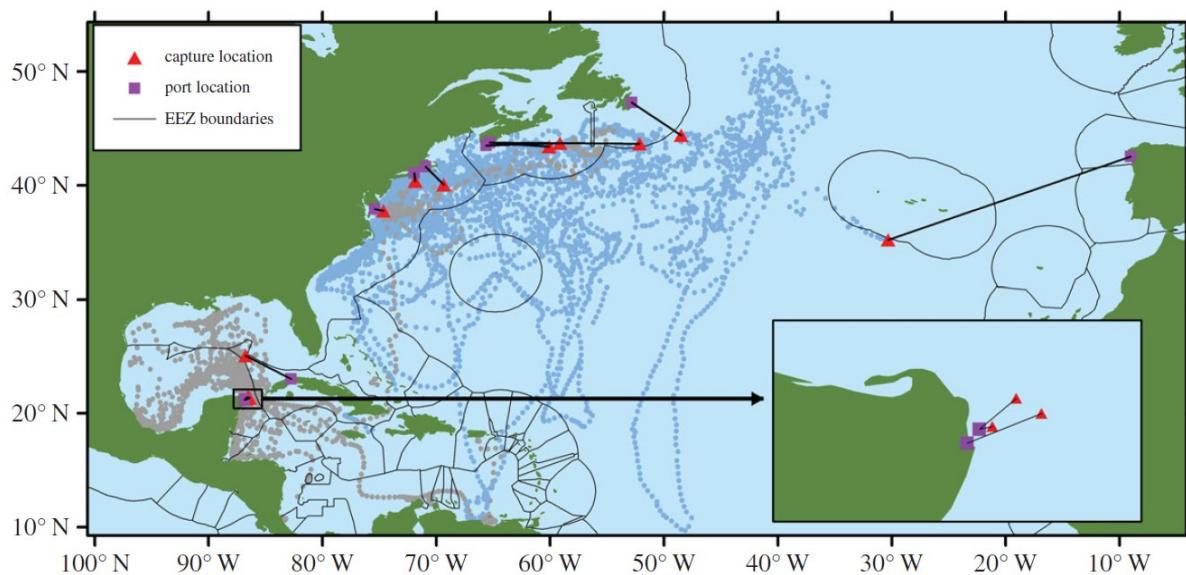


Figure 3.1. Tracks (dots) and capture locations (triangles) of 40 satellite tagged shortfin mako sharks from Byrne et al. (2017).

In November 2017 at its annual meeting, ICCAT accepted this stock assessment and its results. On December 13, 2017, based on the results of this assessment, NMFS determined the stock to be overfished with overfishing occurring. The assessment specifically indicated that B_{2015} is substantially less than B_{MSY} for eight of the nine models ($B_{2015}/B_{MSY} = 0.57\text{-}0.85$). In the ninth model, spawning stock fecundity (SSF) was less than SSF_{MSY} ($SSF_{2015}/SSF_{MSY} = 0.95$). Additionally, the assessment indicated that F_{2015} was greater than F_{MSY} (1.93-4.38), with a combined 90-percent probability from all models that the population is overfished with overfishing occurring.

The 2017 assessment estimated that total North Atlantic shortfin mako shark catches across all nations are currently between 3,600 and 4,750 mt per year, and that total catches would have to be reduced below 1,000 mt (72-79 percent reductions) to prevent further population declines. The projections indicate that a total allowable catch of 0 mt would produce a greater than 50-percent probability of rebuilding the stock by the year 2040, which is approximately equal to one mean generation time. Research indicates that post-release survival rates of shortfin mako sharks are high (70 percent); however, the assessment could not determine if requiring live releases alone would reduce landings sufficiently to end overfishing and rebuild the stock.

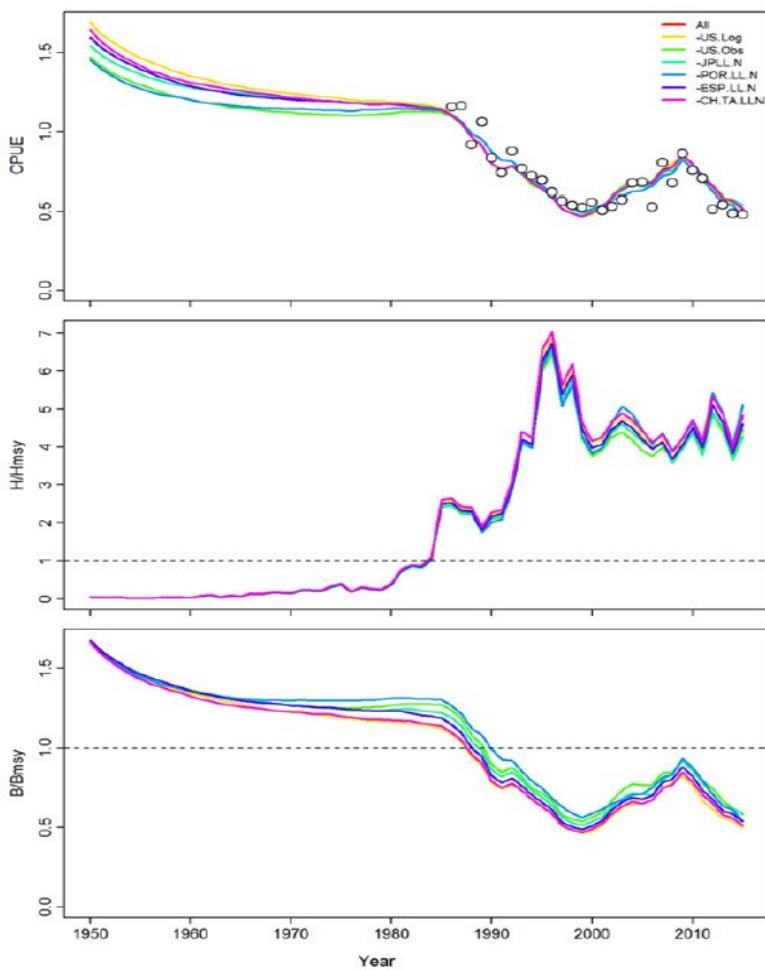


Figure 3.2. Trends in North Atlantic shortfin mako shark CPUE, H/H_{MSY}(the harvest rate relative to harvest at MSY, which is equivalent to F/F_{MSY}) and B/B_{MSY} using the C1 catch scenario used in the 2017 stock assessment. Circles denote U.S. pelagic longline CPUE.

3.4 Shortfin Mako Shark Biology

The shortfin mako shark is an oceanic, pelagic species found in warm and warm-temperate waters throughout all oceans. Size at birth is 60–70 cm, and the species reaches a maximum total length of approximately 400 cm (Compagno 2002). Heist et al. (1996) found considerable intraspecific genetic variation and significant partitioning of haplotypes between the North Atlantic and other regions; however, there was no evidence of multiple subspecies of shortfin mako, nor of any past genetic isolation between shortfin mako populations. Tagging studies indicate that shortfin mako sharks tagged off the coast of North America range widely across the North Atlantic, with confirmed recaptures from the coasts of South America, Europe, and Africa (Kohler et al. 2002, Byrne et al. 2017).

The shortfin mako shark feeds on fast-moving fishes such as swordfish, tuna, and other sharks (Castro 1983) as well as clupeids, needlefishes, crustaceans and cephalopods (Maia et al. 2007a). MacNeil et al. (2005) found evidence of a cephalopod to bluefish diet switch in the spring. In

the northwest Atlantic, Wood et al. (2009) found that bluefish represented approximately 93% of the diet by weight, extrapolating that an average shortfin mako shark consumes about 500 kg of bluefish per year.

There has been some variation in the characterization of age, growth, and reproduction in North Atlantic shortfin mako sharks. According to Pratt and Casey (1983), females mature at about 7 years of age; however, Campana et al. (2002) using radiocarbon assays found that the estimate may be incorrect. Natanson et al. (2006) estimated size at 50% maturity to be 185 cm FL for males (8 years) and 275 cm FL for females (18 years), revealing that the species matures later than suggested in previous studies. In Maia et al. (2007), length at maturity for males was estimated at 180 cm FL, which is similar to the size of Natanson et al. (2006); size at female maturity could not be estimated because no female sharks between 210-290 cm FL were sampled, although this appears to be the interval where maturation occurs.

Litter size ranges from 4 to 25, and size at birth is approximately 70 cm TL (Mollet et al. 2000). Gestation period was estimated at 15-18 months and the reproductive cycle at 3 years. Based on cohort analysis of fish in the eastern North Atlantic, average growth was determined as 61.1 cm/year for the first year and 40.6 cm/year for the second year (Maia et al., 2007). There was a marked seasonality in growth, with average monthly rates of 5.0 cm/month in summer and 2.1 cm/month in winter. Lack of sex differences in cohort analysis for the first years of life is in accordance with previous studies reporting that male and female mako sharks grow at the same rate until they reach about 200 cm FL (Casey and Kohler, 1992; Campana et al. 2005). Life span estimates vary and have been published as 11.5 years (Pratt and Casey 1983), 25 years for females (Cailliet and Mollet 1997), 29 and 28 years for males and females (Bishop et al. 2006). Natanson et al. (2006) validated the age and growth of North Atlantic shortfin mako sharks using bomb radiocarbon and oxytetracycline marking techniques, and estimated longevity at 21 years for males and 38 years for females.

Habitat

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

NMFS originally described and identified EFH and related EFH regulatory elements for all HMS in the management unit in the 1999 FMPs, which were updated in Amendment 1 to the 1999 Tunas, Swordfish, and Shark FMP in 2003 (NMFS 1999; NMFS 2003). EFH boundaries published in Amendment 1 have been updated in Final Amendment 10 to the 2006 Consolidated HMS FMP (NMFS 2017). EFH boundaries for all life stages of shortfin mako shark were adjusted off southern Maine and off South Carolina, and expanded in the Gulf of Mexico and west of the Florida Keys, due to the incorporation of new data into the models (both regions) and recommendations from the SEFSC (Gulf of Mexico only) (Figure 3.3).

EFH for shortfin mako sharks in the Atlantic Ocean includes pelagic habitats seaward of the continental shelf break between the seaward extent of the U.S. EEZ boundary on Georges Bank (off Massachusetts) to Cape Cod (seaward of the 200m bathymetric line); coastal and offshore habitats between Cape Cod and Cape Lookout, North Carolina; and localized habitats off South Carolina and Georgia (Figure 3.3). EFH in the Gulf of Mexico is seaward of the 200 m isobaths in the Gulf of Mexico, although in some areas (e.g., northern Gulf of Mexico by the Mississippi delta) EFH extends closer to shore. EFH in the Gulf of Mexico is located along the edge of the continental shelf off Fort Meyers to Key West (southern West Florida Shelf), and also extends from the northern central Gulf of Mexico around Desoto Canyon and the Mississippi Delta to pelagic habitats of the western Gulf of Mexico that are roughly in line with the Texas/Louisiana border (Figure 3.3). For more information, please refer to Final Amendment 10 at <http://www.nmfs.noaa.gov/sfa/hms/documents/fmp/am10/index.html>.

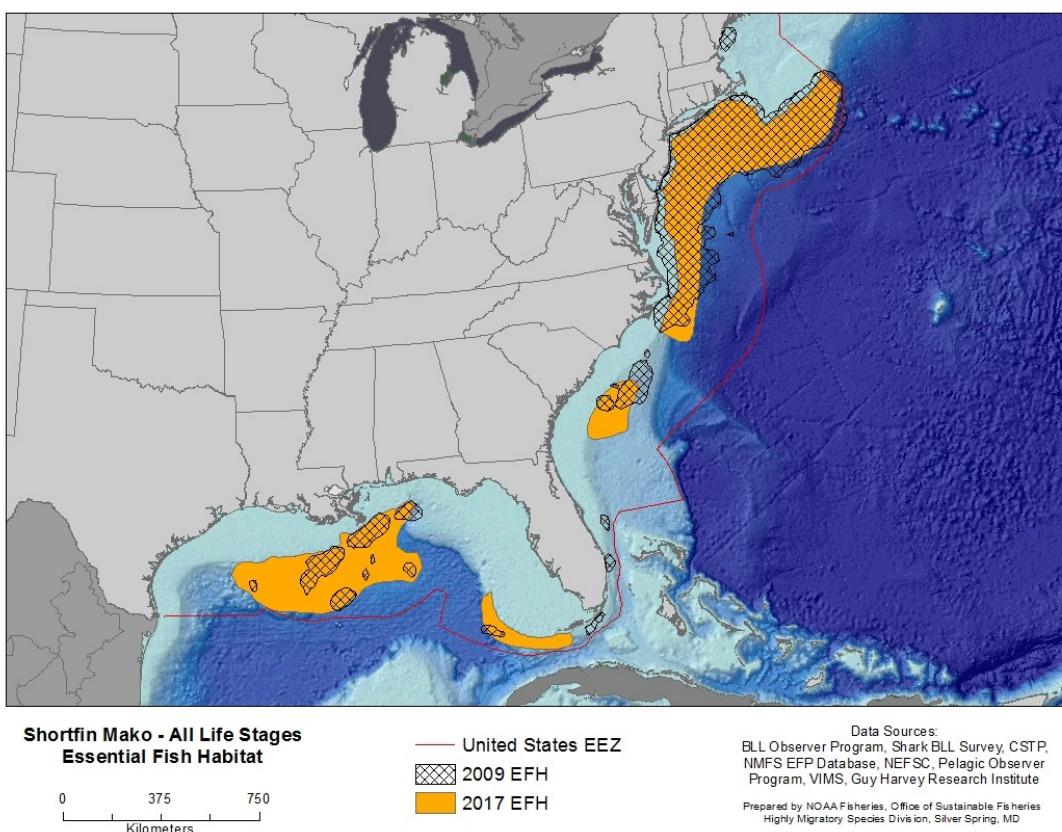


Figure 3.3. All life stages combined essential fish habitat for shortfin mako sharks.

3.5 Shortfin Mako Shark Fisheries

While shark fishermen generally target particular species, the non-selective nature of many fishing gears warrants analysis and management on a gear-by-gear basis. For this reason, shark fishery data are typically analyzed by gear type. Additionally, bycatch and safety issues are also better addressed separately by gear type.

Authorized gear types routinely used in Atlantic shark fisheries include:

- Pelagic longline fishery – longline (commercial)
- Shark gillnet fishery – gillnet (commercial)
- Shark bottom longline fishery – longline (commercial)
- Shark handgear fishery – rod and reel, handline, bandit gear (commercial)
- Shark recreational fishery – rod and reel, handline (recreational)

The vast majority of shortfin mako sharks are caught incidentally using pelagic longline (commercial) or rod and reel (recreational). In the commercial fishery, shortfin mako sharks are rarely targeted, but caught incidentally on sets targeting tunas and swordfish. For more details on the species composition of catches in the pelagic longline and rod and reel fisheries, refer to the 2017 HMS SAFE Report (<https://www.fisheries.noaa.gov/resource/document/2017-stock-assessment-and-fishery-evaluation-safe-report-atlantic-highly>). This section focuses on characterizing shortfin mako shark catches in these fisheries. In recent years on average, total catches between the recreational and commercial fisheries have been nearly evenly split (Table 3.2).

Table 3.2. Reported U.S. shortfin mako shark harvest to ICCAT, 2010-2016. Note: Commercial mortality is reported landings and dead discards, while recreational harvest is sharks kept. Source: ICCAT TASK 1 tables.

Year	Commercial Mortality (mt ww)	Recreational Landings (mt ww)	Total (mt ww)
2010	226	168	394
2011	214	178	392
2012	201	229	430
2013	192	219	411
2014	208	201	409
2015	342	190	532
2016	137	163	300
Average	217	193	410

3.5.1 U.S. Commercial Fisheries

Commercial landings of shortfin mako sharks and the percentage of the overall pelagic shark landings are presented below. Additional information on all gear types, recent catch, landings, and discard data of HMS species can be found in Chapter 5 of 2017 SAFE Report. Based on landings reported on a weekly basis by dealers, 181,085 lb dw of shortfin mako sharks were landed on average from 2013-2017 (Table 3.3). This represents on average 71 percent of the U.S. commercial pelagic shark landings.

Table 3.3. Commercial Landings of Shortfin Mako Sharks and Percentage of the Pelagic Shark Landings, 2013-2017. Source: HMS eDealer database.

Year	Commercial Landings (lb dw)	Percentage of Pelagic Shark Landings
2013	199,177	77%
2014	218,295	61%
2015	141,720	66%
2016	160,829	67%
2017	185,403	75%
Average	181,085	71%

Pelagic longline gear is the primary commercial gear used to land pelagic shark species, including shortfin mako sharks, although such catch is incidental to catch in target fisheries for other species. Based on HMS logbook data, 85 percent of shortfin mako sharks caught are kept and landed by commercial fishermen, while 14 percent are discarded alive and 1 percent are discarded dead (Table 3.4). Based on HMS logbook data, the majority of the shortfin mako shark interactions and shortfin mako sharks landed occur in the Mid-Atlantic Bight. The Northeast central and Northeast distant waters are the other top locations for shortfin mako interactions (Table 3.5 and Figure 3.4).

Table 3.4. Shortfin mako shark interactions in the pelagic longline fishery, 2012-2016. Source: Fisheries Logbook System (pelagic longline)

Year	Total Number of Vessels	Total Number of Trips	Number of Vessels Reporting Shortfin Mako Sharks	Number of Trips with Shortfin Mako Shark Interactions	Number of Shortfin Mako Sharks Kept	Number of Shortfin Mako Sharks Discarded Dead	Number of Shortfin Mako Sharks Discarded Live	Total Shortfin Mako Shark Interactions
2012	112	1,592	108	659	2,226	58	367	2,651
2013	115	1,558	103	663	2,941	24	407	3,372
2014	110	1,422	90	508	3,117	17	388	3,522
2015	104	1,185	81	434	2,007	16	483	2,506
2016	85	1,025	70	402	2,062	49	347	2,458
AVG	107	1,356	90	533	2,471	33	398	2,902

Table 3.5. Shortfin mako shark interactions in the pelagic longline fishery by region, 2012-2016. Note: CAR – Caribbean; GOM - Gulf of Mexico; FEC - Florida East Coast; SAB - South Atlantic Bight; MAB - Mid-Atlantic Bight; NEC - Northeast Coastal; NED - Northeast Distant; SAR - Sargasso; NCA - North Central Atlantic; SAT - Tuna North & Tuna South. Source: Fisheries Logbook System (pelagic longline)

Year	Region	Number of Shortfin Mako Sharks Kept	Number of Shortfin Mako Sharks Discarded Dead	Number of Shortfin Mako Sharks Discarded Live	Total Shortfin Mako Shark Interactions	Percentage of Overall Shortfin Mako Interactions
2012	CAR	2	0	0	2	0.1%
	FEC	124	1	19	144	5.4%
	GOM	116	24	101	241	9.1%
	MAB	1,310	22	91	1,423	53.7%
	NCA	1	0	0	1	<0.1%
	NEC	412	9	61	482	18.2%
	NED	63	0	79	142	5.4%
	SAB	175	2	13	190	7.2%
	SAR	23	0	2	25	0.9%
	SAT	0	0	1	1	<0.1%
2013	CAR	0	0	0	0	0%
	FEC	123	0	5	128	3.8%
	GOM	145	5	85	235	7.0%
	MAB	1,874	6	109	1,989	59.0%
	NCA	1	0	0	1	<0.1%
	NEC	319	4	54	377	11.2%
	NED	307	9	126	442	13.1%
	SAB	157	0	25	182	5.4%
	SAR	14	0	1	15	0.4%
	SAT	1	0	2	3	0.1%
2014	CAR	0	0	0	0	0%
	FEC	69	0	7	76	2.2%
	GOM	75	5	45	125	3.5%
	MAB	2,209	7	108	2,324	66.0%
	NCA	0	0	0	0	0%
	NEC	307	0	22	329	9.3%
	NED	313	3	178	494	14.0%
	SAB	109	2	21	132	3.7%
	SAR	35	0	7	42	1.2%
	SAT	0	0	0	0	0%
2015	CAR	1	0	0	1	<0.1%
	FEC	69	0	12	81	3.2%
	GOM	27	6	58	91	3.6%
	MAB	1,131	7	108	1,246	49.7%
	NCA	0	0	0	0	0%
	NEC	487	1	56	544	21.7%
	NED	174	0	230	404	16.1%
	SAB	90	1	15	106	4.2%
	SAR	28	0	4	32	1.3%
	SAT	0	1	0	1	<0.1%
2016	CAR	2	0	0	2	0.1%
	FEC	52	0	16	68	2.8%
	GOM	18	3	53	74	3.0%
	MAB	1,208	19	96	1,323	53.8%
	NCA	0	0	0	0	0%

	NEC	487	16	84	587	23.9%
	NED	161	5	61	227	9.2%
	SAB	120	5	35	160	6.5%
	SAR	10	0	0	10	0.4%
	SAT	4	1	2	7	0.3%
AVG		2,471	33	398	2,902	

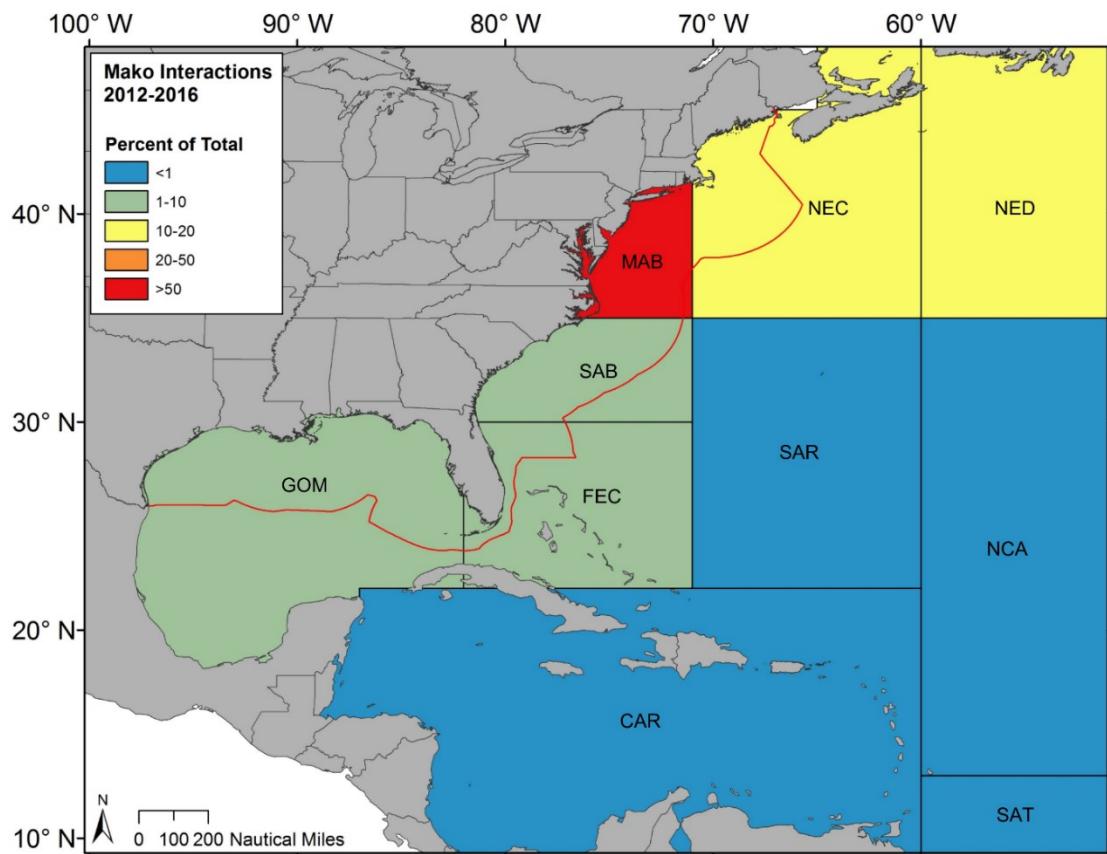


Figure 3.4. Shortfin mako shark interactions, 2012-2016. Source: Fisheries Logbook System (pelagic longline)

Even though pelagic longline gear is the primary commercial gear used to land shortfin mako sharks, other gear types also interact with this species. Based on HMS logbook data, an average of ten vessels that used gear other than pelagic longline gear interacted with shortfin mako sharks (Table 3.6). On average, only 18 shortfin mako sharks were interacted with on non-pelagic longline gear and only 14 shortfin mako sharks were kept. This represents less than 1 percent of the total shortfin mako shark interactions in the HMS logbook data.

Table 3.6. Shortfin mako shark interactions in non-pelagic longline fisheries, 2012-2016. Source: Fisheries Logbook System.

Year	Total Number of Vessels	Total Number of Trips	Number of Vessels Reporting Shortfin Mako Sharks	Number of Trips with Shortfin Mako Shark Interactions	Number of Shortfin Mako Sharks Kept	Number of Shortfin Mako Sharks Discarded Dead	Number of Shortfin Mako Sharks Discarded Live	Total Shortfin Mako Shark Interactions
2012	123	1,136	14	23	17	0	6	23
2013	92	844	8	19	15	0	6	21
2014	88	751	12	19	13	0	8	21
2015	89	640	7	8	7	0	7	8
2016	87	538	10	15	18	0	1	19
AVG	96	782	10	17	14	0	6	18

To better understand and comprehensively describe the scope of shortfin mako shark interactions, reported observer data were compiled from 2012 – 2016 (Table 3.7). These data by year include the data source, the total number of vessels reporting an interaction, number of shortfin mako sharks kept, number of shortfin mako sharks discarded dead, number of shortfin mako sharks discarded alive, and total number of interactions.

Table 3.7. Summary of all available observed shortfin mako shark interactions by data source, 2012-2016.

Year	Data Source	Number of Vessels	Number of Shortfin Mako Kept	Number of Shortfin Mako Discarded Dead	Number of Shortfin Mako Discarded Alive	Total
2012	NEFSC Northeast Fisheries Observer Program	3	0	3	0	3
	Atlantic Pelagic Observer Program (PLL)	66	167	56	153	376
	SEFSC Bottom Longline Observer Program Targeting Sharks	1	0	0	1	1
	SEFSC Gillnet Observer Program Targeting Sharks	0	0	0	0	0
2013	NEFSC Northeast Fisheries Observer Program	2	0	2	0	2
	Atlantic Pelagic Observer Program (PLL)	75	213	52	204	469
	SEFSC Bottom Longline Observer Program Targeting Sharks	0	0	0	0	0
	SEFSC Gillnet Observer Program Targeting Sharks	0	0	0	0	0
2014	NEFSC Northeast Fisheries Observer Program	9	9	4	1	14
	Atlantic Pelagic Observer Program (PLL)	56	206	31	105	342
	SEFSC Bottom Longline Observer Program Targeting Sharks	0	0	0	0	0
	SEFSC Gillnet Observer Program Targeting Sharks	0	0	0	0	0

	NEFSC Northeast Fisheries Observer Program	8	3	5	0	8
2015	Atlantic Pelagic Observer Program (PLL)	54	271	26	131	428
	SEFSC Bottom Longline Observer Program Targeting Sharks	0	0	0	0	0
	SEFSC Gillnet Observer Program Targeting Sharks	0	0	0	0	0
	NEFSC Northeast Fisheries Observer Program	4	5	0	1	6
2016	Atlantic Pelagic Observer Program (PLL)	50	691	27	143	861
	SEFSC Bottom Longline Observer Program Targeting Sharks	2	2	1	0	3
	SEFSC Gillnet Observer Program Targeting Sharks	0	0	0	0	0

Since most of the observed interactions occurred in the pelagic longline observer program, we analyzed the disposition of the shark at the time of interaction (Table 3.8). These observer records vary somewhat from the logbook data shown in Table 3.4. Based on the observer data, over 70 percent of the shortfin mako sharks interacted with were alive at the vessel. Also, the percent of shortfin mako sharks being discarded alive has declined since 2013, from 60.7 percent to 15.3 percent.

Table 3.8. Atlantic Pelagic Observer Program disposition of shortfin mako shark interactions, 2013-2016.

Year	Number of Shortfin Mako Discarded Alive	Number of Shortfin Mako Discarded Dead	Number of Shortfin Mako Kept (Alive at Vessel)	Number of Shortfin Mako Kept (Dead at Vessel)	Total	Percent of Shortfin Mako Alive at Vessel	Percent of Shortfin Mako Discarded Alive
2013	204	52	132	81	469	71.6%	60.7%
2014	105	31	137	31	344	70.3%	43.4%
2015	128	27	212	59	444	76.6%	37.6%
2016	87	30	480	211	808	70.2%	15.3%

3.5.2 International Commercial Fisheries

Pelagic longline fisheries for Atlantic HMS primarily target swordfish and tunas. Directed pelagic longline fisheries in the Atlantic have been operated by Spain, the United States, and Canada since the late 1950s or early 1960s. The Japanese pelagic longline tuna fishery started in 1956 and has operated throughout the Atlantic since then (NMFS, 1999). Many of the 50 other ICCAT parties now also operate pelagic longline vessels. A detailed description of how ICCAT collects fishery data can be found in Chapter 5 of 2017 SAFE Report. ICCAT requests that all countries/entities or fishing entities which operate tuna and tuna-like fisheries in the Atlantic report nominal annual catch of tuna and tuna-like species by region, gear, flag, and species. Catches should be reported in kilograms, round (live) weight.

The U.S. pelagic longline fleet represents a small fraction of the international pelagic longline fleet that competes on the high seas for catches of tunas and swordfish. In recent years, the proportion of U.S. pelagic longline landings of HMS, for the fisheries in which the United States participates, has remained relatively stable in proportion to international landings. Historically, the U.S. pelagic longline fleet has accounted for less than 0.5 percent of the landings of swordfish and tuna from the Atlantic Ocean south of 5° N. Lat. and does not operate at all in the Mediterranean Sea.

The United States reports landings and dead discards from pelagic longline and rod and reel gears to ICCAT. Pelagic longline catches include commercial landings and dead discards of shortfin mako sharks. Rod and reel landings are the recreational harvest of shortfin mako reported through the Large Pelagic Survey (LPS) and the North Carolina catch card program. The countries/regions with the highest average landings of shortfin mako sharks are listed in Table 3.9. Landings of shortfin mako by the United States have ranged from 392 to 532 metric ton (mt) whole weight (ww) per year with peaks in 2012 and 2015.

Table 3.9. Reported ICCAT data from TASK 1 tables of North Atlantic shortfin mako sharks. Note: All data are in mt ww. Countries with less than 1 mt ww landed annually not listed. Percentage of harvest compared to the total harvest are in parentheses.

Country	2010	2011	2012	2013	2014	2015	2016	Average (Percentage of Overall)
EU.España (Spain)	2,091 (49.9%)	1,667 (44.2%)	2,308 (51.5%)	1,509 (41.4%)	1,481 (51.0%)	1,362 (42.1%)	1,574 (46.6%)	1,713 (46.8%)
EU.Portugal	1,432 (34.2%)	1,045 (27.7%)	1,023 (22.8%)	820 (22.5%)	219 (7.5%)	222 (6.9%)	264 (7.8%)	718 (19.6%)
Maroc (Morocco)	0	420 (11.1%)	406 (9.1%)	667 (18.3%)	624 (21.5%)	947 (29.3%)	1,050 (31.1%)	588 (16.1%)
U.S.A.	394 (9.4%)	392 (10.4%)	430 (9.6%)	411 (11.3%)	409 (14.1%)	532 (16.4%)	300 (8.9%)	410 (11.2%)
Japan	116 (2.8%)	53 (1.4%)	56 (1.3%)	33 (0.9%)	69 (2.4%)	45 (1.4%)	75 (2.2%)	64 (1.8%)
Belize	28 (0.7%)	69 (1.8%)	114 (2.5%)	99 (2.7%)	1 (<0.1%)	1 (<0.1%)	1 (<0.1%)	45 (1.2%)
Canada	41 (1.0%)	37 (1.0%)	29 (0.6%)	35 (1.0%)	55 (1.9%)	85 (2.6%)	83 (2.5%)	52 (1.4%)
Venezuela	27 (0.6%)	20 (0.5%)	33 (0.7%)	9 (0.2%)	13 (0.4%)	7 (0.2%)	7 (0.2%)	17 (0.5%)
China PR	29 (0.7%)	18 (0.5%)	24 (0.5%)	11 (0.3%)	5 (0.2%)	2 (0.1%)	4 (0.1%)	13 (0.4%)
Korea Rep.	0	27 (0.7%)	27 (0.6%)	15 (0.4%)	8 (0.3%)	3 (0.1%)	1 (<0.1%)	12 (0.3%)

Chinese Taipei	14 (0.3%)	13 (0.3%)	15 (0.3%)	8 (0.2%)	4 (0.1%)	15 (0.5%)	8 (0.2%)	11 (0.3%)
Mexico	8 (0.2%)	8 (0.2%)	8 (0.2%)	4 (0.1%)	4 (0.1%)	4 (0.1%)	4 (0.1%)	6 (0.2%)
Panama	0	0	0	19 (0.5%)	7 (0.2%)	0	0	4 (0.1%)
Barbados	0	0	0	0	0	4 (0.1%)	3 (0.1%)	1 (<0.1%)
EU.France	2 (<0.1%)	0	0	0	1 (<0.1%)	1 (<0.1%)	2 (0.1%)	1 (<0.1%)
FR.St Pierre et Miquelon	4 (0.1%)	0	0	4 (0.1%)	0	0	0	1 (<0.1%)
Senegal	0	0	2 (<0.1%)	0	2 (0.1%)	2 (0.1%)	2 (0.1%)	1 (<0.1%)
Trinidad and Tobago	1 (<0.1%)	0	2 (<0.1%)	1 (<0.1%)	1 (<0.1%)	1 (<0.1%)	1 (<0.1%)	1 (<0.1%)
Mauritania	0	0	0	0	0	0	2 (0.1%)	< 1 (<0.1%)
Total	4,188	3,771	4,478	3,646	2,904	3,232	3,380	3,657

On average, Spain and Portugal reported the highest harvest of shortfin mako sharks from 2010-2016. The top five countries reporting shortfin mako shark harvest are Spain, Portugal, Morocco, United States, and Japan. Below are the percentages of North Atlantic shortfin mako shark harvest by country (Figure 3.5). The reported harvest from Spain has been consistent from 2010-2016, while harvest reported from Portugal has declined from an average of 1,080 mt ww from 2010-2013 to 235 mt ww from 2014-2016. Morocco harvest has increased through the years and surpassed the reported harvest from Portugal to become the 2nd highest harvester in recent years. On average, the U.S. accounts for 11.2 percent of the total harvest of North Atlantic shortfin mako sharks from 2010-2016.

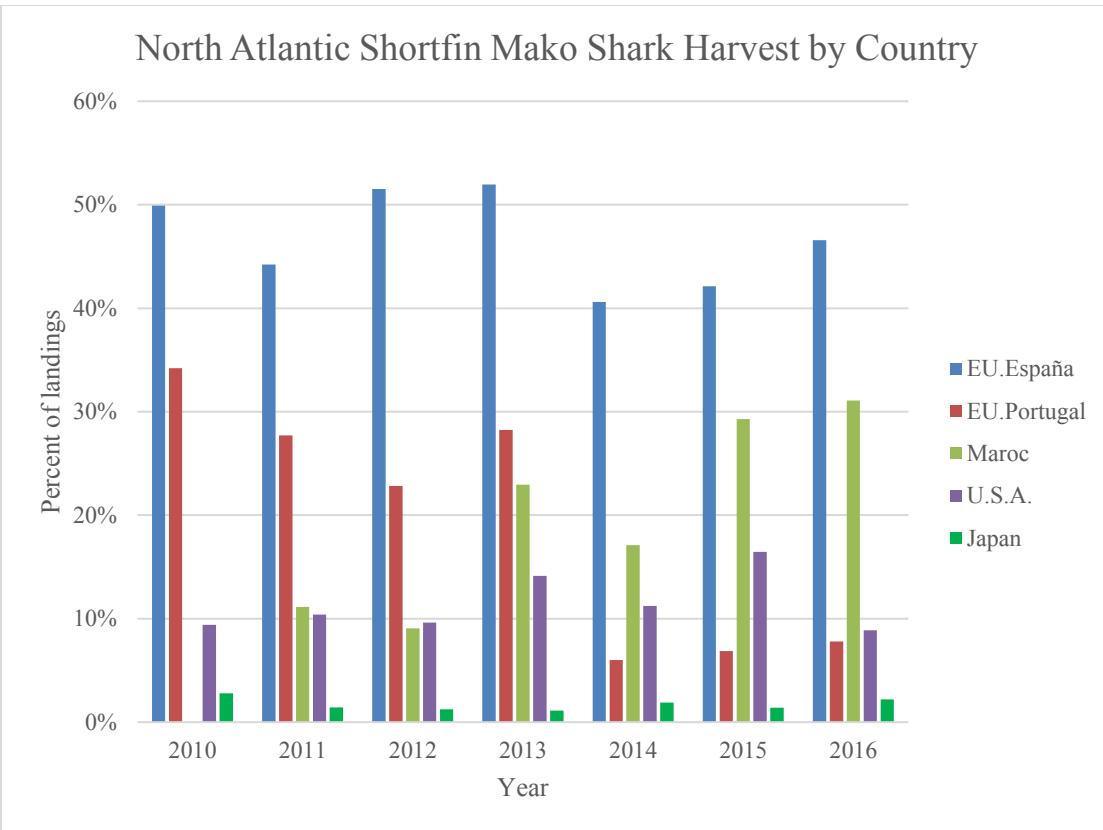


Figure 3.5. Percentage of North Atlantic shortfin mako shark landings by country, 2010–2016. Note: The overall average top 5 countries from 2010–2016 are presented.

3.5.3 Recreational Fishery

The HMS handgear (rod and reel, handline, buoy gear, and harpoon) fishery includes both commercial and recreational fisheries and is described fully in Chapter 5 of 2017 SAFE Report. The recreational landings database for Atlantic sharks consists of information obtained through surveys including the Large Pelagics Survey (LPS), Marine Recreational Information Program (MRIP), the North Carolina catch card program, Southeast Headboat Survey (HBS), and the Texas Headboat Survey. LPS was designed to survey recreational fishing activity on rare event species, and surveys activities primarily that occur offshore, from Virginia to Maine during June through October. MRIP was designed to survey recreational harvest in coastal waters from Maine through Louisiana. Additional harvest figures are reported to MRIP by the Southeast Regional Headboat Survey and Texas Parks and Wildlife Department. For more information on these surveys, please look in the 2006 Consolidated HMS FMP (NMFS 2006a) and Chapter 5 of 2017 SAFE Report (<https://www.fisheries.noaa.gov/resource/document/2017-stock-assessment-and-fishery-evaluation-safe-report-atlantic-highly>).

Recreational harvest of sharks is an important component of HMS fisheries. Recreational shark fishing with rod and reel is a popular sport and, depending upon the species, sharks can be caught virtually anywhere in salt water. Recreational shark fisheries often occur in nearshore waters accessible to private vessels and charter/headboats; however, shore-based and offshore

fishing also occur. Since 2003, the recreational fishery has been limited to rod and reel and handline gear only. Similar state regulations along the Atlantic seaboard are implemented through an ASMFC interstate FMP (ASMFC 2008). Unlike billfish or bluefin tuna, recreational shark harvest is not required to be reported to NMFS unless an angler is required to participate in the LPS or MRIP.

Significant variability exists between the recreational estimates (Table 3.10). The LPS shows more consistent landings on an annual basis since it provides raw observed numbers of shark interactions based on a survey specific to rare-event Atlantic HMS. LPS provides more precise estimates of shortfin mako shark recreational harvest, and is used to report recreational landings to ICCAT. MRIP shows more variable harvest data from year to year since it provides estimated (i.e., extrapolated) numbers of shark interactions based on data provided by anglers and captains. In the LPS database, NMFS reports the estimated recreational release of shortfin mako sharks (Table 3.11).

Table 3.10. Annual recreational harvest of shortfin mako sharks by data source, 2012-2016. Note: All recreational harvest are sharks kept and figures are in mt ww. Percent standard error (PSE) expresses the standard error of an estimate as a percentage of the estimate and is a measure of precision.

Year	LPS (ME – VA)	LPS PSE	MRIP (ME - TX)	MRIP PSE (ME - TX)	MRIP (NC - TX)	MRIP PSE (NC - TX)
2012	200.5	11.5	82.1	77.4	0.3	61.1
2013	218.4	10.1	473.1	69.9	1.3	78.6
2014	179.0	9.0	1121.8	34.8	1.3	94.9
2015	138.2	10.9	829.0	41.1	6.5	81.1
2016	149.7	10.5	513.4	40.9	1.5	-
Average	177.2	10.4	603.9	52.8	2.2	78.9

Table 3.11. Recreational releases of shortfin mako sharks estimated by LPS, 2012-2016.

Year	Released Alive	Percent Standard Error (PSE)
2012	3,993	12.2
2013	3,842	15.2
2014	3,666	10.8
2015	6,652	11.2
2016	1,933	15.5

HMS tournaments are an important aspect of the HMS recreational fishery. On average, there are 250 HMS tournaments each year with 73 tournaments indicating pelagic sharks as a prize category, which would include shortfin mako sharks (Table 3.12). The Gulf of Mexico and Mid-Atlantic regions have the most HMS tournaments each year indicating pelagic sharks as a category. Overall, tournaments indicating pelagic sharks as a prize category have were the highest in 2014 and 2015 with 84 tournaments. However, 2016 showed a decrease in the number of these tournaments.

Table 3.12. HMS tournaments targeting shortfin mako and pelagic shark species, 2012-2016.

Year	Total Number of HMS Tournaments	Number of HMS Tournaments that Indicated Pelagic Sharks as Target Species (Sharks in General)	HMS Tournaments with Pelagic Sharks as Category by Area	
			Area	Number of Tournaments
2012	218	53 (71)	Gulf of Mexico (Caribbean)	25 (2)
			South Atlantic (Keys to SC)	9
			Mid-Atlantic (NC to NY)	16
			North Atlantic (CT to ME)	3
2013	212	74 (80)	Gulf of Mexico (Caribbean)	34 (1)
			South Atlantic (Keys to SC)	8
			Mid-Atlantic (NC to NY)	27
			North Atlantic (CT to ME)	5
2014	274	84 (85)	Gulf of Mexico	24
			South Atlantic (Keys to SC)	7
			Mid-Atlantic (NC to NY)	39
			North Atlantic (CT to ME)	14
2015	279	84 (92)	Gulf of Mexico	27
			South Atlantic (Keys to SC)	12
			Mid-Atlantic (NC to NY)	33
			North Atlantic (CT to ME)	12
2016	267	72 (77)	Gulf of Mexico	20
			South Atlantic (Keys to SC)	3
			Mid-Atlantic (NC to NY)	41
			North Atlantic (CT to ME)	8
Average	250	73 (81)		

Table 3.13. Shortfin mako shark observations (numbers and percent) in the Large Pelagic Survey by Tournament and Non-Tournament trips, and their disposition for each trip type, 2010-2015.

Year	Trip Type	Number of Shortfin Mako Interactions (Percentage of Overall)	Number of Shortfin Mako Kept (Percentage of Overall)	Number of Shortfin Mako Released (Percentage of Overall)
2010	Tournament	123 (45.4%)	80 (65.0%)	43 (35.0%)
	Non-Tournament	146 (53.6%)	72 (49.7%)	73 (50.3%)
2011	Tournament	130 (48.7%)	90 (69.2%)	40 (30.8%)
	Non-Tournament	136 (50.9%)	79 (58.1%)	56 (41.2%)
2012	Tournament	149 (56.2%)	100 (67.1%)	49 (32.9%)
	Non-Tournament	116 (43.8%)	51 (44.0%)	65 (56.0%)
2013	Tournament	151 (54.3%)	103 (68.2%)	48 (31.8%)
	Non-Tournament	127 (45.7%)	75 (59.8%)	51 (40.2%)
2014	Tournament	134 (47.4%)	86 (64.2%)	48 (35.8%)
	Non-Tournament	149 (52.6%)	89 (59.7%)	60 (40.3%)
2015	Tournament	161 (53.1%)	78 (48.5%)	83 (51.5%)
	Non-Tournament	142 (46.9%)	74 (50.7%)	70 (49.3%)
Total	Tournament	848 (50.9%)	537 (63.3%)	311 (36.7%)
	Non-Tournament	817 (49.1%)	438 (53.6%)	375 (46.4%)

Based on the LPS data, it is a relatively equal split between shortfin mako shark interactions during a tournament versus a non-tournament trip (Table 3.13). Overall, most of the shortfin

mako sharks that are interacted with are kept. However, it is a higher likelihood that the shark will be released during a non-tournament trip.

The current minimum size limit for shortfin mako sharks in the recreational fishery is 54 in (137 cm) FL. According to 2012-2016 LPS data, most landed shortfin mako sharks are 140-230 cm (55-91 in) FL (Figure 3.6). According to NMFS Northeast Fisheries Science Center tournament data (Table 3.14), the minimum size limit under the preferred alternative may not greatly impact tournament landings of shortfin mako sharks, where most of the largest sharks landed were above the 83 in (210 cm) FL minimum size limit.

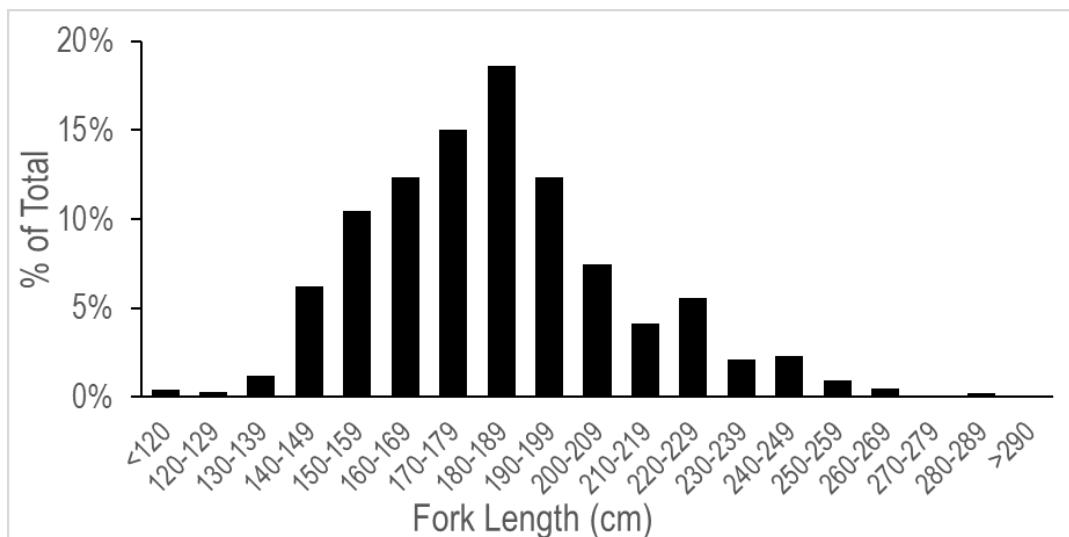


Figure 3.6. Length distribution of shortfin mako shark landings in the recreational fishery, 2012-2016 (N=12,166). Source: Large Pelagics Survey.

Table 3.14. Weights and lengths of the five largest shortfin mako sharks landed at Northeast shark tournaments, 2012-2016. Source: NEFSC Apex Predators Program

Year	Mean weight of 5 largest sharks (lb)	Fork Length (in)	Fork Length (cm)	Largest male (lb)	Fork Length (in)	Fork Length (cm)
2012	349	95	241.3	368	96	243.84
2013	329.16	93	236.22	311	91	231.14
2014	319.14	92	233.68	294.4	90	228.6
2015	415.8	100	254	349	95	241.3
2016	443.8	102	259.08	507	107	271.78

3.6 Economic and Social Environment

For more information on the overall economic status of HMS fisheries, please see Chapter 6 of the 2017 SAFE report. The top overall landings port for shortfin mako sharks is Wanchese, NC (Table 3.15). Shortfin mako sharks are a minor source of economic revenue to the overall HMS commercial fisheries, but may be a significant source of seasonal revenue to individual fishermen. Shortfin mako shark ex-vessel revenue accounts for over 15 percent of the total shark

ex-vessel revenue, but only 1 percent of overall HMS ex-vessel revenue (Table 3.16). On average, there are 37 seafood dealers along the U.S. east coast that purchase shortfin mako sharks each year (Table 3.17).

Table 3.15. Top ten ports reporting shortfin mako shark landings, 2013-2017. Note: All commercial landings are in lb dw. Source: HMS eDealer database.

Port	State	Total Commercial Landings of Shortfin Mako Shark	Percentage of Total Shortfin Mako Shark Landings
Wanchese	NC	336,793	37.2%
Fairhaven	MA	98,843	10.9%
Barnegat Light	NJ	56,992	6.3%
Ocean City Harbor	MD	41,407	4.6%
New Bedford	MA	34,282	3.8%
Fort Pierce	FL	34,260	3.8%
Newfoundland and Labrador	CN	33,762	3.7%
Beaufort	NC	32,468	3.6%
Islip	NY	27,090	3.0%
Wadmalaw Island	SC	20,979	2.3%

Table 3.16. Average shortfin mako shark ex-vessel prices, and overall percentage of total shark ex-vessel revenue, 2013-2016. Note: Shark fin weights are based on shark fin landings reported to eDealer. Sources: HMS eDealer database, 2017 SAFE Report.

Year	Shark Species	Annual Landings (lb dw)	Average Ex-Vessel Price	Ex-Vessel Annual Revenue	Percentage of Overall Shark Ex-Vessel Revenue	Percentage of Overall HMS Ex-Vessel Revenue
2013	Shortfin Mako	199,177	\$1.92	\$382,420	20.3%	1.0%
	Fins	6,573	\$6.05	\$39,766		
	Total			\$422,186		
2014	Shortfin Mako	218,295	\$1.97	\$430,041	19.4%	1.0%
	Fins	5,894	\$2.34	\$13,792		
	Total			\$443,833		
2015	Shortfin Mako	141,720	\$1.92	\$272,102	9.4%	0.8%
	Fins	4,393	\$2.93	\$12,872		
	Total			\$284,975		
2016	Shortfin Mako	160,829	\$2.07	\$332,916	13.8%	0.9%
	Fins	4,342	\$3.58	\$15,546		
	Total			\$348,462		

Table 3.17. Number of Dealers that Reported Buying Shortfin Mako Sharks from pelagic longline vessels, 2013-2017. Source: HMS eDealer database.

Year	Number of Dealers
2013	43
2014	38
2015	34
2016	33
2017	36
Average	37

HMS recreational fishing provides significant positive economic impacts to coastal communities that are derived from individual angler expenditures, recreational charters, tournaments, and the shoreside businesses that support those activities.

A report summarizing the results of the 2016 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was released in September 2017. This report, which is the 13th regarding a series of surveys that has been conducted about every 5 years since 1955, provides relevant information such as the number of anglers, expenditures by type of fishing activity, number of participants and days of participation by animal sought, and demographic characteristics of participants. The survey estimated that 8.3 million Americans participated in saltwater recreational fishing in 2016, and spent over 75 million days fishing in saltwater. This was down from 8.9 million participants, and 99 million days of recreational saltwater fishing in 2011. More information on the 2016 national survey is available at https://wsfrprograms.fws.gov/subpages/nationalsurvey/2016_Survey.html.

In 2011, NMFS conducted the National Marine Recreational Fishing Expenditure Survey (NES) to collect national level data on trip and durable good expenditures related to marine recreational fishing, and estimate the associated economic impact (Lovell et al., 2013). Nationally, marine anglers were estimated to have spent \$4.4 billion on trip related expenses (e.g., fuel, ice, bait), and \$19 billion on fishing equipment and durable goods (e.g., fishing rods, tackle, boats). Using regional input-output models, these expenditures were estimated to have generated \$56 billion in total economic impacts, and supported 364 thousand jobs in the United States in 2011.

This survey also included a separate survey of HMS Angling permit holders from the LPS region (Maine to Virginia) plus North Carolina (Hutt et al., 2014). Estimated trip-related expenditures and the resulting economic impacts for HMS recreational fishing trips are presented in Table 3.18.

For the HMS Angler Expenditure Survey, randomly selected HMS Angling permit holders were surveyed every two months, and asked to provide data on the most recent fishing trip in which they targeted HMS. Anglers were asked to identify the primary HMS they targeted, and their expenditures related to the trip. Of the 2,068 HMS anglers that returned a survey, 1,001 anglers indicated they targeted a species of tuna (i.e., bluefin, yellowfin, bigeye, or albacore tuna) on their most recent private boat trip, or simply indicated they fished for tuna in general without identifying a specific species. Of the rest of those surveyed, 88 reported on trips targeting billfish (i.e., blue marlin, white marlin, sailfish), 105 reported on trips targeting shark (i.e., shortfin mako, thresher shark, blacktip shark), and 874 either reported on trips that did not target HMS or

failed to indicate what species they targeted. Average trip expenditures ranged from \$534/trip for tuna trips to \$900 for billfish trips. Boat fuel was the largest trip-related expenditure for all HMS trips, and made up about 73 percent of trip costs for billfish trips, which is not unexpected given the predominance of trolling as a fishing method for billfish species such as marlin.

Total trip-related expenditures for 2011 were estimated by expanding average trip-related expenditures by estimates of total directed boat trips per species group from the LPS and MRIP. Total expenditures were then divided among the appropriate economic sectors, and entered into an input-output model to estimate total economic output and employment supported by the expenditures within the study region (coastal states from Maine to North Carolina). Overall, \$23.2 million of HMS angling trip-related expenditures generated approximately \$31.3 million in economic output, and supported 216 full time jobs from Maine to North Carolina in 2011. An updated trip expenditures survey of Atlantic HMS Angling Permit holders from Maine to Texas is currently being conducted for 2016, and a final report will be issued in spring 2018.

Table 3.18. HMS Recreational Fishing Trip Related Expenditures and Economic Impacts for Directed HMS Private Boat Trips (ME - NC, 2011). Sources: 2011 mail survey of Atlantic HMS Angling permit holders and *LPS.

Variable	Tuna Trips	Billfish Trips	Shark Trips	All HMS Trips
Sample size by species targeted	1,001	88	105	1,194
Average trip expenditures	\$534	\$900	\$567	\$587
Total directed HMS private boat trips *	27,648	5,123	6,669	39,440
Total trip-related expenditures	\$14,775,000	\$4,612,000	\$3,781,000	\$23,168,000
Total economic output	\$19,864,000	\$6,036,000	\$5,443,000	\$31,343,000
Employment (Full time job equivalents)	136	39	41	216

In 2014, NMFS conducted a partial update of the NES that collected data on marine angler expenditures on fishing equipment and durable goods related to recreational fishing (e.g., boats, vehicles, tackle, electronics, second homes). This survey covered Atlantic HMS anglers from Maine to Texas. HMS anglers in the Northeast (Maine to Virginia) were found to spend \$12,913 on average for durable goods and services related to marine recreational fishing, of which \$5,284 could be attributed to HMS angling (based on their ratio of HMS trips to total marine angling trips). The largest expenditures items for marine angler durable goods among HMS anglers in the Northeast were for new boats (\$3,305), used boats (\$2,835), boat maintenance (\$1,532), and boat storage (\$1,486). HMS anglers in the Northeast were estimated to have spent a total of \$61 million on durable goods for HMS angling which in turn were estimated to generate \$73 million in economic output, and support 697 jobs from Maine to Virginia in 2014 (Lovell et al. 2016). HMS anglers in the Southeast (North Carolina to Texas) were found to spend \$29,532 on average for durable goods and services related to marine recreational fishing, of which \$15,296 could be attributed to HMS angling (based on their ratio of HMS trips to total marine angling trips). The largest expenditures items for marine angler durable goods among HMS anglers were for new boats (\$8,954), used boats (\$6,579), boat maintenance (\$3,028), boat storage (\$1,813), and rods and reels (\$1,608). HMS anglers were estimated to have spent a total of \$108 million on durable goods for HMS angling which in turn were estimated to generate \$152 million in economic output, and support 1,331 jobs from North Carolina to Texas in 2014 (Lovell et al. 2016).

3.7 Protected Species Interactions in HMS Fisheries

This section summarizes information on protected species and Atlantic HMS fisheries. The 2017 HMS SAFE Report provides additional information on species protected under the Marine Mammal Protection Act, Endangered Species Act, and Migratory Bird Treaty Act, including a description of the Pelagic Longline Take Reduction Team (<http://www.nmfs.noaa.gov/pr/interactions/trt/pl-trt.html>), Take Reduction Plan, and measures to address protected species concerns. The interaction of seabirds and longline fisheries are also considered under the United States “National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries” (NPOA – Seabirds). Bycatch of HMS in other fisheries is also discussed in the 2017 HMS SAFE Report.

Protected Species – Reinitiation of ESA Section 7 Consultation in HMS Fisheries

On March 31, 2014, NMFS requested reinitiation of Section 7 consultation under the Endangered Species Act (ESA) on the Atlantic pelagic longline fishery. Despite sea turtle takes that were lower than specified in the ITS, leatherback mortality rates and total mortality levels had exceeded the level specified in the reasonable and prudent alternatives (RPAs) in the 2004 biological opinion. Additionally, new information has become available about leatherback and loggerhead sea turtle populations and sea turtle mortality. While the mortality rate measure will be re-evaluated during consultation, the overall ability of the RPA to avoid jeopardy is not affected, and NMFS is continuing to comply with the terms and conditions of the RPA and RPMs pending completion of consultation. NMFS also has confirmed that there will be no irreversible or irretrievable commitment of resources that would foreclose the formulation or implementation of any reasonable and prudent alternative measures pending completion of consultation, consistent with section 7(d) of the Act.

On July 3, 2014, NMFS issued the final determination to list the Central and Southwest Atlantic Distinct Population Segment (DPS) of scalloped hammerhead shark (*Sphyraena lewini*) as threatened species pursuant to the ESA. On August 27, 2014, NMFS published a final rule to list the following 20 coral species as threatened: five in the Caribbean including Florida and the Gulf of Mexico (*Dendrogyra cylindrus*, *Orbicella annularis*, *O. faveolata*, *O. franksi*, and *Mycetophyllia ferox*); and 15 in the Indo-Pacific (*Acropora globiceps*, *A. jacquelineae*, *A. lokani*, *A. pharaonis*, *A. retusa*, *A. rufa*, *A. speciosa*, *A. tenella*, *Anacropora spinosa*, *Euphyllia paradoxa*, *Isopora crateriformis*, *Montipora australiensis*, *Pavona diffusa*, *Porites napoensis*, and *Seriatopora aculeata*). Additionally, in that August 2014 rule, two species that had been previously listed as threatened (*A. cervicornis* and *A. palmata*) in the Caribbean were found to still warrant listing as threatened.

The Central and Southwest Atlantic DPS of scalloped hammerhead sharks and seven Caribbean species of corals have been determined to occur within the management area of Atlantic HMS fisheries. Therefore, on October 30, 2014, NMFS requested reinitiation of ESA Section 7 consultation on the continued operation and use of several HMS gear types (bandit gear, bottom longline, buoy gear, handline, and rod and reel) and associated fisheries management actions in the 2006 Consolidated Atlantic HMS FMP and its amendments. These management actions were previously consulted on in the 2001 Atlantic HMS biological opinion and the 2012 Shark

and Smoothhound biological opinion, to assess potential adverse effects of these gear types on the Central and Southwest DPS of scalloped hammerhead sharks and seven threatened coral species. NMFS has preliminarily determined that the ongoing operation of the fisheries is consistent with existing biological opinions and is not likely to jeopardize the continued existence or result in an irreversible or irretrievable commitment of resources which would foreclose formulation or implementation of any reasonable and prudent alternative measures on the threatened coral species.

With regard to the ongoing reinitiation of ESA Section 7 consultation on the Atlantic pelagic longline fishery, the effects of HMS fishery interactions with the Central and Southwest Atlantic DPS of scalloped hammerhead shark and the seven threatened coral species will be considered in the ongoing pelagic longline consultation. This will most effectively evaluate the effects of the pelagic longline fishery on all listed species in the action area.

Interactions and the MMPA

The MMPA of 1972 as amended is one of the principal Federal statutes guiding marine mammal species protection and conservation policy. In the 1994 amendments, section 118 established the goal that the incidental mortality or serious injury of marine mammals occurring during the course of commercial fishing operations be reduced to insignificant levels approaching a zero mortality rate goal (ZMRG) and serious injury rate within seven years of enactment (*i.e.*, April 30, 2001). In addition, the amendments established a three-part strategy to govern interactions between marine mammals and commercial fishing operations. These include the preparation of marine mammal stock assessment reports, a registration and marine mammal mortality monitoring program for certain commercial fisheries (Category I and II), and the preparation and implementation of take reduction plans (TRP).

NMFS relies on both fishery-dependent and fishery-independent data to produce stock assessments for marine mammals in the Atlantic Ocean, Gulf of Mexico, and the Caribbean Sea. Draft stock assessment reports are typically published in January and final reports are typically published in the fall. Final stock assessment reports can be obtained on the web at:

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-stock-assessments> while draft stock assessment reports are available at:

<https://www.fisheries.noaa.gov/national/marine-mammal-protection/draft-marine-mammal-stock-assessment-reports>.

The following list of species outlines the marine mammal species that occur off the Atlantic and Gulf Coasts that are or could be of concern with respect to potential interactions with HMS fisheries.

Common Name

Atlantic spotted dolphin
Blue whale
Bottlenose dolphin
Common dolphin
Fin whale

Scientific Name

Stenella frontalis
Balaenoptera musculus
Tursiops truncatus
Delphinis delphis
Balaenoptera physalus

Harbor porpoise	<i>Phocoena phocoena</i>
Humpback whale	<i>Megaptera novaeangliae</i>
Killer whale	<i>Orcinus orca</i>
Long-finned pilot whale	<i>Globicephala melas</i>
Minke whale	<i>Balaenoptera acutorostrata</i>
Northern bottlenose whale	<i>Hyperoodon ampullatus</i>
Northern right whale	<i>Eubalaena glacialis</i>
Pantropical spotted dolphin	<i>Stenella attenuata</i>
Pygmy sperm whale	<i>Kogia breviceps</i>
Risso's dolphin	<i>Grampus griseus</i>
Sei whale	<i>Balaenoptera borealis</i>
Short-beaked spinner dolphin	<i>Stenella clymene</i>
Short-finned pilot whale	<i>Globicephala macrorhynchus</i>
Sperm whale	<i>Physeter macrocephalus</i>
Spinner dolphin	<i>Stenella longirostris</i>
Striped dolphin	<i>Stenella coeruleoalba</i>
White-sided dolphin	<i>Lagenorhynchus acutus</i>

Under MMPA requirements, NMFS produces an annual list of fisheries (LOF) that classifies domestic commercial fisheries, by gear type, relative to their rates of incidental mortality or serious injury of marine mammals. The LOF includes three classifications:

1. Category I fisheries are those with frequent serious injury or incidental mortality to marine mammals;
2. Category II fisheries are those with occasional serious injury or incidental mortality; and
3. Category III fisheries are those with remote likelihood of serious injury or known incidental mortality to marine mammals.

The final 2017 MMPA LOF was published on January 12, 2017 (82 FR 3655). The Atlantic Ocean, Caribbean, and Gulf of Mexico large pelagic longline fishery is classified as Category I (frequent serious injuries and mortalities incidental to commercial fishing) and the southeastern Atlantic shark gillnet fishery is classified as Category II (occasional serious injuries and mortalities). The following Atlantic HMS fisheries are classified as Category III (remote likelihood or no known serious injuries or mortalities): Atlantic tuna purse seine; Gulf of Maine and Mid-Atlantic tuna, shark and swordfish, hook-and-line/harpoon; southeastern Mid-Atlantic and Gulf of Mexico shark bottom longline; and Mid-Atlantic, southeastern Atlantic, and Gulf of Mexico pelagic hook-and-line/harpoon fisheries. Commercial passenger fishing vessel (charter/headboat) fisheries are subject to Section 118 and are listed as a Category III fishery. Recreational vessels are not categorized since they are not considered commercial fishing vessels.

Fishermen participating in Category I or II fisheries are required to register under the MMPA and to accommodate an observer aboard their vessels if requested. Vessel owners or operators, or fishermen, in Category I, II, or III fisheries must report all incidental mortalities and serious injuries of marine mammals during the course of commercial fishing operations to NMFS.

There are currently no regulations requiring recreational fishermen to report takes, nor are they authorized to have incidental takes (*i.e.*, they are illegal).

The Pelagic Longline Take Reduction Team (PLTRT) was formed to address the incidental mortality and serious injury of long-finned pilot whales (*Globicephala melas*) and short-finned pilot whales (*Globicephala macrorhynchus*) in the mid-Atlantic region of the Atlantic pelagic longline fishery. Under section 118 of the MMPA, the PLTRT is charged with developing a TRP to reduce bycatch of pilot whales in the Atlantic pelagic longline fishery to a level approaching a zero mortality rate within 5 years of implementation of the plan. The PLTRT developed a final TRP (May 19, 2009, 74 FR 23349) effective June 18, 2009. The TRP implemented a suite of management strategies to reduce mortality and serious injury of pilot whales and Risso's dolphins in the Atlantic pelagic longline fishery. NMFS finalized the following three regulatory measures: (1) establish a Cape Hatteras Special Research Area (CHSRA), with specific observer and research participation requirements for fishermen operating in that area; (2) set a 20-nm (37.02-km) upper limit on mainline length for all pelagic longline sets within the MAB; and (3) require an informational placard on handling and release of marine mammals be displayed both in the wheelhouse and on the working deck of all active pelagic longline vessels in the Atlantic fishery. NMFS also finalized the following non-regulatory measures: (1) increased observer coverage in the MAB to 12-15 percent to ensure representative sampling of pilot whales and Risso's dolphins; (2) encourage vessel operators to maintain daily communication with other local vessel operators regarding protected species interactions throughout the pelagic longline fishery with the goal of identifying and exchanging information relevant to avoiding protected species bycatch; (3) recommending that NMFS update the guidelines for handling and releasing marine mammals and NMFS and the industry to develop new technologies, equipment, and methods for safer and more effective handling and release of marine mammals; and (4) recommending NMFS pursue research and data collection goals in the PLTRT regarding pilot whales and Risso's dolphins. More information on the PLTRT can be found at <http://www.nmfs.noaa.gov/pr/interactions/trt/pl-trt.html>. The PLTRT last met via webinar in October 2016 to discuss progress on a proposed rule that would modify the take reduction plan.

Interactions and the ESA

The ESA of 1973, as amended (16 U.S.C. 1531 *et seq.*), provides for the conservation and recovery of endangered and threatened species of fish, wildlife, and plants. The listing of a species is based on the status of the species throughout its range or in a specific portion of its range in some instances. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. §1532(20)] if no action is taken to stop the decline of the species. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. §1532(20)]. Species can be listed as endangered without first being listed as threatened. The Secretary of Commerce, acting through NMFS, is authorized to list marine and anadromous fish species, marine mammals (except for walrus and sea otter), marine reptiles (such as sea turtles), and marine plants. The Secretary of the Interior, acting through the USFWS, is authorized to list walrus and sea otter, seabirds, terrestrial plants and wildlife, and freshwater fish and plant species.

In addition to listing species under the ESA, the service agency (NMFS or USFWS) generally must designate critical habitat for listed species concurrently with the listing decision to the “maximum extent prudent and determinable” [16 U.S.C. §1533(a)(3)]. The ESA defines critical habitat as those specific areas that are occupied by the species at the time it is listed that are essential to the conservation of a listed species and that may be in need of special consideration, as well as those specific areas that are not occupied by the species that are essential to their conservation. Federal agencies are prohibited from undertaking actions that are likely to destroy or adversely modify designated critical habitat. Below is the list of ESA-listed species that may interact with HMS fisheries.

Marine Mammals

	Status
Blue whale (<i>Balaenoptera musculus</i>)	Endangered
Fin whale (<i>Balaenoptera physalus</i>)	Endangered
Humpback whale (<i>Megaptera novaeangliae</i>)	Endangered
Northern right whale (<i>Eubalaena glacialis</i>)	Endangered
Sei whale (<i>Balaenoptera borealis</i>)	Endangered
Sperm whale (<i>Physeter macrocephalus</i>)	Endangered

Sea Turtles

Green turtle (<i>Chelonia mydas</i>)	*Endangered/Threatened
Hawksbill sea turtle (<i>Eretmochelys imbricata</i>)	Endangered
Kemp’s ridley sea turtle (<i>Lepidochelys kempii</i>)	Endangered
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	Endangered
Loggerhead sea turtle (<i>Caretta caretta</i>)	Threatened
Olive ridley sea turtle (<i>Lepidochelys olivacea</i>)	Threatened

Critical Habitat

Northern right whale (<i>Eubaleana glacialis</i>)	Endangered
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Finfish

Smalltooth sawfish (<i>Pristis pectinata</i>)	Endangered
Atlantic Sturgeon (<i>Acipenser oxyrinchus oxyrinchus</i>)	**Endangered/Threatened
Scalloped Hammerhead Shark (<i>Sphyrna lewini</i>)	***Threatened
Oceanic Whitetip Shark (<i>Carcharhinus longimanus</i>)	Proposed Threatened
Giant Manta Ray (<i>Mobula birostris</i>)	Proposed Threatened

*Green sea turtles in U.S. waters are listed as threatened except for the Florida breeding population, which is listed as endangered. Due to the inability to distinguish between the populations away from the nesting beaches, green sea turtles are considered endangered wherever they occur in U.S. waters.

** Atlantic sturgeon have five distinct population segments. The population in the Gulf of Mexico is considered threatened. The other populations in the New York bight, Chesapeake Bay, Carolina, and South Atlantic are all considered endangered.

***Refers to the Central and Southwest Atlantic distinct population segment, the only population of this species that may interact with U.S. Atlantic HMS fisheries.

Sea Turtles

NMFS has taken several significant steps to reduce sea turtle bycatch and bycatch mortality in domestic longline fisheries. On March 30, 2001, NMFS implemented via interim final rule

requirements for U.S. flagged vessels with pelagic longline gear on board to have line clippers and dipnets to remove gear on incidentally captured sea turtles (66 FR 17370). Specific handling and release guidelines designed to minimize injury to sea turtles were also implemented. NMFS published a final report which provides the detailed guidelines and protocols (NMFS, 2008c) and a copy can be found at http://www.sefsc.noaa.gov/turtles/TM_NMFS_SEFSC_580.pdf.

A biological opinion (BiOp) completed on June 14, 2001, found that the actions of the pelagic longline fishery jeopardized the continued existence of loggerhead and leatherback sea turtles. This document reported that the pelagic longline fishery interacted with an estimated 991 loggerhead and 1,012 leatherback sea turtles in 1999. The estimated take levels for 2000 were 1,256 loggerhead and 769 leatherback sea turtles (Yeung, 2001).

On July 13, 2001 (66 FR 36711), NMFS published an emergency rule that closed the Northeast Distant (NED) area to pelagic longline fishing (effective July 15, 2001), modified how pelagic longline gear may be deployed effective August 1, 2001, and required that all longline vessels (pelagic and bottom) post safe handling guidelines for sea turtles in the wheelhouse. On December 13, 2001 (66 FR 64378), NMFS extended the emergency rule for 180 days through July 8, 2002. On July 9, 2002, NMFS published a final rule (67 FR 45393) that closed the NED to pelagic longline fishing. As part of the Reasonable and Prudent Alternative, the BiOp required NMFS to conduct an experiment with commercial fishing vessels to test fishery-specific gear modifications to reduce sea turtle bycatch and mortality. This rule also required the length of any gangions to be 10 percent longer than the length of any floatline on vessels where the length of both is less than 100 meters; prohibited stainless steel hooks; and required gillnet vessel operators and observers to report any whale sightings and required gillnets to be checked every 0.5 to 2 hours.

The experimental program required in the BiOp was initiated in the NED area in 2001 in cooperation with the U.S. pelagic longline fleet that historically fished on the Grand Banks fishing grounds. The goal of the experiment was to test and develop gear modifications that might prove useful in reducing the incidental catch and post-release mortality of sea turtles captured by pelagic longline gear while striving to minimize the loss of target catch. The experimental fishery had a three-year duration and utilized 100 percent observer coverage to assess the effectiveness of the measures. The gear modifications tested in 2001 included blue-dyed squid and moving gangions away from floatlines. In 2002, the NED experimental fishery examined the effectiveness of whole mackerel bait, squid bait, circle and "J" hooks, and reduced daylight soak time in reducing the capture of sea turtles. The experiment tested various hook and bait type combinations in 2003 to verify the results of the 2002 experiment.

On November 28, 2003, based on the conclusion of the three-year NED experiment, and preliminary data that indicated that the Atlantic pelagic longline fishery may have exceeded the Incidental Take Statement in the June 14, 2001 BiOp, NMFS published a Notice of Intent to prepare an SEIS to assess the potential effects on the human environment of proposed alternatives and actions under a proposed rule to reduce sea turtle bycatch (68 FR 66783). A new BiOp for the Atlantic pelagic longline fishery was completed on June 1, 2004 (NMFS, 2004b). The BiOp concluded that long-term continued operation of the Atlantic pelagic longline fishery, authorized under the 1999 FMP, was not likely to jeopardize the continued existence of

loggerhead, green, hawksbill, Kemp's ridley, or olive ridley sea turtles; and was likely to jeopardize the continued existence of leatherback sea turtles.

On July 6, 2004, NMFS implemented additional regulations for the Atlantic pelagic longline fishery to further reduce the mortality of incidentally caught sea turtles (69 FR 40734). These measures include requirements on hook type, hook size, bait type, dipnets, line clippers, and safe handling guidelines for the release of incidentally caught sea turtles. These requirements were developed based on the results of the 2001 – 2003 NED experiment (Watson *et al.*, 2003; Watson *et al.*, 2004; Shah *et al.*, 2004). These requirements are predicted to decrease the number of total interactions, as well as the number of mortalities, of both leatherback and loggerhead sea turtles (NMFS, 2004c). Post-release mortality rates are expected to decline due to a decrease in the number of turtles that swallow hooks which engage in the gut or throat, a decrease in the number of turtles that are foul-hooked and improved handling and gear removal protocols. NMFS is working to export this new technology to pelagic longline fleets of other nations to reduce global sea turtle bycatch and bycatch mortality. U.S gear experts have presented this bycatch reduction technology and data from research activities at approximately 15 international events that included fishing communities and resource managers between 2002 and mid-2005 (NMFS, 2005a).

On February 7, 2007, NMFS published a rule that required bottom longline vessels to carry the same dehooking equipment as the pelagic longline vessels. To date, all bottom and pelagic longline vessels with commercial shark permits are required to have NMFS-approved sea turtle dehooking equipment onboard (pelagic longline: July 6, 2004, 69 FR 40734; BLL: February 7, 2007, 72 FR 5639).

A May 20, 2008 BiOp issued under Section 7 of the ESA for Amendment 2 concluded, based on the best available scientific information, that Amendment 2 was not likely to jeopardize the continued existence of endangered green, leatherback, and Kemp's ridley sea turtles; the endangered smalltooth sawfish; or the threatened loggerhead sea turtle.

On March 31, 2014, the Office of Sustainable Fisheries (OSF) requested reinitiation of consultation on the pelagic longline BiOp due to new information on mortality rates and total mortality estimates for leatherback turtles that exceed those specified in the reasonable and prudent alternative (RPA); changes in information about leatherback and loggerhead populations; and new information on sea turtle mortality. On October 30, 2014, NMFS requested reinitiation of ESA Section 7 consultation on the continued operation and use of several HMS gear types (bandit gear, bottom longline, buoy gear, handline, and rod and reel) and associated fisheries management actions in the 2006 Consolidated Atlantic HMS FMP and its amendments, after Central and Southwest Atlantic DPS of scalloped hammerhead sharks and seven Caribbean species of corals were determined to occur within the management area of Atlantic HMS fisheries. See above in this section for more information on reinitiation of ESA Section 7 consultation in HMS fisheries.

Internationally, the United States is pursuing sea turtle conservation through international, regional, and bilateral organizations such as ICCAT, the Asia Pacific Fishery Commission, and FAO Committee on Fisheries (COFI). At the 24th session of COFI held in 2001, the United

States distributed a concept paper for an international technical experts meeting to evaluate existing information on turtle bycatch, to facilitate and standardize collection of data, to exchange information on research, and to identify and consider solutions to reduce turtle bycatch. COFI agreed that an international technical meeting could be useful despite the lack of agreement on the specific scope of that meeting. The United States has developed a prospectus for a technical workshop to address sea turtle bycatch in longline fisheries as a first step. Other gear-specific international workshops may be considered in the future. More information on sea turtle bycatch mitigation can be found in Chapter 8 of the 2017 SAFE Report.

Interactions with Seabirds

Gannets, gulls, greater shearwaters, and storm petrels are occasionally hooked by Atlantic pelagic longline gear. These species and all other seabirds are protected under the Migratory Bird Treaty Act. The majority of longline interactions with seabirds occur as the gear is being set. The birds eat the bait and become hooked on the line. The line then sinks and the birds are subsequently drowned.

The NPOA-Seabirds (http://www.nmfs.noaa.gov/ia/species/seabirds/us_npoa.pdf) was released in February 2001, and calls for detailed assessments of longline fisheries, and, if a problem is found to exist within a longline fishery, for measures to reduce seabird bycatch within two years. Because interactions appear to be relatively low in Atlantic HMS fisheries, the adoption of immediate measures is unlikely. The 2014 Report on the Implementation of the United States National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries was submitted to the UN FAO in June 2014 and can be found here http://www.nmfs.noaa.gov/ia/resources/publications/ccrf/longline_fisheries.pdf.

4.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

This EA analyzes the impacts of the alternatives described fully in Chapter 2. ICCAT's 2017 shortfin mako shark stock assessment concluded that the North Atlantic stock is overfished and that overfishing is occurring. ICCAT adopted new management measures for shortfin mako (Recommendation 17-08), which the United States must implement as necessary and appropriate under ATCA. These measures largely focus on maximizing live releases of shortfin mako sharks, allowing retention only in limited circumstances, increasing minimum size limits, and improving data collection in ICCAT fisheries. NMFS analyzes management measures in this emergency action to reduce fishing mortality in the commercial and recreational shortfin mako shark fisheries and contribute to ending overfishing.

This chapter analyzes the environmental effects of the alternatives using the best available scientific information. Based upon the best available scientific information and the scientific judgment of NMFS experts on fisheries science and management, the preferred alternative is expected to immediately reduce fishing mortality on North Atlantic shortfin mako sharks in U.S. fisheries and address the U.S. component of overfishing, consistent with the requirements of ICCAT Recommendation 17-08.

4.1 Ecological Impacts

Alternative 1: No Action. Do not implement management measures to address overfishing for shortfin mako sharks in Atlantic HMS fisheries.

Alternative 1 would not implement any management measures in the HMS commercial or recreational fisheries to address overfishing of shortfin mako sharks. Based on the results of the 2017 stock assessment, NMFS has determined that North Atlantic shortfin mako sharks are overfished and experiencing overfishing. If no management measures are implemented to reduce fishing mortality, overfishing could continue, which would result in direct adverse impacts on the shortfin mako stock.

Indirect ecological impacts to other species caught in the relevant fisheries would likely be neutral. The primary gears associated with the capture of shortfin mako sharks are pelagic longline and rod and reel, and no changes would occur under the No Action alternative. Thus, indirect ecological impacts are likely neutral.

When considered in the context of management measures in the past, present, and foreseeable future, the cumulative impacts of Alternative 1 would be minor and adverse (see Chapter 5). The analysis above takes into account past and present management measures while discussing ecological impacts.

Alternative 2: Require live release of shortfin mako sharks in the commercial pelagic longline fishery, prohibit landings of shortfin mako sharks by commercial fishermen using any other gear type, and establish a recreational size limit of 71 inches (180 cm) FL for male and 83 inches (210 cm) FL for female shortfin mako sharks.

Under Alternative 2, shortfin mako sharks alive when brought alongside pelagic longline vessels would be released, and retention would be prohibited by commercial fishermen using other gears, reducing the amount of commercial landings. Additionally, recreational vessels would only be allowed to retain male shortfin mako sharks at least 71 in (180 cm) FL and female shortfin mako sharks at least 83 in (210 cm) FL, reducing the amount of recreational landings.

Based on Pelagic Observer Program data (Table 3.8), an average of 72 percent of the 2,902 shortfin mako sharks caught by U.S. pelagic longline fishermen are alive when brought alongside pelagic longline vessels. Under this alternative all of these shortfin mako sharks would need to be released. We do not expect the number of shortfin mako shark interactions to change in the pelagic longline fishery.

The prohibition on landing shortfin mako sharks in commercial gear types other than pelagic longline (e.g., bottom longline, gillnet, hand gear) would reduce landings 100 percent in those gears, however the magnitude of landings by these gear types is very small (< 1 percent of total landings) compared to pelagic longline (Table 4.1). Observed shortfin mako shark catches in the shark bottom longline fishery is extremely low (Table 3.7), with only a few interactions being reported from non-pelagic longline gear in recent years (Table 3.6). Thus, this portion of the measure could reduce commercial landings by approximately an additional 3 percent, bringing the total commercial landings reduction under this alternative to approximately 75 percent.

Table 4.1. Shortfin mako shark commercial landings by gear type, 2013-2016. Source: HMS eDealer database, which includes some uncertainty in gear type reporting.

Gear Type	Total Landed Weight (lb dw)	Percent of Total
Longline (Pelagic and Bottom)	700,263	97.26%
Gillnets	7,914	1.10%
Hook and Line	7,180	1.00%
Hand Line	2,758	0.38%
Other/Unknown	1,906	0.26%

According to length composition information from the Large Pelagics Survey (Table 4.2), this alternative would reduce the recreational landings of male shortfin mako sharks by up to 44 percent and female shortfin mako sharks by up to 78 percent assuming 100 percent retention of legal-sized sharks. Shortfin mako sharks below those minimum sizes would still be caught and released by recreational fishermen, but only 56 percent of males and 22 percent of females that are caught are expected to be large enough to retain under this alternative.

Based on the sex ratio and size composition of recreational catch (Table 4.2), the weighted cumulative recreational landings reduction from this measure could be approximately 49 percent.

Table 4.2. Size composition of sampled male and female mako sharks in the recreational fishery, 2010-2016 (N=581). Source: Large Pelagics Survey.

Fork Length Category	Percent of Total Males	Percent of Total Females
<54 in (137 cm)	0	1
54-71 in (137-180 cm)	44	38
71-83 in (180-210 cm)	45	39
>83 in (210 cm)	11	22

These landings reductions are not directly reflective of the total mortality reduction that could be expected from these measures. The mortality reductions would be less than the percentages identified once post-release mortality is considered. The post-release mortality rate for pelagic longline gear has been estimated to be approximately 30 percent (Campana et al., 2016; SCRS 2017), but is unknown in other gear types. Using a 30-percent post-release mortality rate, of the 72 percent of shortfin mako sharks that will be released alive from pelagic longline gear, approximately 627 (30 percent) of those individuals will subsequently die. Because we do not have post-release mortality rate estimates for other gears, those mortalities cannot be estimated. The realized fishing mortality rate reduction from implementing these measures will be estimated by the SCRS in 2019.

Compared to the No Action alternative, this alternative would likely result in moderate beneficial ecological impacts. The measures would result in an increase in the number of live releases of shortfin mako sharks that would otherwise have been retained and landed. Other direct and indirect ecological impacts, including to other species caught in the relevant fisheries, would likely be neutral unless fishing effort were to decline as a result of reduced landing opportunities for shortfin mako sharks.

When considered in the context of management measures in the past, present, and foreseeable future, the cumulative impacts of Alternative 2 would be moderate and beneficial, the same as the direct ecological impacts discussed above (see Chapter 5). The analysis above takes into account past and present management measures while discussing ecological impacts.

Alternative 3 (*Preferred*): Require live release of shortfin mako sharks in the commercial pelagic longline fishery, prohibit landings of shortfin mako sharks commercial fishermen using any other gear type, and establish a recreational size limit of 83 inches (210 cm) FL for all shortfin mako sharks.

Alternative 3 is similar to Alternative 2, with the only difference being the selected minimum size limit for the recreational fishery. Under Alternative 3, shortfin mako sharks alive when brought alongside pelagic longline vessels would be released, and retention by commercial fishermen using other gears would be prohibited, reducing the amount of commercial landings the same as Alternative 2. Additionally, recreational vessels would only be allowed to retain

shortfin mako sharks at least 83 in (210 cm) FL, reducing the amount of recreational landings relative to Alternative 2.

Based on Pelagic Observer Program data (Table 3.8), an average of 72 percent of the 2,902 shortfin mako sharks caught by U.S. pelagic longline fishermen are alive when brought alongside pelagic longline vessels. Under this alternative all of these shortfin mako sharks would need to be released. We do not expect the number of shortfin mako shark interactions to change in the pelagic longline fishery.

The prohibition on landing shortfin mako sharks in commercial gear types other than pelagic longline (e.g., bottom longline, gillnet, hand gear) would reduce landings 100 percent in those gears; however, the magnitude of landings by these gear types is very small (< 1 percent of total landings) compared to pelagic longline (Table 4.1). Observed shortfin mako shark catches in the shark bottom longline fishery is extremely low and reported logbook interactions are low in recent years (Tables 3.6 and 3.7). Thus, this portion of the measure would reduce commercial landings an additional 3 percent, bringing the total commercial landings reduction under this alternative to approximately 75 percent.

According to length composition information from the Large Pelagics Survey (Table 4.3), the recreational minimum size limit could reduce landings by approximately 83 percent in the HMS recreational fishery.

Table 4.3. Proportions and cumulative weights of shortfin mako sharks in various length categories in the recreational fishery, 2012-2016. Source: Large Pelagics Survey.

Fork Length Category	Count	Percent of Total (Count)	Weight in Category (kg)	Percent of Total (Weight)
<54 in (137 cm)	89	1%	1,691	0%
54-71 in (137-180 cm)	5,490	45%	256,655	29%
71-83 in (180-210 cm)	4,676	38%	361,937	41%
>83 in (210 cm)	1,911	16%	265,497	30%
Total	12,166		885,779	

As with Alternative 2, these landings reductions are not directly reflective of the total mortality reduction that could be expected from these measures. The mortality reductions would be less than the percentages identified once post-release mortality is considered. The post-release mortality rate for pelagic longline gear has been estimated to be approximately 30 percent (Campana et al., 2016; SCRS 2017), but is unknown in other gear types. Using a 30-percent post-release mortality rate, of the 72 percent of shortfin mako sharks that will be released alive from pelagic longline gear, approximately 627 (30 percent) of those individuals will subsequently die. Because we do not have post-release mortality rate estimates for other gears, those mortalities cannot be estimated. The realized fishing mortality rate reduction from implementing these measures will be estimated by the SCRS in 2019.

Compared to the No Action alternative, this alternative would likely result in moderate beneficial ecological impacts. The measures would result in large numbers of live releases of shortfin

mako sharks that would otherwise have been retained and landed. Other direct and indirect ecological impacts, including non-target species, would likely be neutral unless fishing effort were to decline as a result of reduced landing opportunities for shortfin mako sharks.

When considered in the context of management measures in the past, present, and foreseeable future, the cumulative impacts of Alternative 3 would be moderate and beneficial, the same as the direct ecological impacts discussed above. The analysis above takes into account past and present management measures while discussing ecological impacts.

Alternative 4: Prohibit landing of shortfin mako sharks in all Atlantic HMS fisheries (catch and release only).

This alternative would place shortfin mako sharks on the prohibited species list, and therefore prohibit the retention of shortfin mako sharks in both the commercial and recreational HMS fisheries. Recreational fishermen would only be authorized to catch and release shortfin mako sharks, similar to current regulatory provisions to catch and release white sharks. Total landings of shortfin mako sharks would be reduced from their current levels (Tables 3.2, 3.3) to zero. Interactions with shortfin mako sharks would still occur in both recreational and commercial fisheries, so the only remaining source of mortality would be from post-release mortality (30 for pelagic longline, unknown for other gears).

This alternative would likely result in moderate beneficial ecological impacts. The measures would result in an increase in the number of live releases of shortfin mako sharks that would otherwise have been retained and landed. Other direct and indirect ecological impacts, including to other species caught in the relevant fisheries, would likely be neutral to slightly positive, as fishing effort may decline somewhat as a result of reduced landing opportunities for shortfin mako sharks.

When considered in the context of management measures in the past, present, and foreseeable future, the cumulative impacts of Alternative 4 would be moderate and beneficial, the same as the direct ecological impacts discussed above (see Chapter 5). The analysis above takes into account past and present management measures while discussing ecological impacts.

4.2 Habitat Impacts

Ecological impacts to habitat, including essential fish habitat (EFH), under any of the considered alternatives would likely be neutral and have no adverse effects as the alternatives (restricting landings of shortfin mako sharks) would not have any impact on fishing practices and their impact on habitat.

In the 2006 Consolidated HMS FMP and Amendment 10 to the 2006 Consolidated HMS FMP, NMFS reviewed the various gear types with the potential to affect EFH and, based on the best information available at that time, NMFS determined that fishing for sharks is not likely to adversely affect EFH. Gears commonly used that would be impacted by this action include pelagic longline and rod and reel gear. Amendment 10 to the 2006 Consolidated HMS FMP analyzed EFH impacts resulting from these gear types. Amendment 10 found that pelagic

longline and rod and reel gear do not typically interact with the sea floor; therefore, these gear types are unlikely to impact EFH (NMFS 2015b). Certain fishing gears can have negative effects on EFH and these emergency action alternatives are not expected to change the fishing gears authorized relative to the status quo. Thus, there is no evidence to suggest that implementing any of the alternatives in this amendment would adversely affect EFH.

4.2.1 Essential Fish Habitat Assessment

Pursuant to 16 U.S.C. 1855(b)(1), and as implemented by 50 C.F.R. 800.815, the Magnuson-Stevens Act requires NMFS to identify and describe EFH for each life stage of managed species and to evaluate the potential adverse effects of fishing activities on EFH including the cumulative effects of multiple fisheries activities. If NMFS determines that fishing gears are having an adverse effect on HMS EFH, or other species' EFH, then NMFS must include management measures that minimize adverse effects to the extent practicable. Ecological impacts to EFH due the preferred alternative in this amendment (require live release of shortfin mako sharks in the commercial pelagic longline fishery, prohibit landings of shortfin mako sharks by all other commercial gear types, and establish a recreational minimum size limit of 83 in (210 cm) FL for all shortfin mako sharks) would likely be neutral and have no adverse effects, as the alternatives would not adversely affect EFH.

NMFS conducted a literature review as part of Amendment 10 to the 2006 Consolidated Atlantic HMS FMP (82 FR 42329, September 7, 2017) to investigate additional impacts of HMS fishing gears on Atlantic HMS EFH since Amendment 1, and the Atlantic HMS EFH 5-Year Review document completed in 2015. NMFS did not find any significant changes in effects to HMS EFH from HMS and non-HMS fishing gears. NMFS found no new information that HMS fishing gear would have adverse effects on EFH. The alternatives considered in this action would not change the fishing gears authorized relative to the status quo. Therefore, this action in the context of the fishery would not have an adverse effect on EFH and EFH consultation is not required.

4.3 Protected Resources Impacts

This section contains a discussion of the expected protected resources impacts from each of the analyzed alternatives for the recreational and commercial fisheries. In this section, references to bycatch only refer to protected resources interactions, unless otherwise specified.

Alternative 1

Alternative 1 would not alter current management measures to address overfishing of shortfin mako sharks. Therefore, the direct and indirect impacts on protected resources would be neutral, as there would be no increase or decrease in fishing effort and consequently, no changes in bycatch or bycatch rates of protected resources are expected in the shark fisheries. The cumulative impacts on protected resources are expected to be neutral as well, given there would be no change in fishing effort or in bycatch rates for protected resources.

Alternative 2

Under Alternative 2, commercial pelagic longline vessels would be required to release all live shortfin mako sharks, retention would be prohibited by commercial fishermen using gear types, and the recreational minimum size limit would be increased to 71 in (180 cm) FL for male and 83 in (210 cm) FL for female shortfin mako sharks. This alternative is not expected to reduce the overall number of recreational or commercial shark fishermen, or affect overall fishing effort. Recreational fishermen typically use rod and reel gear which rarely interacts with protected resources and the gear is actively managed and non-target species are usually released quickly in a manner that maximizes the chance for survival. No increases in protected resources interactions in the commercial pelagic longline fishery would be expected. No new impacts beyond those considered in previous ESA Section 7 consultations on this fishery are anticipated. Thus, direct and indirect impacts on protected resources would be neutral. The cumulative impacts on protected resources are expected to be neutral as well given no expected change in fishing effort.

Alternative 3 – Preferred Alternative

Under Alternative 3, commercial pelagic longline vessels would be required to release all live shortfin mako sharks, retention would be prohibited by commercial fishermen using other gear types, and the recreational minimum size limit would be increased to 83 in (210 cm) FL for all shortfin mako sharks. This alternative is not expected to reduce the overall number of recreational or commercial shark fishermen, or affect overall fishing effort. Recreational fishermen typically use rod and reel gear which rarely interacts with protected resources and the gear is actively managed and non-target species are usually released quickly in a manner that maximizes the chance for survival. No increases in protected resources interactions in the commercial pelagic longline fishery would be expected. No new impacts beyond those considered in previous ESA Section 7 consultations on this fishery are anticipated. Thus, direct and indirect impacts on protected resources would be neutral. The cumulative impacts on protected resources are expected to be neutral as well given no expected change in fishing effort.

Alternative 4

This alternative would place shortfin mako sharks on the prohibited species list, and therefore prohibit the retention of shortfin mako sharks in both the commercial and recreational HMS fisheries. Recreational fishermen would only be authorized to catch and release shortfin mako sharks. This alternative is not expected to reduce the overall number of recreational shark fishermen, however it could reduce the number of trips targeting shortfin mako sharks due to the inability to land them. Recreational fishermen typically use rod and reel gear which rarely interacts with protected resources and the gear is actively managed and non-target species are usually released quickly in a manner that maximizes the chance for survival. No increases in protected resources interactions in the commercial pelagic longline fishery would be expected. No new impacts beyond those considered in previous ESA Section 7 consultations on this fishery are anticipated. Thus, direct and indirect impacts on protected resources would be neutral to slightly beneficial. The cumulative impacts on protected resources are expected to be neutral to slightly beneficial as well given little expected change in fishing effort.

4.4 Economic and Social Impacts

This chapter assesses the expected economic and social impacts of the alternatives presented in this document. In this rulemaking, NMFS considered a range of alternatives to address shortfin mako shark overfishing and meet the objectives of the action. The expected socioeconomic impacts of the different alternatives considered and analyzed are discussed below.

Alternative 1

Alternative 1 would not implement any management measures to address overfishing of shortfin mako sharks. Therefore, the direct and indirect socioeconomic impacts would be neutral, as there would be no change in fishing effort or landings of shortfin mako sharks. In recent years, commercial revenues from shortfin mako sharks have averaged approximately \$375,000 per year, which equates to approximately 1 percent of overall HMS ex-vessel revenues (Table 3.14). Similarly, recreational economic activity, including charter/headboat profits, would likely remain consistent with the recent past, as described in section 3.6. The cumulative socioeconomic impacts are expected to be neutral as well given there would be no change in fishing effort or landings.

Alternative 2

Under Alternative 2, commercial pelagic longline vessels would be required to release all live shortfin mako sharks, retention would be prohibited by commercial fishermen using other gear types, and the recreational minimum size limit would be increased to 71 in (180 cm) FL for males and 83 in (210 cm) FL for female shortfin mako sharks. Compared to the No Action alternative, this alternative is expected to reduce ex-vessel revenues derived from shortfin mako sharks commensurate with the landings reduction for the commercial fisheries, as detailed in section 4.1 (approximately 75 percent). Thus, the commercial fisheries could cumulatively experience revenue losses of approximately \$281,000 per year, 97 percent of which would be lost by the pelagic longline fishery. Lost revenues would have greater social and economic impacts on fishing communities with higher reliance on shortfin mako shark landings, including Wanchese, NC, Fairhaven/New Bedford, MA, and Barnegat Light, NJ (Table 3.13). However, the socioeconomic impacts associated with these reductions in revenue are not expected to be significant, as shortfin mako sharks comprise less than 1 percent of total HMS ex-vessel revenues on average (Table 3.14), and an even smaller fraction of total fisheries revenues in the affected fishing communities. These socioeconomic impacts on the commercial fisheries are expected to be slightly negative.

As detailed in section 4.1, this alternative would reduce recreational landings of shortfin mako sharks by approximately 49 percent. Catch and release would still be permitted, therefore, a substantial reduction in recreational fishing or charter/headboat activity is not expected.

However, the reduced opportunities to catch and land a shortfin mako shark of legal size may slightly reduce demand and revenues for charters that target this species. Approximately five percent of charter vessels and seven percent of headboat vessels in the U.S. Atlantic target pelagic sharks, including shortfin mako; the majority of these businesses being located off the northeast United States (Hutt and Silva 2015). Therefore, the indirect socioeconomic impacts associated with recreational shark fishing effort (fuel, bait, fishing supply expenditures, tournament participation, etc.) are expected to be slightly negative.

Compared to the No Action alternative, the direct and indirect socioeconomic impacts of this alternative would be slightly negative. The cumulative socioeconomic impacts are also expected to be slightly negative.

Alternative 3 – Preferred Alternative

Under Alternative 3, commercial pelagic longline vessels would be required to release all live shortfin mako sharks, retention would be prohibited by commercial fishermen using other gear types, and the recreational minimum size limit would be increased to 83 in (210 cm) FL for all shortfin mako sharks. Compared to the No Action alternative, this alternative is expected to reduce ex-vessel revenues derived from shortfin mako sharks commensurate with the landings reduction for the commercial fisheries, as detailed in section 4.1 (approximately 75 percent). Thus, the commercial fisheries could cumulatively experience revenue losses of approximately \$281,000 per year, 97 percent of which would be lost by the pelagic longline fishery. Lost revenues would have greater social and economic impacts on fishing communities with higher reliance on shortfin mako shark landings, including Wanchese, NC, Fairhaven/New Bedford, MA, and Barnegat Light, NJ (Table 3.13). However, the socioeconomic impacts associated with these reductions in revenue are not expected to be significant, as shortfin mako sharks comprise less than 1 percent of total HMS ex-vessel revenues on average (Table 3.14), and an even smaller fraction of total fisheries revenues in the affected fishing communities. These socioeconomic impacts on the commercial fisheries are expected to be slightly negative.

As detailed in section 4.1, this alternative would reduce recreational landings of shortfin mako sharks by approximately 83 percent. Catch-and-release would still be permitted, therefore, a significant reduction in recreational fishing or charter/headboat activity is not expected. However, the reduced opportunities to catch and land a shortfin mako shark of legal size may slightly reduce demand and revenues for charters that target this species. Approximately five percent of charter vessels and seven percent of headboat vessels in the U.S. Atlantic target pelagic sharks, including shortfin mako; the majority of these businesses being located off the northeast United States (Hutt and Silva 2015).

As shown in Table 3.14, the minimum size limit under this alternative may not greatly impact tournament landings of shortfin mako sharks, where most of the largest sharks landed were above the 83-in (210-cm) FL minimum size limit. Therefore, the indirect socioeconomic impacts associated with recreational shark fishing effort (fuel, bait, fishing supply expenditures, tournament participation, etc.) are expected to be slightly negative. Compared to the No Action alternative, the direct and indirect socioeconomic impacts of this alternative would be slightly negative. The cumulative socioeconomic impacts are also expected to be slightly negative.

Alternative 4

This alternative would place shortfin mako sharks on the prohibited species list, and therefore prohibit the retention of shortfin mako sharks in both the commercial and recreational HMS fisheries. Recreational fishermen would only be authorized to catch and release shortfin mako sharks. Compared to the No Action alternative, this alternative would eliminate all commercial ex-vessel revenues derived from shortfin mako sharks (approximately \$375,000 per year). Lost revenues would have greater social and economic impacts on fishing communities with higher

reliance on shortfin mako shark landings, including Wanchese, NC, Fairhaven/New Bedford, MA, and Barnegat Light, NJ (Table 3.13). However, the socioeconomic impacts associated with these reductions in revenue are not expected to be significant, as shortfin mako sharks comprise less than 1% of total HMS ex-vessel revenues on average (Table 3.14), and an even smaller fraction of total fisheries revenues in the affected fishing communities. These socioeconomic impacts on the commercial fisheries are expected to be slightly negative.

This alternative would also eliminate recreational landings of shortfin mako sharks. However, as catch-and-release would still be permitted, a reduction in recreational fishing activity would not be expected as a result of this alternative. Due to the inability to land large shortfin mako sharks, it is possible that tournament participation could decline somewhat, resulting in minor negative indirect socioeconomic impacts.

Compared to the No Action alternative, the direct and indirect socioeconomic impacts of this alternative would be slightly negative. The cumulative socioeconomic impacts are also expected to be slightly negative.

5.0 Cumulative Effects Analysis

A cumulative effects analysis (CEA) is required by the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR part 1508.7). The purpose of CEA is to consider the combined effects of actions on the human environment over time that would be missed if each action were evaluated separately. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective, but rather, the intent is to focus on those effects that are truly meaningful. A cumulative impact assessment is not necessarily required as part of an EA under NEPA as long as the significance of cumulative impacts have been considered. The following sections address the expected cumulative impacts of the alternatives.

5.1 Past, Present, and Reasonably Foreseeable Future Actions

As discussed in Chapter 3, NMFS has taken a number of actions in the past in order to, among other things, rebuild overfished fisheries and prevent overfishing of Atlantic sharks. These actions have included FMPs, FMP amendments, and framework actions.

Recent major actions within HMS fisheries that may affect commercial and recreational HMS fishermen that interact with sharks both directly and indirectly are listed below (**Error! Reference source not found.**). These fisheries are expected to be most affected by the measures in this action. A comprehensive list of all HMS actions by year can be found in Chapter 5 of Amendment 5b to the 2006 Consolidated HMS FMP and Chapter 1 of the 2017 SAFE Report. However, this section focuses on the past, present, and reasonably foreseeable future actions with the most relevance to this action, thereby potentially contributing to cumulative impacts.

Table 5.1. Recent major actions within HMS fisheries that may affect pelagic longline and recreational HMS fishermen dealing with sharks.

Federal Register Cite	Date	Rule or Notice
2017		
82 FR 3209	01/11/2017	Final rule; Atlantic Highly Migratory Species; Technical Amendment to Regulations
82 FR 4856	1/17/2017	Notice of Receipt of an Application for Exempted Fishing Permit and Availability of Draft Environmental Assessment for Pelagic Longline Research in East Florida Coast Closed Area
82 FR 10746	2/15/2017	Extension of Comment Period and Announcement of Public Webinar for Exempted Fishing Permit Application for Pelagic Longline Research in East Florida Coast Closed Area
82 FR 12296	3/2/2017	Annual Adjustment of Atlantic Bluefin Tuna Purse Seine and Reserve Category Quotas; Inseason Quota Transfer of 45 mt from the Reserve Category to the Longline Category
82 FR 12747	3/7/2017	Inseason Transfer of 40 mt Atlantic Bluefin Tuna Quota from the Reserve Category to the General Category and Adjusted Daily Retention Limit for March 5 – March 31
82 FR 14162	3/17/2017	Atlantic Bluefin Tuna Angling Category Southern Area Trophy Fishery Closure March 20
82 FR 16136	4/3/2017	Atlantic Bluefin Tuna General Category Fishery Closure March 29 – May 31
82 FR 16478	4/4/2017	Final Rule to Implement Amendment 5b to the 2006 Consolidated Atlantic HMS Fishery Management Plan
82 FR 19615	4/28/2017	Atlantic Bluefin Tuna Angling Category Recreational Daily Retention Limit Adjustment April 30 – December 31
82 FR 22616	5/17/2017	Atlantic Bluefin Tuna General Category Fishery Daily Retention Limit Adjustment for June 1 - August 31
82 FR 26603	6/8/2017	Atlantic Bluefin Tuna Angling Category Gulf of Mexico Trophy Fishery Closure June 7
82 FR 36689	8/7/2017	Atlantic Bluefin Tuna General Category Fishery Daily Retention Limit Adjustment August 5 – December 31
82 FR 37566	8/11/2017	Issuance of Exempted Fishing Permit and Availability of Final Environmental Assessment for Pelagic Longline Research in East Florida Coast Closed Area
82 FR 37825	8/14/2017	Atlantic Bluefin Tuna Angling Category Northern Area Trophy Fishery Closure August 11
82 FR 39047	8/17/2017	Atlantic Bluefin Tuna General Category Fishery Closure August 16-31
82 FR 39735	8/22/2017	Proposed Rule to Establish Quotas, Opening Dates, and Retention Limits for the 2018 Atlantic Shark Commercial Fishing Season
82 FR 41356	8/31/2017	Atlantic Bluefin Tuna General Category Fishery Daily Retention Limit Adjustment September 1 – December 31
82 FR 43500	9/18/2017	Adjustments to 2017 Northern Albacore Quota, North and South Atlantic Swordfish Quotas, and Atlantic Bluefin Tuna Reserve Category Quota
82 FR 43711	9/19/2017	Atlantic Bluefin Tuna General Category Fishery Closure September 17-30
82 FR 43710	9/19/2017	Notification that the Northeast Distant Area (NED) quota is filled and Atlantic Tunas Longline Category Individual Bluefin Quota Accounting Rules Now Apply in the NED
82 FR 46000	10/3/2017	Inseason Transfer of 156.4 mt Atlantic Bluefin Tuna Quota from the Reserve Category to the General Category
82 FR 46934	10/10/2017	Atlantic Bluefin Tuna General Category Fishery Closure October 5 – November 30
82 FR 49303	10/25/2017	Proposed Rule to Modify Individual Bluefin Tuna Quota Program Regulations for Accounting for Bluefin Tuna

Federal Register Cite	Date	Rule or Notice
82 FR 49773	10/27/2017	Proposed Rule for an Atlantic Highly Migratory Species Charter/Headboat Permit Commercial Sales Provision
82 FR 55520	11/22/2017	Transfer of Unused Atlantic Bluefin Tuna Harpoon Category Quota to the General Category; General Category Fishery Opens December 1 with 12.7 mt Quota
82 FR 55512	11/22/2017	Final Rule to Establish Quotas, Opening Dates, and Retention Limits for the 2018 Atlantic Shark Commercial Fishing Season
82 FR 57543	12/6/2017	Final rule for an Atlantic Highly Migratory Species Charter/Headboat Permit Commercial Sales Provision
82 FR 57885	12/8/2017	Atlantic Bluefin Tuna General Category Fishery Closure December 6-31, 2017
82 FR 61489	12/28/2017	Final Rule to Modify Individual Bluefin Tuna Quota Program Regulations for Accounting for Bluefin Tuna

The preferred alternative in this document implements commercial and recreational measures to address overfishing of shortfin mako sharks and help rebuild the stock. Commercial fishermen would be required to release live shortfin sharks in the pelagic longline fishery and could not land shortfin mako sharks caught on all other gear types. In the recreational fishery, NMFS would establish a recreational minimum size limit of 83 in (210 cm) FL for all shortfin mako sharks. The preferred alternative is designed to help decrease the fishing mortality of shortfin mako sharks. In doing so, the preferred alternative has fewer negative socioeconomic impacts than other measures (Alternative 4 - prohibit all shortfin mako shark landings) while still reducing fishing mortality for shortfin mako sharks. Thus, the overall cumulative impacts of the preferred alternative could have minor beneficial cumulative ecological impacts and minor adverse cumulative socioeconomic impacts. The following past and ongoing actions had or would have varying degrees of synergistic impacts on the human environment when considered in conjunction with the action in the alternatives.

- Amendment 3 to the 2006 Consolidated HMS FMP (75 FR 30484; June 1, 2010) implemented ACLs, changed quotas, promote live release of shortfin mako sharks, and added new species to the management group for the HMS fisheries. Changes in Amendment 3 were determined to likely result in moderate beneficial, cumulative ecological impacts for shortfin mako sharks by decreasing fishing mortality. However, the final measures, including taking actions internationally and promoting the live release of shortfin mako sharks, likely led to minor adverse cumulative socioeconomic impacts for commercial shark fishermen. Minor adverse cumulative socioeconomic impacts are expected when considered in conjunction with this action as more management measures are needed to address overfishing of shortfin mako sharks. There may be minor adverse cumulative socioeconomic impacts to recreational shark fisheries since the minimum size would increase in conjunction to the changes in promoting live release under Amendment 3.
- In 2011, NMFS published a rule that requires pelagic longline vessels fishing in the Gulf of Mexico to use weak hooks (76 FR 18653; April 5, 2011) in order to reduce bluefin tuna mortality in their spawning grounds. This requirement could have cumulative, beneficial impacts on shortfin mako sharks caught on pelagic longline in the Gulf of Mexico if the shortfin mako shark can straighten the hook and be released. Research on weak hook use in the pelagic longline fishery in the Atlantic showed that there was an

observed reduction of 38.5 percent for the “sharks requiem” category; however, the sample size was extremely low for this group, and the comparison between the control and experimental treatments was not significant (D. Foster, NMFS, pers. comm.). However, the benefits could be mixed as the blue shark catch ($n=144$) on weak hooks in the Atlantic showed an increase of 40 percent that was bordering on significance (p value = 0.0545) (D. Foster, NMFS, pers. comm.). In the Gulf of Mexico, a similar experiment with weak hooks did not indicate any effect (increase or decrease) in shark catch rates (Foster and Bergmann, in prep.). The weak hook requirement likely resulted in neutral cumulative adverse socioeconomic impacts on fishermen in the Gulf of Mexico region because catch composition was not predicted to significantly change for target species, such as yellowfin tuna or swordfish. When this action is considered in conjunction with the weak hook requirement, it is anticipated this action may have neutral cumulative socioeconomic impacts on the pelagic longline fishery as the commercial landings of shortfin mako sharks in the Gulf of Mexico region account for approximately 1 percent of the total shortfin mako shark landings.

- In 2010 and 2011, NMFS implemented two rules in order to adopt ICCAT Recommendations 10-07, 10-08, and 11-08. These rules prohibited the possession and harvest of oceanic whitetip, smooth hammerhead, scalloped hammerhead, great hammerhead, and silky sharks in the pelagic longline and recreational fisheries. Additionally, in 2016, NMFS implemented a rule to require live release of porbeagle sharks pursuant to ICCAT Recommendation 15-06. This current rulemaking would implement Recommendation 17-08, which requires the live release of shortfin mako sharks and retention of only dead shortfin mako sharks with pelagic longline gear and a functional electronic monitoring system onboard. In addition, commercial fishermen using other gear types would be prohibited from retaining shortfin mako sharks. Thus, this action and these ICCAT rules that either prohibit the possession of several shark species or require live release of other sharks could have minor beneficial cumulative ecological impacts as live sharks not retained would be released in a way that could maximize their post-release survival. However, minor adverse cumulative socioeconomic impacts are anticipated by the interaction of these ICCAT rules and this action as the number of shark species that pelagic longline fishermen can keep has been decreasing and, in total, the reduction of shortfin mako sharks could be about 70 percent of their current total shark catch. Thus, this action could be expected to have a minor negative socioeconomic impact on the PLL fishery.
- On January 1, 2015, NMFS implemented Amendment 7 (79 FR 71510; December 2, 2014). The rule dramatically changed bluefin tuna management, particularly within the pelagic longline fishery, which also interacts with shortfin mako sharks. In particular, Amendment 7 allocated U.S. bluefin tuna quota among domestic fishing categories; implemented measures applicable to the pelagic longline fishery, including Individual Bluefin Quotas (IBQs), two new Gear Restricted Areas, closure of the pelagic longline fishery when annual bluefin tuna quota is reached, elimination of target catch requirements associated with retention of incidental bluefin tuna in the pelagic longline fishery, mandatory retention of legal-sized bluefin tuna caught as bycatch, expanded monitoring requirements, including electronic monitoring via cameras and bluefin tuna

catch reporting via VMS, and transiting provisions for pelagic longline and bottom longline vessels. The rule also had impacts on the recreational fishery by changing the allocation of the Angling category Trophy South subquota for bluefin tuna for the Gulf of Mexico. Amendment 7 could have minor to moderate beneficial ecological cumulative impacts on shortfin mako sharks in conjunction with this action since commercial retention of shortfin mako sharks are only allowed by fishermen with pelagic longline gear and an operating electronic monitoring system onboard. Amendment 7 is not expected to have any additional ecological impacts on shortfin mako sharks in the recreational shark fishery in combination with this action as re-allocation of recreational sub-quotas for bluefin tuna is not anticipated to affect interaction rates of recreational anglers with shortfin mako sharks. Because Amendment 7 required pelagic longline vessels to carry electronic monitoring systems, it has positive synergistic socioeconomic impacts on these vessels' ability to land dead shortfin mako sharks consistent with Recommednation 17-08 and the preferred alternative in this action.

- Amendment 5b to the 2006 Consolidated HMS FMP (82 FR 16478; April 4, 2017) implemented new recreational shark endorsement permits, recreational and commercial circle hook requirements, shark release protocols, additional training requirements, and outreach and fleet communication protocols to reduce fishing mortality on dusky sharks to end overfishing and rebuild the dusky shark population. Changes in Amendment 5b were determined to likely result in minor beneficial, cumulative ecological impacts for shortfin mako sharks by decreasing fishing mortality as circle hooks would be required by commercial and recreational fishermen targeting sharks. Minor adverse cumulative socioeconomic impacts are expected when considered in conjunction with this action as commercial fishermen would only be able to retain dead shortfin mako sharks and the increase in the recreational mimimum size from 54 inches FL to 83 inches FL.

In addition, reasonably foreseeable future actions that could result in additional incremental cumulative impacts include: changes in the shark fisheries as a result of implementing Recommendation 17-08 in a long-term measure (upcoming Amendment 11 to the 2006 Consolidated HMS FMP, not this emergency action) and any other measures implemented by ICCAT for shortfin mako sharks; changes in pelagic longline fishing as a result of the 3-year review of the management measure implemented under Amendment 7 for Atlantic bluefin tuna; and the increased Atlantic bluefin tuna quota. These are measures that, while not all directly related to shortfin mako sharks, could be implemented in other rulemakings and affect participants in recreational shark and/or commercial fisheries in conjunction with the preferred alternatives in this action. Such actions would have varied effects on fishermen that interact with shortfin mako sharks in the commercial and recreational shark fisheries. Any later actions that reduce fishing opportunities could be expected to have cumulative, adverse, socioeconomic impacts on such fishermen in conjunction with this action, such as the reinitiation of Biological Opinions for several HMS fisheries (see section 3.7).

NMFS recently completed comprehensive status review under the ESA for the oceanic whitetip shark (*Carcharhinus longimanus*) in response to a petition from Defenders of Wildlife to list the species. Based on the best scientific and commercial information available, including the status review report (Young *et al.*, 2016), and after taking into account efforts being made to protect the

species, NMFS determined that the oceanic whitetip shark warrants listing as a threatened species. NMFS concluded that the oceanic whitetip shark is likely to become endangered throughout all or a significant portion of its range within the foreseeable future. Any protective regulations determined to be necessary and advisable for the conservation of the species under ESA section 4(d) would be proposed in a subsequent *Federal Register* announcement. Should the proposed listing be finalized, NMFS would also designate critical habitat for the species, to the maximum extent prudent and determinable. NMFS is currently soliciting information to assist in this listing determination, the development of proposed regulations and the designation of critical habitat in the event this proposed listing determination is finalized; the comment period ends on March 29, 2017. Oceanic whitetips sharks are currently not allowed to be retained on Atlantic HMS pelagic longline vessels. Although recreational fishermen may catch oceanic whitetips, they too are not allowed to land oceanic whitetip if they retain any ICCAT-related species, such as swordfish and tunas. NMFS does not anticipate this determination will have any impacts on commercial or recreational fishermen that interact with shortfin mako sharks, however, it ultimately will depend on the final protective management measures.

Finally, Amendment 11 to the 2006 Consolidated HMS FMP is presently under development. This amendment would include permanent measures to replace those temporarily implemented in this emergency action to address overfishing of shortfin mako sharks. The measures are expected to be similar, though not identical to the preferred alternative in this emergency action. Amendment 11 would likely continue the cumulative slightly beneficial ecological impacts and slightly adverse socioeconomic impacts associated with this emergency action.

As shortfin mako sharks are very rarely encountered in fisheries outside of HMS fisheries (Table 3.7), NMFS considers any direct, indirect, or cumulative impacts of these alternatives on non-HMS fisheries to be negligible.

5.2 Cumulative Ecological Impacts

Each alternative is described in Chapter 2 and a detailed discussion of ecological impacts for each alternative can be found in Chapter 4. Under Preferred Alternative 3, shortfin mako sharks alive at the time of capture on pelagic longline vessels would be released, and retention by commercial fishermen using other gears would be prohibited, reducing the amount of commercial landings. Additionally, recreational vessels would only be allowed to retain shortfin mako sharks at least 83 in (210 cm) FL, reducing the amount of recreational landings.

Preferred Alternative 3 would likely result in direct moderate beneficial ecological impacts (including habitat and protected resources), particularly by substantially reducing fishing mortality on shortfin mako sharks. Indirect minor beneficial ecological impacts would be expected from Alternative 3. When considered in the context of management measures in the past, present, and foreseeable future, the cumulative impacts of Alternative 3 would be moderate and beneficial, the same as the direct ecological impacts discussed above.

5.3 Cumulative Social and Economic Impacts

Each alternative is described in Chapter 2 and a detailed discussion of ecological impacts for each alternative can be found in Chapter 4. Under Preferred Alternative 3, shortfin mako sharks alive at the time of capture on pelagic longline vessels would be released, and retention by commercial fishermen using other gears would be prohibited, reducing the amount of commercial landings. Additionally, recreational vessels would only be allowed to retain shortfin mako sharks at least 83 in (210 cm) FL, reducing the amount of recreational landings.

Overall, the direct and indirect socioeconomic impacts of Preferred Alternative 3 would be minor and adverse. This alternative would reduce shortfin mako shark landings and their associated ex-vessel revenues, charter/headboat fees, and indirect socioeconomic benefits. However, the economic value of shortfin mako shark landings are small relative to the overall HMS fisheries. The cumulative socioeconomic impacts are also expected to be minor and adverse.

5.4 Magnitude and Significance of Cumulative Effects

Cumulative impacts are the impacts on the environment, which result from the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR § 1508.7). A cumulative impact includes the total effect on a natural resource, ecosystem, or human community due to past, present, and reasonably foreseeable future activities or actions of federal, non-federal, public, and private entities. Cumulative impacts may also include the effects of natural processes and events, depending on the specific resource in question. Cumulative impacts include the total of all impacts to a particular resource that have occurred, are occurring, and would likely occur as a result of any action or influence, including the direct and reasonably foreseeable indirect impacts of a federal activity. The goal of this section is to describe the cumulative ecological, economic and social impacts of past, present and reasonably foreseeable future actions with regard to the management measures presented in this document (Table 5.2).

Table 5.2. Comparison of the impacts of analyzed alternatives.

Symbol Key:

O	Neutral Impacts	O -	Minor Adverse Impacts
O +	Minor Beneficial Impacts	O -	Moderate Adverse Impacts
O +	Moderate Beneficial Impacts	● -	Major Adverse Impacts
● +			Major Beneficial Impacts

Alternative	Quality	Ecological	Protected Resources	Socio-economic
1. No Action. Do not implement management measures to address overfishing of North Atlantic shortfin mako sharks.	Direct	O -	O	O
	Indirect	O	O	O
2. Require live release of shortfin mako sharks in the commercial pelagic longline fishery, prohibit landings of shortfin mako sharks by all other commercial gear types, and establish a recreational size limit of 71 inches (180 cm) FL for male and 83 inches (210 cm) FL for female shortfin mako sharks.	Direct	O +	O	O -
	Indirect	O +	O	O -
3. (Preferred) Require live release of shortfin mako sharks in the commercial pelagic longline fishery, prohibit landings of shortfin mako sharks by all other commercial gear types, and establish a recreational size limit of 83 inches (210 cm) FL for all shortfin mako sharks.	Direct	O +	O	O -
	Indirect	O +	O	O -
4. Prohibit landing of shortfin mako sharks in all Atlantic HMS fisheries (catch and release only).	Direct	O +	O +	O -
	Indirect	O +	O +	O -

NMFS has identified its preferred action alternative in Chapter 2. The cumulative effects of the range of actions considered in this document can be considered to make a determination if significant cumulative effects are anticipated from the preferred action. The direct and indirect impacts of the proposed action on the Valued Ecosystem Components (VECs) are described in Chapter 4. The magnitude and significance of the cumulative effects, which include the additive and synergistic effects of the proposed action, as well as past, present, and future actions, have been taken into account throughout this section. When this action is considered in conjunction with all the other pressures placed on fisheries by past, present, and reasonably foreseeable future actions, it is not expected to result in any significant impacts, positive or negative. Based on the information and analyses presented in the 2006 Consolidated HMS FMP, its amendments, and this document, there are no significant cumulative effects associated with the action proposed in this document.

6.0 APPLICABLE LAWS

6.1 Magnuson-Stevens Fishery Conservation and Management Act

6.1.1 National Standards

Section 301 of the Magnuson-Stevens Act requires that FMPs contain conservation and management measures that are consistent with the ten National Standards. NMFS continues to meet the obligations of National Standard 1 by adopting and implementing conservation and management measures that will address overfishing, while achieving, on a continuing basis, the optimum yield for shortfin mako sharks and the U.S. fishing industry. The emergency measures were designed to immediately reduce the U.S. proportion of fishing mortality on the North

Atlantic shortfin mako shark stock, while avoiding regulatory discards in the commercial fishery and allowing limited landings in the commercial and recreational fisheries. NMFS uses the best scientific information available (National Standard 2) and this action would help better manage the species throughout its range (National Standard 3) in coordination with other ICCAT nations. These management measures do not discriminate among residents of different states (National Standard 4), they do not have economic allocation as their sole purpose (National Standard 5), the measures account for variations in these fisheries (National Standard 6), they avoid unnecessary duplication (National Standard 7), they take into account the fishing communities (National Standard 8), and they promote safety at sea (National Standard 10). Finally, actions taken are consistent with National Standard 9, which addresses the minimization of bycatch in fisheries. By continuing to meet the National Standards requirements of the Magnuson-Stevens Act, in this and future actions under the 2006 Consolidated HMS Fishery Management Plan, NMFS will strive to ensure that cumulative impacts of these actions will remain positive overall for the ports and communities that depend on this fishery, the Nation as a whole, and for the resource itself.

6.1.2 Emergency Action Criteria

As described in Section 1.2, under the Magnuson-Stevens Act, if the Secretary determines that an emergency exists, NMFS may implement temporary or interim final regulations necessary to address the emergency. NMFS policy guidelines for the use of emergency rules (August 21, 1997; 62 FR 44421) specify the following three criteria that define what an emergency situation is, and justification for final rulemaking: (1) The emergency results from recent, unforeseen events or recently discovered circumstances; (2) the emergency presents serious conservation or management problems in the fishery; and (3) if the emergency action is being implemented without prior public comment, the emergency can be addressed through emergency regulations for which the immediate benefits outweigh the value of advance notice, public comment, and deliberative consideration of the impacts on participants to the same extent as would be expected under the normal rulemaking process.

This action meets the NMFS guidelines and criteria for emergency rulemaking. The action is needed to address recently discovered circumstances including the 2017 ICCAT stock assessment and Recommendation 17-08 for North Atlantic shortfin mako shark in November and NMFS's determination that the stock is overfished and overfishing is occurring in December (Criteria 1). Since the North Atlantic shortfin mako shark stock has been determined to be overfished and subject to overfishing, and the stock assessment indicates dramatic reductions in fishing mortality are needed to rebuild this stock, this action is needed to address a serious conservation problem (Criteria 2). Finally, the immediate benefits to the shortfin mako shark resource and in meeting U.S. obligations under the Magnuson-Stevens Act and ATCA outweigh the value of the advance notice and public comments provided under the normal rulemaking process (Criteria 3), hence, this action is being implemented as an interim final rule. Without an interim final rule to implement these measures, the reported U.S. catches at the end of the ICCAT six-month reporting period (ending at the end of June 2018) would reflect catches under the existing management practices, and thus not reflect whether the new measures were effective to address overfishing. Any resulting action based on such information could disadvantage U.S. fishermen in the long-term.

6.2 National Environmental Policy Act (NEPA)/FONSI

The Council on Environmental Quality (CEQ) Regulations state that the determination of significance using an analysis of effects requires examination of both context and intensity, and lists ten criteria for intensity (40 CFR 1508.27). In addition, the Companion Manual for National Oceanic and Atmospheric Administration Administrative Order (NAO) 216-6A (April 22, 2016) provides sixteen criteria, the same ten as the CEQ Regulations and six additional, for determining whether the impacts of a proposed action are significant. Each criterion is discussed listed below with respect to the proposed action and considered individually, as well as in combination with the others.

1) Can the proposed action reasonably be expected to cause both beneficial and adverse impacts that overall may result in a significant effect, even if the effect will be beneficial?

The impacts of the measures on the human environment are described in section 4.0 of the EA. None of the anticipated beneficial or adverse impacts associated with this action are expected to have a significant effect. The cumulative impacts of the action that support this conclusion are detailed in section 5.0 of the EA.

2) Can the proposed action reasonably be expected to significantly affect public health or safety?

None of the measures alter the manner in which the industry conducts fishing activities for shortfin mako sharks, except for live release and landings requirements. Therefore, no changes in fishing behavior that would affect safety are anticipated. The overall effect of the action, including the communities in which they operate, will not impact adversely public health or safety. NMFS will consider comments received concerning safety and public health issues in future actions.

3) Can the proposed action reasonably be expected to result in significant impacts to unique characteristics of the geographic area, such as proximity to historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

It is possible that historic or cultural resources such as shipwrecks could be present in the area where the fishery is prosecuted. However, vessels try to avoid fishing too close to wrecks due to the possible loss or entanglement of fishing gear, and the harvest restrictions may result in reduced fishing effort compared to current management. Therefore, it is not likely that the action would result in substantial impacts to unique areas.

4) Are the proposed action's effects on the quality of the human environment likely to be highly controversial?

The impacts of the measures on the human environment are described in section 4.0 of the EA. This action would implement temporary restrictions on the harvest of shortfin mako sharks to help ensure the long-term sustainability of the stock. The measures contained in this action are not expected to be highly controversial.

5) Are the proposed action's effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

The impacts of the measures on the human environment are described in section 4.0 of the EA. None of the measures is expected to alter fishing effort or the spatial and/or temporal distribution of current fishing effort or to significantly alter fishing methods or practices. Therefore, the measures contained in this action are not expected to have highly uncertain, unique, or unknown risks on the human environment.

6) Can the proposed action reasonably be expected to establish a precedent for future actions with significant effects or represent a decision in principle about a future consideration?

None of the measures is expected to alter fishing effort or the spatial and/or temporal distribution of current fishing effort or to significantly alter fishing methods or practices. None of these measures result in significant effects nor do they represent a decision in principle about a future consideration. The impact of any future changes will be analyzed as to their significance in the process of developing and implementing them.

7) Is the proposed action related to other actions that when considered together will have individually insignificant, but cumulatively significant impacts?

As discussed in section 5 of the EA, the action is not expected to have individually insignificant, but cumulatively significant impacts. The actions, together with past, present, and future actions are not expected to result in significant cumulative impacts on the biological, physical, and human components of the environment.

8) Can the proposed action reasonably be expected to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?

The impacts of the measures on the human environment are described in section 4.0 of the EA. Although there are shipwrecks present in areas where fishing occurs, including some registered on the National Register of Historic Places, vessels try to avoid fishing too close to wrecks due to the possible loss or entanglement of fishing gear. Therefore, it is not likely that the action would adversely affect the historic resources.

9) Can the proposed action reasonably be expected to have a significant impact on endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973?

None of the measures is expected to alter fishing effort or the spatial and/or temporal distribution of current fishing effort or to significantly alter fishing methods or practices (section 4.0 of the EA). This action is not expected to affect endangered or threatened species or critical habitat.

10) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for environmental protection?

None of the measures are expected to alter fishing methods or effort such that they threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment. In fact, the measures have been found to be consistent with other applicable laws (see section 6).

11) Can the proposed action reasonably be expected to adversely affect stocks of marine mammals as defined in the Marine Mammal Protection Act?

None of the measures presented in this document are expected to adversely affect marine mammals. None of the measures is expected to alter fishing effort or the spatial and/or temporal distribution of current fishing effort or to significantly alter fishing methods or practices (section 4.0 of the EA).

12) Can the proposed action reasonably be expected to adversely affect managed fish species?

None of the measures presented in this document are expected to adversely affect managed fish species. In the commercial fisheries, shortfin mako shark is caught on pelagic longline gear when fishing for swordfish and tunas and is rarely caught on other gear types. The recreational fishery primarily uses rod and reel gear, which tends to have low rates of interactions with non-target species. The emergency measures are not expected to alter these fishing methods or level of effort. None of the measures is expected to alter fishing effort or the spatial and/or temporal distribution of current fishing effort or to significantly alter fishing methods or practices.

13) Can the proposed action reasonably be expected to adversely affect essential fish habitat as defined under the Magnuson-Stevens Fishery Conservation and Management Act?

As described in section 4.0 of the EA, this action is not expected to cause damage to the ocean, coastal habitats, and/or EFH as defined under the Magnuson-Stevens Act and identified in the fishery management plan. In general, pelagic longline and rod and reel gears have no impacts on habitat. None of the measures included in the action will have any adverse effects on essential fish habitat.

14) Can the proposed action reasonably be expected to adversely affect vulnerable marine or coastal ecosystems, including but not limited to, deep coral ecosystems?

None of the measures presented in this document are expected to adversely affect vulnerable marine or coastal ecosystems. None of the measures is expected to alter fishing effort or the spatial and/or temporal distribution of current fishing effort or to significantly alter fishing methods or practices (section 4.0 of the EA). In general, pelagic longline and rod and reel gears have no impacts on habitat.

15) Can the proposed action reasonably be expected to adversely affect biodiversity or ecosystem functioning (e.g., benthic productivity, predator-prey relationships, etc.)?

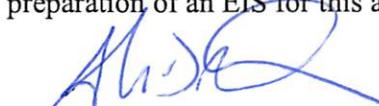
The action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area. None of the measures is expected to alter fishing effort or the spatial and/or temporal distribution of current fishing effort or to significantly alter fishing methods or practices.

16) Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?

This action would implement temporary harvest restrictions on shortfin mako sharks. There is no evidence or indication that the HMS commercial or recreational fisheries have ever resulted in the introduction or spread of nonindigenous species. None of the measures is expected to alter fishing effort or the spatial and/or temporal distribution of current fishing effort or to significantly alter fishing methods or practices. Therefore, it is highly unlikely that the action would result in the introduction or spread of a non-indigenous species.

DETERMINATION

In view of the information presented in this document and the analysis contained in the supporting EA prepared for the shortfin mako shark emergency action, it is hereby determined that this action would not significantly impact the quality of the human environment as described above and in the supporting EA. In addition, all beneficial and adverse impacts of the proposed action have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not necessary.



Alan D. Risenhoover
Director, Office of Sustainable Fisheries, NMFS



Date

6.3 Endangered Species Act

Sections 4.3 and 5.3 should be referenced for an assessment of the expected impacts of this action on endangered species and protected resources. None of these measures are expected to result in any increase in interactions with endangered or threatened species or critical habitat.

6.4 Marine Mammal Protection Act

Sections 4.3 and 5.3 should be referenced for an assessment of the impacts of the action on marine mammals. None of the measures presented in this document are expected to alter fishing methods or activities. Therefore, this action is not expected to affect marine mammals or critical habitat.

Although the pelagic longline fishery is considered a Category I fishery, with the high likelihood of serious injury or mortality to marine mammals, the actions implemented herein are not likely to produce additional adverse impacts to marine mammals that were not analyzed in the 2006 Consolidated HMS FMP. This EA analyzes potential management measures for pelagic longline and rod and reel gears and determined that these actions would not have an additional, detrimental effect on marine mammals than what was analyzed in the 2006 Consolidated HMS FMP. Consistent with the 2006 Consolidated HMS FMP, NMFS has implemented management measures imposing restrictions on fishing activities that are designed to minimize bycatch of marine mammals (*e.g.*, limited access permits, time/area closures, circle hook requirements, bait restrictions, careful release protocols, vessel monitoring system (VMS) requirements, authorized gears, and attendance at Protected Species Safe Handling, Release, and Identification workshops). In addition, measures in this final rule would be subject to all requirements of the Pelagic Longline Take Reduction Plan (May 19, 2009, 74 FR 23349). The Take Reduction Plan management measures were established to reduce serious injury and mortality of long-finned and short-finned pilot whales, and Risso's dolphins in the U.S. East Coast Atlantic pelagic longline fishery, and include a requirement to post a marine mammal handling placard, restrict pelagic longline mainline length to 20 nm in the Mid-Atlantic Bight area, and develop observer and research participation requirements to operate in the Cape Hatteras Special Research Area.

6.5 Coastal Zone Management Act

Section 307(c)(1) of the CZMA requires that all Federal activities which affect any coastal use or resource be consistent with approved state coastal zone management programs (CZMP) to the maximum extent practicable. NMFS has reviewed the relevant enforceable policies of each coastal state for this action and has determined that this action is consistent to the maximum extent practicable with the enforceable policies of the CZMP of each state along the Atlantic coast, Gulf of Mexico, and the Caribbean Sea. NMFS finds the measures in this emergency action to be consistent with the following policies contained in each state's CZMP: uses subject to management, special management areas, boundaries, authorities and organizations, and public involvement and national interest. In addition, NMFS finds the alternatives analyzed in this action to be consistent to the maximum extent practicable with the enforceable policies to manage, preserve, and protect the coastal natural resources, including fish and wildlife, and to provide recreational opportunities through public access to waters off the coastal areas. Specifically, under these enforceable policies, this action is consistent in that marine resources will be managed and conserved by implementing this emergency action under the 2006 Consolidated HMS FMP.

Pursuant to Section 307 of the CZMA and codified at 15 CFR 930.32(b), NMFS has determined that this emergency action represents an “exigent circumstance,” and therefore deviation from the full consistency process is justified at this time. NMFS intends to implement the measures described in this action prior to receiving concurrence from the states. However, Federal consistency determination letters will be sent to the affected states with the published emergency rule, and their concurrence determinations will be considered if these emergency measures are to be extended beyond the initial 180 days from implementation. Additionally, the full CZMA consistency process will be followed when NMFS develops the long-term fishery management plan amendment for the shortfin mako shark fisheries.

6.6 Administrative Procedure Act

Sections 551-553 of the Federal Administrative Procedure Act establish procedural requirements applicable to informal rulemaking by Federal agencies. The purpose is to ensure public access to the Federal rulemaking process and to give the public notice and opportunity to comment before the agency promulgates new regulations.

Pursuant to 5 U.S.C. 553(b)(B) and 5 U.S.C. 553(d)(3), the Assistant Administrator for Fisheries finds good cause to waive the otherwise applicable requirements for both notice-and-comment rulemaking and a 30-day delay in effectiveness for this emergency interim final rule implementing North Atlantic shortfin mako shark management measures. The recent unforeseen circumstances described above, and need for expedient action, make it impracticable to provide prior notice-and-comment opportunity and a 30-day cooling off period. The new stock assessment for Atlantic shortfin mako sharks was completed in August 2017 and accepted in November by ICCAT and December 2017 by NMFS, revealing that the North Atlantic shortfin mako shark stock is overfished, with overfishing occurring. ICCAT developed Recommendation 17-08 at its annual meeting in November 2017. It would be potentially harmful to the long-term sustainability of the resource to implement these measures through notice-and-comment rulemaking because immediate reductions in fishing mortality are needed to address overfishing and begin to rebuild the stock and data will be re-evaluated as soon as November 2018 to determine whether additional measures are needed. Unless the new measures are in place, they cannot be properly evaluated for effectiveness in the fall and ICCAT will not be able to determine whether additional measures are immediately needed. Additionally, affected fishing vessel owners should not require time to adjust to these regulations, as the regulations do not constitute substantive operational changes, such as changes to equipment that might require time for purchasing and installation, or changes to practices that might require special training. Here, the rule only affects the landing of a particular species, and thus vessel owners should be able to understand and implement the changes immediately. Furthermore, the agency requested voluntary implementation of these measures earlier this year, so fishermen have already been notified of these management changes.

For the reasons outlined, NMFS finds it impracticable and contrary to the public interest to provide prior opportunity to comment on the Atlantic shortfin mako shark emergency measures. As noted above, NMFS is soliciting public comment on this interim final rule and will take into consideration any comments received and any testimony at the public hearing, as it evaluates whether any modifications to the emergency measures are needed. In addition, there will be multiple opportunities for public participation and notice-and-comment rulemaking as NMFS develops a long-term fishery management amendment to rebuild North Atlantic shortfin mako sharks.

6.7 Information Quality Act (IQA)

This emergency action implements new restrictions on the harvest of North Atlantic shortfin mako sharks to reduce fishing mortality and contribute to ending overfishing. This document includes: A description of the alternatives considered, the preferred action and rationale for selection, and changes to the implementing regulations. As such, this document enables the

implementing agency (NMFS) to make a decision on implementation of management measures and this document serves as a supporting document for the interim final rule.

The action contained within this document was developed to be consistent with ATCA, the Magnuson-Stevens Act, and other applicable laws. The public will have opportunity to comment on this action once NMFS publishes an interim final rule in the *Federal Register*.

Pursuant to Section 515 of Public Law 106-554 (IQA), this information product has undergone a pre-dissemination review by the HMS Management Division of the Office of Sustainable Fisheries on February 8, 2018. The signed Pre-dissemination Review and Documentation Form is on file in that Office.

6.8 Paperwork Reduction Act

The Paperwork Reduction Act (PRA) concerns the collection of information. The intent of the PRA is to minimize the Federal paperwork burden for individuals, small businesses, state and local governments, and other persons as well as to maximize the usefulness of information collected by the Federal government. There are no changes to the reporting requirements previously approved for vessel permits, dealer reporting, or vessel logbooks. This action does not contain a collection-of-information requirement for purposes of the PRA.

6.9 Impacts of the Plan Relative to Federalism/EO 13132

This document does not contain policies with federalism implications sufficient to warrant preparation of a federalism assessment under Executive Order (EO) 13132.

6.10 Regulatory Impact Review/EO 12866

This action is being taken pursuant to the emergency provisions of the Magnuson-Stevens Act and is exempt from the Office of Management and Budget review.

6.11 Regulatory Flexibility Act (RFA)

This interim final rule is exempt from the procedures of the RFA because the rule is issued without opportunity for prior notice and opportunity for public comment.

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