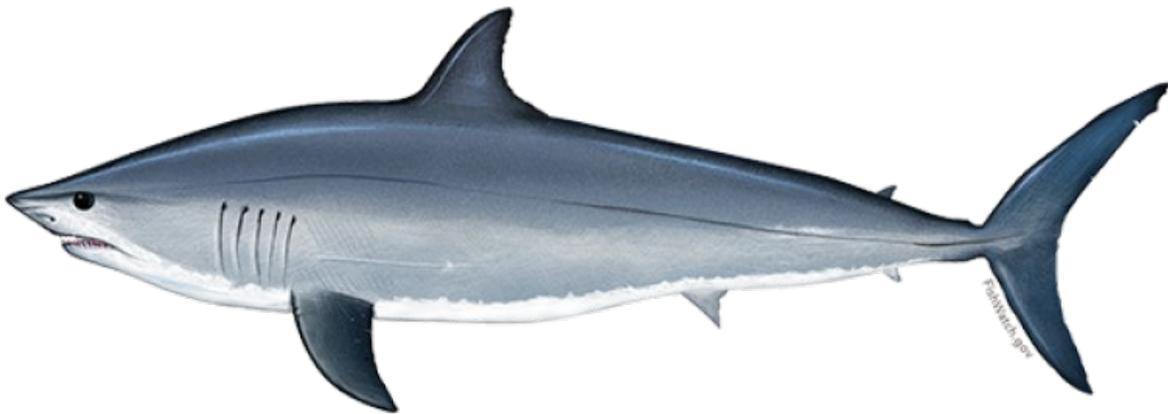


*Draft Environmental Assessment,  
Regulatory Impact Review,  
and  
Initial Regulatory Flexibility Analysis  
for a*  
**Rule to Modify the Retention Limit for Shortfin Mako Sharks**

---



**United States Department of Commerce  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
Office of Sustainable Fisheries  
Highly Migratory Species Management Division**

April 8, 2022

## **Abstract**

**Action:** Modify the retention limit for shortfin mako sharks

**Type of statement:** Draft Environmental Assessment, Regulatory Impact Review, and Initial Regulatory Flexibility Analysis

**Lead Agency:** National Marine Fisheries Service: Office of Sustainable Fisheries

**For further information:** Highly Migratory Species Management Division (F/SF1)  
National Marine Fisheries Service  
Attn: Carrie Soltanoff  
1315 East-West Highway  
Silver Spring, MD 20910  
Phone: (301) 427-8503

**Abstract:** This proposed action is necessary to implement binding recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT), as required by the Atlantic Tunas Convention Act, and to achieve domestic management objectives under the Magnuson-Stevens Fishery Conservation and Management Act. This proposed action would adopt management measures implementing a 2021 ICCAT recommendation prohibiting retention of North Atlantic shortfin mako sharks caught in association with ICCAT fisheries but that allows for the possibility of retention in the future. Accordingly, this action proposes implementing a flexible shortfin mako shark retention limit with a default of zero in commercial and recreational Atlantic highly migratory species fisheries.

# Table of Contents

Abstract	ii
Table of Contents	iii
1.0 Introduction	1
1.1 Regulatory Authorities	1
1.2 Management History	2
1.3 Proposed Action, Purpose, and Need	5
1.4 Scope and Organization of this Document	6
2.0 Summary of the Alternatives	8
2.1. Alternatives for Shortfin Mako Shark Management	8
3.0 Affected Environment	12
3.1 North Atlantic Shortfin Mako Stock Status and Biology	12
3.2 Description of the Fishery	13
3.3 Research on Shortfin Mako Sharks	16
3.4 Endangered Species Act and Marine Mammal Protection Act	17
4.0 Environmental Consequences of Alternatives	20
4.1 Ecological Evaluation	20
4.2 Social and Economic Impacts	24
4.3 Essential Fish Habitat	27
4.4 Protected Resources	28
4.5 Environmental Justice Concerns	28
4.6 Coastal Zone Management Act	29
4.7 Comparison of NEPA Alternatives	29
4.8 Cumulative Impacts	29
5.0 Mitigation and Unavoidable Adverse Impacts	31
5.1 Mitigating Measures	31
5.2 Unavoidable Adverse Impacts	31
5.3 Irreversible and irretrievable commitment of resources	32
6.0 Regulatory Impact Review	33
6.1 Description of Management Objectives	33
6.2 Description of Fishery	34
6.3 Statement of Problem	34

6.4	Description of Each Alternative	34
6.5	Economic Analysis of Expected Effects of Each Alternative Relative to the Baseline	34
6.6	Conclusion	35
7.0	Initial Regulatory Flexibility Act	36
7.1	Description of the Reasons Why Action is Being Considered	36
7.2	Statement of the Objectives of, and Legal Basis for, the Proposed Rule	36
7.3	Description and Estimate of the Number of Small Entities to Which the Proposed Rule Will Apply	36
7.4	Description of the Projected Reporting, Recordkeeping, and other Compliance Requirements of the Proposed Rule, including an Estimate of the Classes of Small Entities which will be Subject to the Requirements of the Report or Record	37
7.5	Identification of all Relevant Federal Rules which may Duplicate, Overlap, or Conflict with the Proposed Rule	37
7.6	Description of any Significant Alternatives to the Proposed Rule that Accomplish the Stated Objectives of Applicable Statutes and that Minimize any Significant Economic Impact of the Proposed Rule on Small Entities	37
8.0	Applicable Law	41
8.1	Magnuson-Stevens Fishery Conservation and Management Act	41
8.2	Paperwork Reduction Act	43
8.3	E.O. 13132: Federalism	43
9.0	List of Agencies and Persons Consulted	45
10.0	References	46

# 1.0 Introduction

## 1.1 Regulatory Authorities

The National Marine Fisheries Service (NOAA Fisheries), on behalf of the Secretary of Commerce, is responsible for managing Atlantic highly migratory species<sup>1</sup> (HMS), including the federal Atlantic shark, tuna, billfish, and swordfish fisheries, under the authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act; 16 U.S.C. 1801 et seq.), Section 304(g), and the Atlantic Tunas Convention Act (ATCA; 16 U.S.C. 971 et seq.). Under the Magnuson-Stevens Act, NOAA Fisheries must, consistent with ten National Standards, manage fisheries to maintain optimum yield on a continuing basis, while preventing overfishing. Since 1993, NOAA Fisheries has implemented several fishery management plans (FMPs), FMP amendments, and numerous regulations relating to Atlantic HMS fisheries under the authority of the Magnuson-Stevens Act. Currently, Atlantic HMS fisheries are managed under the 2006 Consolidated Atlantic HMS FMP (2006 Consolidated HMS FMP), its amendments, and implementing regulations at 50 Code of Federal Regulations (CFR) part 635.

In accordance with both the Magnuson-Stevens Act and ATCA, the alternatives in this Environmental Assessment (EA) and associated proposed rule analyze the potential environmental, economic, and social impacts of options to implement the 2021 International Commission for the Conservation of Atlantic Tunas (ICCAT) recommendation on shortfin mako sharks (Recommendation 21-09). In addition to the Magnuson-Stevens Act and ATCA, any 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 NOAA Fisheries' responsibilities under NEPA, as implemented by the regulations published by the Council on Environmental Quality (CEQ), 50 CFR Parts 1501-1508<sup>2</sup>, and NOAA Administrative Order 216-6A: Compliance with the National Environmental Policy Act, Executive Orders 12114, Environmental Effects Abroad of Major Federal Actions; 11988 and 13690, Floodplain Management; and 11990, Protection of Wetlands (NAO 216-6A), issued April 22, 2016.

Under ATCA, NOAA Fisheries is required to promulgate regulations as necessary and appropriate to implement binding ICCAT measures. ICCAT generally manages tuna and tuna-like fisheries and bycatch in those fisheries under the current Convention. Although ICCAT does

---

<sup>1</sup> The Magnuson-Stevens Act, Section 3, defines the term "highly migratory species" as tuna species, marlin (*Tetrapturus* spp. and *Makaira* spp.), oceanic sharks, sailfishes (*Istiophorus* spp.), and swordfish (*Xiphias gladius*). 16 U.S.C. § 1802(21). Further, the Magnuson-Stevens Act, Section 3, defines the term "tunas species" as albacore tuna (*Thunnus alalunga*), bigeye tuna (*Thunnus obesus*), bluefin tuna (*Thunnus thynnus*), skipjack tuna (*Katsuwonus pelamis*), and yellowfin tuna (*Thunnus albacares*). 16 U.S.C. § 1802(44).

<sup>2</sup> This EA is being prepared using the 2020 CEQ NEPA Regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020, and reviews begun after this date are required to apply the 2020 regulations unless there is a clear and fundamental conflict with an applicable statute. 85 Fed. Reg. at 43372-73 (§§ 1506.13, 1507.3(a)). This EA began in December 2021 and accordingly proceeds under the 2020 regulations.

not directly manage shark fisheries at this time, ICCAT has adopted measures related to shark species caught in association with ICCAT fisheries, including the current shortfin mako shark measure, Recommendation 21-09.

Shark species are also federally managed by NOAA Fisheries under the Magnuson-Stevens Act, and the agency has an obligation to manage shark stocks that are in need of conservation and management measures, particularly where stocks are overfished with overfishing occurring, like shortfin mako shark. In order for shortfin mako shark management measures to be effective and continue to address overfishing and begin to rebuild the stock, NOAA Fisheries has determined that they should apply in both ICCAT fisheries and directed fisheries. This would ensure consistent application across fisheries and would facilitate effective implementation and clarity for the regulated community and for enforcement purposes. Thus, NOAA Fisheries is taking action in both ICCAT fisheries and directed fisheries through this rulemaking.

## **1.2 Management History**

A comprehensive description of Atlantic HMS fisheries management and shortfin mako shark management history is provided in Sections 1.2 and 3.1 of the Final Environmental Impact Statement (FEIS) for Amendment 11 available at <https://www.fisheries.noaa.gov/action/amendment-11-2006-consolidated-hms-fishery-management-plan-atlantic-shortfin-mako-sharks>. The information below supplements that management history with information specific to recent shortfin mako shark management.

### **Recent ICCAT shortfin mako shark stock assessments and recommendations**

In August 2017, ICCAT's scientific body, the Standing Committee on Research and Statistics (SCRS), conducted a new benchmark stock assessment on the North Atlantic shortfin mako shark 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 the results of this assessment, NOAA Fisheries applied domestic stock status determination criteria to determine that the stock was overfished with overfishing occurring. The 2017 assessment estimated that total North Atlantic shortfin mako shark catches across all ICCAT parties were between 3,600 and 4,750 metric tons (mt)<sup>3</sup> per year, that total catches would have to be at 1,000 mt or below (reductions of 72-79 percent) to prevent further population declines, and that catches of 500 mt or less were expected to stop overfishing and begin to rebuild the stock. Based on this information, in 2017, ICCAT adopted new management measures for North Atlantic shortfin mako sharks in ICCAT fisheries (Recommendation 17-08). These measures largely focused on maximizing live releases of North Atlantic shortfin mako sharks, allowing retention only in certain limited circumstances, increasing minimum size limits, and improving data collection. A catch limit was not adopted, but there was a commitment to, at the 2019 ICCAT annual meeting, develop new management measures for North Atlantic shortfin mako sharks, taking into account new scientific advice from the SCRS, in order to establish a rebuilding plan with a high probability of avoiding overfishing and rebuilding the stock to

---

<sup>3</sup> All weights are given as whole weight (ww) unless specified as dressed weight (dw). For sharks, dressed weight means the weight of a fish after it has been dressed and had its fins, including the tail, removed.

biomass at maximum sustainable yield ( $B_{MSY}$ ) within a timeframe that takes into account the biology of the stock.

At its November 2018 annual meeting, ICCAT reviewed the catches from the first six months of 2018 as anticipated in Recommendation 17-06 and ultimately determined that it would not modify the measures at that meeting. The total reported catches for the first six months of 2018 were 1,530 mt, which did not represent a reduction compared to recent years. ICCAT recognized that, while some parties took immediate domestic action to implement the measures in Recommendation 17-08, other parties may not have implemented the action before the Recommendation entered into force in June, and therefore the full year of 2018 catches would need to be considered to accurately reflect the impact of the measures. It was emphasized that all parties needed to implement measures for shortfin mako sharks and that Recommendation 17-08 would need to be re-visited in 2019. ICCAT called on the SCRS to, in 2019, evaluate the effectiveness of these measures in ending overfishing and beginning to rebuild the stock. ICCAT also requested that the SCRS provide rebuilding information that reflected rebuilding timeframes of at least two mean generation times. ICCAT planned to establish a rebuilding plan in 2019 that would have a high probability of avoiding overfishing and rebuilding the stock to  $B_{MSY}$  within a timeframe that took into account the biology of the stock.

In May 2019, the SCRS completed a North Atlantic shortfin mako shark stock assessment update and provided additional rebuilding information that reflected rebuilding timeframes of two mean generation times (through 2070). The SCRS indicated that shortfin mako shark catches of 700 mt are expected to immediately end overfishing and catches of 500 mt or less are expected to rebuild the stock by 2070. The SCRS also advised that “given the vulnerable biological characteristics of this stock and the pessimistic projections, to accelerate the rate of recovery and to increase the probability of success the Committee recommends that the Commission adopt a non-retention policy without exception in the North Atlantic as it has already done with other shark species caught as bycatch in ICCAT fisheries.”

At its November 2019 annual meeting, ICCAT adopted Recommendation 19-06, which maintained the shortfin mako shark management measures in Recommendation 17-08. Recommendation 19-06 also called for a Panel 4 intersessional meeting in 2020 to develop and propose additional measures towards achieving conservation and management objectives for this stock. Panel 4 is the ICCAT subgroup that focuses on shark issues, as well as swordfish, billfish, and bycatch issues, and presents recommendations to the Commission for consideration and potential adoption. Recommendation 19-06 further provided that, at its 2020 annual meeting, ICCAT would adopt a new management recommendation for North Atlantic shortfin mako sharks, taking into account the scientific advice from the SCRS and the results of the 2020 Panel 4 intersessional meeting, in order to establish a rebuilding plan with 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. However, due to the COVID-19 pandemic, ICCAT canceled the 2020 Panel 4 intersessional and its annual meeting was conducted in discussions via correspondence. Recognizing the significant challenges of complex decision making by correspondence, rollovers of expiring measures was ICCAT’s default approach. The United States and other ICCAT parties proposed new shortfin mako shark measures, but consensus could not be reached, and Recommendation 19-06 remained in place.

ICCAT convened Panel 4 intersessional meetings in July and October 2021 where parties continued negotiating a new shortfin mako shark management measure. At its November 2021 annual meeting, ICCAT adopted Recommendation 21-09. This recommendation prohibits retention of North Atlantic shortfin mako sharks caught in association with ICCAT fisheries in 2022 and 2023. Limited retention of shortfin mako sharks may be allowed in 2023 and future years if ICCAT determines that fishing mortality is at a low enough level North Atlantic-wide to allow retention consistent with the conservation objectives of the recommendation. The recommendation aims to limit total North Atlantic-wide shortfin mako shark fishing mortality to no more than 250 mt, which, the recommendation states, is consistent with the conservation objectives and the 2019 SCRS Kobe matrix<sup>4</sup>, meaning that, at that level of fishing mortality, it is expected that overfishing would not be occurring ( $F < F_{MSY}$ <sup>5</sup>) and the stock would not be overfished (spawning stock fecundity (SSF)  $> SSF_{MSY}$ ). The SCRS will calculate the annual retention possibility each year based on reported dead discards, live releases, and, where allowed, earlier retention of shortfin mako sharks (with the SCRS providing estimates for any data gaps), and subtracting the amount of that fishing mortality from 250 mt. If applicable, the SCRS will also calculate eligible parties' individual retention allowances each year, based on the overall retention allowance and average annual catches from 2013 through 2016 (the years prior to the 2017 stock assessment and recommendation). The recommendation also calls on the SCRS and Panel 4 to test and confirm the appropriateness of the approach for allowing retention. The process and possible retention for 2023 will be discussed at a Panel 4 intersessional meeting and at the annual meeting, both in November 2022.

Recommendation 21-09 also includes minimum standards for safe handling and release procedures and enhanced reporting and compliance requirements. The recommendation calls on the SCRS to “continue to prioritize research into: identifying mating, pupping and nursery grounds, and other high concentration areas of North Atlantic shortfin mako; options for spatial-temporal measures; mitigation measures (inter alia, gear configuration and modification, deployment options), together with the benefits and disadvantages for the objectives of the rebuilding program, aimed at further improving stock status; and other areas the SCRS deems helpful both to improving stock assessments and reducing shortfin mako mortality.” The recommendation also calls on the SCRS to provide updated advice on mitigation measures aimed at further reducing shortfin mako shark mortality by 2023, based on information submitted to the SCRS by April 2023 on the technical and other management measures parties have implemented for reducing total fishing mortality of North Atlantic shortfin mako sharks. Taking into account that information, the SCRS will also “assess the potential benefits of both minimum and maximum size limits for live retention (applied separately or in combination), in particular sex specific sizes at maturity based on the best available science, particularly when considered in combination with other management measures, to meet required mortality reductions” and will advise ICCAT by 2024 whether size restrictions are effective tools to meet required mortality reductions. Future North Atlantic shortfin mako shark stock assessments are called for in 2024, 2029, and 2034.

---

<sup>4</sup> The Kobe matrix is a data table that the SCRS provides fisheries managers with the statistical probability of meeting management targets, including ending overfishing and rebuilding overfished stocks, in a standardized manner as a result of potential management actions such as total fishing mortality.

<sup>5</sup>  $F$  is the fishing mortality rate.  $F_{MSY}$  is the fishing mortality rate which, if applied constantly, would result in MSY.

## **Recent U.S. shortfin mako shark management**

Following the adoption of ICCAT Recommendation 17-08 and NOAA Fisheries' determination that the North Atlantic shortfin mako shark stock is overfished with overfishing occurring, NOAA Fisheries took action to implement the binding ICCAT recommendation to immediately address overfishing and begin to rebuild the shortfin mako shark stock. NOAA Fisheries first published an emergency rule in 2018 (83 FR 8946, March 2, 2018; measures extended through March 2019, 83 FR 42452, August 22, 2018) followed Amendment 11, with a final rule issued in 2019 (84 FR 5358, February 21, 2019), to reduce fishing mortality of shortfin mako sharks in HMS commercial and recreational fisheries. These rules allowed retention only in certain limited circumstances, increased minimum size limits for retention in the recreational fisheries, and improved data collection. In commercial fisheries, Amendment 11 allowed retention of shortfin mako sharks with pelagic longline gear only if the shark is dead at haulback and there is a functional electronic monitoring system on board the vessel, consistent with the ICCAT recommendation requirement. Amendment 11 also allowed retention of shortfin mako sharks caught with bottom longline or gillnet gear by persons issued a Directed or Incidental shark limited access permit (LAP) only if the shark is dead at haulback, without an electronic monitoring requirement, given the small number of shortfin mako sharks that are caught in those fisheries and NOAA Fisheries' determination that additional monitoring was not necessary. In recreational fisheries, Amendment 11 implemented an increase in the minimum size limit for the retention of shortfin mako sharks from 54 inches fork length<sup>6</sup> (FL) (137 cm FL) to 71 inches FL (180 cm FL) for male shortfin mako sharks and 83 inches FL (210 cm FL) for female shortfin mako sharks. Amendment 11 also expanded the requirement for the use of circle hooks to all recreational shark fisheries in order to reduce post-release mortality of shortfin mako sharks (the use of circle hooks was already required in recreational shark fisheries south of Chatham, MA, and for all pelagic longline and bottom longline vessels).

This species is highly migratory and caught by numerous countries. At the time of the 2017 shortfin mako shark stock assessment and adoption of Recommendation 17-08, U.S. catches represented approximately 14 percent, on average, of total North Atlantic shortfin mako catch. The measures in the emergency rule and Amendment 11 were successful at reducing U.S. shortfin mako shark catch by 90 percent from 2013-2017 average levels, to approximately 3 percent of total North Atlantic shortfin mako shark catch in 2020. (See Table 3.1 in Chapter 3 for further details.)

### **1.3 Proposed Action, Purpose, and Need**

**Proposed Action:** NOAA Fisheries is considering implementing a flexible shortfin mako shark retention limit with a default of zero in commercial and recreational HMS fisheries and establishing a zero limit until changed consistent with regulatory criteria.

**Purpose:** The purpose of this action is to implement ICCAT Recommendation 21-09 regarding North Atlantic shortfin mako sharks, as necessary and appropriate pursuant to ATCA, and to achieve domestic management objectives under the Magnuson-Stevens Act.

---

<sup>6</sup> Fork length refers to the straight line measurement of a fish from the midpoint of the anterior edge of the fish to the fork of the caudal fin.

Recommendation 21-09 prohibits retention of North Atlantic shortfin mako sharks caught in association with ICCAT fisheries in 2022 and 2023, among other measures. The measures in Recommendation 21-09 were adopted as part of a rebuilding program for North Atlantic shortfin mako shark starting in 2022, with the objectives to “end overfishing immediately and gradually achieve biomass levels sufficient to support maximum sustainable yield (MSY) by 2070 with a probability of a range of between 60 and 70 percent at least.”

Need: This action is needed because the current HMS regulations allow retention of shortfin mako sharks in certain limited circumstances in HMS fisheries, which is inconsistent with the 2021 ICCAT recommendation. Under ATCA, NOAA Fisheries is required to promulgate regulations as necessary and appropriate to implement binding ICCAT measures. This action is also needed in the non-ICCAT fisheries to provide consistency for the regulated community and for enforcement purposes, making the management measures more effective in addressing overfishing and starting to rebuild the stock.

#### **1.4 Scope and Organization of this Document**

In considering the management measures outlined in this document, NOAA Fisheries must comply with a number of federal statutes, including NEPA. Under NEPA, the purpose of an EA is to provide sufficient evidence and analysis for determining whether to prepare an EIS or a finding of no significant impact (FONSI) and to aid in the Agency’s compliance with NEPA when no EIS is necessary.

In developing this document, NOAA Fisheries adhered to the procedural requirements of NEPA, the 2020 CEQ regulations for implementing NEPA (40 CFR 1500-1508), and NAO 216-6A and the accompanying Companion Manual to:

- Fully integrate NEPA into the agency planning and decision making process;
- Fully consider the impacts of NOAA's proposed actions on the quality of the human environment;
- Involve interested and affected agencies, governments, organizations and individuals early in the agency planning and decision making process when significant impacts are or may be expected to affect the quality of the human environment from implementation of proposed major federal actions; and
- Conduct and document environmental reviews and related decisions appropriately and efficiently.

The following definitions from the CEQ regulations and NOAA guidance were generally used to characterize the nature of the various impacts evaluated in this EA. Chapter 4 describes more specifically how these definitions were used for each alternative.

- Short-term or long-term impacts. These characteristics are determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term impacts are those that would occur only with respect to a particular activity or for a finite period. Long-term impacts are those that are more likely to be persistent and chronic.

- Minor, moderate, or major impacts. These relative terms are used to characterize the magnitude of an impact. Minor impacts are generally those that might be perceptible but, in their context, are not amenable to measurement because of their relatively minor character. Moderate impacts are those that are more perceptible and, typically, more amenable to quantification or measurement. Major impacts are those that, in their context and due to their intensity (severity), have the potential to be significant and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the requirements of NEPA.
- Adverse or beneficial impacts. An adverse impact is one having unfavorable, or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment. A single act might result in adverse impacts on one environmental resource and beneficial impacts on another resource.
- Cumulative impacts. Cumulative impacts are impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time within a geographic area.

This document, as an EA, assesses the potential ecological, economic, and social impacts of implementing a flexible shortfin mako shark retention limit with a default of zero in commercial and recreational HMS fisheries. The chapters that follow describe the management measures and potential alternatives (Chapter 2), the affected environment as it currently exists (Chapter 3), the probable consequences on the human environment that may result from the implementation of the management measures and their alternatives, including the potential impacts on the fisheries (Chapter 4), and any cumulative impacts from this action (Chapter 4.6).

In this proposed action, NOAA Fisheries is responsible for complying with a number of federal requirements, including NEPA, the Magnuson-Stevens Act, Executive Order (E.O.) 12866 Regulatory Planning and Review, and the Regulatory Flexibility Act (RFA). This document comprehensively analyzes the alternatives considered for all these requirements.

Chapter 4 provides a summary of all the economic analyses and associated data. Chapter 6 meets the requirements under E.O. 12866, and Chapter 7 provides the Initial Regulatory Flexibility Analysis (IRFA) required under the RFA. Chapter 8 provides additional information that is required under various statutes. While some of the chapters were written in a way to comply with the specific requirements under these various statutes and requirements, it is the document as a whole that meets these requirements and not any individual chapter.

## 2.0 Summary of the Alternatives

NEPA requires that any federal agency proposing a major federal action consider all reasonable alternatives, in addition to the proposed action. The evaluation of alternatives in an EA assists NOAA Fisheries in ensuring that any unnecessary impacts are avoided through an assessment of alternative ways to achieve the underlying purpose of the project that may result in less environmental harm.

To warrant detailed evaluation, an alternative must be reasonable<sup>7</sup> and meet the purpose and need of the action (see Chapter 1). Screening criteria are used to determine whether an alternative is reasonable. The following discussion identifies the screening criteria used in this EA to evaluate whether an alternative is reasonable; evaluates various alternatives against the screening criteria (including the proposed measures) and identifies those alternatives found to be reasonable; identifies those alternatives found not to be reasonable; and for the latter, provides the basis for this finding. Alternatives considered but found not to be reasonable are not evaluated in detail in this EA.

Screening Criteria– To be considered “reasonable” for purposes of this EA, an alternative must meet the following criteria:

- An alternative must be consistent with the 10 National Standards set forth in the Magnuson-Stevens Act.
- An alternative must be consistent with binding ICCAT recommendations.
- An alternative must be administratively feasible. The costs associated with implementing an alternative cannot be prohibitively exorbitant or require unattainable infrastructure.
- An alternative cannot violate other laws (e.g., ESA, MMPA, etc.).
- An alternative must be consistent with the 2006 Consolidated HMS FMP and its amendments.

This chapter includes a full range of reasonable alternatives designed to meet the purpose and need for action described in Chapter 1. These alternatives are listed below. The environmental, economic, and social impacts of these alternatives are discussed in later chapters.

### 2.1. Alternatives for Shortfin Mako Shark Management

For this action, as described below, NOAA Fisheries is considering three alternatives specific to shortfin mako shark management.

---

<sup>7</sup> “Section 1502.14 (of the CEQ Regulations) requires the EA to examine all reasonable alternatives to the proposal. In determining the scope of alternatives to be considered, the emphasis is on what is “reasonable” rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.” (CEQ, *Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations*, 46 FR 18,026, Mar. 23, 1981).

## **Alternative 1. No Action.**

This alternative would maintain the current commercial and recreational shortfin mako shark regulations as implemented under the 2006 Consolidated HMS FMP and Amendment 11. Current commercial regulations allow retention of shortfin mako sharks caught using gillnet, bottom longline, or pelagic longline gear on properly-permitted vessels, if they are dead at haulback, and require vessels with pelagic longline gear to have a functional electronic monitoring system to retain shortfin mako sharks. Vessels using other commercial gear types are prohibited from retaining shortfin mako sharks. Current commercial shark retention limits would remain in place (no limit under the Directed shark LAP and limited within the limit of 16 small coastal sharks and pelagic sharks under the Incidental shark LAP).

Current recreational regulations include minimum size limits for the retention of shortfin mako sharks by recreational HMS permit holders of 71 inches FL (180 cm FL) for male and 83 inches FL (210 cm FL) for female shortfin mako sharks. Current recreational shark retention limits would remain in place (one shark from the list at 50 CFR § 635.22(c)(2) per vessel per trip). Current regulations also prohibit vessels that hold both a permit with a shark endorsement and a commercial shark permit from selling shortfin mako sharks. Vessels that hold such combinations of permits are required to follow the recreational limits and cannot sell any sharks if harvesting shortfin mako sharks (50 CFR § 635.22(c)(7) and 635.24(a)(4)(iii)).

For shortfin mako shark research, this alternative would maintain the current process for the issuance of exempted fishing permits (EFPs) and related permits, as described in the annual notice of intent (86 FR 64188; November 17, 2021).

## **Alternative 2. Implement a flexible shortfin mako shark retention limit with a default of zero in commercial and recreational HMS fisheries and a retention limit of zero would be established until changed considering regulatory criteria. - Preferred Alternative**

Under this alternative, a flexible shortfin mako shark retention limit with a default limit of zero would apply to commercial vessels issued a Directed or Incidental shark LAP using pelagic longline, bottom longline, or gillnet gear, and to recreational HMS permit holders (those who hold HMS Angling or Charter/Headboat permits, and Atlantic Tunas General category and Swordfish General Commercial permits when participating in a registered HMS tournament), and a limit of zero would be established until changed considering regulatory criteria for inseason adjustment of shark trip limits and consistent with any ICCAT retention allowances pursuant to Recommendation 21-09. Under the default limit of zero and existing prohibitions for other gear types, all commercial and recreational fishermen would be required to release all shortfin mako sharks, whether dead or alive at haulback.

During the fishing year, based on consideration of the inseason trip limit adjustment criteria (50 CFR § 635.24(a)(8)) and to the extent any future retention is allowable as determined by ICCAT consistent with Recommendation 21-09, NOAA Fisheries could increase the shortfin mako shark retention limit from the default, or subsequently decrease the retention limit, for the

commercial fishery, the recreational fishery, or both. If a retention limit greater than zero is implemented for the commercial fishery, the current commercial shortfin mako shark restrictions would apply, including allowing retention of shortfin mako sharks caught using only gillnet, bottom longline, or pelagic longline gear on properly-permitted vessels, if they are dead at haulback, and requiring vessels with pelagic longline gear to have a functional electronic monitoring system to retain shortfin mako sharks. Similarly, if a retention limit greater than zero is implemented for the recreational fishery, the current recreational shortfin mako shark restrictions would apply, including minimum size limits of 71 inches FL (180 cm FL) for male and 83 inches FL (210 cm FL) for female shortfin mako sharks. For vessels that hold both a commercial shark permit and a permit with a shark endorsement, the current requirements at 50 CFR § 635.22(c)(7) and § 635.24(a)(4)(iii) would apply. Vessels that hold such combinations of permits are prohibited from selling shortfin mako sharks, are required to follow the recreational limits, and cannot sell any sharks if retaining shortfin mako sharks. While no upper retention limit is being set in this action, any increase in retention limit would need to be consistent with ICCAT recommendations and could only be implemented after considering the regulatory criteria.

The flexible retention limit would apply in the HMS bottom longline and gillnet fisheries for sharks, although those fisheries are not considered to be ICCAT fisheries, which are defined as fisheries for tuna or tuna-like species under the current ICCAT Convention. This approach is consistent with the approach taken in Amendment 11, where NOAA Fisheries determined it was appropriate to implement parallel management measures in the non-ICCAT shark fisheries given that the stock remained overfished with overfishing occurring. This approach would ensure consistency in HMS regulations, which would provide clarity for both the regulated community and for enforcement purposes and thus ensure more effective implementation. NOAA Fisheries did not, however, implement the ICCAT requirement that electronic monitoring be onboard in these fisheries, because bottom longline and gillnet fisheries have minimal interactions with this species, and electronic monitoring was unnecessary to track such interactions effectively. Under this alternative, after considering the measures implemented under Amendment 11 that considered the requirements of the Magnuson-Stevens Act, the status of shortfin mako sharks, and the need for consistency, NOAA Fisheries would apply a flexible retention limit with a default of zero to these gears.

Under this alternative, research and sampling of shortfin mako sharks would be allowed under EFPs and scientific research permits (SRPs) (see 50 CFR §§ 635.27(b)(4) and 635.32). Collection of shortfin mako sharks under display permits would not be allowed, and collection of shortfin mako sharks for research under EFPs and/or SRPs would be considered on a case-by-case basis. Collection of shortfin mako sharks under EFPs and/or SRPs could include sampling or limited retention where needed for scientific research. Only non-lethal sampling would be permitted on shortfin mako sharks that are alive at haulback. NOAA Fisheries intends to limit any EFPs and/or SRPs to closely monitored studies and to limit the number of such permits and the number of sharks that may be sampled and/or retained. When retention is otherwise prohibited, any retention pursuant to an EFP and/or SRP would be accounted for under the applicable shark research and display quota. If retention is otherwise permitted consistent with ICCAT recommendations, NOAA Fisheries would count any retention under EFPs and/or SRPs against the applicable ICCAT retention allowance. Research on shortfin mako sharks is critical

to gathering scientific information about the stock and to help ensure that stock assessments have sufficient data. Permitted collection of shortfin mako sharks for scientific research would be consistent with the biological sampling and research needs described in Recommendation 21-09 and other relevant ICCAT recommendations, as well as research needs identified by the SCRS, including to provide data for future shortfin mako shark stock assessments. For example, Recommendations 21-09 and 13-10 provide for collection of biological samples of shortfin mako and other sharks that are dead at haulback during commercial fishing operations by scientific observers or individuals duly permitted by the ICCAT party. If NOAA Fisheries receives EFP or SRP applications that are outside the scope described in this action, NOAA Fisheries would provide notice to the public and solicit comments through the annual EFP notice of intent.

### **Alternative 3. Prohibit the retention of all shortfin mako sharks.**

This alternative would place shortfin mako sharks on the prohibited sharks list (Table 1 of Appendix A to 50 CFR part 635), considering the criteria at 50 CFR § 635.34(c) used to determine if a species may be added to the prohibited shark species group. Adding this species to the prohibited sharks group would prohibit the retention, possession, landing, sale, or purchase of shortfin mako sharks in commercial HMS fisheries and prohibit the retention of shortfin mako sharks in recreational HMS fisheries.

HMS recreational fishermen would only be authorized to catch and release shortfin mako sharks. This requirement would be similar to the white shark catch and release requirement at 50 CFR § 635.26(c). Currently, recreational fishermen may target white sharks, but must release any white sharks caught in a manner that maximizes the chance of survival without removing the shark from the water.

Under this alternative, research and sampling of shortfin mako sharks would be allowed under EFPs and SRPs, as in Alternative 2.

## 3.0 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 North Atlantic shortfin mako shark stock, the marine ecosystem, 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 conditions of the shark stocks, ecosystem, and fisheries.

### 3.1 North Atlantic Shortfin Mako Stock Status and Biology

The domestic stock status determination criteria and thresholds used to determine the stock status of Atlantic HMS are presented in Chapter 2 of the 2021 Atlantic HMS Stock Assessment and Fisheries Evaluation (SAFE) Report (<https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/atlantic-highly-migratory-species-stock-assessment-and-fisheries-evaluation-reports>). ICCAT's SCRS has assessed shortfin mako sharks for a number of years. All SCRS final stock assessment reports can be found at <https://www.iccat.int/en/assess.html>. The most recent benchmark North Atlantic shortfin mako stock assessment was completed in 2017 and updated in 2019.

In August 2017, the SCRS conducted a new benchmark stock assessment on the North and South Atlantic shortfin mako shark stocks (SCRS 2017a, SCRS 2017b). The 2017 North Atlantic shortfin mako shark stock assessment included significant updates to inputs and model structures compared to the 2012 shortfin mako shark assessment. On December 13, 2017, based on the results of this assessment, NOAA Fisheries determined the stock to be overfished with overfishing occurring. For more information on the 2017 stock assessment see the [FEIS for Amendment 11](#), Section 3.2 pages 25-27.

The most recent stock assessment update was completed in May of 2019, updating the 2017 benchmark assessment (SCRS 2019a, SCRS 2019b). This update provided rebuilding information that reflected rebuilding timeframes of two mean generation times (through 2070). Projections from the 2019 stock assessment update showed a lower  $B/B_{MSY}$  and higher  $F/F_{MSY}$  than the estimates in the 2017 assessment because the population continued to decline due to high catch levels. The stock synthesis projections indicated that: i) a zero total allowable catch (TAC) will allow the stock to be rebuilt and without overfishing (i.e., in the green quadrant of the Kobe plot<sup>8</sup>) by 2045 with a 53-percent probability; ii) regardless of the TAC (including a TAC of 0 mt), the stock will continue to decline until 2035 before any biomass increases can occur; iii) a

---

<sup>8</sup> The Kobe plot shows the trajectory of a fished stock over time, with abundance is on the horizontal axis and fishing mortality on the vertical axis. These are often shown relative to  $B_{MSY}$  and to  $F_{MSY}$ , respectively. A Kobe plot is often divided into four quadrants by a vertical line at  $B=B_{MSY}$  and a horizontal line at  $F=F_{MSY}$ . Generally, if the model results are in the green portion of the figure (lower right), the stock may have a status of “not overfished” and “overfishing is not occurring.” Similarly, model results in the yellow portions of the figure (lower left and upper right) are not desirable, generally representing a stock with a status of “overfished” or “overfishing is occurring” and results in the red portion (upper left) represent a stock that is both “overfished” and for which “overfishing is occurring.”

TAC of 500 mt, including dead discards has only a 52-percent probability of rebuilding the stock to the green quadrant in 2070; iv) to be in the green quadrant of the Kobe plot with at least 60 percent probability by 2070, the realized TAC has to be 300 mt or less; v) lower TACs achieve rebuilding in shorter time frames; and vi) a TAC of 700 mt would end overfishing immediately with a 57-percent probability, but this TAC would only have a 41-percent probability of rebuilding the stock by 2070. Based on these projections, the SCRS advised that “given the vulnerable biological characteristics of this stock and the pessimistic projections, to accelerate the rate of recovery and to increase the probability of success the Committee recommends that the Commission adopt a non-retention policy without exception in the North Atlantic as it has already done with other shark species caught as bycatch in ICCAT fisheries.” This update also revised the post-release mortality estimates to 22.8-percent mortality based on 43 tagged shortfin mako sharks. NOAA Fisheries continues to maintain the overfished with overfishing occurring status for the North Atlantic shortfin mako shark.

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 (24-28 inches), and the species reaches a maximum total length of approximately 400 cm (157 inches) (Compagno 2002, Mollet et al. 2000).

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. Exclusive Economic Zone (EEZ) boundary on Georges Bank (off Massachusetts) to Cape Cod (seaward of the 200 m bathymetric line); coastal and offshore habitats between Cape Cod and Cape Lookout, North Carolina; and localized habitats off South Carolina and Georgia. 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 Myers 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.

A detailed description of the shortfin mako shark biology is available in the [FEIS for Amendment 11](#), Section 3.3 pages 28-33. More information about EFH and life history descriptions for all life stages of shortfin mako sharks is available in the [Final EA for Amendment 10 to the 2006 Consolidated HMS FMP](#), Section 6.7.4 pages 222-224.

## **3.2 Description of the Fishery**

### **U.S. and International Shortfin Mako Shark Catch Data**

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 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. The majority of commercial shortfin mako shark landings occur in the pelagic longline fishery as incidental catches, while targeting swordfish and tunas. While

the number of shortfin mako shark landings occurring in non-pelagic longline commercial fisheries is small, those landings are included in the following numbers.

The United States reports commercial catches of shortfin mako sharks to ICCAT, which include commercial landings and pelagic longline fishery dead discards. From 2013 through 2017, prior to implementation of the shortfin mako shark emergency regulatory action and Amendment 11, the average annual commercial landings of shortfin mako sharks was 117 mt. That average decreased to 32 mt for 2018 through 2020. U.S. dead discards in the commercial fishery averaged 6.8 mt from 2013 through 2017 and 2 mt from 2018 through 2020. For a summary of U.S. commercial catch data for shortfin mako sharks compared to international catches, see Table 3.1.

**Table 3.1 U.S. shortfin mako shark commercial landings, commercial dead discards, and recreational landings compared to total North Atlantic shortfin mako shark catch reported to ICCAT (mt ww) in 2013-2020.**

<b>Year</b>	<b>U.S. Commercial Landings</b>	<b>U.S. Commercial Dead Discards</b>	<b>U.S. Recreational Landings</b>	<b>Total U.S. Catch</b>	<b>Total ICCAT Catch</b>	<b>U.S. Catch as a Percent of ICCAT Catch</b>
<b>2013</b>	136	5	227	368	3,603	10.2%
<b>2014</b>	145	11	816	972	3,467	28.0%
<b>2015</b>	92	8	480	580	3,281	17.7%
<b>2016</b>	103	6	168	277	3,356	8.3%
<b>2017</b>	110	4	192	306	3,119	9.8%
<b>2018</b>	40	2	125	167	2,373	7.0%
<b>2019</b>	32	1	25	58	1,882	3.1%
<b>2020</b>	24	4	24	52	1,709	3.0%

Source: ICCAT Task I. Note: The dw to ww conversion factor for shortfin mako shark commercial landings is 1.46.

Since 2013, Atlantic HMS dealers have been required to electronically report non-bluefin tuna data to NOAA Fisheries through a NOAA Fisheries-approved electronic reporting program known as eDealer. Based on eDealer data, from 2013 through 2017, on average 181,003 pounds dressed weight (dw) (82 mt dw) of shortfin mako sharks were landed by commercial fishermen each year ([Amendment 11 FEIS](#), Table 3.4 page 35). Once emergency regulations and Amendment 11 regulations were put into place, the average landings of shortfin mako sharks decreased to 49,107 pounds dw (22 mt dw) from 2018 through 2020 ([2021 Atlantic HMS SAFE Report](#), Table 5.15 page 92).

Recreational harvest of sharks is another important component of Atlantic 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.

The Large Pelagics 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. The Marine Recreational Information Program (MRIP) was

designed to survey recreational harvest in coastal waters from Maine through Mississippi and NOAA Fisheries uses catch estimates from MRIP for those areas not covered by the LPS (North Carolina through Mississippi). The United States reports recreational rod and reel landings of shortfin mako sharks to ICCAT based on LPS and MRIP data (including the Southeast Regional Headboat Survey and Texas Parks and Wildlife survey numbers). Similar to the commercial landings, prior to implementation of the shortfin mako shark emergency action and Amendment 11, U.S. recreational landings from 2013 through 2017 averaged 377 mt and decreased to an average of 58 mt from 2018 through 2020. For a summary of U.S. recreational landings data for shortfin mako sharks compared to international catches, see Table 3.1.

As shown in Table 3.1, when comparing the percentage of total U.S. catch to the overall international catch of shortfin mako sharks reported to ICCAT, there has been a decline since 2016, with the lowest percentage in 2020 (three percent of total ICCAT catch).

## **Atlantic HMS Permits, Retention Limits, and Tournaments**

### *Commercial Fishery*

In order to determine the commercial fishery participants potentially affected by this action, NOAA Fisheries analyzed the number of vessels and dealer permits issued. As of October 2021, there were 213 Shark Directed LAPs and 256 Shark Incidental LAPs. For information on the distribution of permits by state and territories see the [2021 Atlantic HMS SAFE Report](#), Table 4.2 pages 55-56. Under the current regulations, shark Directed LAP holders using pelagic longline, bottom longline, or gillnet gear may retain all shortfin mako sharks provided they are dead at haulback. Shark Incidental LAP holders using pelagic longline, bottom longline, or gillnet gear may retain up to 16 pelagic sharks combined, including shortfin mako sharks that are dead at haulback. When pelagic longline gear is onboard, fishermen must have a functioning electronic monitoring system to retain shortfin mako sharks. Commercially permitted fishermen may sell landed sharks only to a federally permitted dealer. As of October 2021, there were 89 federally permitted Atlantic HMS shark dealers. For information on the distribution of dealer permits by state and territories see the [2021 Atlantic HMS SAFE Report](#), Table 4.14 pages 74-75.

### *Recreational Fishery*

Atlantic HMS recreational fisheries may retain one shark per vessel per trip. If the retained shark is a shortfin mako shark it must meet the sex-specific minimum sizes of 71 inches FL (180 cm FL) for males and 83 inches FL (210 cm FL) for females. The number of permitted recreational vessels that may retain shortfin mako sharks as of October 2021, are 4,055 HMS Charter/Headboat permits, 23,632 Atlantic HMS Angling permits, 2,730 Atlantic Tunas General category, and 701 Swordfish General Commercial permits. For more information regarding the distribution of these permits across states and territories please see the [2021 Atlantic HMS SAFE Report](#), Table 4.9 page 68, Table 4.10 pages 69-71, Table 4.8 pages 65-66, and Table 4.5 pages 61-62, respectively.

In order to retain sharks, each of these permit holders must obtain a shark endorsement (50 CFR § 635.4(b)(1), (c)(1), and (c)(5)). The number of shark endorsements by recreational permits are as follows: HMS Charter/Headboat permits: 3,021; Atlantic HMS Angling permits:

13,543; and Atlantic Tunas General category and Swordfish General Commercial permits combined: 1,389. For more information about permit endorsements see the [2021 Atlantic HMS SAFE Report](#), Table 4.11 page 72. There are 21 vessels that hold both a permit with a shark endorsement and a commercial shark permit.

Tournaments for Atlantic HMS are held throughout the Atlantic, Gulf of Mexico, and Caribbean regions. Most tournaments register to catch multiple Atlantic HMS. Often, a tournament targets a primary species, and other species are caught for entry in separate categories. The secondary species vary by region as these species are ones present during the local fishing season at the time of the tournament. In 2021 as of September, 34 registered Atlantic HMS tournaments were held targeting pelagic sharks, including shortfin mako sharks. For more information about tournaments by state and target species see the [2021 Atlantic HMS SAFE Report](#), Section 4.4 pages 76-82.

### Economic Environment

Shortfin mako sharks are a minor source of economic revenue to the overall Atlantic HMS commercial fisheries, but may be a significant source of seasonal revenue to individual fishermen. From 2013 through 2017, annual shortfin mako shark ex-vessel revenue averaged \$373,183. On average, there were 37 seafood dealers from 2013 through 2017 along the U.S. east coast that purchased shortfin mako sharks each year ([Amendment 11 FEIS](#), Tables 3.21 and 3.22 pages 59-60).

Table 3.2 shows that since implementation of Amendment 11, in 2018 through 2020, annual shortfin mako shark ex-vessel revenue has decreased to an average of \$96,283. For comparison, the average total ex-vessel annual revenue of Atlantic HMS fisheries was \$33 million from 2018 through 2020, and average total ex-vessel annual revenue from sharks in HMS fisheries was \$2.5 million ([2021 Atlantic HMS SAFE Report](#), Table 8.3 page 185 and Table 8.6 pages 186-187). The number of dealers purchasing shortfin mako sharks also decreased during 2018 through 2020 to 26 dealers per year. This indicates that shortfin mako sharks continue to be a minor part of the economic revenue for Atlantic HMS commercial fisheries.

**Table 3.2 Average annual shortfin mako shark commercial landings, mean price, and ex-vessel revenue and the number of dealers purchasing shortfin mako sharks in 2018-2020.**

Year	Pounds (dw)	Mean Price per Pound	Revenue	Number of Dealers
2018	57,608	\$2.04	\$109,309	28
2019	53,829	\$2.09	\$109,989	30
2020	35,729	\$2.04	\$69,549	21
Average	49,055	\$2.06	\$96,283	26

Source: eDealer database.

### 3.3 Research on Shortfin Mako Sharks

Each year NOAA Fisheries issues EFPs, SRPs, display permits, and letters of acknowledgment (LOA) for a variety of research objectives on Atlantic HMS. An annual notice

of intent is published in the *Federal Register* to solicit comments on the issuance of EFPs and related permits for a given year. If applications for these permits are received that are outside the normal scope of EFPs and related permits, or rarely for research that is particularly controversial, NOAA Fisheries would provide additional opportunity for public comment.

There has been an interest in research on shortfin mako sharks for many years, and such research is critical to gathering scientific information about the stock and to help ensure that stock assessments have sufficient data. To facilitate this research, NOAA Fisheries issues EFPs and related permits for sampling and tagging of shortfin mako sharks. On average, from 2013 through 2017, NOAA Fisheries issued four permits per year involving shortfin mako shark research. From 2018 through 2021, that number increased to eight permits on average per year. Despite this recent increase in EFPs and related permits, there has been a steady decrease in the number of kept, discarded dead, and tagged shortfin mako sharks. The number of EFPs and related permits and the number of shortfin mako sharks kept and discarded dead by year are shown in Table 3.3. The number of permits in Table 3.3 includes one display permit, issued in 2018, authorizing the collection of two shortfin mako sharks, but over the course of fishing activities no sharks were harvested.

**Table 3.3** Number of EFPs and related permits issued involving shortfin mako shark research and number of shortfin mako sharks kept, discarded dead, and tagged in 2013-2021.

Year	Number of Permits	Kept	Discarded Dead	Tagged
2013	6	3	0	0
2014	4	40	1	10
2015	3	1	0	0
2016	4	1	1	6
2017	3	0	1	0
2018	4	1	0	0
2019	11	0	0	1
2020	9	0	0	1
2021	8	-	-	-

Source: HMS EFP database. Note: Final 2021 data on fish kept, discarded dead, or tagged under EFPs and related permits are not yet available. Of the 40 shortfin mako sharks kept in 2014, 34 sharks were kept under an EFP that sampled fish landed in tournaments in collaboration with NOAA Fisheries, and 6 sharks were kept under an EFP for HMS sampling by the NOAA Fisheries Northeast Fisheries Science Center.

### 3.4 Endangered Species Act and Marine Mammal Protection Act

The ESA is the primary federal legislation governing interactions between fisheries and species listed as threatened or endangered and effects on ESA-listed critical habitat. Through a consultation process, the ESA requires federal agencies to evaluate actions they authorize, fund, or carry out that may affect a listed species. In the case of marine fisheries, NOAA Fisheries’ Office of Sustainable Fisheries consults with the Office of Protected Resources to determine what impacts fishery management actions could have on threatened or endangered marine species and what actions can be taken to reduce or eliminate negative impacts. Under the ESA Section 7 consultation process, if a federal agency determines its action is likely to adversely

affect a marine species or destroy or adversely modify critical habitat, the agency engages in formal consultation with NOAA Fisheries. At the conclusion of formal consultation, NOAA Fisheries issues a biological opinion (BiOp), which analyzes the effects of the action. If NOAA Fisheries concludes the action will jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat, NOAA Fisheries specifies Reasonable and Prudent Alternatives the Agency must adopt to mitigate the impact to listed species with a jeopardy determination. Adopting Reasonable and Prudent Alternatives sometimes requires rulemaking if changes to Federal regulations are needed, or can be less formally adopted in the case of Agency reporting, outreach material, or fishermen education. If NOAA Fisheries concludes the action will not jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat, NOAA Fisheries specifies required Reasonable and Prudent Measures and Terms and Conditions, to mitigate the effects of the action, and authorizes any allowable “incidental take” of the species.

In May 2020, NOAA Fisheries released a BiOp for all Atlantic HMS fisheries except pelagic longline and a BiOp for the Atlantic HMS pelagic longline fishery, which both state that the continued operation of HMS fisheries is not likely to jeopardize the continued existence of sea turtles, sawfish, Atlantic sturgeon, scalloped hammerhead shark (Central and Southwest Atlantic Distinct Population Segment), oceanic whitetip shark, and giant manta ray. NOAA Fisheries is implementing the Reasonable and Prudent Measures and Terms and Conditions of the two 2020 BiOps. This action is not anticipated to affect the above-referenced ESA-listed species in any way not previously analyzed for existing regulations, including the provision for exempted fishing activities, and there is no new information that would alter this conclusion. Any of the covered ESA-listed species taken would be considered against the Incidental Take Statement in both 2020 BiOps for all Atlantic HMS fisheries, as long as the operations are consistent with the Reasonable and Prudent Measures in that BiOp, namely: any protected resources caught while engaging in research activities must be safely handled, resuscitated, and released; and all protected resource interactions must be reported to NOAA Fisheries.

The MMPA established a national policy to prevent marine mammal species and population stocks from declining beyond the point where they ceased to be significant functioning elements of the ecosystems of which they are a part. The MMPA prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the United States. Under MMPA requirements, NOAA Fisheries produces an annual List of Fisheries that classifies domestic commercial fisheries, by gear type, relative to their rates of incidental mortality or serious injury of marine mammals. The List of Fisheries includes three classifications:

- Category I fisheries are those with frequent serious injury or mortality to marine mammals;
- Category II fisheries are those with occasional serious injury or mortality to marine mammals; and
- Category III fisheries are those with remote likelihood of serious injury or mortality to marine mammals.

Fishermen participating in Category I or II fisheries are required to be registered under MMPA and, if selected, to accommodate an observer aboard their vessels. Vessel owners or operators, or fishermen, in Category I, II, or III fisheries must report all incidental mortalities and injuries of marine mammals during the course of commercial fishing operations to NOAA Fisheries. There are currently no regulations requiring recreational fishermen to report takes, nor are they authorized to have incidental takes (i.e., they are illegal). NOAA Fisheries does require reporting and authorizes takes by charter/headboat fishermen under the existing take reduction plans prepared under the MMPA (considered “commercial” by MMPA), and no takes in Atlantic HMS fisheries have been reported to NOAA Fisheries to date.

These MMPA regulations include the Gulf of Maine and Mid-Atlantic tuna, shark and swordfish hook-and-line fishery, Southeast Mid-Atlantic and Gulf of Mexico shark bottom longline fisheries, Mid-Atlantic, southeastern Atlantic, and Gulf of Mexico pelagic hook-and-line fisheries, and lastly the commercial passenger fishing vessel (charter/headboat) fisheries. All of these fisheries fall under Category III of the MMPA Classifications of Commercial Atlantic HMS Fisheries. With strict control and operations through the regulation, these types of fishing gear are not likely to result in mortality or serious injury of marine mammals.

Please refer to Sections 3.8 and 3.9.9 of the [2006 Consolidated HMS FMP](#) and Chapter 6 of the [2021 Atlantic HMS SAFE Report](#) for additional information on the protected species and marine mammals in the area of Atlantic HMS fisheries.

## 4.0 Environmental Consequences of Alternatives

As described earlier, NOAA Fisheries has developed various alternatives in this EA to further address overfishing of shortfin mako sharks, implement management measures consistent with ICCAT Recommendation 21-09, and take steps towards rebuilding the shortfin mako shark stock. This chapter details the environmental effects of the various alternatives considered.

### 4.1 Ecological Evaluation

NOAA Fisheries is analyzing three alternatives that consider revising the commercial and recreational retention of shortfin mako sharks and meet the purpose and need stated in Chapter 1.

#### **Alternative 1. No action.**

Under Alternative 1, NOAA Fisheries would maintain the current commercial and recreational shortfin mako shark regulations, including the management measures implemented in 2018 and 2019. Current commercial regulations allow retention of shortfin mako sharks caught using gillnet, bottom longline, or pelagic longline gear on properly-permitted vessels, if they are dead at haulback, and require vessels with pelagic longline gear to have a functional electronic monitoring system to retain shortfin mako sharks. Since these management measures were implemented, commercial shortfin mako shark landings have decreased approximately 73 percent when compared to landings from 2013 through 2017 (Table 3.1). The current recreational regulations allow the retention of one shark per vessel per trip with a minimum size limit of 71 inches FL (180 cm FL) for male and 83 inches FL (210 cm FL) for female shortfin mako sharks. Since these management measures were implemented, recreational shortfin mako shark harvest has averaged 58 mt, which is a decrease of approximately 85 percent when compared to harvests from 2013 through 2017 (Table 3.1). For shortfin mako shark research, this alternative would maintain the current process for the issuance of EFPs and related permits, as described in the annual notice of intent (86 FR 64188; November 17, 2021). Only 46 shortfin mako sharks have been retained for research from 2013 through 2020, while 18 shortfin mako sharks have been tagged during research trips (Table 3.3). In recent years (2018-2021), NOAA Fisheries has issued eight EFPs and related permits per year on average that include shortfin mako sharks, and zero to one shortfin mako sharks were retained per year under those permits.

When considering the effects of the current management measures, and the fact that U.S. shortfin mako shark landings are a small percentage of total North Atlantic-wide landings (approximately 3 percent), the cumulative ecological impacts of Alternative 1 would be minor and beneficial. Alternative 1 would likely result in short- and long-term minor beneficial ecological impacts because shortfin mako sharks caught by U.S. commercial fishermen on pelagic longline, bottom longline, and gillnet gear that are alive at capture would be released. For shortfin mako sharks caught by recreational fishermen, this would also have short- and long-term minor beneficial ecological impacts since the recreational management measures have caused an 85-percent reduction in harvest levels in 2018 through 2020, compared to harvest levels before implementation of the current measures (Table 3.1). Under Alternative A1, recreational harvest would be expected to continue at that reduced level, continuing the minor beneficial ecological impacts.

NOAA Fisheries does not prefer this alternative since it would not achieve the purpose of this action to implement ICCAT Recommendation 21-09. The ICCAT recommendation prohibits retention of North Atlantic shortfin mako sharks caught in association with ICCAT fisheries in 2022 and 2023. Limited retention of shortfin mako sharks may be allowed in 2023 and future years if ICCAT determines that fishing mortality is at a low enough level North Atlantic-wide to allow retention consistent with the rebuilding objectives of the recommendation. The approach in this alternative, which would continue to allow limited retention of shortfin mako sharks, would not be consistent with the ICCAT recommendation requirements. Thus, NOAA Fisheries does not prefer this alternative at this time.

**Alternative 2. Implement a flexible shortfin mako shark retention limit with a default of zero in commercial and recreational HMS fisheries and a retention limit of zero would be established until changed considering regulatory criteria. - Preferred Alternative**

Under this alternative, a flexible shortfin mako shark retention limit with a default limit of zero would apply to commercial vessels issued a Directed or Incidental shark LAP and to recreational HMS permit holders and a limit of zero would be established until changed considering regulatory criteria for inseason adjustment of shark trip limits. Under a retention limit of zero, HMS recreational fishermen and commercial vessels would be required to release all shortfin mako sharks that are alive at haulback, and discard all shortfin mako sharks that are dead at haulback.

During the fishing year, based on the inseason trip limit adjustment criteria (50 CFR § 635.24(a)(8)), and where consistent with any future retention allowance that is determined by ICCAT consistent with Recommendation 21-09, NOAA Fisheries could increase the default shortfin mako shark retention limit for the commercial fishery, the recreational fishery, or both. If the retention limit for the commercial fishery is set greater than zero after considering regulatory criteria, the current commercial shortfin mako shark restrictions would apply, including allowing retention of shortfin mako sharks caught using only gillnet, bottom longline, or pelagic longline gear on properly-permitted vessels, if they are dead at haulback, and requiring vessels with pelagic longline gear to have a functional electronic monitoring system to retain shortfin mako sharks. Similarly, if the retention limit for the recreational fishery is greater than zero, the current recreational shortfin mako restrictions would apply, including minimum size limits of 71 inches FL (180 cm FL) for male and 83 inches FL (210 cm FL) for female shortfin mako sharks.

Under Alternative 2, the flexible shortfin mako retention limit would likely result in similar impacts to the stock as Alternative 1 since U.S. shortfin mako shark landings are a small percentage of total North Atlantic-wide landings (i.e., short- and long-term minor beneficial ecological impacts). Under a default retention limit of zero, U.S. fishermen would be releasing all caught shortfin mako sharks. For commercial fishermen, this would only affect the possible retention of dead shortfin mako sharks and would not be expected to affect fishing effort or interactions. Current levels of commercial shortfin mako shark landings (32 mt on average for 2018 through 2020, Table 3.1) would be expected to be converted to dead discards, which would represent total U.S. catch. The zero retention limit may have the effect of disincentivizing catch, although only to the extent commercial fishermen could further explore and find ways to avoid

shortfin mako sharks through gear manipulation, fishing locations. If such efforts were successful, they could, therefore, have the effect of some additional reductions in mortality.

Under a default retention limit of zero, recreational anglers may opt for catch-and-release of shortfin mako sharks. For those anglers, switching to catch-and-release would result in little change of effort but would still reduce mortalities as fishermen would not be retaining any shortfin mako sharks. Studies have shown post-release mortality among recreationally caught shortfin mako sharks to be relatively low (French et al., 2015). Additionally, recreational effort in HMS tournaments may be reduced as the retention limit of zero would likely result in the removal of shortfin mako sharks as a targeted species in fishing tournaments or cancellation of some shark fishing tournaments. Recreational shortfin mako shark landings would go from 58 mt (on average for 2018 through 2020, Table 3.1) to zero. The effect of this change would be minor and beneficial to the stock.

In the long term, there would be a possibility for the retention limit to increase above zero and for U.S. retention to be permitted within a retention allowance set by ICCAT pursuant to Recommendation 21-09. This allowance would likely be small since it must be under 250 mt for all ICCAT parties combined, and the U.S. portion of total ICCAT shortfin mako catch is historically low. U.S. retention would be further limited to the restrictions under the current regulations, as described under Alternative 1. The effect of increasing the retention limit above zero within the ICCAT retention allowance would be minor and beneficial to the stock, as the retention level would be on par with, or less than, the status quo.

Under this alternative, some research and sampling of shortfin mako sharks would be allowed on a case-by-case basis under EFPs and SRPs. Collection of shortfin mako sharks under display permits would not be allowed, and collection of shortfin mako sharks for research under EFPs and/or SRPs would be considered on a case-by-case basis. Permitted collection of shortfin mako sharks would be consistent with the biological sampling and research needs described in Recommendation 21-09 and other relevant ICCAT recommendations, as well as research needs identified by the SCRS, including to provide data for future shortfin mako shark stock assessments. Numbers of shortfin mako sharks retained and tagged under EFPs and SRPs would be expected to be similar to that shown in Table 3.3 and, therefore, similar to Alternative 1. Considering the fact that the shortfin mako shark retention limit would otherwise be set at zero, NOAA Fisheries intends to limit any EFPs to closely monitored studies, and to limit the number of such permits and the number of sharks that may be retained. Furthermore, any such retention will be counted against the applicable shark research and display quota when retention is otherwise prohibited. Continuing to allow research and sampling of shortfin mako sharks would likely result in short- and long-term minor beneficial ecological impacts since it would assist with future stock assessments or research needs under other relevant ICCAT recommendations.

### **Alternative 3. Prohibit the retention of all shortfin mako sharks.**

This alternative would place shortfin mako sharks on the prohibited shark species list (Table 1 of Appendix A to 50 CFR part 635) to prohibit the retention, possession, landing, sale, or purchase of shortfin mako sharks in commercial HMS fisheries. Total allowable landings of shortfin mako sharks would be reduced to zero. However, interactions with shortfin mako sharks

would still occur in commercial and recreational fisheries. Similar to under Alternative 2, current levels of commercial shortfin mako shark landings (32 mt on average for 2018 through 2020, Table 3.1) would be expected to be converted to dead discards, which would represent total U.S. catch. Prohibiting retention of shortfin mako sharks may have the effect of disincentivizing catch, although only to the extent commercial fishermen could further explore and find ways to avoid shortfin mako sharks through gear manipulation, fishing locations. If such efforts were successful, they could, therefore, have the effect of some additional reductions in mortality. In the recreational fishery, fishermen would only be authorized to catch and release shortfin mako sharks. This requirement would be similar to the white shark catch and release requirement (50 CFR § 635.26(c)). Currently, recreational fishermen may target white sharks, but must release any white sharks caught in a manner that maximizes the chance of survival without removing the shark from the water.

Current regulations at 50 CFR § 635.34(c) provide four criteria for NOAA Fisheries to consider when placing a species on the Atlantic HMS prohibited species list. These criteria are:

- 1) Biological information indicates that the stock warrants protection.
- 2) Information indicates that the species is rarely encountered or observed caught in HMS fisheries.
- 3) Information indicates that the species is not commonly encountered or observed caught as bycatch in fishing operations for species other than HMS.
- 4) The species is difficult to distinguish from other prohibited species.

At this time, shortfin mako sharks meet the first and third criteria. Biological information indicates that the stock warrants protection (criterion 1). The 2017 stock assessment indicates that shortfin mako shark mortality needs to be reduced between 72 and 79 percent to end overfishing, and additional measures are needed to protect the stock. Information also indicates that shortfin mako sharks are not commonly encountered or observed caught as bycatch in fishing operations for species other than HMS (criterion 3). Shortfin mako sharks do not meet the second or fourth criteria. They are often encountered or observed caught in the HMS pelagic longline fishery (criterion 2) and can be identified relatively easily compared to some other shark species (criterion 4). Species do not need to meet all four criteria to be placed on the prohibited list in Table 1 of Appendix A to 50 CFR part 635.

Under this alternative, research and sampling of shortfin mako sharks would be allowed under EFPs and SRPs, as in the preferred alternative.

This alternative would likely result in short- and long-term minor beneficial ecological impacts, similar to the preferred alternative.

At this time, while shortfin mako sharks meet two of the four prohibited species criteria, NOAA Fisheries does not prefer adding shortfin mako sharks to the prohibited species list, as this approach would not meet the purpose of this action. The ICCAT recommendation prohibits retention of shortfin mako sharks caught in association with ICCAT fisheries in 2022 and 2023, but allows the possibility of retention in future years beginning in 2023. If ICCAT allows retention in the future, placing shortfin mako sharks on the prohibited species list would delay that allowance of retention under HMS regulations while rulemaking is conducted, and put U.S.

fishermen at a disadvantage to other countries if those countries begin retaining shortfin mako sharks shortly after retention is permitted. Similar to putting a species on the prohibited species list, removing a species from the prohibited species list would require the Agency to conduct a full rulemaking. During this rulemaking, the Agency would consider whether to remove the species from the prohibited species list, and if it determines it is appropriate to do so, consider what measures would need to be put into place such as quotas or retention limits. As a result, NOAA Fisheries believes that may put U.S. fishermen at a disadvantage compared to other countries. Therefore, NOAA Fisheries does not prefer this alternative at this time.

## **4.2 Social and Economic Impacts**

This section assesses the socioeconomic impacts of the alternatives presented in this document. The primary purpose of this section is to provide the baseline socioeconomic data and socioeconomic impact analysis for the RIR in Chapter 6 and the IRFA in Chapter 7. Relevant data for Community Profiles are described in Chapter 9 of the [2021 Atlantic HMS SAFE Report](#) (pages 219-233). While this section provides a socioeconomic analysis, it is not a stand-alone analysis as it refers back to, provides background data for, and builds upon the specific data and analyses provided in Chapters 3 and 7. The expected socioeconomic impacts of the different alternatives considered and analyzed are discussed below.

### **Alternative 1. No action.**

Under Alternative 1, the no action alternative, NOAA Fisheries would maintain the current commercial and recreational shortfin mako shark management measures. Current commercial regulations allow retention of shortfin mako sharks caught using gillnet, bottom longline, or pelagic longline gear on properly-permitted vessels, if the sharks are dead at haulback, and require vessels with pelagic longline gear to have a functional electronic monitoring system to retain shortfin mako sharks. The current recreational regulations allow the retention of one shark per vessel per trip with a minimum size limit of 71 inches FL (180 cm FL) for male and 83 inches FL (210 cm FL) for female shortfin mako sharks.

Socioeconomic impacts resulting from the current management measures under Alternative 1 would likely result in short- and long-term neutral impacts because these measures would maintain the current numbers of shortfin mako sharks landed and sold commercially and harvested recreationally. In the commercial fishery, shortfin mako sharks are an incidentally-caught species and are worth less than other, more valuable target species, so fishing effort on shortfin mako sharks would not be expected to change from the status quo and the effects would remain the same. Thus, the commercial fisheries would cumulatively maintain the average total revenue of approximately \$96,000 fishery-wide per year (Table 3.2). (Landings and revenue were lower in 2020; average landings in 2018 and 2019 were 55,700 pounds dw (25 mt dw), and average revenue was approximately \$109,600 per year.) An average of 49 pelagic longline vessels landed shortfin mako sharks from 2018 through 2020. Therefore, the average annual revenue from shortfin mako shark landings per pelagic longline vessel is approximately \$1,960 per year ( $\$96,000/49$ ) under the current regulations.

In the recreational fishery, approximately 3,380 directed trips targeted shortfin mako sharks on average each year in 2018 through 2021, which equates to approximately \$2.4 million

in trip expenditures per year (Table 4.1). Trips targeting shortfin mako sharks made up approximately five percent of total trips, on average, in 2018 through 2021 (68,283 trips). These trip expenditures would have an overall socioeconomic benefit by generating revenue to support industries and provide jobs.

**Table 4.1 Estimated average annual expenditures for directed shortfin mako trips from Maine to Virginia with potential reductions in directed trips and annual expenditures due to the implementation of a retention limit of zero shortfin mako sharks, 2018-2021.**

Alternative	Direct Trips for Shortfin Mako Sharks per Year	Total Expenditures <sup>1</sup>	Estimated Reduction in Directed Trips	Estimated Reduction in Total Expenditures
1	3,380	\$2,445,000	--	--
2 <sup>2</sup>	1,825	\$1,320,000	-1,555	-\$1,125,000

Sources: Large Pelagics Survey and Hutt et al., 2014. Note: Data from 2021 are preliminary. Expenditures are rounded to the nearest \$1,000.

<sup>1</sup> Extrapolated based on estimate of average cost per directed shark trip (\$566.95/trip) in the Northeast (Maine to Virginia) taken by HMS Angling permit holders in 2011 (Hutt et al., 2014) adjusted for inflation to June 2021 U.S. dollars (\$723.24/trip).

<sup>2</sup> Reduction in directed trips based on the percentage of HMS tournaments that could remove shortfin mako sharks as a targeted species. Overall, 46 percent of the shortfin mako shark directed trips were in HMS tournaments.

**Alternative 2. Implement a flexible shortfin mako shark retention limit with a default of zero in commercial and recreational HMS fisheries and a retention limit of zero would be established until changed considering regulatory criteria. - Preferred Alternative**

Under this alternative, a flexible shortfin mako shark retention limit with a default limit of zero would apply to commercial vessels issued a Directed or Incidental shark LAP and to recreational HMS permit holders. Under a retention limit of zero, HMS recreational fishermen and commercial vessels would be required to release all shortfin mako sharks that are alive at haulback, and discard all shortfin mako sharks that are dead at haulback.

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. Thus, the commercial fisheries could cumulatively experience revenue losses of approximately \$96,000 fishery-wide per year (or higher, due to low landings in 2020), which would primarily impact the pelagic longline fishery (Table 3.2). An average of 49 pelagic longline vessels landed shortfin mako sharks from 2018 through 2020. Therefore, the average annual loss in revenue from shortfin mako shark landings per pelagic longline vessel is approximately \$1,960 per year (\$96,000/49). Fishermen using bottom longline or gillnet gear rarely land shortfin mako sharks, thus, revenue losses for fishermen using these gear types would be negligible. While a default shortfin mako shark retention limit of zero would result in revenue losses to commercial fishermen, the overall socioeconomic impacts associated with these reductions in revenue are not expected to be substantial, as shortfin mako sharks comprise less than one percent of total HMS ex-

vessel revenues on average (\$30.9 million; Table 8.6 of the [2021 Atlantic HMS SAFE Report](#), pages 186-187).

In recreational fisheries, fishermen would only be authorized to catch and release shortfin mako sharks, with no retention allowed. This alternative would most likely result in a reduction in directed fishing trips for shortfin mako sharks, especially as it would likely result in the removal of shortfin mako sharks as a targeted species in fishing tournaments or cancellation of some shark fishing tournaments. Since the implementation of management measures under Amendment 11 in 2019, approximately 3,380 directed trips targeted shortfin mako sharks were taken (Table 4.1). Forty-six percent of those trips were in HMS tournaments. If the number of directed shortfin mako shark recreational trips is reduced by 46 percent, due to removal of shortfin mako sharks as an allowable targeted species in fishing tournaments, or cancellation of tournaments, approximately 1,825 directed trips targeting shortfin mako sharks (for catch and release fishing) on average each year could still take place, which equates to approximately \$1.3 million in trip expenditures per year (Table 4.1). This would be a reduction of 1,555 directed trips and approximately \$1.1 million in expenditures, compared to the no action alternative. For comparison, the HMS recreational angler expenditure survey estimated that total non-tournament expenditures were \$46.7 million ([2021 Atlantic HMS SAFE Report](#), Table 8.31 page 212). The HMS tournament economic study estimated that total expenditures by participating teams across Atlantic HMS tournaments was \$85.6 million, or \$35.5 million minus prizes and fees ([2021 Atlantic HMS SAFE Report](#), Table 8.32 pages 213-214). This alternative would have minor adverse socioeconomic impacts on supporting businesses and industries.

During the fishing year, based on the inseason trip limit adjustment criteria (50 CFR § 635.24(a)(8)), and to the extent consistent with any future retention allowance that is determined by ICCAT pursuant to Recommendation 21-09, NOAA Fisheries could increase the shortfin mako shark retention limit for the commercial fishery, the recreational fishery, or both, as appropriate. If the retention limit for the commercial and recreational fisheries is greater than zero, the current shortfin mako shark management measures under Alternative 1 would apply. Thus, the socioeconomic impacts resulting from future retention under the current management measures could be long-term neutral impacts because these measures would maintain the current level of landings of shortfin mako sharks and the resulting revenue commercially and recreationally. However, in the recreational fishery, it is possible that tournaments that are cancelled under the retention limit of zero would not be reinstated in the future because tournament operators and participants move to other target species to replace shortfin mako sharks. Similarly, it is possible that dealers will no longer have a market for commercial shortfin mako shark product following a retention limit of zero because shortfin mako shark product may be replaced by other product, or by shortfin mako sharks caught from other stocks where retention is allowed. In those cases, this alternative would be expected to have long-term minor to moderate adverse socioeconomic impacts.

Overall, Alternative 2 would be expected to have short-term minor adverse socioeconomic impacts and long-term neutral to moderate adverse socioeconomic impacts for commercial and recreational fishermen.

### **Alternative 3. Prohibit the retention of all shortfin mako sharks.**

This alternative would place shortfin mako sharks on the prohibited sharks list to prohibit any catch or retention of shortfin mako sharks in commercial HMS fisheries. As described above, in recent years, about 49,000 lb dw of shortfin mako sharks have been landed on average from 2018 through 2020, and the commercial revenues from shortfin mako sharks have averaged approximately \$96,000 fishery-wide per year (or higher, due to low landings in 2020) (Table 3.2). A prohibition on shortfin mako shark landings would result in revenue losses to commercial fishermen. An average of 49 pelagic longline vessels landed shortfin mako sharks from 2018 through 2020. Therefore, the average annual loss in revenue from shortfin mako shark landings per pelagic longline vessel is approximately \$1,960 per year (\$96,000/49). However, the overall socioeconomic impacts associated with these reductions in revenue are not expected to be substantial, as shortfin mako sharks comprise less than one percent of total HMS ex-vessel revenues on average (Table 8.6 of the [2021 Atlantic HMS SAFE Report](#), pages 186-187). Therefore, short- and long-term minor adverse socioeconomic impacts for commercial fishermen are expected under this alternative.

In recreational fisheries, recreational fishermen would only be authorized to catch and release shortfin mako sharks. This requirement would be similar to the white shark catch and release requirement. Currently, recreational fishermen may target white sharks, but may not retain the shark and must release it in a manner that maximizes the chance of survival. This could lead to similar impacts as under Alternative 2. Namely, minor adverse socioeconomic impacts on supporting businesses and industries could occur. However, some fishermen could stop targeting shortfin mako sharks due to the prohibited listing. If this occurs, this could result in minor to moderate adverse socioeconomic impacts on supporting businesses and industries.

Overall, Alternative 3 would be expected to have short- and long-term minor to moderate adverse socioeconomic impacts for commercial and recreational fishermen.

### **4.3 Essential Fish Habitat**

Pursuant to 16 U.S.C. 1855(b)(1), and as implemented by 50 CFR § 600.815, the Magnuson-Stevens Act requires NOAA Fisheries 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 NOAA Fisheries determines that fishing gears are having an adverse effect on HMS EFH, or other species' EFH, then NOAA Fisheries must include management measures that minimize adverse effects to the extent practicable.

In the 2006 Consolidated HMS FMP and Amendment 1 to the 2006 Consolidated Atlantic HMS FMP (Amendment 1; NOAA Fisheries, 2009), NOAA Fisheries reviewed the various HMS gear types with the potential to affect EFH and, based on the best information available at that time, NOAA Fisheries determined that there is no evidence that physical effects caused by any authorized HMS gears were affecting EFH for targeted or non-targeted species, to the extent that physical effects can be identified on the habitat or the fisheries. NOAA Fisheries conducted a literature review as part of Draft Amendment 10 to the 2006 Consolidated Atlantic HMS FMP (81 FR 62100, September 8, 2016). NOAA Fisheries completed the Atlantic HMS EFH 5-Year Review in 2015 to investigate additional impacts of HMS fishing gears on Atlantic HMS EFH since Amendment 1. NOAA Fisheries did not find any significant changes in effects

to HMS EFH from HMS and non-HMS fishing gears. NOAA Fisheries found no new information that any authorized HMS gear would have adverse effects on EFH. The Final Amendment 10 (82 FR 42329) was published on September 7, 2017. NOAA Fisheries found no new information that any authorized HMS gear would have adverse effects on EFH. Therefore, this proposed action in the context of the fishery as a whole will not have an adverse impact on EFH; therefore, an EFH consultation is not required.

#### **4.4 Protected Resources**

None of the three alternatives would be expected to change endangered species or marine mammal interaction rates or magnitudes, or substantially alter current fishing practices or bycatch mortality rates.

Regarding compliance with the ESA, NOAA Fisheries issued two separate BiOps for HMS fisheries in 2020, one for the HMS pelagic longline fishery and one for all non-pelagic longline HMS fisheries. The three alternatives are not anticipated to affect ESA-listed species or critical habitat in any way not previously analyzed and is not likely to increase effort in a way that increases interactions with leatherback turtles or other protected resources, given that operations will remain consistent with the current reasonable and prudent measures and terms and conditions for the pelagic longline fishery and the commercial and recreational handgear fisheries in the relevant BiOps. NOAA Fisheries will continue to closely monitor the fisheries and will ensure compliance with the BiOp provisions.

Additionally, the three alternatives are not anticipated to change effort in these fisheries in any manner that would increase the potential for interaction with non-listed marine mammals as previously analyzed in the 2006 Consolidated HMS FMP and its amendments. Thus, the three alternatives would have neutral impacts in the short- and long-term on protected resources.

#### **4.5 Environmental Justice Concerns**

Executive Order 12898 requires agencies to identify and address disproportionately high and adverse environmental effects of Federal agencies' actions on minority and low-income populations. To determine whether environmental justice concerns exist, the demographics of the affected geographic area should be examined to ascertain whether minority populations and low-income populations are present. If so, a determination must be made as to whether implementation of the alternatives may cause disproportionately high and adverse human health or environmental effects on these populations.

Relevant data for Community Profiles is described in Chapter 9 of the [2021 Atlantic HMS SAFE Report](#) (pages 219-233). Demographic data indicate that coastal counties with fishing communities are variable in terms of social indicators like income, employment, and race and ethnic composition.

The preferred alternative was selected to minimize ecological and economic impacts and provide for the sustained participation of fishing communities. The preferred alternative would not have any effects on human health, nor is it expected to have any disproportionate social or economic effects on minority and low-income communities. Alternatives 1 and 3 would likewise

not have any effects on human health nor are they expected to have any disproportionate social or economic effects on minority and low-income communities

#### 4.6 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA, 1972; reauthorized in 1996) requires that federal actions be consistent, to the extent practicable, with the enforceable policies of all state coastal zone management programs. NOAA Fisheries finds the alternatives analyzed in this action to be consistent to the maximum extent practicable with the enforceable policies of states that have approved coastal zone management programs. NOAA Fisheries is seeking concurrence with respect to the preferred alternative and will ask for states’ agreement with this determination during the proposed rule stage.

#### 4.7 Comparison of NEPA Alternatives

Table 4.2 provides a qualitative comparison of the impacts associated with the various alternatives considered in this rulemaking. This table summarizes the impacts that were discussed in detail in Chapters 4.1-4.4.

**Table 4.2 Comparison of Alternatives Considered**

<b>Alternative</b>	<b>Ecological</b>	<b>Protected Resources</b>	<b>Socioeconomic</b>
<b>Alternative 1</b>	Minor Beneficial	Neutral	Neutral
<b>Alternative 2 (Preferred Alternative)</b>	Minor Beneficial	Neutral	Neutral to Moderate Adverse
<b>Alternative 3</b>	Minor Beneficial	Neutral	Minor to Moderate Adverse

#### 4.8 Cumulative Impacts

Under NEPA, a cumulative impact is an impact on the environment that results from the incremental impact of the final 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. 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 on shark fishermen and the environment, with regard to the management measures presented in this document.

Overall, the preferred alternative in this EA would have minor beneficial ecological impacts for the shortfin mako shark stock, based on the detailed discussions in the ecological

impacts section. Additionally, as discussed above, the preferred alternative would simultaneously have neutral impacts on protected species and marine mammals. The minor beneficial ecological impacts associated with the preferred alternative makes these actions favorable. The preferred alternative would likely have no impact on the overall fishing effort or fishing rates, bycatch, or bycatch rates in the long-term beyond what was previously analyzed in Amendment 11. Additionally, there would be no major impacts on EFH.

NOAA Fisheries is developing Amendment 14 to the 2006 Consolidated HMS FMP, with a draft amendment released in 2020 (85 FR 60132, September 24, 2020; Supplement to Draft Amendment 14, 87 FR 3504, January 24, 2022), which would establish a new framework action for the establishment of acceptable biological catch (ABC) and annual catch limits (ACLs) for most Atlantic shark fisheries. Amendment 14 does not contain a proposed rule or regulatory text. It does not change any fishery quotas. Amendment 14 and any resulting rulemakings applying its provisions would be finalized after this rulemaking and would consider the cumulative impacts from this rulemaking.

NOAA Fisheries is considering an action to prohibit the commercial and recreational retention of scalloped hammerhead sharks in the Central and Southwest distinct population segment and of oceanic whitetip sharks throughout their range, consistent with the 2020 BiOps. The proposed rule for this action is expected later in 2022 and would consider the cumulative impacts from this rule. Taken together, and depending on the actions that are finalized, these two rulemakings could have impacts on the shark fishery overall. NOAA Fisheries cannot further speculate about the effects of these actions or potential actions, given that they are not finalized rules.

## **5.0 Mitigation and Unavoidable Adverse Impacts**

### **5.1 Mitigating Measures**

Mitigation is an important mechanism that federal agencies can use to minimize, prevent, or eliminate damage to the human and natural environment associated with their actions. As described in the CEQ regulations, agencies can use mitigation to reduce environmental impact in several ways. Mitigation may include one or more of the following: avoiding the impact by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments. The mitigation measures discussed in an EA must cover the range of impacts of the proposal and must be considered even for impacts that by themselves would not be considered "significant." If a proposed action is considered as a whole to have significant effects, all of its specific effects on the environment must be considered, and mitigation measures must be developed where it is feasible to do so. NOAA Fisheries may consider mitigation, provided that the mitigation efforts do not circumvent the goals and objectives of the rulemaking or the mandate to rebuild fisheries under the Magnuson-Stevens Act.

Under the preferred alternative, NOAA Fisheries would implement the 2021 ICCAT recommendation regarding shortfin mako sharks, consistent with the requirements of ATCA, the Magnuson-Stevens Act, and the scientific advice of the SCRS. Preferred Alternative 2 would have minor beneficial ecological impacts because U.S. shortfin mako shark landings are a small percentage of total North Atlantic-wide landings. Under a retention limit of zero, U.S. fishermen would be releasing all caught shortfin mako sharks. For commercial fishermen, this would only affect the possible retention of dead shortfin mako sharks and is not likely to affect fishing effort. Recreational anglers may opt for catch-and-release of shortfin mako sharks. Switching to catch-and-release would result in little change of effort but would still reduce mortalities. Additionally, recreational effort in HMS tournaments may be reduced as the retention limit of zero would likely result in the removal of shortfin mako sharks as a targeted species in fishing tournaments or cancellation of some shark fishing tournaments. Thus, no adverse ecological effects are expected, and mitigation measures are not necessary.

### **5.2 Unavoidable Adverse Impacts**

In general, there are no unavoidable adverse ecological impacts expected as a result of the preferred alternative. NOAA Fisheries does not expect a change in current fishing practices or an increase in fishing effort due to the default retention limit of zero for shortfin mako sharks. The action would not modify fishing behavior or gear type, nor would it expand fishing effort because commercial and recreational fishermen fishing exclusively for sharks would still be authorized to retain all other shark species subject to current limits. Thus, the proposed measures would not be expected to change previously analyzed endangered species or marine mammal

interaction rates or magnitudes, or substantially alter current fishing practices or bycatch mortality rates.

### **5.3 Irreversible and irretrievable commitment of resources**

No irreversible or irretrievable commitments of resources are expected as a result of the preferred alternative. There are expected to be beneficial ecological impacts because of the reduction in shortfin mako shark fishing mortality.

## 6.0 Regulatory Impact Review

NOAA Fisheries conducts a RIR for all regulatory actions that are of public interest, to comply with E.O. 12866. The RIR provides, for each alternative, an analysis of the economic benefits and costs to the applicable fishery(ies) and the nation as a whole. The information contained in Chapter 6, taken together with the data and analyses incorporated by reference, comprise the complete RIR for this proposed action.

The requirements for all regulatory actions specified in E.O.12866 are summarized in the following statement from the order:

*In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits should be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nonetheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.*

E.O. 12866 further requires the Office of Management and Budget to review proposed regulations that are considered to be “significant.” A significant regulatory action is one that is likely to:

- Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments of communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this Executive Order.

### 6.1 Description of Management Objectives

Please see Chapter 1 for a description of the objectives of this rulemaking.

## 6.2 Description of Fishery

Please see Chapter 3 for a description of the fisheries that could be affected by these management actions.

## 6.3 Statement of Problem

Please see Chapter 1 for a description of the problem and need for this rulemaking.

## 6.4 Description of Each Alternative

Please see Chapter 2 for a summary of each alternative and Chapter 4 for a complete description of each alternative and its expected ecological, social, and economic impacts.

## 6.5 Economic Analysis of Expected Effects of Each Alternative Relative to the Baseline

Table 6.1 summarizes the net economic benefits and costs of each of the alternatives analyzed in this EA. Additional details and more complete analyses are provided in Chapter 4.

**Table 6.1 Summary of expected net economic benefits and costs of analyzed alternatives**

Alternatives	Net Economic Benefits	Net Economic Costs
Alternative 1: No action	This alternative would have neutral economic impacts since fishermen could continue to catch and retain shortfin mako sharks at a similar level and rate as the status quo.	None.
Alternative 2: Implement a flexible shortfin mako shark retention limit with a default of zero in commercial and recreational HMS fisheries <i>(Preferred Alternative)</i>	<p>There would be unquantified benefits to the public associated with reducing mortality resulting from the default retention limit of zero shortfin mako sharks by the commercial and recreational fleet. These benefits include passive use values, such as shark viewing trips, and nonuse values including knowing that shark species remain for future generations (bequest value) and values placed on knowing shark species will continue to survive (existence value). In addition, in the long-term, a rebuilt shortfin mako shark stock could provide better harvest opportunities for the commercial and recreational fishing sectors.</p> <p>If the retention limit for the commercial and recreational fisheries is greater than zero, this alternative would have neutral economic impacts since fishermen could continue to catch and retain shortfin mako sharks at a similar level and rate as the status quo.</p>	<p>Fisheries can no longer generate revenue from the sale of shortfin mako sharks. Commercial fishermen would be releasing incidentally caught shortfin mako sharks, and potentially lose bait and gear.</p> <p>This alternative could limit fishing opportunities for Charter/Headboat operators resulting in fewer fishing trips. Additionally recreational fishermen could spend more time, effort, and fuel avoiding interactions with shortfin mako sharks, therefore increasing the cost of their trips.</p> <p>If retention limits are increased above zero, there would be no economic costs to the fleet, unless markets and tournaments for shortfin mako sharks are no longer viable due to the retention limit having been set at zero for a number of years.</p>
Alternative 3: Prohibit the retention of all shortfin mako sharks	There would be unquantified benefits to the public associated with reducing mortality resulting from prohibiting retention of shortfin mako sharks by the commercial and recreational fleet. These benefits include passive use values, such as shark viewing trips, and nonuse values including knowing that shark species remain for future generations (bequest value) and values placed on knowing shark species will continue to survive (existence value). In addition, in the long-term, a rebuilt shortfin mako shark stock could provide better harvest	<p>Fisheries can no longer generate revenue from the sale of shortfin mako sharks. Commercial fishermen would be releasing incidentally caught shortfin mako sharks, and potentially lose bait and gear.</p> <p>This alternative could limit fishing opportunities for Charter/Headboat operators resulting in fewer fishing trips. Additionally recreational fishermen could</p>

	opportunities for the commercial and recreational fishing sectors.	spend more time, effort, and fuel avoiding interactions with shortfin mako sharks, therefore increasing the cost of their trips.
--	--	--

## 6.6 Conclusion

As noted above, under E.O. 12866, a regulation is a “significant regulatory action” if it is likely to: (1) have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth in this Executive Order. Pursuant to the procedures established to implement section 6 of E.O. 12866, the Office of Management and Budget has determined that this action is not significant. A summary of the expected net economic benefits and costs of each alternative, which are based on supporting text in Chapter 4, can be found in Table 6.1.

## **7.0 Initial Regulatory Flexibility Act**

This IRFA is conducted to comply with the RFA (5 U.S.C. 601 et seq.). The goal of the RFA is to minimize the economic burden of federal regulations on small entities. To that end, the RFA directs federal agencies to assess whether a proposed regulation is likely to result in significant economic impacts to a substantial number of small entities, and identify and analyze any significant alternatives to the proposed rule that accomplish the objectives of applicable statutes and minimize any significant effects on small entities. Certain data and analysis required in an IRFA are also included in other chapters of this document. Therefore, this IRFA incorporates by reference the economic analyses and impacts in Chapter 4 of this document.

### **7.1 Description of the Reasons Why Action is Being Considered**

In compliance with section 603(b)(1) of the RFA, the purpose of this proposed rulemaking is to implement ICCAT Recommendation 21-09 regarding North Atlantic shortfin mako sharks, as necessary and appropriate pursuant to ATCA, and to achieve domestic management objectives under the Magnuson-Stevens Act. Please see Chapter 1 for a full description of the reasons why action is being considered.

### **7.2 Statement of the Objectives of, and Legal Basis for, the Proposed Rule**

In compliance with section 603(b)(2) of the RFA, the objective of this proposed rulemaking is to implement the ICCAT-recommended limit on retention of North Atlantic shortfin mako sharks. Please see Chapter 1 for a full description of the objectives of, and legal basis for, this action.

### **7.3 Description and Estimate of the Number of Small Entities to Which the Proposed Rule Will Apply**

Section 603(b)(3) of the RFA requires Agencies to provide an estimate of the number of small entities to which the rule would apply. NOAA Fisheries established a small business size standard of \$11 million in annual gross receipts for all businesses in the commercial fishing industry (NAICS 11411) for RFA compliance purposes. The Small Business Administration (SBA) has established size standards for all other major industry sectors in the United States, including the scenic and sightseeing transportation (water) sector (NAICS code 487210), which includes for-hire (charter/party boat) fishing entities. The SBA has defined a small entity under the scenic and sightseeing transportation (water) sector as one with average annual receipts (revenue) of less than \$8.0 million.

NOAA Fisheries considers all HMS permit holders, both commercial and for-hire, to be small entities because they had average annual receipts of less than their respective sector's standard of \$11 million and \$8 million. Regarding those entities that would be directly affected by the proposed measures, the average annual revenue per active pelagic longline vessel is estimated to be \$202,000, based on approximately 90 active vessels that produced an estimated \$18.2 million in revenue in 2020, well below the NOAA Fisheries small business size standard for commercial fishing businesses of \$11 million. No single pelagic longline vessel has exceeded \$11 million in revenue in recent years. Other non-longline HMS commercial fishing vessels

typically earn less revenue than pelagic longline vessels and, thus, would also be considered small entities.

As discussed in Chapter 3, the proposed rule would apply to the 213 Shark Directed LAP holders, 256 Shark Incidental LAP holders, and 4,055 HMS Charter/Headboat permit holders, based on 2021 data. Of those HMS Charter/Headboat permit holders, 3,021 obtained shark endorsements. In 2018 and 2019, 800 HMS for-hire trips targeting shortfin mako sharks were taken per year on average (7 percent on average of total HMS for-hire trips), from Maine to Virginia as captured in LPS data. These trips were taken by, on average, 10 percent of HMS for-hire charter/headboat vessels. On average, there were 44 Atlantic HMS tournaments that targeted pelagic sharks (primarily shortfin mako sharks) in 2018 through 2021. As described in Chapter 4.2, there were approximately 1,555 directed shortfin mako shark trips in registered HMS tournaments on average in 2018 through 2021. On average, 26 federally-permitted dealers per year purchased shortfin mako sharks in 2018 through 2020. NOAA Fisheries has determined that the preferred alternative would not likely directly affect any small organizations or small government jurisdictions defined under RFA, nor would there be disproportionate economic impacts between large and small entities.

#### **7.4 Description of the Projected Reporting, Recordkeeping, and other Compliance Requirements of the Proposed Rule, including an Estimate of the Classes of Small Entities which will be Subject to the Requirements of the Report or Record**

Section 603(b)(4) of the RFA requires Agencies to describe any new reporting, record-keeping and other compliance requirements. The action does not contain any new collection of information, reporting, or record-keeping requirements.

#### **7.5 Identification of all Relevant Federal Rules which may Duplicate, Overlap, or Conflict with the Proposed Rule**

Under section 603(b)(5) of the RFA, Agencies must identify, to the extent practicable, relevant federal rules which duplicate, overlap, or conflict with the proposed action. Fishermen, dealers, and managers in these fisheries must comply with a number of international agreements, domestic laws, and other fishery management measures. These include, but are not limited to, the Magnuson-Stevens Act, ATCA, the High Seas Fishing Compliance Act, MMPA, ESA, NEPA, the Paperwork Reduction Act, and the Coastal Zone Management Act. This proposed action has been determined not to duplicate, overlap, or conflict with any federal rules.

#### **7.6 Description of any Significant Alternatives to the Proposed Rule that Accomplish the Stated Objectives of Applicable Statutes and that Minimize any Significant Economic Impact of the Proposed Rule on Small Entities**

One of the requirements of an IRFA is to describe any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities. The analysis shall discuss significant alternatives such as:

1. Establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
2. Clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
3. Use of performance rather than design standards; and
4. Exemptions from coverage of the rule, or any part thereof, for small entities.

These categories of alternatives are described at 5 U.S.C. 603 (c)(1)-(4). NOAA Fisheries examined each of these categories of alternatives. Regarding the first, second, and fourth categories, NOAA Fisheries cannot establish differing compliance or reporting requirements for small entities or exempt small entities from coverage of the rule or parts of it because all of the businesses impacted by this rule are considered small entities and thus the requirements are already designed for small entities. NOAA Fisheries does not know of any performance or design standards that would satisfy the aforementioned objectives of this rulemaking while, concurrently, complying with the Magnuson-Stevens Act. As described below, NOAA Fisheries analyzed several different alternatives in this proposed rulemaking, and provides rationales for identifying the preferred alternative to achieve the desired objectives.

The alternatives considered and analyzed are described below. The IRFA assumes that each vessel will have similar catch and gross revenues to show the relative impact of the proposed action on vessels.

Alternative 1, the no action alternative, would not implement any new management measures in the commercial or for-hire shark fisheries to decrease mortality of shortfin mako sharks. In recent years, about 49,000 lb dw of shortfin mako sharks have been landed commercially on average from 2018 through 2020 and the commercial revenues from shortfin mako sharks have averaged approximately \$96,000 fishery-wide per year. The number of pounds of shortfin mako shark landed, revenue, and number of pelagic longline vessels that landed shortfin mako sharks was lower in 2020 compared to 2018 and 2019 (average landings in 2018 and 2019 were 55,700 pounds dw, average revenue was approximately \$109,600 per year, and average number of pelagic longline vessels landing shortfin mako sharks was 53). Almost all of the shortfin mako shark commercial landings, based on dealer reports, were made by pelagic longline vessels. An average of 49 pelagic longline vessels landed shortfin mako sharks from 2018 through 2020. Therefore, the average annual revenue from shortfin mako shark landings per pelagic longline vessel is approximately \$1,960 per year (\$96,000/49) under the current regulations. For-hire shark fishing operations by HMS Charter/Headboat permit holders as well as HMS tournament operations would also remain the same. This alternative would result in no additional economic impacts on small entities associated with these fisheries in the short- or long-term.

Alternative 2, the preferred alternative, would implement a flexible shortfin mako shark retention limit with a default limit of zero. The limit of zero would be in place unless and until changed after considering inseason trip limit adjustment criteria (§ 635.24(a)(8)) and when consistent with ICCAT retention allowances pursuant to Recommendation 21-09. This would apply to commercial vessels issued a Directed or Incidental shark LAP and to HMS Charter/Headboat permit holders. Under a retention limit of zero, HMS for-hire fishermen and commercial vessels would be required to release all shortfin mako sharks that are alive at

haulback, and discard all shortfin mako sharks that are dead at haulback. In recent years, about 49,000 lb dw of shortfin mako sharks have been landed commercially on average from 2018 through 2020, and the commercial revenues from shortfin mako sharks have averaged approximately \$96,000 fishery-wide per year. Almost all of the shortfin mako shark commercial landings, based on dealer reports, were made by pelagic longline vessels. An average of 49 pelagic longline vessels landed shortfin mako sharks from 2018 through 2020. Therefore, the average loss in annual revenue from shortfin mako shark landings per pelagic longline vessel that landed shortfin mako sharks would be approximately \$1,960 per year (\$96,000/49). However, the overall economic impacts associated with these reductions in revenue are not expected to be substantial, as shortfin mako sharks comprise less than one percent of total HMS ex-vessel revenues on average. Additionally, the magnitude of shortfin mako landings by other commercial gear types (bottom longline and gillnet) is very small. This alternative would have minor economic costs on small entities in those commercial fisheries compared to the no action alternative because these measures would reduce the number of shortfin mako sharks landed and sold by these fishing vessels. Shortfin mako sharks are rarely a target species, however, and generate much less revenue overall than other more valuable target species. In for-hire fisheries and tournaments, retention would be prohibited, and fishermen would only be authorized to catch and release shortfin mako sharks. A retention limit of zero for shortfin mako sharks is likely to be a disincentive to fishing by some portion of the for-hire shark fishery, particularly those individuals that would otherwise have planned to target and retain shortfin mako sharks. Charter/headboat operators may experience some decline in demand if shortfin mako sharks may not be retained, resulting in minor adverse economic impacts. For Atlantic HMS tournaments, the 1,555 directed shortfin mako shark trips, on average, that take place in HMS tournaments would likely no longer take place, resulting in a loss of approximately \$1.1 million in expenditures, out of an estimated \$85.6 million in total HMS tournament expenditures by participating teams. Overall, this alternative would have minor economic costs on small entities in the short-term compared to the no action alternative.

During the fishing year, based on the inseason trip limit adjustment criteria (50 CFR § 635.24(a)(8)), and to the extent consistent with any future retention allowance that is determined by ICCAT pursuant to Recommendation 21-09, NOAA Fisheries could increase the shortfin mako shark retention limit for the commercial fishery, the recreational fishery, or both, as appropriate. If the retention limit for the commercial and recreational fisheries is greater than zero, the current shortfin mako shark regulatory requirements, described under Alternative 1, would apply. This would result in no additional economic impacts on small entities associated with this fishery in the long-term compared to the no action alternative.

Alternative 3 would place shortfin mako on the prohibited sharks list to prohibit any catch or retention of shortfin mako sharks in commercial and recreational HMS fisheries. *See* Table 1, section D, in App. A to 50 CFR part 635 (prohibited sharks list), 50 CFR § 635.24(a)(5) (related vessel restrictions), and 50 CFR § 635.34(c) (criteria for adding species to, or removing species from, the prohibited shark species group). The overall economic impacts associated with reductions in revenue for the commercial and for-hire fisheries and HMS tournaments would be similar to those described under Alternative 2 and are not expected to be substantial, as shortfin mako sharks comprise less than one percent of total HMS ex-vessel revenues on average. This alternative would have minor economic costs on small entities in commercial fisheries because

no shortfin mako sharks would be landed and sold by these fishing vessels under these measures. Shortfin mako sharks are rarely a target species, however, and generate less revenue overall than other more valuable target species. In for-hire fisheries and tournaments, retention would be prohibited, and fishermen would only be authorized to catch and release shortfin mako sharks. A prohibition on the retention of shortfin mako sharks is likely to be a disincentive for some portion of the for-hire shark fishery, particularly those individuals that would otherwise have planned to target and retain shortfin mako sharks. Charter/headboat operators may experience some decline in demand, resulting in adverse economic impacts. For Atlantic HMS tournaments, the 1,555 directed shortfin mako shark trips, on average, that take place in HMS tournaments would likely no longer take place, resulting in a loss of approximately \$1.1 million in expenditures, out of an estimated \$85.6 million in total HMS tournament expenditures by participating teams. Overall, Alternative 3 would have minor economic costs on small entities in the short- and long-term.

## 8.0 Applicable Law

### 8.1 Magnuson-Stevens Fishery Conservation and Management Act

NOAA Fisheries has determined that this proposed action is consistent with the Magnuson-Stevens Act, and other applicable laws, and the analyses in this document are consistent with the Magnuson-Stevens Act National Standards (NS) (see 50 CFR part 600, Subpart D for National Standard Guidelines), subject to further consideration after public comment.

NS1 requires NOAA Fisheries to prevent overfishing while achieving, on a continuing basis, optimum yield from each fishery for the U.S. fishing industry. As summarized in other chapters and in recent documents, over the past several years, NOAA Fisheries has undertaken numerous management actions, including the 2006 Consolidated Atlantic HMS FMP, Amendment 2 to the 2006 Consolidated Atlantic HMS FMP (73 FR 40657, July 7, 2008), Amendment 3 to the 2006 Consolidated Atlantic HMS FMP (76 FR 70064, November 10, 2011), Amendment 5 and 5b to the 2006 Consolidated Atlantic HMS FMP (78 FR 40317, July 3, 2013; 82 FR 16478, April 4, 2017), Amendment 6 to the 2006 Consolidated Atlantic HMS FMP (79 FR 30064; May 27, 2014), Amendment 9 to the 2006 Consolidated Atlantic HMS FMP (79 FR 46217, August 7, 2014), and Amendment 11 to the 2006 Consolidated Atlantic HMS FMP (84 FR 5358; February 21, 2019) to address overfishing and to rebuild shark stocks. In addition, following the 2017 stock assessment, NOAA Fisheries took emergency action to address shortfin mako shark overfishing (83 FR 8946, March 2, 2018; measures extended through March 2019, 83 FR 42452, August 22, 2018) prior to implementation of Amendment 11. The preferred alternative in this document builds upon management efforts to rebuild, manage, and conserve target species in accordance with Magnuson-Stevens Act requirements and the NS1 guidelines. The preferred alternative is to implement a flexible retention limit with a default limit of zero for shortfin mako sharks. Consistent with current ICCAT provisions, the retention limit would be established as zero until Atlantic-wide catch levels are below 250 mt, a level which has a high probability of ending overfishing and starting to rebuild the stock. ICCAT determined that this measure was needed to bring catch levels down to or below that amount by all ICCAT parties, and thus was an important measure contributing to conservation and management of the stock. However, shortfin mako sharks are not target species in the commercial fisheries and recreational fishermen would only be authorized to catch and release shortfin mako sharks, so fishing pressure and distribution of fishing effort would not be impacted by the no retention default. The retention limit of zero, and any future retention permitted consistent with a retention allowance set by ICCAT, would further contribute to ending overfishing of shortfin mako sharks and starting to rebuild the stock, consistent with ICCAT Recommendation 21-09. Through the U.S. measures adopted, the United States is addressing overfishing within its own fisheries, but it cannot end overfishing or rebuild the stock on its own given that it is only a small percentage of the overall fishery in the Atlantic. *See* Table 3.1 (indicating total U.S. catch as 3 percent of international catch of shortfin mako sharks reported to ICCAT in 2020, and 3.1 percent in 2019). Current U.S. measures include, in commercial fisheries, allowing retention of shortfin mako sharks with pelagic longline gear only if the shark is dead at haulback and there is a functional electronic monitoring system on board the vessel, consistent with the ICCAT recommendation requirement. In recreational fisheries,

NOAA Fisheries implemented an increase in the minimum size limit for the retention of shortfin mako sharks from 54 inches FL (137 cm FL) to 71 inches FL (180 cm FL) for male shortfin mako sharks and 83 inches FL (210 cm FL) for female shortfin mako sharks. Current measures also require the use of circle hooks in all recreational shark fisheries in order to reduce post-release mortality of shortfin mako sharks.

NS2 requires that conservation and management measures be based on the best scientific information available. The preferred alternative in this document is consistent with NS2. The preferred alternative is based on the latest ICCAT SCRS stock assessment for shortfin mako sharks, and specific SCRS advice regarding recommended management approaches (i.e., no retention) pending reduction of catch below 250 mt. Furthermore, the analyses for the preferred alternative drew heavily on ICCAT Recommendation 21-09 to prohibit the retention of shortfin mako sharks in 2022 and 2023. Results from the stock assessment and the other data sources represent the best available science.

NS3 requires that, to the extent practicable, an individual stock of fish be managed as a unit throughout its range and interrelated stocks of fish be managed as a unit or in close coordination. The preferred alternative applies to shortfin mako sharks across their range within the U.S. EEZ and in state waters as a condition of federal HMS fishing permits, unless the state has more restrictive measures. The preferred alternative is designed to comply with ICCAT Recommendation 21-09, which coordinates management measures for shortfin mako sharks across all ICCAT parties and the entire range of the North Atlantic shortfin mako shark stock.

NS4 requires that conservation and management measures do not discriminate between residents of different states. Furthermore, if it becomes necessary to allocate or assign fishing privileges among various U.S. fishermen, such allocation should be fair and equitable to all fishermen; be reasonably calculated to promote conservation; and should be carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges. The preferred alternative in this document is consistent with NS4. The preferred alternative applies across the entire Atlantic, Gulf of Mexico, and Caribbean U.S. EEZ. Thus, the conservation and management measures do not discriminate between residents of different states, consistent with NS4. The preferred alternative does not allocate or assign fishing privileges.

NS5 requires that conservation and management measures should, where practicable, consider efficiency in the utilization of fishery resources, with the exception that no such measure shall have economic allocation as its sole purpose. The preferred alternative in this document is consistent with NS5. The conservation and management measures in the preferred alternative were analyzed for changes in the efficiency of utilization of the fishery resource. Because this action would implement a default retention limit of zero and reduce fishing mortality of shortfin mako sharks, there would be loss in efficiency in both the recreational and commercial fisheries. In the near-term, the most efficient use of the shortfin mako shark resource would be to retain and land every dead individual caught. However, doing so could lead to continued overfishing and further stock decline. Thus, the preferred alternative would require all shortfin mako sharks to be released when the retention limit is zero. The preferred alternative has been designed, though, to potentially allow retention of shortfin mako sharks in the future should ICCAT allow retention or should stock status improve.

NS6 states that conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches. The preferred alternative in this document is consistent with NS6. The preferred alternative would implement a retention limit with a default of zero for shortfin mako sharks for commercial and recreational retention throughout their range. Shortfin mako sharks are rarely targeted and landed by commercial fishermen and recreational fishermen would be authorized to catch and release this species.

NS7 states that conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication. The preferred alternative in this document is consistent with NS7. The preferred alternative was chosen, in part, to minimize costs while meeting required conservation goals. The economic impacts section of the EA provides detailed analyses of the costs associated with each alternative. The preferred alternative was also structured to avoid unnecessary duplication by taking into account the range of alternatives as well as existing requirements on the relevant fisheries and existing measures in place for shortfin mako sharks.

NS8 states that conservation and management measures shall, consistent with the conservation requirements of the Magnuson-Stevens Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to provide for the sustained participation of such communities, and to the extent practicable, minimize adverse economic impacts on such communities. The preferred alternative in this document is consistent with NS8. The socioeconomic impacts of this alternative on fishing communities are expected to be neutral to minor-to-moderate adverse and were considered in Chapters 4, 6, and 7.

NS9 states that conservation and management measures shall, to the extent practicable, minimize bycatch, and to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch. The preferred alternative in this document is consistent with NS9. The preferred alternative is not expected to cause significant changes in fishing effort, areas, or practices, and thus are not expected to lead to increases in potential bycatch or increased interactions with non-target, incidentally caught species, including protected species. Measures are in place in the relevant fisheries to minimize bycatch to the extent practicable, including through gear modifications and other measures.

NS10 states that conservation and management measures shall, to the extent practicable, promote the safety of human life at sea. The preferred alternative in the document is consistent with NS10. No impact to safety of life at sea is anticipated to result from the preferred alternative. The preferred alternative would not result in fishermen having to travel greater distances, fish in bad weather, or otherwise fish in an unsafe manner.

## **8.2 Paperwork Reduction Act**

This action contains no new collection-of-information requirements subject to the Paperwork Reduction Act.

## **8.3 E.O. 13132: Federalism**

This action does not contain regulatory provisions with federalism implications sufficient to warrant preparation of a Federalism Assessment under E.O. 13132.

## 9.0 List of Agencies and Persons Consulted

The development of this rulemaking involved input from many people within NOAA Fisheries, NOAA Fisheries contractors, and input from the public, constituent groups, and the HMS Advisory Panel. Staff and contractors from the HMS Management Division, in alphabetical order, who worked on this document include:

- Heather Baertlein, Data Management Specialist
- Randy Blankinship, Division Chief
- Karyl Brewster-Geisz, Branch Chief
- Craig Cockrell, Fishery Biologist
- Peter Cooper, Branch Chief
- Dan Crear, Data Management Specialist
- Guy DuBeck, Fishery Management Specialist
- Benjamin Duffin, Data Management Specialist
- Cliff Hutt, Fishery Management Specialist
- Derek Kraft, Knauss Marine Policy Fellow
- Brad McHale, Branch Chief
- Sarah McLaughlin, Management and Program Analyst
- Carrie Soltanoff, Fishery Management Specialist

The development of this document also involved considerable input from other staff members and Offices throughout NOAA including, but not limited to the Office of the General Counsel, Southeast Fisheries Science Center, Office of Science and Technology, Office of International Affairs, Trade, and Commerce, and Pacific Islands Regional Office.

Highly Migratory Species Management Division (F/SF1)  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, MD 20910  
Phone: (301) 427-8503

## 10.0 References

Coastal Zone Management Act, 16 U.S.C. §§ 1451 et seq.

Compagno, L.J.V. 2002. Sharks of the world. FAO Fishery Synopsis, Vol. 2. Rome, Italy: Food and Agriculture Organization of the United Nations.

French R.P., J. Lyle, S. Tracey, S. Currie, and J.M. Semmens. 2015. High survivorship after catch-and-release fishing suggests physiological resilience in the endothermic shortfin mako shark (*Isurus oxyrinchus*). *Conservation Physiology* 3: doi:10.1093/conphys/cov044.

Hutt, C., S. Lovell, and G. Silva. 2014. The Economic Contributions of Atlantic Highly Migratory Species Anglers in New England and the Mid-Atlantic, 2011. U.S. Department of Commerce, NOAA Tech. Memo. NMFS-F/SPO-147, 34 p.

Mollet, G. Cliff, H.L. Pratt, and J. Stevens. 2000. Reproductive biology of the female shortfin mako, *Isurus oxyrinchus* Rafinesque, 1810, with comments on the embryonic development of lamnoids. *Fishery Bulletin* 98(2): 299-318.

NOAA Fisheries. 2006. Final Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.  
<https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/atlantic-hms-fishery-management-plans-and-amendments>

NOAA Fisheries. 2008. Final Amendment 2 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NOAA Fisheries. 2009. Final Amendment 1 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NOAA Fisheries. 2010. Final Amendment 3 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NOAA Fisheries. 2013. Final Amendment 5 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NOAA Fisheries. 2015. Final Amendment 6 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

- NOAA Fisheries. 2015. Final Amendment 9 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.
- NOAA Fisheries. 2017. Final Amendment 5b to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.
- NOAA Fisheries. 2017b. Final Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.
- NOAA Fisheries. 2019. Final Amendment 11 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.
- NOAA Fisheries. 2020. Draft Amendment 14 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.
- NOAA Fisheries. 2022. Supplement to Draft Amendment 14 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.
- NOAA Fisheries. 2022. 2021 Stock Assessment and Fishery Evaluation Report for Atlantic Highly Migratory Species. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.  
<https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/atlantic-highly-migratory-species-stock-assessment-and-fisheries-evaluation-reports>
- SCRS. 2017a. Report of the Standing Committee on Research and Statistics. ICCAT Standing Committee on Research and Statistics.  
[https://www.iccat.int/Documents/BienRep/REP\\_EN\\_16-17\\_II-2.pdf](https://www.iccat.int/Documents/BienRep/REP_EN_16-17_II-2.pdf)
- SCRS. 2017b. Report of the 2017 ICCAT Shortfin Mako Assessment Meeting.  
[https://www.iccat.int/Documents/Meetings/Docs/2017\\_SMA\\_ASS\\_REP\\_ENG.pdf](https://www.iccat.int/Documents/Meetings/Docs/2017_SMA_ASS_REP_ENG.pdf)
- SCRS. 2019a. Report of the Standing Committee on Research and Statistics. ICCAT Standing Committee on Research and Statistics.  
[https://www.iccat.int/Documents/BienRep/REP\\_EN\\_18-19\\_II-2.pdf](https://www.iccat.int/Documents/BienRep/REP_EN_18-19_II-2.pdf)
- SCRS. 2019b. Report of the 2019 Shortfin Mako Shark Stock Assessment Update Meeting.  
[https://www.iccat.int/Documents/Meetings/Docs/2019/REPORTS/2019\\_SMA\\_SA\\_ENG.pdf](https://www.iccat.int/Documents/Meetings/Docs/2019/REPORTS/2019_SMA_SA_ENG.pdf)