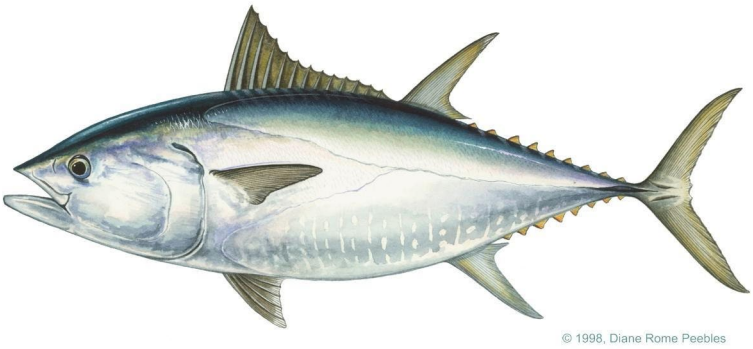
DRAFT AMENDMENT 13
TO THE
2006 CONSOLIDATED ATLANTIC HIGHLY MIGRATORY SPECIES FISHERY MANAGEMENT PLAN

Including:
A Draft Environmental Impact Statement,
A Draft Regulatory Impact Review,
An Initial Regulatory Flexibility Analysis,
A Draft Social Impact Analysis



May 2021

Highly Migratory Species Management Division
Office of Sustainable Fisheries
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, Maryland 20910

COVER SHEET

RESPONSIBLE FEDERAL AGENCY: US Department of Commerce (DOC); NOAA Fisheries

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

CONTACT: For further information on this Draft Environmental Impact Statement (DEIS), contact:

Randy Blankinship
Atlantic Highly Migratory Species Management Division (F/SF1)
1315 East West Highway
Silver Spring, MD 20910
(301) 427-8503

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

ABSTRACT:

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

DATE BY WHICH COMMENTS MUST BE RECEIVED: July 20,2021

Executive Summary

NOAA Fisheries is considering whether current regulations for the bluefin tuna (bluefin) fisheries should be modified to achieve conservation and management objectives.

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

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

On May 21, 2019, NOAA Fisheries published a Notice of Intent to prepare an environmental impact analysis and Notice of Availability of an Issues and Options document (84 Federal Register (FR) 23020). The notice announced the start of a public scoping process for determining the significant issues related to the management of bluefin and addressing

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

In this document, NOAA Fisheries considers a reasonable range of alternative management measures to evaluate potential adjustments to conservation and management measures that could meet objectives for the directed and incidental bluefin fisheries, and domestic and international management objectives. NOAA Fisheries analyzes alternatives organized according to management topics. The range of alternatives is commensurate with the purpose and need for this proposed action, and the amount of data and analyses are commensurate with the context and intensity of the impacts. A full description and analysis of the different alternatives can be found in Chapters 2 and 4 (respectively) of this document. The list of preferred alternatives can be found below (Table 0.1); the list of the full range of alternatives considered can be found in Chapter 2. The overall ecological impacts of the preferred alternatives are expected to be minor and beneficial, while the socioeconomic impacts are expected to be neutral or minor and beneficial.

Consistent with the regulations published by the Council on Environmental Quality, 40 CFR 1501-1508 (CEQ regulations), this document identifies the preferred alternatives that would meet conservation and management objectives while also reducing regulatory burden.

NOAA Fisheries will take public comment into consideration before finalizing any alternatives, and the proposed measures may be altered or different alternatives may be adopted at the final rule stage. The CEQ regulations direct Federal agencies to the fullest extent possible to integrate the requirements of the National Environmental Policy Act (NEPA) with other planning and environmental review procedures required by law or by agency practice so that all procedures run concurrently rather than consecutively. To that end, this document integrates the Draft Environmental Impact Statement (DEIS) required by NEPA with the fisheries planning and management requirements associated with proposed amendment to an FMP under the Magnuson-Stevens Act;, the Initial Regulatory Flexibility Analysis required under the Regulatory Flexibility Act, 5 U.S.C. §§ 601-603; and the Regulatory Impact Review prepared in accordance with Executive Order 12866, "Regulatory Planning and Review."

Table 0.1 Preferred Alternatives in the DEIS for Bluefin Management Measures

***Fishery/Category* and Topic**	**Preferred Alternative**
Pelagic longline fishery Modifications to IBQ Share Eligibility, Distribution, and Allocation Methods	Sub-Alternative A2c: Dynamic determination of IBQ shares based upon designated species landings as the measure of fishing effort
Pelagic longline fishery Modifications to Rules Closely Linked to Allocations	Alternative B3: Modify Regional Gulf of Mexico (GOM) and Atlantic (ATL) Designations for a Dynamic Allocation System and Cap Bluefin Catch from the Gulf of Mexico; (note, the abbreviations *GOM* and *ATL* are only used in the context of the regional designations of IBQ allocation)
Pelagic longline fishery Sale of IBQ Shares	Alternative C1: No Sale of IBQ Shares - No Action
Pelagic longline fishery Cap IBQ Share Percentage	- Sub-Alternative D1c: Cap amount of IBQ shares held at 25 percent of total shares. - Sub-Alternative D2a: No Cap on Amount of IBQ Allocation Leased or Used - No Action
Pelagic longline fishery Adjustments to other aspects of the IBQ Program	- Sub-Alternative E1b: Modify Dealer Reporting Requirements for IBQ Program - Sub-Alternative E2b: Modify Requirement for Mailing Electronic Monitoring (EM) Hard Drives - Sub-Alternative E3b: Clarify and expand regulations for installation of cameras - Sub-Alternative E4b: Specify Additional Fish Handling Protocols for Electronic Monitoring - Sub-Alternative E5b: Implement a Cost Recovery Program - Sub-Alternative F1b: Modify codified quota allocation percentage to reflect the annual 68-mt allocation to the Longline category - Sub-Alternative I5c: Allow Longline category permitted vessels to retain bluefin caught on green-stick gear, regardless of whether pelagic longline gear is onboard
Directed bluefin categories Modifications to Purse Seine category management measures and other category quota	- Sub-Alternative F2b: Discontinue Purse Seine category and reallocate quota without a time delay

***Fishery/Category* and Topic**	**Preferred Alternative**
allocations	- Alternative F4: Reallocate Purse Seine category quota proportionally to directed bluefin categories, including Reserve (not Longline or Trap)
General category Modifications to General category subquota periods and/or allocations	- Alternative G1: No Modifications to General category subquota periods and/or allocations - No Action
General category and Charter/Headboat category Modifications to other handgear fishery regulations.	- Sub-Alternative I1a: Maintain the Current Authorized Gears - No Action.
Angling category Modifications to the Angling category trophy fishery	- Alternative H2: Modify Angling category trophy areas and allocations (percentages)
Harpoon category Modifications to the daily retention limit and season	- Sub-Alternative I2b: Maintain current Harpoon category retention limit (range) on large medium bluefin, but set a limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) - Alternative I3a: Maintain current start and closure dates - No Action
Open Access permit categories Permitting requirements	-Sub-Alternative I4b: Amend open access Atlantic tunas or HMS permit category change regulations within a fishing year

Summary of Ecological and Socioeconomic Impacts

The overall impacts of the preferred alternatives would be minor beneficial ecological impacts and neutral to minor beneficial socioeconomic impacts. The section below summarizes the ecological and socioeconomic impacts of the preferred alternatives. The ecological impacts pay particular attention to the impacts on bluefin tuna given the focus of the Draft Amendment 13 measures on management of that stock.

Summary of Impacts by Preferred Alternative

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

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

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

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

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

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

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

- Ecological: This alternative would have neutral ecological impacts on bluefin because determining the level of a cap on the amount of IBQ shares held by a single entity, or not implementing a cap, does not affect the total amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. Other ecological impacts, including impacts on HMS target species and non-bluefin incidental catch, would be neutral.
- Socioeconomic: This alternative would have neutral socioeconomic impacts due to the likelihood of a strong leasing market for IBQ allocation. Further, under the allocation method described in the preferred Sub-Alternative A2c the maximum amount of IBQ shares that a single entity could hold on an annual basis would be between six and seven percent of total shares. It is not likely that an entity would reach a 25-percent cap through the annual IBQ shares they would receive under the various IBQ share allocation alternatives.

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

- Ecological: This alternative would have neutral ecological impacts on bluefin because determining the level of a cap, or not implementing a cap, on the amount of IBQ allocation a single entity could lease or use during a year does not affect the amount of IBQ allocation distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota.. Other ecological impacts, including impacts on HMS target species and non-bluefin incidental catch, would be neutral.
- Socioeconomic: This alternative would have neutral socioeconomic impacts. The IBQ Program has been functioning under these regulations since 2015, and there have been no reported or observed issues relating to excessive accumulation of IBQ allocation which is utilized to facilitate directed fishing operations for other species.

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

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

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

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

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

- Ecological: This alternative would have indirect, minor beneficial ecological impacts because it may improve accuracy of the discard data derived from the EM program.
- Socioeconomic: This alternative would have very minor adverse socioeconomic impacts as a result of additional logistics that may be required in the operation of EM systems.

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

- Ecological: This alternative would have minor indirect, beneficial impacts as a result of potential improvements to bluefin data.
- Socioeconomic: This alternative would have minor adverse socioeconomic impacts because the crew may need to modify their fish handling procedures to place all fish on the measuring grid.

Sub-Alternative E5b: Implement a Cost Recovery Program.

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

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

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

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

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

- Ecological: This alternative would have neutral ecological impacts because the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. Other ecological impacts, including impacts on HMS target species and non-bluefin incidental catch, would be neutral.
- Socioeconomic: This alternative would have moderate, adverse socioeconomic impacts to Purse Seine category participants compared to the status quo. This alternative would have beneficial effects on the other directed bluefin fishing categories that are recipients of redistributed bluefin quota. Under this alternative, quota would no longer be distributed to Purse Seine category participants, so neither fishing for bluefin with Purse Seine gear nor leasing individual Purse Seine category participant quota distribution through the IBQ system would be allowed after the effective date of Amendment 13.

Alternative F4: Reallocate Purse Seine category quota proportionally but only to directed bluefin quota categories, including Reserve (not Longline or Trap).

- Ecological: This alternative would have neutral ecological impacts because the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota.
- Socioeconomic: This alternative would have moderate beneficial socioeconomic impacts overall as a result of larger quota distribution percentages for the directed quota categories (that fish for bluefin), although the incidental Longline category (and Trap category) would receive no economic benefits.

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

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

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

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

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

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

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

- Ecological: This alternative would have a neutral ecological impact, although it may result in the catch of a lower number of bluefin than the status quo within the Harpoon category. Other ecological impacts, including impacts on bycatch, would be neutral.
- Socioeconomic: This alternative would have overall neutral impacts as a result of a few trips being constrained by a 10-fish limit (minor adverse), but also a potentially longer Harpoon category season (minor beneficial).

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

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

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

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

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

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

Table of Contents

List of Figures

List of Tables

1 Introduction

Atlantic highly migratory species[1] (HMS) are managed under the dual authority of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act (ATCA). Under the Magnuson-Stevens Act, NOAA Fisheries must, consistent with ten National Standards, manage fisheries to achieve optimum yield on a continuing basis while preventing overfishing. Under ATCA, the Secretary of Commerce promulgates regulations as may be necessary and appropriate to carry out recommendations by the International Commission for the Conservation of Atlantic Tunas (ICCAT). ICCAT is an international regional fisheries management organization comprised of 53 Contracting Parties including the United States, Cooperating non-Contracting Parties, Entities, and/or Fishing Entities (CPCs), which manages tuna and tuna-like species in the Atlantic Ocean and its adjacent seas and also conducts research. ICCAT meets annually and adopts "recommendations" (binding on CPCs) and "resolutions" (non-binding measures) that are intended to achieve ICCAT Convention management goals and objectives[2]. The authority to issue regulations under the Magnuson-Stevens Act and ATCA has been delegated from the Secretary of Commerce to the Assistant Administrator for Fisheries.

The conservation and management measures proposed for this fishery management plan (FMP) amendment and associated rulemaking are taken under the authority of the Magnuson-Stevens Act and ATCA. Management measures must also be consistent with other applicable laws including, but not limited to, the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the Coastal Zone Management Act (CZMA). This document is prepared, in part, to comply with our responsibilities under NEPA, as implemented by the regulations published by the Council on Environmental Quality (CEQ), 50 Code of Federal Regulations (CFR) Parts 1501-1508, and NOAA Administrative Order 216-6A. This DEIS is being prepared using the 1978 CEQ NEPA Regulations. NEPA reviews initiated prior to the effective date of the 2020 CEQ regulations may be conducted using the 1978 version of the regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020. This review began on May 21, 2019, and the agency has decided to proceed under the 1978 regulations.

---

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

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

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

- The IBQ Program;
- Modification of bluefin allocations across all quota categories;
- Gear restricted areas in the Atlantic and Gulf of Mexico; and
- Reporting and monitoring requirements for both the incidental and directed fisheries.

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

The principal changes in the directed bluefin fisheries have been the continued inactivity (or extremely low activity) of the purse seine fishery over the past 15 years and the continuing evolution of the handgear fisheries, which are extremely dynamic. Between 2005 and 2012 there was no purse seine fishing activity. From 2013 to 2015, only one Purse Seine category participant fished, making only a few sets, and accounting for only a small percentage of total annual bluefin landings each year (six, five, and four percent in 2013, 2014, and 2015, respectively). The last year a set was made in the purse seine fishery was in 2015. NOAA Fisheries has not issued a vessel permit to any of the five historical purse seine fishery participants for the 2016 through 2020 fishing years. In other directed fisheries, the total catch from the handgear fisheries has been increasing, there have been periods of very high bluefin availability, and there has been public concern about perceived changes in the socioeconomics of the fishery. The socioeconomic changes in the fishery, perceived and/or actual, include increased fishery participation and availability of bluefin and curtailed fishing opportunities in other fisheries.

Because of the changes in the fishery, new information on the directed and incidental fisheries noted above (during the five-year period from 2015 to 2019), and the result of the analyses in the Three-Year Review, NOAA Fisheries began formal consideration of changes to the management of the Atlantic bluefin tuna fishery. In 2019, NOAA Fisheries developed an Issues and Options document for Amendment 13 to the 2006 Consolidated HMS FMP (Amendment 13). In the Issues and Options document, NOAA Fisheries considered a range

of issues and objectives, as well as possible options for future bluefin management. The management options presented were not intended to be comprehensive with respect to potential modifications to the regulations, but were a basis for further discussion and refinement of the potential objectives and measures (NMFS 2019a).

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

Comments included support for discontinuation or phase-out of the Purse Seine category due to its prolonged inactivity, but some support for maintaining a future opportunity for the fishery. Commenters supported reallocation of the Purse Seine category quota, but had different ideas about how that quota should be redistributed to other categories. There were divergent opinions on whether leasing of bluefin quota from the Purse Seine category to pelagic longline vessels should continue, and widely divergent opinions on whether and how the General category subquota periods and allocations should be modified. Regarding the pelagic longline fishery, there was general support for modification of IBQ allocations, different suggestions about how to allocate IBQ shares to match the current fishery, and concerns about the potential for increased bluefin incidental catches by pelagic longline vessels. There were different views on the need for additional requirements for pelagic longline vessels for the Electronic Monitoring (EM) Program, and some comments on the use of green-stick gear to catch bluefin by such vessels. There was little support for making substantial changes to the overall allocation of bluefin quota among categories, but some ideas for minor modifications such as creating a distinct quota for HMS Charter/Headboat permitted vessels, increasing the quota allocation for the Harpoon category, and creating a new geographic zone and associated quota for the recreational trophy bluefin fishery, as well as interest in changes to the rules regarding the use of harpoons and for-hire vessel restrictions.

Based on consultation with the HMS Advisory Panel, the comments received on the Issues and Options Paper for Amendment 13, and input from the regulated community and public, NOAA Fisheries has now developed Draft Amendment 13. Some of the options included in the Issues and Options Paper are included in this draft Amendment as alternatives; however, other options were changed or not analyzed in this Draft Environmental Impact Statement (DEIS) based on public comment and further consideration by NOAA Fisheries. The alternatives would affect the commercial and recreational HMS fisheries, and the alternatives are broadly organized according to the type of vessels primarily affected (e.g.,

pelagic longline vessels, Purse Seine category participants, General category, Angling category, etc.) for ease of understanding. NOAA Fisheries considers a range of alternatives that would meet the purpose and need of this amendment, which includes, among other things, considering changes to the management of the pelagic longline fishery, facilitating the ability for active directed HMS permit categories to catch their full bluefin quota allocations, facilitating directed fishing operations in the pelagic longline fishery while accounting for incidental bluefin catch, and providing U.S. fishing vessels with a reasonable opportunity to catch the ICCAT-recommended quota. The alternatives are all described in detail in Chapter 2.0.

1.1 Brief Management History and Public Feedback

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

1.1.1 Atlantic Bluefin Tuna Quota Management

The bluefin fishery is a quota-managed fishery, and the annual U.S. bluefin quota is established by binding recommendations of ICCAT. The U.S. bluefin quota established through that process is implemented domestically through rulemaking and allocated currently among seven quota categories. Four of the quota categories are associated with fisheries that target bluefin (directed fisheries): General, Angling, Harpoon, and Purse Seine categories. Two of the quota categories are associated with fisheries that target other HMS species such as swordfish, but catch bluefin incidentally (incidental fisheries): Longline and Trap categories. Lastly, there is the Reserve category, which is held in reserve for inseason or annual adjustments and research, and which may be augmented by allowable underharvest from the previous year, or annual reallocation of Purse Seine category quota. The overall quota is adopted by recommendation at ICCAT and implemented domestically consistent with the MSA and ATCA, and a suite of management measures ensure that catch is kept to the required level. The amount of quota allocated to each category is expressed as a percentage of the U.S. quota, as first established in the 1999 FMP for Atlantic Tunas; Swordfish, and Sharks based on landings from 1983-1991 and continued unchanged in the 2006 Consolidated HMS FMP. The ICCAT recommendations have provided, in addition to the annual U.S. quota, 25 metric tons (mt) annually for incidental catch of bluefin related to longline fisheries in the vicinity of the management area boundary, which NOAA Fisheries uses to account for bycatch related to pelagic longline fisheries in the Northeast Distant gear restricted area (NED). As described below and in Chapter 2, reallocation of quota that could affect all bluefin categories is being considered in this draft Amendment.

1.1.2 Incidental Bluefin Tuna Pelagic Longline Fishery Management Overview

The pelagic longline fishery for Atlantic HMS primarily targets swordfish, yellowfin tuna, and bigeye tuna in various areas and seasons. Secondary target species include dolphin,

skipjack and albacore tuna. Although this gear can be modified (e.g., depth of set, hook type, hook size, bait) to target swordfish or tunas, it is generally a multi-species fishery. Pelagic longline vessel operators are opportunistic, switching gear style and making subtle changes to target the best available economic opportunity on each individual trip.

The pelagic longline fishery is a highly regulated fishery, with a diverse suite of applicable rules including permitting requirements (limited access permits), gear restrictions, time/area closures, fish size limits, retention limits, and reporting and monitoring requirements. These restrictions are summarized in the HMS regulations at 50 CFR 635 and in the Atlantic HMS Commercial Compliance Guide. Pelagic longline vessels catch bluefin incidentally, but cannot target bluefin. A recent final rule converted two gear restricted areas to monitoring areas for a three-year evaluation period and changed weak hook requirements in the Gulf of Mexico from year-round to part of the year, including bluefin tuna spawning season in the Spring (85 FR 18812; April 2, 2020).

The management structure of the pelagic longline fishery was fundamentally changed in 2015 with the implementation of Amendment 7. Prior to Amendment 7, incidental catch of bluefin was disincentivized primarily through bluefin retention limits associated with specific target catch requirements. Permitted longline vessels were allowed to keep one bluefin if 2,000 pounds (lb) of targeted catch (e.g., swordfish) was onboard, two bluefin if 6,000 pounds of targeted catch was onboard, and three bluefin if 30,000 pounds of targeted catch was onboard. These rules, in part, resulted in large amounts of bluefin discards, and exceedances of the portion of the overall quota designated to account for the Longline category bluefin landings and discards. Because of this, among other drivers, the management structure of the pelagic longline fishery was modified under Amendment 7. Target catch requirements were removed to bring bluefin regulations in line with new management approaches. As discussed in greater detail below, the IBQ Program distributes bluefin allocation (pounds of bluefin that must be used to account for landings and dead discards) to eligible participants based on the IBQ share tier (a designated percentage of the annual Longline category quota) associated with their Atlantic Tunas Longline category permit.

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

The Individual Bluefin Quota (IBQ) Program

The implementation of Amendment 7 shifted the focus from limiting incidental bluefin catch in the HMS pelagic longline fishery using fleet-wide management measures to limiting incidental bluefin catch using individual vessel accountability through the implementation of the IBQ Program. The IBQ Program was one of four components of

Amendment 7 that affected the Atlantic pelagic longline fishery with respect to limiting incidental bluefin catch in the pelagic longline fishery. The other components were two pelagic longline gear restricted areas, mandatory electronic monitoring (EM; video cameras) of pelagic longline gear at haulback, and catch reporting of each pelagic longline set using vessel monitoring system (VMS).

The IBQ Program established IBQ shares (percentages), with resulting IBQ allocations (pounds) distributed annually to IBQ shareholders. It also required accounting for landings and dead discards of bluefin, and required mandatory retention of legal-sized dead bluefin. *See* Section 2.1 (further explaining IBQ shares and IBQ allocations). IBQ allocation must be used to account for landings and dead discards. The allocations are based on the IBQ share percentage associated with an Atlantic Tunas Longline category permit. NOAA Fisheries assigned IBQ shares based on low, medium and high tiers, after considering each pelagic longline fishery vessel's fishing activity from 2006-2012 and relative amount of bluefin catch (ratio of bluefin catch to target "designated species" landings). Greater levels of fishing activity are likely to be correlated with a greater number of bluefin interactions. Landings of designated species are an indicator of both the level of fishing effort and activity as well as vessel success at targeting those species and minimizing bluefin bycatch interactions. Past fishing that resulted in fewer bluefin interactions resulted in larger IBQ shares. This approach considered vessels' level of fishing effort, acknowledged past bluefin avoidance, ensured an equitable initial allocation, and considered the diversity in vessel fishing patterns and catch characteristics of the fleet. Each of the IBQ share tiers corresponds to a percentage that is applied to the total annual Longline category quota to annually calculate IBQ allocations. Total IBQ allocations distributed in a given year can also be influenced by any inseason quota transfers from the Reserve category to the Longline category, although additional quota may be distributed either to active vessels or to shareholders. Fishery participants that did not receive IBQ shares and subsequent allocations can lease IBQ allocations through the Catch Shares Online System.

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

Since implementation of Amendment 7, there has been a substantial decrease in the number of bluefin dead discards by pelagic longline vessels due to changes in fishing

behavior, turning dead discards into landings, and reduced fishing effort. The IBQ Program and individual vessel accountability resulted in levels of pelagic longline catch of bluefin well below the available quota, even during years in which the Longline category quota was supplemented by inseason quota transfers and other adjustments.

Three-Year Review of IBQ Program

NOAA Fisheries conducted a formal review of the IBQ Program to analyze and evaluate the Program's effectiveness in meeting the goals and objectives specified in Amendment 7. The results of this review, named the Three-Year Review (NMFS 2019b), is available at: https://www.fisheries.noaa.gov/resource/document/three-year-review-individual-bluefin-quota-program. Analyses in the Three-Year Review indicate that the IBQ Program met expectations for objectives 1- 3 in Amendment 7 (limit the amount of bluefin dead discards and landings in the pelagic longline fishery; provide strong incentives for the vessel owner and operator to avoid bluefin interactions; and provide flexibility in the quota system to enable full accounting of bluefin mortality while minimizing constraints on target species fishing activity). The Three-Year Review also noted that the IBQ Program achieved objective 4: balancing limiting bluefin catch with optimizing fishing opportunities and maintaining profitability. However, it is difficult to separate out the influence of the IBQ Program from other factors, including the effect of swordfish imports on the market for U.S. products, other regulations such as closed and gear restricted areas, as well as target species availability and price. Although it is likely that the IBQ Program contributed to reduced total revenue and effort in the pelagic longline fishery, average annual operating income per vessel increased since implementation, supporting the contention that the economic situation has stabilized for many of the vessels that fished during the IBQ period (2015 to 2017). NOAA Fisheries was able to successfully balance achieving the IBQ Program objectives with impacts on the permit categories that target bluefin and on HMS dealers, as well as the broader objectives of the 2006 Consolidated HMS FMP and the Magnuson-Stevens Act (objective 5). Prior to the implementation of Amendment 7, pelagic longline vessels had large amounts of dead discards, and the Longline category consistently exceeded its quota by very large amounts (primarily due to dead discards). In contrast, after implementation of Amendment 7, the Longline category no longer overharvested its quota.

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

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

From 2015 through 2018, NOAA Fisheries transferred bluefin quota from the Reserve to the Longline category during the season and then distributed IBQ allocations among pelagic longline vessels. These types of inseason transfers of quota to the Longline category facilitate accounting for bluefin landings and dead discards, foster conditions in which permit holders become more willing to lease IBQ throughout the year, and reduce uncertainty in the fishery as a whole. The primary source of uncertainty was whether a vessel would be able to account for bluefin caught, or whether fishing opportunity for target species would be constrained by the unavailability of IBQ allocation (*e.g.*, because of bluefin quota debt or a low IBQ balance) or by not finding affordable quota (or sufficient quota) for lease. HMS Advisory Panel members and fishery participants made various suggestions on how to optimize the distribution of IBQ allocations, including allocating only to currently active vessels as a way to provide more quota to vessels that need it.

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

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

1.1.3 Directed Bluefin Tuna Fisheries Management Overview

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

Purse Seine Bluefin Fishery

Since 1982, the Purse Seine category has been managed with non-transferrable limited entry permits, and limited to five participants who historically were financially dependent on the fishery. Limited entry was initiated due to the large harvesting capacity of this gear type and its ability to exceed U.S. quotas in very short periods of time. Limited entry was also pursued in this fishery, as it was practical given the small pool of ownership in this sector of the fishery. The intent of the system was to ensure that only those persons who had depended on this fishery for all or part of their livelihood were allowed access. Under this limited entry system, the use of purse seine gear was authorized, and equal baseline quotas of bluefin were assigned to five individual vessel owners. This enabled owners to replace older vessels they owned with newer ones. Thus, NOAA Fisheries limited the purse seine fishery participation to only those historical purse seine vessels or their replacements. Although new entrants are prohibited, an owner of a vessel with an Atlantic Tunas permit in the Purse Seine category may transfer the permit to another purse seine vessel that he or she owns. Regulations establish that NOAA Fisheries may start the bluefin purse seine season between June 1 and August 15 and the fishery closes on December 31 of each year it is open.

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

Under the current regulations, the Purse Seine category gets 18.6 percent of the annual U.S. base bluefin quota. Given the lack of fishing activity among the historic Purse Seine category participants, Amendment 7 also implemented a process through which Purse Seine category quota may be reallocated annually to the Reserve category, with the amount based on a formula that considers the Purse Seine category participants' previous year's catch. Amendment 7 provided the opportunity for the historic Purse Seine category

participants to re-enter the fishery, with the ability to scale up the annual quota distribution available for their use. NOAA Fisheries has not issued a vessel permit to any of the five historical purse seine fishery participants for the 2016 through 2020 fishing years.

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

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

Handgear Fisheries

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

Owners of vessels that may take paying passengers must obtain an HMS Charter/Headboat permit, which allows some conditional flexibility to fish either recreationally or commercially for HMS species.

The alternatives in this Amendment focus on the bluefin fisheries pursued under the General category quota (i.e., General category and Charter/Headboat permitted vessels when fishing commercially); the Harpoon category; and the Angling category. It is important to note that vessels that issued either an Atlantic Tunas General category or an HMS Charter/Headboat permit (with a commercial sale endorsement and when fishing commercially) may land bluefin counted against the General category bluefin quota. Throughout the document, NOAA Fisheries refers to the Atlantic Tunas General category *permit category* and the bluefin tuna General category *quota*. It is important to distinguish between the two different references to the General category. The Atlantic Tunas General category permit category refers to the specific type of permit and to participants issued that permit (i.e., an Atlantic Tunas General Category permit). The General category quota refers to the quota that is utilized by participants in the directed commercial bluefin handgear fishery who are issued either an Atlantic Tunas General category permit or an HMS Charter/Headboat permit when fishing commercially. This quota is divided among time period subquotas. Each of five time periods is allocated a percentage of the annual General category quota (January, June through August, September, October through November, and December). Although it is called the "January" subquota, the regulations currently allow landings to continue until the subquota is reached, or until March 31, whichever comes first. For purposes of clarity, particularly given the alternatives that consider changing that subquota period, NOAA Fisheries uses "January through March" in this document. Any unused General category quota 'rolls' forward within the fishing year, which coincides with the calendar year, from one time period to the next, and is available for use in subsequent time periods (e.g., unused quota from June-August rolls to September; unused quota from September rolls to October-November). In addition, after considering regulatory criteria, NOAA Fisheries may decide through an inseason action to transfer quota from one subquota period to another, whether earlier or later in the calendar year. For example, NOAA Fisheries may transfer quota allocated for December of a particular year to January of that year, to further fishing opportunities early in the calendar year. A more detailed description of the fishery is contained in Chapter 3.

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

equitable fishing opportunities along with meeting the objectives of the 2006 Consolidated HMS FMP, as amended.

1.1.4 Social and Economic Concerns

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

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

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

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

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

Additionally, paragraph 304(g)(1)(C) requires the Secretary to:

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

1.2 Scope and Organization of this Document

This Draft Amendment 13 document includes a DEIS that assesses the potential direct, indirect, and cumulative ecological, social, and economic impacts associated with the alternatives. Under NEPA, Federal agencies prepare an EIS if a proposed major federal

action is determined to significantly affect the quality of the human environment. An EIS is an analytical document that provides full and fair discussion of significant environmental impacts and informs decision makers and the public of reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment. NOAA Fisheries developed this DEIS, consistent with procedural requirements of NEPA and CEQ implementing regulations, 40 C.F.R. §§ 1500-1508; NOAA's procedures for implementing NEPA, including NOAA Administrative Order (NAO) 216-6A and Companion Manual; and "Revised and Updated NEPA Procedures for Magnuson-Stevens Fishery Management Actions" (See 79 FR 36726, Jun. 30, 2014, and 81 FR 8920, Feb. 23, 2016). This DEIS is being prepared using the 1978 CEQ NEPA Regulations. NEPA reviews initiated prior to the effective date of the 2020 CEQ regulations may be conducted using the 1978 version of the regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020. This review began with a Notice of Intent published on May 21, 2019, and the agency has decided to proceed under the 1978 regulations. After considering public comment, NOAA Fisheries will develop a Final EIS.

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

- Short-term or long-term impacts. These characteristics are determined on a case-by-case basis and do not refer to any rigid time period. In general, short-term impacts are those that would occur only with respect to a particular activity or for a finite period. Long-term impacts are those that are more likely to be persistent and chronic. An example of a short-term impact might include a change in an allocation of bluefin quota for a pelagic longline fisherman, if an alternative that modifies the method of allocating IBQ is selected. Long-term impacts might be more aligned with overall catch trends that might not be apparent following the implementation of a new management measure.
- Direct or indirect impacts. A direct impact is caused by a proposed action and occurs contemporaneously at or near the location of the action. A direct action may also not be geographically linked with respect to impact. For example, increases or decreases in fishing effort may have negative or positive ecological impacts on stocks due to increased or decreased mortality on target species. An indirect impact is caused by a proposed action and might occur later in time or be farther removed in distance but still be a reasonably foreseeable outcome of the action. An example of an indirect action that is not geographically linked may include increases or decreases in catch of non-target species, or food web impacts for prey species that may result from actions that might increase or decrease localized abundance of predators.
- Minor, moderate, or major impacts. These relative terms are used to characterize the magnitude of an impact. Minor impacts are generally those that might be perceptible but, in their context, are not amenable to measurement because of their relatively minor character. Moderate impacts are those that are more perceptible and, typically, more amenable to quantification or measurement. Major impacts are those that, in their context and due to their intensity (severity), have the potential to meet the thresholds for significance set forth in CEQ regulations (40 CFR 1508.27)

and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the requirements of NEPA.

- Adverse or beneficial impacts. An adverse impact is one having adverse, unfavorable, or undesirable outcomes on the man-made or natural environment. A beneficial impact is one having positive outcomes on the man-made or natural environment. A single act might result in adverse impacts on one environmental or social resource and beneficial impacts on another environmental or social resource.
- Cumulative impacts. CEQ regulations implementing NEPA define cumulative impacts as the "impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." (40 CFR 1508.7) Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time within a geographic area.

In addition to NEPA, NOAA Fisheries must comply with other Federal statutes and requirements such as the Magnuson-Stevens Act, Executive Order 12866, and the Regulatory Flexibility Act. This document comprehensively analyzes the alternatives considered for all these requirements. Chapters 4.0, 5.0, 6.0, and 7.0 provide the ecological/environmental, economic, and social analyses; Chapter 6.0 meets the requirements under Executive Order 12866; Chapter 7.0 provides the Initial Regulatory Flexibility Analysis required under the Regulatory Flexibility Act. Chapter 8.0 describes relevant communities and Chapter 9.0 describes how the preferred alternatives would comply with various statutes and executive orders. While some of the chapters were written in a way to comply with the specific requirements under these various statutes and requirements, it is the document as a whole that meets these requirements and not any individual chapter.

1.3 Purpose and Need

Purpose

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

Need

An amendment to the 2006 Consolidated HMS FMP is needed to adjust bluefin management to respond to recent trends and characteristics of the bluefin fisheries consistent with domestic and international management obligations and the objectives identified below. The principal reasons for beginning this regulatory process were the release of the Three-Year Review, recent changes in the directed bluefin fishery, and advice

and input from the HMS Advisory Panel and the public. Since the implementation of Amendment 7 in 2015, the pelagic longline fishery has undergone substantial changes, including successful implementation of individual quotas for bluefin, declining effort and underharvest of swordfish, and substantial reductions in bluefin dead discards. In addition to the pelagic longline fishery that incidentally catches bluefin, the directed bluefin fisheries have evolved over time. The purse seine fishery has been predominantly inactive during the past 15 years. Handgear fisheries that target bluefin have consistently been very active, and the number of permit holders remains high. Increases in landings from the handgear fisheries that began prior to 2015 have continued. With such increases, there has been renewed public interest in the optimal and equitable allocation of bluefin quota among seasons and geographic areas. In conjunction with possible changes in allocations, other changes could be considered to better distribute and optimize use of and provide a reasonable opportunity to catch available bluefin quota within the ICCAT-adopted level.

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

1.4 Objectives

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

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

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

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

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

1.5 References

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

NMFS. 2006. Consolidated Atlantic Highly Migratory Species Fishery Management Plan. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

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

NMFS. Catch Share Policy. January 2017. NOAA, NMFS Policy 01-121. Silver Spring, MD.

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

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

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

2 Summary of the Alternatives

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

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

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

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

This DEIS includes analysis of a reasonable range of alternatives, and prefers a set of alternatives that would achieve the objectives of this FMP amendment (as described in

Chapter 1). NOAA Fisheries developed a range of alternatives considering changes to the incidental and directed bluefin fisheries that would be responsive to recent changes in the fishery, new information, and public suggestions. The environmental, economic, and social impacts of these alternatives are discussed in later chapters. NOAA Fisheries may make changes to the alternative structure in the Final Environmental Impact Statement (FEIS) to meet the same purpose and need in response to public comment on this DEIS and the proposed rule. Such changes may include modifying the preferred measures, selecting different alternatives, or adding new measures.

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

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

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

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

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

Sale of IBQ Shares (*not* currently allowed):
Sales of IBQ shares (percentage) between permitted vessels would be formal sales of fishing privileges. Once an IBQ share is sold, the permitted vessel buying the IBQ share would hold it across multiple years or until he/she sells it. If permitted vessel A sold its entire IBQ share (0.33 percent) to permitted vessel B, vessel A subsequently would have no IBQ share (0 percent). Thus, the sale of IBQ shares from one vessel to another would result in a standing decrease in the amount of IBQ shares associated with the vessel selling the IBQ share, and a fixed increase in the amount of IBQ share associated with the purchasing vessel until sold.

Leasing of IBQ Allocations (currently allowed):
In contrast, an "IBQ allocation" is expressed in weight (pounds or metric tons), and transactions between permitted vessels of these IBQ allocations are temporary leases. The lease of a IBQ allocation by one vessel from another could increase the amount of quota available for use by the receiving vessel during a single calendar year. For example, permitted vessel A could lease 0.25 mt of its IBQ allocation to permitted vessel B for a particular calendar year without affecting either vessel's allocated IBQ shares. The next year, if the Longline category quota is still 74.8 mt, permitted vessel A would still have an annual IBQ allocation of 0.25 mt. Its IBQ share would not change.

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

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

Eligibility: Under this alternative, vessels determined to be eligible to receive IBQ shares, and resultant annual IBQ allocation, would be those vessels that have a valid Atlantic Tunas Longline category permit (as of August 21, 2013) and are deemed to be "active," defined as vessels that made at least one set using pelagic longline gear from 2006 through 2012 based on HMS logbook data. The criteria have been applied, and are reflected in the current shareholders. These eligibility criteria were intended to reflect participation in the fishery and to facilitate continued participation by vessels that had made past investments in the fishery.

IBQ Share Formula: Under this alternative, the formula used to assign IBQ shares to eligible vessels would continue to be based on the weight of designated species landings and the ratio of bluefin catch to designated species landings, and IBQ shares would be assigned according to tiers. The use of the two factors was intended to ensure a fair and equitable initial allocation, and take into consideration the diversity in vessel, effort, and catch characteristics of the fleet. The two factors for each vessel were combined to simplify the IBQ share system and minimize the influence of potential imprecision in the data. The two

factors were quantified by specific formulas that resulted in two scores, which combined, resulted in the IBQ share tier designations for eligible vessels. The first factor (based on the weight of designated species landings) was intended to allocate proportionately to a vessel's historical landings, since more landings were inferred to reflect more effort and a need for more IBQ allocation to cover incidental bluefin interactions. The second factor (based on the ratio of bluefin catch to designated species landings) was intended to increase the amount of IBQ share for vessels with a demonstrated history of avoiding bluefin. The second factor resulted in a score that was inversely proportionate to the ratio of bluefin interactions to target species landings. Using the two factors (scores) IBQ shares were assigned using three categories ('tiers'). The Low tier received a share equivalent to at least two bluefin (at 0.25 mt each), the Medium tier share was equivalent to approximately three bluefin, and the High tier share was equivalent to approximately six bluefin. IBQ shares were intended to ensure allocation for active vessels to provide for sustained participation in the fishery. More information on the allocation formula can be found on the Atlantic HMS Division Website.

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

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

Rationale: Maintaining the current IBQ shares would prevent disruption and uncertainty in the fishery that could be associated with changes to the method used to determine IBQ shares, allocations, or associated restrictions. This alternative would facilitate business

planning by those that received IBQ shares under Amendment 7. Overall, vessels in the pelagic longline fleet have been able to resolve any quota debt accrued under the IBQ Program, and bluefin catch has been well within the Longline category quota. This alternative is responsive to those that have commented that the IBQ Program is functioning as it should under the current regulations to limit bluefin catch in the pelagic longline fishery. The IBQ leasing market and inseason transfers of quota from the Reserve to the Longline category have mitigated some of the perceived and actual constraints of the current IBQ allocation system.

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

The Three-Year Review contained a recommendation that an alternative method of distribution of IBQ shares should be considered because of the relatively large percentage of IBQ shares associated with recently inactive vessels, and the Amendment 7 objective that the purpose of IBQ allocation is to account for bluefin catch to facilitate fishing operations and use available quotas for species in the directed fishery. Research has shown that leasing in catch share programs, where the IBQ shareholder leases the annual allocation derived from his IBQ share, can allow inactive fishermen to retain their shares and profit from the catch of their Individual Fishing Quota (IFQ) without incurring the physical or financial risks of fishing. Such leasing by 'armchair captains' (inactive shareholders) can contribute to IBQ share prices becoming prohibitively expensive for the next generation of fishermen (Squires et al., 1998).

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

Each of these sub-alternatives includes two main elements. The first element is a definition/criteria for determining the pool of vessels that have recently fished. The three most recent years of available data would be analyzed to determine which vessels have been recently active (e.g., using pelagic longline gear at least once during the previous three years, based on a specific set of available data). The second element would specify what the metric of fishing effort is (e.g., number of hooks, or sets, or amount of landings). For determinations made under the sub-alternatives, NOAA Fisheries will only look at effort and landings made when a permit holder had a valid permit and documented as follows: Fishing effort will be determined based on official NOAA Fisheries logbook records or weighout slips, or VMS data. Landings data or permit history will be determined based on NOAA Fisheries logbook data, weighout slips, verifiable sales slips, receipts from

registered dealers, or state landings records, and permit records. No other proof of catch history would be considered. The proposed regulations will describe more precisely the use of these data sources as they relate to the preferred alternative.

The last aspect of eligibility (common to all the allocation alternatives) is that vessels must have a currently valid Atlantic Tunas Longline category permit (i.e., current at the time eligibility is assessed by NOAA Fisheries). The outcome of assessing those eligibility criteria would result in the annual determination of eligible IBQ shareholders, and subsequent distribution of IBQ allocation to permitted vessels that recently fished with pelagic longline gear (i.e., within the previous three years). Because the specific vessels that fish with pelagic longline gear can change over time, the pool of vessels determined to be shareholders and receiving IBQ allocation could change annually.

Under this alternative and its sub-alternatives, IBQ allocation would not be distributed to IBQ shareholders with permits that are in either an invalid or NOVESID permit status at the time eligibility is assessed (i.e., the permit has not been renewed, or is not currently associated with a vessel). IBQ allocations would be held for those shareholders – but only for that year – until the vessels have valid permits or NOVESID status is resolved. New entrants joining the fishery subsequent to the annual determination of shareholders, would have to lease IBQ allocation from other pelagic longline participants in order to participate in the fishery. Fishing effort and landings using leased IBQ allocation would be considered for purposes of determining eligible shareholders and IBQ allocations in future years. The different methods of defining fishing effort in the different alternatives have minor differences in how they would be implemented, but would not have a meaningful effect on the shareholder. For example, different types of data are available to NOAA Fisheries at different times, and would affect which 36 months of data were utilized in the annual process of determining shares based on three years of available data. The annual IBQ share percentage would be derived from the relative amount of fishing effort the vessel had (compared to total fleet), and then the annual distribution of IBQ allocation would be based on the share percentage and the total Longline category bluefin quota. Inseason bluefin quota distributions would be in equal amounts either just to shareholders or to all active vessels at the time of the distribution. This inseason distribution method is the same as under the no action alternative. Changes to this method of inseason distribution are not being considered, because the method provides a method of distributing IBQ allocation inseason that is flexible, equitable, and facilitates directed fishing operations.

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

Also, under this alternative and its sub-alternatives, if an Atlantic Tunas Longline category permit holder was concerned that NOAA Fisheries made an error in the annual

determination of eligible shareholders, the permit holder would be able to submit a written request for an appeal to the National Appeals Office, as described below.

Deepwater Horizon Oceanic Fish Restoration Project (OFRP) Participants

The Deepwater Horizon OFRP is a program conducted as a partnership between NOAA, the National Fish and Wildlife Foundation, and pelagic longline fishermen to restore damage caused by the Deepwater Horizon oil spill. More information about the Deepwater Horizon OFRP may be found at https://www.nfwf.org/programs/deepwater-horizon-oceanic-fish-restoration-project. Deepwater Horizon OFRP Participants, who voluntarily took time out of the pelagic longline fishery for set periods of time ("Repose" - January to June) would not be disadvantaged under these dynamic allocation alternatives. For each sub-alternative below, each participating vessel would have a proxy amount of effort to represent the pelagic longline effort that each participating vessel would have had if it was not participating as a partner in the Deepwater Horizon OFRP. This aspect of share determination is not part of the No Action Alternative (A1). The OFRP began after Amendment 7 was implemented. Deepwater Horizon OFRP participants would have an IBQ share percentage based upon a level of fishing effort that includes a proxy level of effort for the time period(s) they participated in the OFRP. For example, under Sub-alternative A2a, based on hooks as the measure of fishing effort, the proxy level of fishing effort would be based on the average number of hooks fished by a pelagic longline vessel (not participating in the OFRP) in the Gulf of Mexico during the months of January through June (the months of the OFRP) during the years that the Deepwater Horizon OFRP participant was participating in the program. This proxy amount of fishing effort would be added to the amount of fishing effort the particular vessel had during the rest of the year. This provision for Deepwater Horizon OFRP participants would only be necessary for a limited number of years. The Deepwater Horizon OFRP will conclude when its restoration goals are achieved (likely in approximately 3-5 years depending on participation levels). As such, the proxies for effort in the alternatives for dynamic determination of IBQ shares would only be needed for relevant years of data used to calculate IBQ shares. After those years of participation in the Deepwater Horizon OFRP are no longer part of the effort calculation, then the proxy effort level would no longer be used.

Appeals

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

The NAO appeals process cannot be used to challenge the validity of a statute or regulation, but is used for matters in controversy that require findings of fact and conclusions of law. 15 CFR § 906.1(d)-(e). Specifically, a permit holder could appeal an IAD on: (1) eligibility

for IBQ shares based on ownership of an active vessel with a valid Atlantic Tunas Longline category permit combined with the required shark and swordfish limited access permits; (2) the IBQ share or allocation; (3) the permit holder's vessel's amount of fishing effort based on hooks (under Sub-Alternative A2a), pelagic longline sets (under Sub-Alternative A2b), or designated species landings (under Sub-Alternative A2c); and (4) assignment of target species landings and bluefin interactions to the vessel owner/permit holder. NOAA Fisheries permit records would be the sole basis for determining permit transfers.

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

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

When NOAA Fisheries determines that all the valid requests for IBQ share appeals have been resolved, NOAA Fisheries may utilize some bluefin quota from the Reserve category to accommodate permitted vessels that have been deemed eligible or provided an increased IBQ share through the appeals process.

Rationale: Distribution of IBQ shares only to active vessels is likely to optimize the allocation of the Longline category quota by reducing the amount of inaccessible quota and increasing allocations to many of the active vessels. This method of annually determining IBQ shareholders would facilitate the participation of new entrants to the fishery. Active participation measures are intended to ensure that the benefits of fishing privileges go to those who are actively fishing (Szymkowiak, M, and A. Himes-Cornell, 2015). One of the fundamental objectives of the IBQ Program is to account for bluefin catch during directed fishing operations for other species; vessels that are not fishing do not need IBQ allocation to account for bluefin catch. Distributing IBQ shares and allocations to active vessels would facilitate continued participation in the fishery by vessels that have made past investments in the fishery and have been fishing recently. These alternatives would also provide new entrants to the fishery with additional certainty to receive annual allocation if they have

recent fishing activity. Distribution of IBQ allocation to vessels that recently fished would address the principal shortcoming of the Amendment 7 allocation method noted in the Three-Year Review (allocation to inactive vessels).

The number of bluefin that pelagic longline vessels interact with, and the number of dead discards and landings that vessels must account for using quota, relates to several factors including fishing effort, fishing behavior/technique (i.e., vessel operator decisions regarding bait, where and when to set gear in relation to bluefin distribution), and bluefin distribution/availability. Three of the sub-alternatives (sub-alternatives A2a, b, and c) are based on the premise that a vessel's fishing effort is an important determinant of the number of its bluefin interactions. Therefore, allocation based on effort is a logical and effective method of determining which permitted vessels should receive bluefin quota, consistent with the Amendment 7 objective of allocating to active vessels (and not to inactive vessels). Vessels with more fishing activity are generally more likely to interact with more bluefin, and therefore may need larger amounts of IBQ allocation to account for bluefin retained or discarded dead (Table 4.12). Note, this premise was a component of the IBQ share calculation method implemented by Amendment 7, but Amendment 7 also incorporated bluefin avoidance as a second element. As noted in the Three-Year Review of the IBQ Program, the success of the IBQ Program in reducing dead discards likely relates more to the other elements of the IBQ Program than the precise method of allocation and incentives associated with the distinct amounts of annual allocation. In other words, the fact that vessels are limited to an annual allocation of a low number of bluefin (or augmented through leasing, at a cost) and they are accountable for all bluefin landings and dead discards is the key incentive in the IBQ Program. The Three-Year Review states the following:

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

As described in Chapter 4, NOAA Fisheries took incentives into consideration in the design of the alternatives. For example, NOAA Fisheries determined that it would be better to assign individual vessels to one of four quartiles, rather than assign each vessel a 'customized' share percentage. If the share percentage is too large, the incentives associated with IBQ allocations and the IBQ Program may be eroded (i.e., the incentives for fishing strategies that reduce the likelihood of bluefin interactions).

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

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

Rationale: The number of hooks fished is a useful proxy for *nominal* fishing effort, which is the measure of the amount of resources devoted to fishing. The number of hooks is a metric that is readily comparable among vessels of diverse size, location, and fishing strategies, because it is irreducible. Hooks are typically used in the estimation of catch per unit effort (CPUE), which may be useful indices of relative abundance (Hoyle et al., 2014). In the Atlantic HMS pelagic longline fishery, hooks are used in the estimation of CPUE and the estimation of dead discards. A three-year period is long enough so that if a vessel did not fish much during a recent year due to unusual circumstances (such as vessel status, personnel illness, etc.) it would not be disadvantaged, but would be designated an IBQ share holder provided the permit is associated with the vessel at the time of the determination. In the context of the pelagic longline fishery, a highly dynamic fishery in which conditions and participation vary on an annual basis, a three-year period is short enough so that it is reasonable to characterize such a time period as 'recent'.

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

Alternative A2b would define IBQ shareholders and percentage shares based on pelagic longline sets instead of hooks. Specifically, this alternative would define IBQ shareholders and percentage shares based upon each individual permitted vessel's fishing effort using the number of pelagic longline sets, relative to the total amount of pelagic longline sets fishery-wide, as the measure of fishing effort. IBQ allocations would then annually be distributed to vessels with current, valid permits at the time of the determination. The essential concept is as follows: If the total number of sets over the previous three years were 17,000, and a particular vessel had 300 sets during that three-year period (i.e., 1.8 percent of 17,000), the IBQ share would be based on that percentage. As described above under Alternative A2, OFRP participants would have a proxy level of fishing effort added to their actual fishing effort with pelagic longline gear. As explained in Chapter 4 in more detail, in the development of a system to assign share percentages to individual vessels, NOAA Fisheries determined that it would be better to assign individual vessels to one of four quartiles, rather than assign each vessel a 'customized' percentage.

Rationale: The number of pelagic longline sets fished is a useful proxy for *nominal* fishing effort, which is the measure of the amount of resources devoted to fishing. The number of sets is a metric that is comparable among vessels, although it may be difficult to draw conclusions about comparisons, because of the variability among sets in the number of hooks per set. A three-year period is long enough so that if a vessel did not fish much during a recent year due to unusual circumstances (such as vessel status, personnel illness, etc.), it may never-the-less be determined to be a shareholder if it fished at all during the previous three years. In the context of the pelagic longline fishery, a highly dynamic fishery in which conditions and participation vary on an annual basis, a three-year period is short enough so that it is reasonable to characterize such a time period as 'recent'.

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

Preferred Sub-Alternative A2c would define IBQ shareholders and percentage shares based on each individual permitted vessel's target species landings instead of hooks or sets, as the measure of fishing effort. In order to have a standardized method, only certain target species would count in the determination of IBQ shares, with the relevant species termed 'Designated Species'. The designated species would be defined as swordfish, and yellowfin, bigeye tuna, albacore, and skipjack tunas, the species that are most frequently targeted by pelagic longline fishermen. Specifically, the measure of fishing effort would be the total amount by weight of each individual vessel's designated species landings relative to the total amount of designated species landings by the pelagic longline fleet. This list of designated species differs from the Amendment 7 designated species list by removing dolphin, wahoo, shortfin mako, porbeagle, and thresher sharks. The reasons for not including dolphin and wahoo are different than the reasons for not including the shark species noted. Although dolphin and wahoo are targeted by some vessels with an Atlantic

Tunas Longline permit, these species are not managed under the 2006 Consolidate HMS FMP, but are managed under the Fishery Management Plan for the Dolphin and Wahoo Fishery of the Atlantic (South Atlantic Fishery Management Council). Dolphin and wahoo comprise a relatively low portion (by weight) of the total landings (i.e., swordfish, and yellowfin, bigeye tuna, albacore, and skipjack tunas, *including* wahoo and dolphin) (one percent for wahoo; six percent for dolphin; based on 2016 to 2018 logbook data). Further, it would be difficult for NOAA Fisheries to compile and analyze the dolphin and wahoo data annually in an accurate and timely manner. Regarding the reasons for not including certain shark species in the list of designated species, under current regulations shortfin mako and porbeagle sharks cannot be landed by vessels with pelagic longline gear on board unless the sharks are dead at haulback. These sharks are not included in the designated species list because they are not among the principal target species of the fishery. Additionally, ICCAT recommendation 09-07 specifies that member countries should strongly endeavor to ensure that vessels flying their flag do not undertake a directed fishery for species of thresher sharks.

The time period used for determination of eligible vessels would be the three most recent years of available data. The essential concept is as follows: If the total amount of designated species landings by the pelagic longline fleet over the previous three years were 6,500,000 pounds and a particular vessel had 150,000 pounds of designated species landings during that three-year period (i.e., 2.3 percent of 6,500,000 pounds) the vessel IBQ shares would be based upon that percentage. IBQ allocations would then annually be distributed to vessels with current, valid permits at the time of the determination. As explained in Chapter 4 in more detail, in the development of a system to assign share percentages to individual vessels, NOAA Fisheries determined that it would be better to assign individual vessels to one of four quartiles, rather than assign each vessel a 'customized' percentage. As described above under Alternative A2, OFRP participants would have a proxy level of fishing effort (landings) added to their actual fishing effort (landings) with pelagic longline gear.

Rationale: The amount of designated species landings is a useful proxy for *effective* fishing effort, which is reflective of both the amount of resources devoted to fishing, and also the effectiveness of the fishing. Using landings as a proxy for fishing effort in this context is relevant because nominal fishing effort may have little correlation with catch because of the impact of fishing strategies on catch. Specifically, fishing strategies are the sequence of decisions made by vessel operators regarding the gear used and spatial deployment of effort, which are highly variable. Consideration of catch is relevant because the premise underlying the design of an IBQ allocation method is the need to account for incidental catch of bluefin. A three-year period is long enough so that a vessel with only intermittent fishing activity during the three recent years, due to unusual circumstances (such as vessel status, personnel illness, etc.) would still receive an IBQ share and allocation provided the permit is associated with the vessel. In the context of the pelagic longline fishery, a highly dynamic fishery in which conditions and participation vary on an annual basis, a three-year period is short enough so that it is reasonable to characterize such a time period as 'recent'.

This alternative is responsive to the recommendations of the Three-Year Review of the IBQ Program (Section 4.1) regarding improvement to the IBQ Program's method of allocating IBQ shares and allocation. The Amendment 7 method of determining shares allocated bluefin in proportion to a vessel's historical fishing effort, and inversely proportional to the vessel's amount of bluefin interactions relative to its target catch. It was intended to incentivize avoidance of bluefin. However, the Three-Year Review found that there were many factors influencing relevant trends among the different share tiers, including vessel characteristics such as size. The Three-Year Review concluded that formula used in Amendment 7 may not necessarily be functioning as an incentive in the IBQ Program, as evidenced by bluefin landings patterns among the three share tiers. The Three-Year Review stated that under the Amendment 7 system: "The distribution of allocation may not be aligned with the need for quota, given the fact that bluefin catch and the need for quota may be concentrated, and bluefin comprises only a fraction of the total catch of the fishery. Distribution of shares based on the ratio of bluefin to designated species may be overly restrictive in the way it translates into the share percentage. The success of the IBQ Program in reducing dead discards likely relates more to the other elements of the IBQ Program than the precise method of allocation and incentives associated with the distinct amounts of annual allocation".

As shown in Chapter 4 of this DEIS, there is a moderate correlation between the designated species landings and bluefin catch. Although the strength of the relationship, based on the correlation coefficient would not be characterized as "strong," the moderate relationship supports the logic that vessels with more landings are more likely to interact with bluefin, and therefore need a larger IBQ share percentage (see Chapter 4). Such logic supports the concept of defining IBQ shares based upon landings. This method of allocation would better align the distribution of IBQ shares and allocation with need for bluefin IBQ. The small amount of IBQ allocation that shareholders would be distributed and the requirement that all bluefin landings and dead discards must be accounted for using IBQ allocation, would continue to provide a strong incentive for vessels to modify their fishing behavior to avoid and reduce interactions with bluefin.

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

Alternative A2d would define IBQ shareholders and percentage shares and distribute IBQ allocation annually in equal amounts to eligible vessels. An eligible vessel would be any vessel that landed Designated Species during at least one of the three previous years, and had a valid Atlantic Tunas Longline permit at the time of landings. The annual allocation would be divided evenly among eligible vessels with valid Atlantic Tunas Longline category permits. OFRP participants would be considered to be active during the relevant years of participation.

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

bluefin interactions. Designated Species landings are required in order to ensure that a vessel is truly an active vessel with landings, and not simply a vessel that may have deployed a short pelagic longline set for the purpose of 'speculation' or cursory involvement with the fishery to obtain an annual allocation.

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

Alternative A3 would define IBQ shareholders and percentage shares and distribute IBQ allocation using the same formula used in Amendment 7, but instead of using data during the period from 2006 through 2012 (which was used in Amendment 7), the alternative would define eligible vessels as those that reported making at least one set using pelagic longline gear (based on logbook data, as in Amendment 7) from 2016 through 2018. Relevant catch data from 2016 through 2018 would also be used to designate IBQ shareholders to one of three tiers. The use of the years 2016 to 2018 is intended to include the years following initial implementation of Amendment 7, and reflect participation in the fishery during that time period, in contrast to the No Action Alternatives and the dynamic alternatives.

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

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

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

2.2.1 Alternative B1: Regional Designations - No Action

Under this alternative, the same regional designations for IBQ shares and subsequent associated allocation that were adopted in Amendment 7 would continue to be used. Such shares and allocations were designated as either "Gulf of Mexico" (GOM) or "Atlantic" (ATL) based on the geographic location of sets used in the determination of shares. Only GOM allocation can be used to account for bluefin caught in the Gulf of Mexico, while either ATL or GOM allocation can be used to account for bluefin caught in the Atlantic. In this document the abbreviations GOM and ATL are only used to describe IBQ shares or IBQ

allocation regional designations, and not used more broadly as abbreviations for Gulf of Mexico or Atlantic, respectively. Amendment 7 IBQ shares and resultant IBQ allocations in total resulted in 35 percent of the total Longline category quota designated as GOM, and 65 percent designated as ATL. In other words, only 35 percent of the total IBQ allocation could be caught in the Gulf of Mexico. The maximum amount of IBQ shares designated as GOM was based upon the proportion of total pelagic longline sets in the Gulf of Mexico during the period 2006 through 2012. The total amounts of GOM and ATL designated shares and subsequent IBQ allocation represent the cumulative amounts of the regional designations of shares and subsequent IBQ allocations of individual shareholders (based on the geographic location of sets used in the determination of shares of individual permit holders).

Rationale: The regional designations and restrictions were intended to prevent potential increases in bluefin catch in the Gulf of Mexico, which is recognized as the primary spawning grounds for the western Atlantic stock of bluefin. Because many bluefin in the Gulf of Mexico are large fish that may be sexually mature or spawning, particularly during the spring spawning season, preventing potential increases in pelagic longline fishing effort in the Gulf of Mexico may also enhance spawning potential and stock growth. Amendment 7 stated that "This alternative is intended to prevent potential increases in bluefin catch, which could occur if fishing effort was redistributed from the Atlantic to the Gulf of Mexico, through either vessel or permit movement, or trade of IBQ allocation" (NMFS, 2014). The current IBQ rules regarding the regional designation and use of IBQ allocation resulted in the establishment of a maximum amount of bluefin that could be caught from the Gulf of Mexico.

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

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

for Gulf of Mexico bluefin than the No Action Alternative as a result of the flexibility to adjust the maximum percentage of GOM-designated shares and allocation downward from the current level of 35 percent.

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

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

Basis of GOM and ATL IBQ share designations

This alternative would be implemented in conjunction with the dynamic allocation alternatives. Regional designations of IBQ shares and allocations would be determined on an annual basis as part of the annual dynamic allocation process, and the accounting rules for the regional IBQ allocations would remain the same as they are currently. Recall that under current accounting rules, all IBQ shares and allocation are designated as either GOM or ATL, and GOM allocation may be used in either the Gulf of Mexico or the Atlantic, but ATL allocation may only be used in the Atlantic in order to prevent an increase in fishing effort in the Gulf of Mexico and cap the total amount of bluefin catch (landings and dead discards) in the Gulf of Mexico. Specifically, annual regional designations would be based on the location of the relevant pelagic longline fishing activity used in the annual allocation under the A alternatives (i.e., location of the hooks, or sets, or landings utilized as the basis of the allocation; Gulf of Mexico or Atlantic). For Sub-Alternatives A2a and A2b (dynamic allocation based on hooks and sets, respectively), the specific share percentages would be based on the proportion of the vessel's hooks or sets in the relevant area. For example, if a vessel fished 90 percent of their sets or hooks in the Gulf of Mexico, and 10 percent in the Atlantic, their IBQ share designations would be designated as 90 percent GOM and 10 percent ATL. Similarly, for Sub-Alternative A2c (dynamic allocation based on designated species landings), if a vessel had 80,000 pounds of designated species landings (during the relevant three-year period), with 60,000 pounds from the Gulf of Mexico, and 20,000 pounds from the Atlantic, the IBQ share designations and subsequent allocations for that vessel would be split 75 percent GOM and 25 percent ATL (Figure 2.1). Under this system, if a vessel is not allocated GOM designated IBQ shares (*because the vessel had no designated species landings from the Gulf of Mexico during the previous three years)*, but wishes to fish

in the Gulf of Mexico, they would need to lease GOM designated IBQ allocation initially, and then would be allocated GOM-designated IBQ shares and allocation for the following year, if they had designated species landings (under Preferred Sub-Alternative A2c).

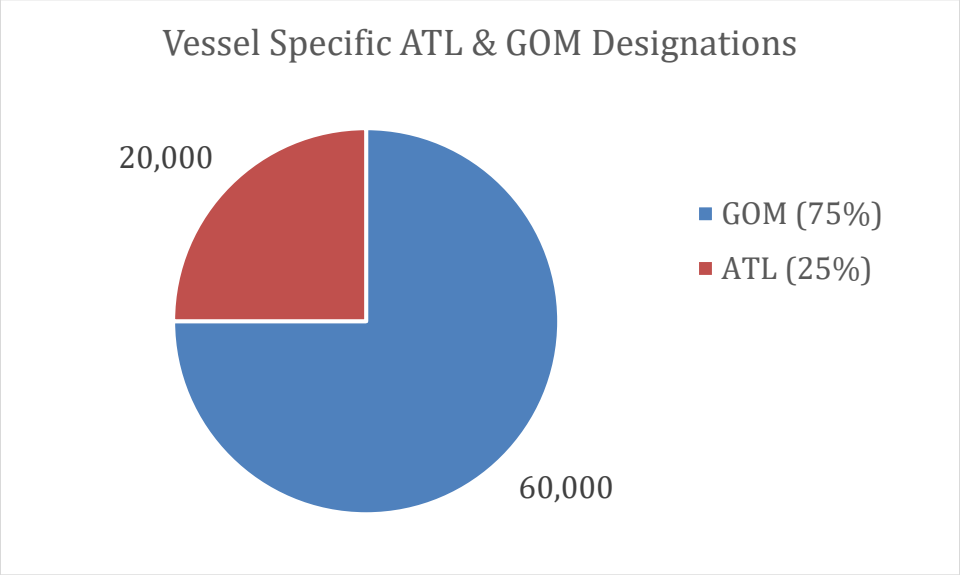


Figure 2.1 Example of Vessel Specific GOM and ATL Area Designations based on Designated Species Landings (pounds)(Sub-Alternative A2c)

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

The area designations at an individual vessel level described above are important to the consideration of the overall amount of GOM designated IBQ, because the total amount of effort in the Gulf of Mexico will determine the relative amount of IBQ shares that are designated as GOM IBQ shares. In other words the location and relative amount of fishing effort of an individual permit holder will determine whether the shares will be designated as GOM or ATL (or both). In turn, the total effort designated as GOM will determine the total percentage of shares designated as GOM. The total percentage of shares designated as GOM is important because the amount of GOM designated shares will determine the maximum amount of bluefin that may be caught in the Gulf of Mexico. For example, if the total amount of designated species landings fishery wide is 15,000,000 pounds, and 11,000,000 pounds are from the Atlantic and 4,000,000 pounds are from the Gulf of Mexico, then the relative amounts of ATL and GOM designated IBQ shares would be 73 percent and 27 percent, respectively (Figure 2.2).

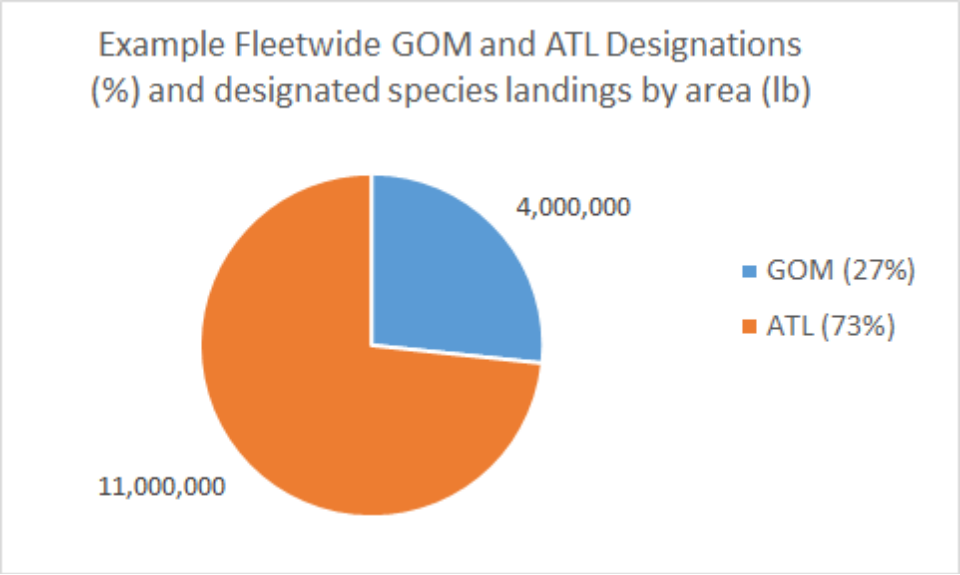


Figure 2.2 **Example of Fleetwide GOM and ATL designations (%) and designated species landings (pounds) by area (Sub-Alternative A2c)**

Because the annual process of issuing IBQ shares is dynamic, based on fishing effort, and fishing effort in the Gulf of Mexico would not be restricted, a maximum amount of bluefin catch from the Gulf of Mexico would be implemented by setting a cap on the percentage of IBQ shares and allocation that could be annually designated as GOM IBQ shares and allocation. The default level of the cap would be 35 percent of the total IBQ shares and resulting allocation (i.e., 35 percent of the Longline category quota), the same as under Amendment 7. In other words, based on the cap on GOM-designated IBQ allocation, there would be a limit on the amount of bluefin caught from the Gulf of Mexico (landings and dead discards). For example, if the Longline category quota were 360,656 pounds (i.e., the 2019 value), the maximum amount of bluefin that could be caught from the Gulf of Mexico would be 126,230 pounds (landings and dead discards).

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

Adjustment of GOM IBQ shares to Match the Cap

Because the annual process of issuing IBQ shares under these alternatives would be dynamic (based on fishing effort) and fishing effort in the Gulf of Mexico would not be

restricted, the annual percentage of GOM shares issued will vary. In contrast, the cap on the percentage of GOM IBQ shares (and potential bluefin catch) from the Gulf of Mexico would not vary on an annual basis from its default level of 35 percent. Because the shares are dynamic, but the cap is not, it may cause a situation that needs to be resolved: During the process of the annual calculation of IBQ shares, NOAA Fisheries may determine that the resultant total amount of IBQ shares designated as GOM would be greater than the GOM percent cap in place, based upon the amount of fishing effort (i.e., hooks, sets, or designated species landings) exerted in the Gulf of Mexico. In this case, NOAA Fisheries may need to reduce the total amount of shares designated as GOM in order to equal the GOM IBQ share cap. The reduction in total GOM share percentage would be achieved through equal reductions among IBQ shareholders with GOM designated IBQ shares. NOAA Fisheries would notify affected permit holders of any reductions in their IBQ share percentage resulting from this adjustment.

For example, in a given year, if 38 percent of fishing effort (based on sets, hooks, or designated species landings) analyzed for the determination of annual allocations were from the Gulf of Mexico, only 35 percent of the IBQ allocation would be designated as GOM. In Figure 2.3, the bars on the left side of the figure show the actual division of fishing effort between regions. However, because the Gulf of Mexico effort of 38 percent exceeds the 35 percent fleet-wide share cap established under this alternative, the actual fishing effort would not be used to issue shares. Rather, NOAA Fisheries would adjust the GOM share percentages downward (equally across the four share percentages) to reflect the maximum amount of shares that can be issued for the Gulf of Mexico, as shown on the right side of the figure. In this case, the amount of GOM shares is equivalent to the default Gulf of Mexico cap of 35 percent. In this example, each GOM IBQ share would be reduced by multiplying the share percent by 35/38, or 0.92; a 2.1 percent GOM IBQ share would be reduced to 1.9 percent. The ATL shares would be increased in an analogous manner, so that the total share percentages add up to 100 percent.

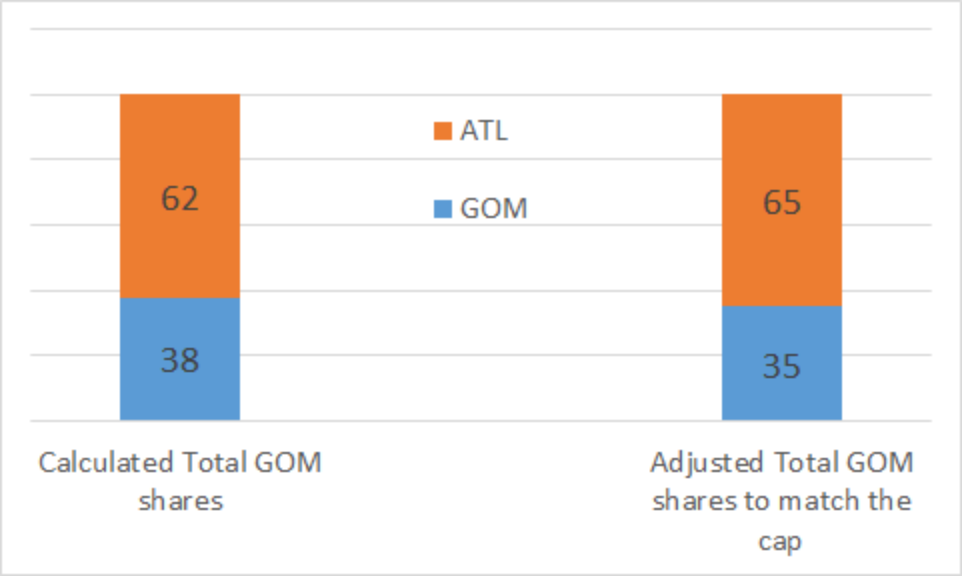


Figure 2.3 Example Adjustment of IBQ Shares to match the cap on GOM designated IBQ

Rationale: This alternative provides additional flexibility for the regional designations to work in the context of a dynamic allocation system, while capping the maximum amount of bluefin catch from the Gulf of Mexico. This alternative would enhance protections for Gulf of Mexico bluefin, compared to the No Action Alternative, as a result of the flexibility to adjust the maximum percentage of GOM-designated shares and allocation downward from the current level of 35 percent. This alternative would provide a stronger mechanism to prevent increases in fishing effort in the Gulf of Mexico than would Alternative B2, and continue to afford protections to spawning bluefin. A vessel that fishes predominantly in the Atlantic, but sometimes in the Gulf of Mexico could be allocated some GOM-designated IBQ allocation to reflect fishing patterns and reduce their need to lease while preserving the catch cap. Increased flexibility to fish for target species would benefit both vessel owner/operators and dealers. The regional designations and accounting rules serve as a mechanism to continue to closely manage the pelagic longline fishery in the Gulf of Mexico, while providing flexibility in the quota system to allow vessels to optimize their fishing strategies. For example, some vessels that have home ports in the Atlantic and that fish predominantly in the Atlantic, that may have seasonally fished for swordfish in the Gulf of Mexico since 2015, might only have ATL designated shares under Amendment 7 based on past fishing activity. Under current rules, such vessels have to lease GOM-designated IBQ allocation (to meet the minimum share requirement under quarterly accountability or account for bluefin catch). Under this Alternative, such vessels could receive GOM-designated IBQ shares as a result of fishing in the Gulf of Mexico during the time period analyzed (i.e., most recent three-year period). If the relative amount of effort in the Gulf of Mexico decreases, the relative amount of IBQ shares that are designated as GOM would also decline, and in effect set a lower cap on the amount of bluefin that could be caught from the Gulf of Mexico for that year.

Any increase in the amount of GOM-designated IBQ shares (up to 35 percent) would be the result of incremental increases in fishing effort. Sudden increases in the amount of bluefin

catch from the Gulf of Mexico would be less likely. Fluctuations in fishing effort within recent historical ranges would be allowed (but constrained), and bluefin incidental catch would continue to occur in proportion to fishing effort in the Gulf of Mexico, but bluefin incidental catch would be capped by the amount of IBQ shares and allocation that could be designated as GOM. Providing a regulatory mechanism for reducing the maximum amount of bluefin that could be caught from the Gulf of Mexico addresses the fact that circumstances may change over time. Such a system would provide greater flexibility for vessels to fish in desired locations, maintain constraints on effort shifts, and enable potential increases in target species catch from the Gulf of Mexico. This approach would continue to limit bluefin catch in the Gulf of Mexico and continue strict accountability for bluefin catch, creating incentives to avoid bluefin catch during directed fishery operations for other species while also providing vessels flexibility to pursue target species and maintain profitability.

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

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

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

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

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

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

2.3 'C' Alternatives: Sale of IBQ Shares

These alternatives analyze allowing sale of IBQ shares under the IBQ Program. Under the current regulations, permit holders may obtain IBQ shares by acquiring an Atlantic Tunas Longline category permit with IBQ shares. However, under current regulations IBQ shares cannot be bought and sold separately from an Atlantic Tunas Longline category permit. Amendment 7 stated that NOAA Fisheries would consider allowing sale of IBQ shares subsequent to the Three-Year Review of the IBQ Program. Sale of quota shares is allowed under some other catch share programs.

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

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

Rationale: Amendment 7 did not authorize sale of IBQ shares in order to reduce risks for Atlantic Tunas Longline category permit holders during the initial stages of the IBQ

Program, when the market for IBQ shares would be new and uncertain. During the initial years of the IBQ Program, price volatility may have occurred, as well as undesirable outcomes of selling or buying IBQ shares. There are several reasons to continue a prohibition on sale of IBQ shares. There is little need for Atlantic Tunas Longline category permit holders to accumulate additional IBQ shares, because for most permit holders, annual allocations (under any of the allocation alternatives) combined with a minimal amount of leasing is likely to be sufficient for permit holders to account for incidental bluefin catch. In contrast to many catch share programs where the catch share is associated with a targeted species, bluefin is incidental catch in the longline fishery. Secondly, continued prohibition on sale would not increase uncertainty in the IBQ allocation leasing market, and would reduce the likelihood of accumulation of IBQ shares by individual entities. Lastly, it would reduce the administrative burden for NOAA Fisheries to administer the IBQ Program if a prohibition on sale is continued.

2.3.2 Alternative C2: Allow Sale of IBQ Shares

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

Rationale: Sale of IBQ shares provides Atlantic Tunas Longline category permit holders an alternative means for a vessel owner to obtain IBQ allocation, in addition to participating in the IBQ leasing market, that enables management of their IBQ shares (and associated IBQ allocation) and business planning on a longer time scale than a single year. Permit holders need IBQ allocation to comply with minimum IBQ balance requirements, account for bluefin catch, and may choose to lease (or sell) to other permit holders. Permit holders may

be able to save money through a single IBQ share transaction instead of via annual IBQ allocation lease transactions. Sale of IBQ shares to entities that are not permit holders would *not* be allowed in order to remain consistent with the principal objectives of the IBQ Program. Specifically, IBQ shares and allocation are a means to account for bluefin catch and provide incentives to minimize bluefin catch, and therefore are needed by vessels fishing with pelagic longline gear (i.e., active holders of Atlantic Tunas Longline category permits). IBQ shares are not intended as a means for entities to make money, influence the IBQ leasing market, or otherwise influence the fishery.

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

The following management alternatives would place a cap on the amount of IBQ shares an entity may hold or acquire, and/or place a cap on the amount of IBQ allocation an entity may lease or use, including No Action alternatives. The Magnuson-Stevens Act requires that NOAA Fisheries must ensure that limited access privilege permit holders do not acquire an excessive share of the total limited access privileges. Existing permit regulations limit the ownership/control of HMS permits to no more than five percent of vessels for which limited access permits have been issued (§ 635.4(l)(2)(iii)). The management alternatives described below are intended to limit IBQ shares or use of bluefin quota through the IBQ System, and therefore include references to who or what is limited. In this context, limitations are placed on "entities". In these alternatives, a single entity is defined as the Atlantic Tunas Longline category permit holder where that holder is an individual or organization such as a corporation, partnership, or trust. A cap under these alternatives would apply to the sum of shares or IBQ allocations an entity controls, whether the entity is associated with a single or multiple Atlantic Tunas longline permits.

2.4.1 Alternatives Suite D1: Cap Accumulated Sum of IBQ Shares

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

2.4.1.1 Sub-Alternative D1a: No Action

This alternative would maintain the current regulations under which pelagic longline vessels may not permanently sell IBQ shares, but may temporarily lease IBQ allocation, with the limit on the amount of IBQ allocation an individual vessel (longline or purse seine) can lease annually as the combined Longline and Purse Seine category allocations. An

entity would be able to accumulate IBQ shares through the purchase of Atlantic Tunas Longline category permits (allowed currently), or through the purchase of IBQ shares (if allowed through this amendment; see C alternatives).

Rationale: Under the current IBQ Program, an Atlantic Tunas Longline category permit holder may not purchase IBQ shares from other shareholders (i.e., it is not possible to separate the IBQ shares from the Atlantic Tunas Longline category permit), therefore, excessive shares through the direct purchase of IBQ shares is not possible. Although entities may purchase multiple Atlantic Tunas Longline category permits, entities are limited by existing regulations, which in effect establish a maximum share of total limited access privileges that a privilege holder is permitted to hold, acquire, or use. Existing regulations limit ownership or control of limited access HMS permits to no more than five percent of vessels for which limited access permits have been issued. The IBQ Program has been functioning under these regulations since 2015, and there have been no reported or observed issues relating to excessive accumulation of IBQ shares.

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

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

This alternative would cap the percentage of IBQ shares that an entity could hold or acquire as shareholder at seven percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

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

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

This alternative would cap the percentage of IBQ shares that an entity could hold or acquire as shareholder at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

Rationale: This cap would be around four times the maximum amount of IBQ shares that a single entity held, acquired or used on an annual basis in 2015-2019 (between five and six percent). It would balance the need to address consolidation with the need to provide flexibility for the fishery participants to account for bluefin incidental catch using various business models, including cooperatives and limited consolidation that enable efficiencies in order to remain profitable and competitive in the international seafood market.

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

This alternative would cap the percentage of IBQ shares that an entity could hold or acquire as shareholder at 50 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

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

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

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

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

This alternative would maintain the Amendment 7 limit on the amount of IBQ allocation an individual vessel (longline or purse seine) can lease annually as the combined Longline and Purse Seine category allocations on an annual basis.

Rationale: Long-term control of IBQ allocation by a single entity through leasing is not possible, because leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year. The amount of IBQ an entity may use is limited by the amount of IBQ allocation they receive through shares and the amount they lease from other vessels. The amount of IBQ allocation received through IBQ shares is limited because such shares are associated with the permit and is capped under Alternative D1c. Investment in leasing large amounts of IBQ allocation is not likely to occur because the IBQ allocation would not carry over from one year to the next and therefore an investment in IBQ allocation would not likely be a sound investment, due to the short-term nature of the lease. The likely reason a vessel might need to lease a large amount of IBQ allocation would be to account for an unusually large catch of bluefin, which is consistent with the objectives of the IBQ Program. In contrast to catch share programs where the catch share is a target species, there are not strong incentives to accumulate large amounts of IBQ allocation. Provided the IBQ Program elements continue to function in a manner consistent with its objectives, with individual vessel accountability for bluefin catch, the IBQ Program should maintain design aspects that provide ample flexibility for vessel owners to lease IBQ allocation in the amounts that they need. Such needs include the ability to account for bluefin incidental catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin. During 2015-2019, the highest amount of IBQ allocation that a single entity held in one year, including leased allocation, was 12.3 percent of the total annual allocation (i.e., the Longline category bluefin quota) in 2017. That single entity used 3.8 percent of the total annual allocation in 2017 to account for bluefin incidental catch. The overall IBQ allocation leasing market has been robust, with the accountability rules of the IBQ Program providing incentives to avoid bluefin. The flexibility for vessels to lease IBQ as needed to account for bluefin catch does not affect the amount of overall longline quota that may be caught. This alternative would not modify the science-based ICCAT recommended bluefin quota, nor the U.S. portion of that quota, nor the fishing mortality associated with that quota.

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

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

Rationale: This alternative would cap the amount of IBQ allocation a single entity could lease or use to account for bluefin incidental catch during a year in order to ensure that a particular entity would not have a negative effect on the IBQ leasing market. The cap would be set at 25 percent of the distributed IBQ allocation, to balance the need for an entity to

account for bluefin incidental catch, with the need to maintain a robust IBQ leasing market and maintain the strong incentives for entities to avoid bluefin interactions inherent in the IBQ Program accountability rules. During 2015-2019, the maximum amount of IBQ allocation that a single entity held in one year, including leased allocation, was 12.3 percent of the total annual allocation in 2017. That single entity used 3.8 percent of the total annual allocation in 2017 to account for bluefin catch.

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

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

2.5.1 Alternatives Suite E1: Dealer Reporting Requirements

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

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

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

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

This alternative would remove the dealer reporting and PIN requirements described under sub-alternative E1a, but continue to require that dealers enter the data on bluefin *landings* into the online IBQ System. Real-time bluefin dead discard information would continue to be collected through existing Vessel Monitoring System (VMS) reporting requirements under which vessel operators enter bluefin set reports while at-sea. This VMS set report

data is integrated into the online IBQ System. Instead of using PINs, under this alternative, NOAA Fisheries would use email notification via the IBQ System (or a message within the IBQ System) to inform the vessel owner when a dealer conducts a transaction with that vessel's IBQ account. This would provide a means for vessel operators to have oversight of dealer transactions with their IBQ vessel accounts.

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

The intent of the PIN requirement was to provide an opportunity for vessel operators to ensure accurate information regarding bluefin transactions with the dealer and correct accounting of bluefin in the IBQ System and IBQ vessel accounts. In practice, most vessel owners have not entered their PIN into the IBQ System at the time of offloading. Vessel operators have instead provided their vessel's IBQ System PIN to the dealer with whom they usually conduct business to enable the dealer to retain the PIN and enter the number each time a bluefin landing (from that particular vessel) occurs, to streamline logistics and communication during offloading. Secondly, providing the PIN to the dealer on a one-time basis has provided the dealer the flexibility to delay the time of data entry until sometime after the landing of the fish, while still complying with the requirement that the dealer electronically submit the data no later than 24 hours after receipt of the bluefin. Accurate data entry of pelagic longline bluefin landings information into the IBQ System by dealers has not been a problem, with the exception of limited late data entry.

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

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

This alternative would continue the current requirement that EM hard drives be submitted after each trip using pelagic longline gear, according to the instructions provided by NOAA Fisheries. Specifically, vessel operators are required to mail the computer hard drive from

the EM System within 48 hours after the end of each pelagic longline trip, regardless of how much storage capacity is remaining on the drive.
The associated instructions, which are not specified in the regulations, would continue unless revised by NOAA Fisheries under their current authority. For reference, the associated instructions are as follows: The vessel operator must remove hard drives from the EM System, as instructed by NOAA Fisheries, put the drive(s) in a padded envelope, with a pre-paid, self-addressed mailer or label, and send to the third-party contractor (address and information provided by NOAA Fisheries). The vessel operator must provide a pre-paid, self-addressed mailer or label to receive their replacement drives. The vessel operator is also responsible for obtaining padded mailers for shipping the hard drives to the contractor. The computer hard drives (and mailer or label) should be sent via United States Parcel Service (USPS) or FedEx (or another traceable method) to the address as instructed by NOAA Fisheries. Subsequently, the replacement hard drives for the vessel are sent to the address provided by the vessel operator.

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

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

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

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

2.5.3 Alternatives Suite E3: Electronic Monitoring - Camera Installation

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

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

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

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

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

Rationale: Currently, the rail camera is mounted on existing vessel structure at the rail or slightly inboard of the rail, and is able to achieve only a partial view of the seaward area of the vessel as a result of the low camera angle (to the side of the vessel). Therefore, the current rail camera configuration provides a limited view of the seaward area of the rail where gear is hauled from the water, and where fish capture and some of the discard events occur. Clarifying that NOAA Fisheries has the authority to require mounting and installing cameras in locations that it determines are necessary, including the installation of minor structures to support cameras, would provide opportunities to improve camera placement, field of view, and improve the detection of fish (especially fish that are hooked, but not brought aboard the vessel) by the EM System, and improve the accuracy of resulting data.

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

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

This alternative would make no changes to the current EM fish handling procedures. The regulations require that the vessel operator ensures that all fish are handled in a manner that enables the video system to record such fish, and there are no additional specific requirements how fish or gear must be handled. NOAA Fisheries contractors provide vessel operators with vessel-specific instructions regarding alterations of camera placement or gear placement on deck if required to obtain unobstructed camera views. EM video

analysts currently use items on deck (e.g., fish boxes, baskets, poly balls) as a reference/proxies to estimate relative size of fish on deck.

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

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

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

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

2.5.5 Alternative Suite E5: Cost Recovery Program

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

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

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

Rationale: Bluefin is an incidental catch species in the pelagic longline fishery, and total ex-vessel value of the bluefin landed by the pelagic longline fishery is low. Therefore, the maximum recoverable amount from the fishery under a cost recovery program would also be low. When Amendment 7 was adopted, NOAA Fisheries did not implement a cost

recovery program because it anticipated that the annual costs for such a program would approach or exceed the recoverable costs and provide little or no net value. Delaying the program also provided NOAA Fisheries with an opportunity to gather information about the operation of the fishery under the new IBQ Program and reduce initial costs and uncertainty.

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

Overview

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

Estimation of Recoverable Costs

The incremental costs to NOAA Fisheries of implementing the IBQ Program are principally costs associated with labor, both NOAA Fisheries staff and contracted entities. The types of tasks include IBQ Program oversight, customer service, database maintenance, computer programming (maintenance and development), the EM Program, data monitoring, preparation of fleet communications, providing status reports to the HMS Advisory Panel, preparation of Federal Register documents, and enforcement related activities. NOAA Fisheries would estimate the incremental costs to NOAA Fisheries of implementing the IBQ Program on an annual basis, including an estimate of the costs of the cost recovery program (i.e., the activities associated with the annual process of implementing the cost recovery program).

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

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

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

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

Determination of Whether to Collect Cost Recovery Fees

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

If NOAA Fisheries proceeds with collecting fees, it would determine recoverable costs (as described above), calculate individual fees based on individual permit holder landings of bluefin, develop a Federal Register document providing formal public notification, and notify permit holders of their individual fees and instructions for payment through the online IBQ System. If permit holders do not pay their fees or are delinquent in payment, they may be subject to relevant enforcement penalties, including permit revocation.

Annual Report

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

Rationale: Bluefin is an incidental catch species, and total ex-vessel value of the bluefin landed by the pelagic longline fishery is low. Therefore, the maximum recoverable amount from the fishery under a cost recovery program would also be low. The costs associated

with annual implementation of a cost recovery program may approach or exceed the recoverable costs and provide little or no net value to NOAA Fisheries. In other words, if the total funds to be recovered is small, it may cost close to or more to recover these funds than would be recovered, while introducing a cost to fishery participants. Therefore, a flexible approach is warranted, where NOAA Fisheries would implement a process for cost recovery, but provide flexibility for NOAA Fisheries to make an annual determination whether or not to charge a cost recovery fee, based on relevant information.

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

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

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

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

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

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

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

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

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

Rationale: This alternative is designed to simplify the quota regulations, by making a change to the mathematical method used in the annual quota allocation process among categories. The intent is to be consistent with Amendment 7 in providing additional quota to the Longline category quota consistent with previous ICCAT recommendations. Simplification of the allocation methodology will facilitate comparison among the reallocation alternatives in this document, as well as reduce the complexity in reporting on quota usages in the future.

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

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

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

2.6.2 Alternatives Suite F2: Purse Seine category and quota allocation

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

This alternative would maintain all aspects of the current Purse Seine category regulations. Under current regulations, NOAA Fisheries considers the previous year's catch by Purse Seine category participants in determining the amount of quota available to each

participant in the current year. NOAA Fisheries would continue to reallocate a substantial portion of the baseline Purse Seine category quota annually to the Reserve category based on prior-year landings of the Purse Seine category, as described in § 635.27(a)(4).

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

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

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

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

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

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

Alternatives F3 and F4, and is intended only to address the timing of the discontinuation of the Purse Seine category.

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

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

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

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

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

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

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

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

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

This alternative would reallocate the Purse Seine category quota proportionally to <u>all</u> other bluefin quota categories (i.e., based on the current percentages associated with each quota category as revised with the removal of the Purse Seine category percentage) and result in revised allocations and quotas as shown in Table 2.2.

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

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

A breakdown of steps 1-5 can be seen below in Table 2.2

Table 2.2 Purse Seine quota reallocation process for Alternative F3

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

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

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

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

This alternative would result in reallocating quota from the Purse Seine category to all other quota categories, including the Longline category, based on the relative amount of the total bluefin quota each quota category receives. This alternative would not place additional restrictions on the use of such quota. Under the IBQ Program, the additional quota would be designated as Atlantic or Gulf of Mexico IBQ allocation, consistent with the

relevant method of calculating IBQ shares and distributing IBQ allocation described under the A and B alternatives.

Rationale: This alternative would not place additional restrictions on the use of Longline quota or on the process of determining regional designations for IBQ allocation, as these regional designations would be analyzed and determined as described under the B alternatives.

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

This alternative would result in reallocating quota from the Purse Seine category to all of the remaining quota categories, including the Longline category as described above, , but would place a restriction on the use of such quota by pelagic longline vessels, in the context of the IBQ Program. Specifically, all of the additional Longline category quota would be designated as Atlantic IBQ allocation, which could not be used to account for bluefin caught in the Gulf of Mexico. This sub-alternative is based on the premise that Longline category IBQ share and allocation regional designations remain under the non-preferred Alternative B1.

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

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

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

Rationale: The Purse Seine category was a directed bluefin fishing category. NOAA Fisheries manages the pelagic longline and trap fisheries as incidental categories for bluefin. The IBQ Program for the Longline category balances incentives to avoid bluefin and reduce dead discards, with providing flexibility to fish for target species and maintain profitability. The bluefin allocated to the Longline category is intended to be used to account for bluefin bycatch. Based on the Three-Year Review, the relative amount of bluefin

quota, in combination with the IBQ Leasing Program have been adequate for vessels to account for bluefin, and therefore a substantive increase in the Longline category quota percentage may not be necessary. Reallocating quota from the Purse Seine category to other directed bluefin fishing categories would be consistent with the objectives of the IBQ Program, and the objective to provide a reasonable opportunity for directed vessels to catch the U.S. quota. This alternative would continue to afford and enhance protections to spawning bluefin in the Gulf of Mexico by not by not reallocating Purse Seine category to the Atlantic Tunas Longline category.

Table 2.3 Purse Seine reallocation process for Alternative F4

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

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

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

Under the regulations at § 635.27(a)(1), the General category quota is divided into five subquotas for the following five time periods: January, June through August, September, October through November and December. Although it has been called the "January" subquota, the regulations currently allow landings to continue until the subquota is reached, or until March 31, whichever comes first. The flexibility to allow landings to continue until March 31 was intended to allow the January base quota to be caught even under the circumstances when the bluefin show up late (i.e., are not available in January

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

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

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

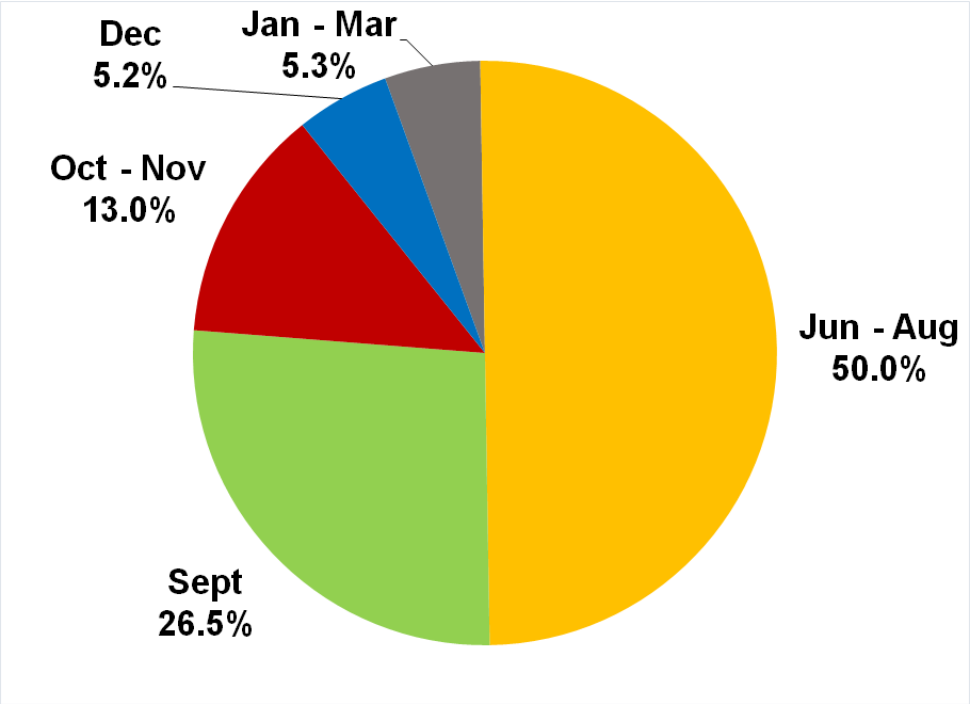


Figure 2.4 General Category Subquota Time Periods and Base Subquota Allocation Percentages

Any unused General category quota "rolls" forward from one time period to the next within the fishing year, which coincides with the calendar year, and is available for use in subsequent time periods (e.g., unused quota from June through August rolls to September period; unused quota from September rolls to the October through November period). In addition, NOAA Fisheries may decide, through an inseason action, to transfer quota from one subquota period to another, whether earlier or later in the calendar year. For example, NOAA Fisheries may transfer quota allocated for December of a particular year to January through March of that year, to further fishing opportunities early in the calendar year.

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

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

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

2.7.2 Alternatives Suite G2: Modify General category subquota time periods

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

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

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

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

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

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

This alternative would allow landings in the January through March time period to continue until the subquota is reached, or until April 30, whichever comes first. This alternative is similar to an alternative that was considered, but not selected, in the 2011 Environmental Assessment for a Rule to Adjust the Atlantic Bluefin Tuna General and Harpoon Category, i.e., to extend the "January" subquota time period through May 31 rather than through January 31, which was the end date of that subperiod at the time. It was in that rulemaking that the March 31 end date was established for the "January" subquota.

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

2.7.3 Alternatives Suite G3: Modify General category subquota allocation percentages

This alternative would modify the current General category bluefin quota allocations outlined at §635.27(a)(1) and listed in Table 2.4 above. Sub-alternatives would increase the January through March and/or the fall subquotas (September, October through

November) suballocation amounts and decrease other time period subquotas such as the June through August subquota.

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

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

This alternative would increase the January through March suballocation from its current value of 5.3 percent to up to 15 percent and decrease the suballocations for the remainder of the year proportionally to achieve this increase (i.e., decrease the June through August suballocation from 50 percent to as low as 44.9 percent, the September suballocation from 26.5 to as low as 23.8 percent, the October through November suballocation from 13 to as low as 11.7 percent, and the December suballocation from 5.2 to as low as 4.7 percent). NOAA Fisheries received various suggestions regarding allocation percentages and discusses potential ranges here (and below) as a way of noting "bookends" of potential changes. In selecting a specific change (i.e., a percent increase), NOAA Fisheries would consider additional input such as public comment on the DEIS, recent trends in the fishery (such as catch rates, participation, etc.), and the interplay of other actions NOAA Fisheries includes in the proposed rule for this amendment. Any unused General category quota rolls forward within the fishing year, which coincides with the calendar year, from one time period to the next, and is available for use in subsequent time periods.

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

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

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

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

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

This alternative is directly associated with Alternatives F5 and F6 - Discontinue Purse Seine category fishery and reallocate quota. Any increases of General category quota resulting from Alternatives F5 and F6 would be applied to the September and the October through November subquota periods, both of which have often been open for only a small portion of the subperiod. Based on current relative size of the September and October-November percentages to each other, the quota from the Purse Seine category would be divided proportionally between the September and the October through November subquota periods, which would result in the September subquota period receiving about twice as much as the October through November subquota period.

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

increases there has been renewed public interest in the optimal and equitable allocation of bluefin quota among seasons and geographic areas.

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

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

This alternative would maintain the current Angling category trophy bluefin subquota areas and allocations at § 635.27(a)(1), shown in Figure 2.5. Under the current regulations, no more than 2.3 percent (currently 5.3 mt) of the annual Angling category bluefin quota (currently 232.4 mt) may be large medium (73" - < 81" curved fork length (CFL)) or giant (81" or greater) ("trophy") bluefin. The trophy subquota is divided equally (i.e., 1.8 mt each) among three geographic areas: North of 39°18′ N Lat. (off Great Egg Inlet, NJ); south of 39°18′ N Lat., and outside of the Gulf of Mexico; and the Gulf of Mexico, as shown in Figure 2.2. Because the amount of school bluefin (27" - < 47") is limited in the codified regulations, and in compliance with the ICCAT bluefin recommendation, to no more than 10 percent of the annual U.S. bluefin tuna quota, any increase to the trophy subquota would need to be balanced with an equivalent reduction of the subquota for large school/small medium bluefin subquota (47" - < 73").

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

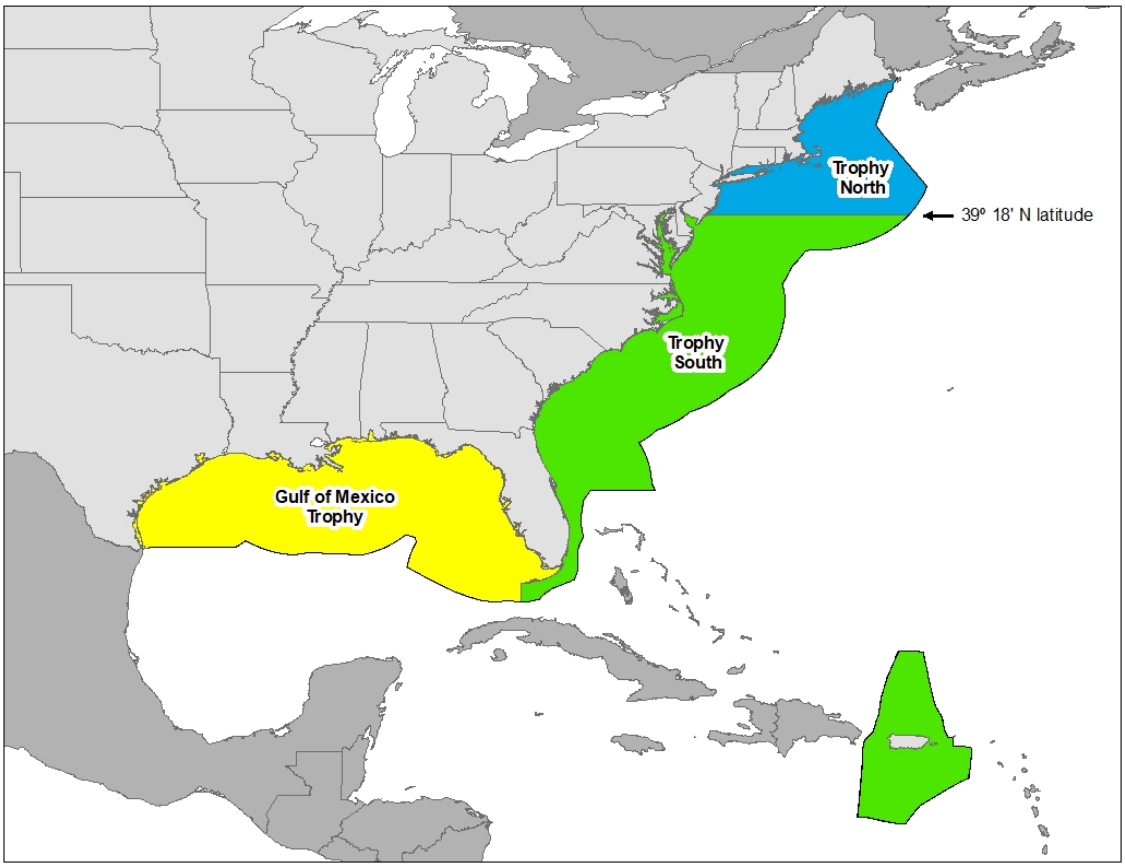


Figure 2.5 Trophy regions for the Angling category established under Amendment 7

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

This alternative would modify the current Angling category Trophy North subquota areas and allocations specified at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° North Latitude (N. Lat..) (off Chatham, MA); these newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively, as shown in Figure 2.6. The net result would be that the Angling category Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each area would receive the same amount of quota.

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

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

Rationale: Creation of a Gulf of Maine area and an allocation equivalent to the allocations for the existing areas could provide additional opportunities for anglers fishing north of 42° N. Lat. where bluefin are available in summer and fall, including those fishing on HMS Charter/Headboat-permitted vessels. In four recent years (2016 through 2019), the northern area Trophy fishery has closed on August 6, August 11, July 26, and June 27, respectively. Prior to 2016, the last time the northern area closed was July 29, 2011. Division of the northern area and creation of an allocation for the new area may also address perceived inequity. In recent years, landings of large school/small medium bluefin have averaged less than the available quota for those size classes and Angling category landings overall have averaged less than the Angling category quota. Although the preliminary annual recreational catch estimate is not yet complete, NOAA Fisheries anticipates fuller use of the 2019 large school/small medium subquota.

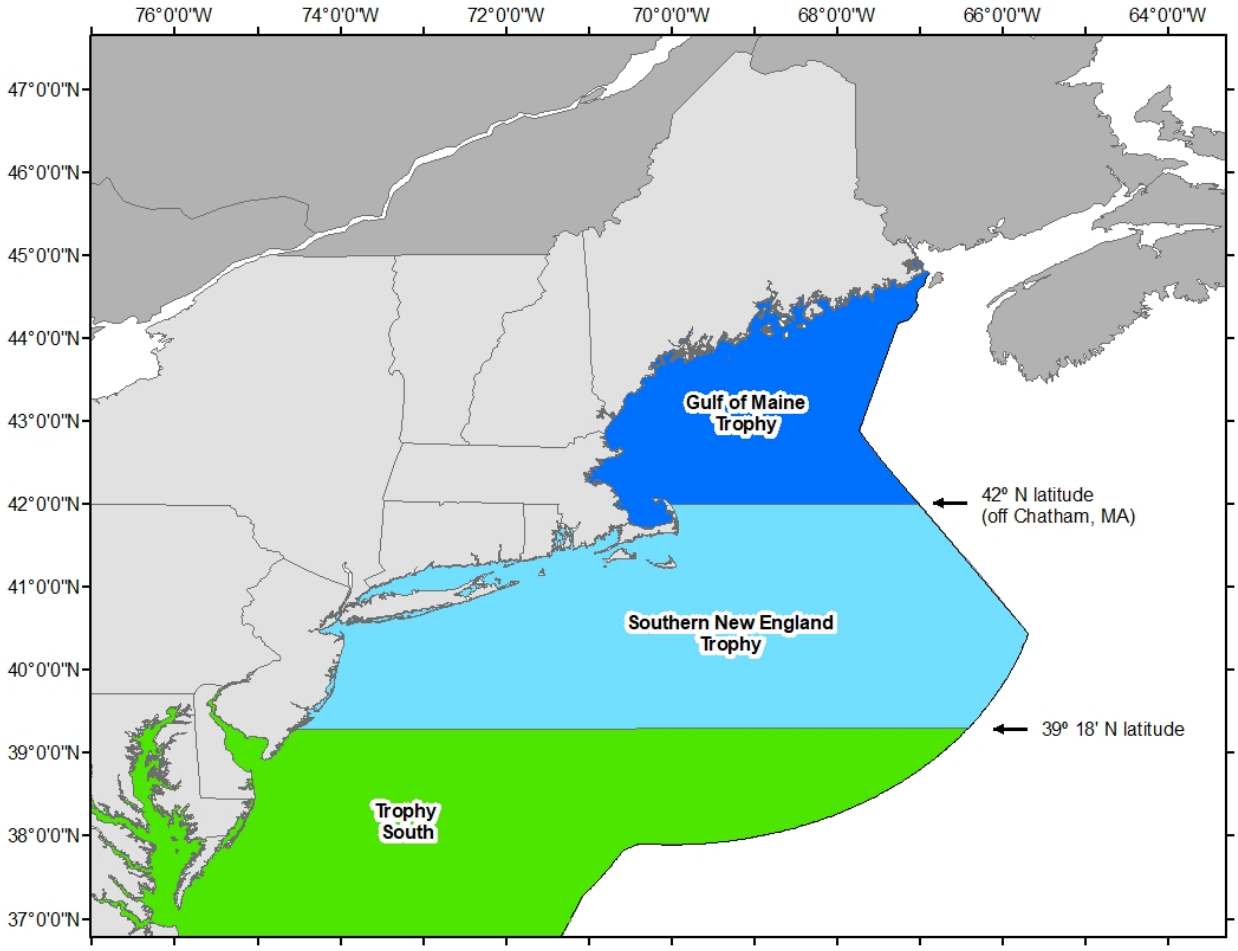


Figure 2.6 Modifications to the Trophy North area for the Angling category under Alternative H2

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

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

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

This alternative would maintain the current authorized gears applicable to the Atlantic tunas permit categories (§635.19(b). For example, vessels permitted in the HMS Charter/ Headboat category would be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for recreational catch of non-bluefin tunas, and vessels permitted in the General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. In 2008, NOAA Fisheries proposed authorization of harpoon gear for Atlantic tunas fishing by HMS Charter/Headboat category permitted vessels on all trips, but did not prefer that alternative in the final rule (73 FR 54721, September 23, 2008).

Rationale: Maintaining the current authorized gears for each permit category would keep the fishery historically consistent and not allow introduction or elimination of currently authorized gear types to other categories. The HMS and Atlantic tunas permit structure and authorized gears are intended to allow the needed diversity to support business planning and allow reasonable opportunities to catch available quotas, while balancing interests of diverse users. This alternative is intended to avoid disruption to current fishery practices and to be consistent with current management under relevant ICCAT' Recommendations. ICCAT Recommendation 17-06 was adopted as an interim management strategy through 2020, pending development of a management strategy evaluation process. ICCAT recently adopted Recommendation 20-06, which will extend through 2021 the provisions of ICCAT Recommendation 17-06, with certain amendments.

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

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

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

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

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

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

2.9.2 Alternatives Suite I2: Harpoon category daily retention limit

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

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

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

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

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

This alternative would set an overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip (i.e., the combined limit of large medium (73" - < 81") and giant (81" or greater) would be 10 fish), and would maintain the current regulations regarding retention of large medium bluefin (73" - < 81") (i.e., the range of two (default) to four fish, adjustable through inseason action). For example, if the default limit of two large medium bluefin were in effect, as a result of the overall daily limit of 10 fish, a vessel would be limited to eight giant bluefin.

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

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

This alternative would set an overall daily limit of 10 commercial-sized bluefin per day or trip (i.e., the combination of large medium (73" - < 81") and giant (81" or greater) would be 10 fish). *Secondly*, this alternative would allow NOAA Fisheries to set the daily retention limit of large medium bluefin (73" - <81") over a range of zero to *five* fish (adjustable through inseason action) instead of the current range of between two and four large medium fish per day or trip. NOAA Fisheries would maintain the default large medium bluefin limit at two fish. For example, if NOAA Fisheries were to set the Harpoon category limit on large medium bluefin to five (via inseason action), then no more than five giant bluefin could be kept in that same day or trip, such that the total does not exceed 10 fish.

Rationale: Similar to Alternative I2b, this alternative would cap the total number of bluefin (the combination of both large medium and giant size classes) that may be retained per vessel in order to extend Harpoon category fishing opportunities over time within the available quota (i.e., extend the season) and among a larger number of Harpoon category participants. However, in contrast to Alternative I2b, this alternative also would increase the range of the number of large medium fish (incidental catch) that NOAA Fisheries may authorize. This would more closely align the range of large medium bluefin allowable by Harpoon category vessels with the range that applies for the General category (i.e., the range over which NOAA Fisheries can set the combined limit of large medium and giant bluefin).

2.9.3 Alternatives Suite I3: Harpoon category season

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

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

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

Rationale: This alternative would be consistent with established season management, under which the Harpoon and General categories commence (or re-commence) on the same date (June 1). The seasons starting together facilitates enforcement and business

planning, and provides greater certainty to participants regarding opportunities, participation/effort, and potential impact on market prices. Harpoon category participants would continue to have the potential to catch the same percentage of the quota. Maintaining the same start date (June 1) for the General and Harpoon category would likely be perceived by General category fishers as more fair, than allowing the Harpoon category to being fishing on May 1 (as described below in Alternative I3b).

2.9.3.2 Sub-Alternative I3b: Lengthen Harpoon category season

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

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

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

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

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

Rationale: This restriction intends to strictly reduce the possibility of landing bluefin under multiple quota categories in a year, unless authorized.

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

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

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

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

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

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

This alternative would make no changes to the current regulations concerning green-stick gear. Vessels authorized to fish with pelagic longline gear are only allowed to retain bluefin incidentally caught on pelagic longline gear. Vessels fishing with pelagic longline gear must use IBQ allocation to account for all bluefin (and may only be used to account for bluefin caught on pelagic longline gear, under current regulations). Therefore, pelagic longline vessels are not permitted to retain bluefin caught with green-stick gear.

Rationale: A change in these regulations may not affect many fishermen, due to the relatively low number of vessels that use green-stick gear. The primary target species is yellowfin tuna, not bluefin, and as of early 2020, there has only been one circumstance where a fishery participant has had to account for a bluefin caught on green-stick gear through the IBQ Program (per the Deepwater Horizon OFRP requirements). The regulatory changes described under the other I5 sub-alternatives are anticipated to address regulatory needs identified only by a very small number of fishermen.

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

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

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

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

This alternative would clarify retention and reporting requirements for bluefin caught with green-stick gear by vessels with Atlantic Tunas Longline category permits to allow the retention of one bluefin per trip (73" or greater CFL) taken incidentally while fishing for other target species, and with additional regulations applying to such trips. Vessels would be required to submit a VMS set report for each green-stick retrieval with interactions with bluefin, and report information on the location of the set, and numbers and length of bluefin within 12 hours (in addition to the VMS reports for pelagic longline sets). This VMS requirement differs from the VMS requirement associated with the use of pelagic longline gear, which requires submission of a report after each pelagic longline set (also within 12

hours). Regardless of whether sets are made with green-stick gear or pelagic longline gear, vessels would be required to comply with HMS logbook requirements, and comply with the IBQ Program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations. If pelagic longline gear is onboard, vessels would be required to comply with EM requirements (to continue monitoring the retrieval of longline sets with the EM System on the same trip) and other regulations that are triggered by the presence of pelagic longline gear.

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

2.10 Management Options Considered but Not Further Analyzed

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

2.10.1 Distribute IBQ Allocation to Current Shareholders and Divide Allocation Evenly Among Current Shareholders

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

Reasons for not analyzing further:

This method of allocation would alleviate some of the perceived inequities associated with the Amendment 7 method of defining share percentages, by allocating in equal amounts to all Atlantic Tunas Longline category permits with IBQ shares. However, by allocating to the

current pool of 136 Atlantic Tunas Longline category permits with IBQ shares, including permits on both active and inactive vessels, this alternative would not address the principal shortcoming of the Amendment 7 allocation method noted in the Three-Year Review, which is that a relatively high proportion of the total IBQ allocation is associated with inactive vessels, which is neither used to account for bluefin nor leased. The screening criteria presented at the beginning of this chapter note that alternatives must be consistent with the objectives of this action in order to be considered a reasonable alternative for purposes of this DEIS. This management option would not be consistent with several of the objectives of this action. Providing allocation to all participants with IBQ shares, including inactive vessels, is not consistent with the IBQ Program objectives implemented by Amendment 7 regarding the intent for IBQ allocation to be used by active vessels to account for bluefin catch.

Therefore, this management option would not be consistent with the Amendment 13 objective number 3. The Three-Year Review found that the allocation design principle (quota use by active vessels) was only partially achieved, and that the current distribution of allocation may not align with vessels' need for it. Misalignment of allocation to need does not optimize the ability of the permit category to catch the target species and mitigate factors contributing to the continued decline in pelagic longline effort. The Three-Year Review noted that a different method of IBQ share allocation (which would adjust the composition of shareholders) may warrant consideration. This management option retains the same composition of shareholders, and would not be consistent with the Amendment 13 objective to be responsive to the Three-Year Review (Objective number 4). For these reasons, this alternative was considered but was not further analyzed.

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

This management option would establish a base amount of IBQ allocation to disburse to current Atlantic Tunas Longline category permits with IBQ shares, as defined by Amendment 7, according to the three defined share percentages (tiers). The remaining IBQ allocation would be disbursed equally to active vessels. For example, one half of the total Longline category bluefin quota would be allocated to currently defined permits with IBQ shares and the other half would be allocated equally among active vessels. Active pelagic longline vessels could be defined as having designated species landings in two of the last three years (or defined in another manner).

Reasons for not analyzing further:

This method of distributing IBQ allocation would provide some continuity with the current method of allocation, and also better optimize the distribution of IBQ allocation to active vessels to reflect recent activity in the fishery and facilitate new entrants. However, this alternative would still result in the distribution of IBQ allocation to inactive vessels, and new entrants to the fishery that do not have Atlantic Tunas Longline category permits with IBQ shares may receive relatively little IBQ allocation. This management option would not be consistent with the IBQ Program objectives implemented by Amendment 7 regarding

the intent for IBQ allocation to be used by active vessels to account for bluefin catch. Therefore, for the same reasons discussed under subsection 2.10.1 above, this management option would not be consistent with the Amendment 13 objective number 3. *See* section 2.10.1, Reasons for not analyzing further.

2.10.3 Set-Aside of IBQ Allocation for New Entrants

This management option would create a new entrant 'set-aside' quota using a relatively small percentage of the total Longline category quota that would not otherwise be distributed (under whatever allocated method were in place). In other words, a set amount or percentage of the Longline category quota would be taken 'off the top' prior to the calculation of the individual amounts of IBQ allocation for eligible vessels.

Reasons for not analyzing further:

Although the concept is simple, as a practical matter, a set aside quota would involve many policy questions such as how much quota, what are the criteria for access to the set-aside quota, how much set-aside quota should go to new entrants, what happens to unused set-aside quota, etc. Since 2015, under the Amendment 7 allocation rules, there have been new entrants, and the Three-Year Review concluded that the IBQ Program neither precluded new entrants, nor presented unreasonable barriers to new entrants. If a dynamic allocation method is implemented, the barrier to new entrants would be even less than under the current system, as described in the A alternatives, because once a vessel becomes active, the fishing activity during a particular year could result in allocation in subsequent years. Therefore, the need for a set-aside quota to facilitate new entrants would not be substantial under Alternatives A2 or A3. Given the increase in complexity of the IBQ Program that would be associated with a set-aside, and the relatively low need for a set-aside, this alternative was considered but was not further analyzed. Designation of a portion of the Longline category quota for new entrants unnecessarily reduces flexibility in the IBQ Program regarding the use of quota, which is inconsistent with the Amendment 13 objective to maintain flexibility to account for the highly variable nature of the bluefin fisheries (Objective 2).

2.10.4 Annual Accountability for Quota Debt under the IBQ Program

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

Reasons for not analyzing further:

Although such an accountability system would provide substantial flexibility for vessel owners, this method of accountability would likely result in higher prices for IBQ leases, a

compressed market for IBQ allocation at the end of the year, and may reduce incentives to avoid bluefin.

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

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

Under existing regulations, Purse Seine category participants may lease their quota within the IBQ system. This management option would allow them to sell their quota within that system, until the effective date of sunset of the Purse Seine category. In contrast to a lease transaction, which is limit in duration to a year, this sale transaction would enable the transfer quota from the time of transfer until the sunset date. Under existing regulations (50 CFR 635.27(a)(4)) adopted in Amendment 7, NMFS annually determines the amount of quota available to the individual Atlantic Tunas Purse Seine category participants based on their bluefin catch (landings and dead discards) in the previous year. The remainder of Purse Seine category quota is then transferred to the Reserve category. In recent years, NMFS did not open the Purse Seine fishery because there were no purse seine vessels permitted to fish for bluefin and thus no catch. As a result, each Purse Seine category participant typically has received 25 percent of the individual baseline quota amount, which is the required distribution even with no fishing activity under the current regulations. Purse Seine category participants may lease their quota within the IBQ system, although it is not "IBQ allocation."

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

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

Reasons for not analyzing further:

This management option would increase the uncertainty and complexity of the management of the fishery, would not make any more bluefin quota available to the directed fishery than under current regulations, and may not result in making any additional quota available to pelagic longline vessels. Thus, this management option would not be consistent with the Amendment 13 objective 1, to "Evaluate and optimize the allocation of U.S. bluefin quota among bluefin quota categories, considering historical allocations and use, and recent fishery characteristics and trends, to provide U.S. fishing vessels with a reasonable opportunity to catch the U.S. quota established by ICCAT; facilitate the ability for active HMS directed permit categories to catch their full bluefin quota allocations, and facilitate directed fishing for species other than bluefin in the pelagic longline fishery while accounting for incidental bluefin catch". Secondly, leaving a portion of the bluefin quota associated with an inactive fishery, reduces the likelihood that quota would be used to benefit any sector of the bluefin fishery, directed or incidental, and therefore is not consistent with Amendment 13 objective number 2, "Maintain flexibility of the regulations to account for the highly variable nature of the bluefin fisheries, and maintain fairness among permit/quota categories". The management option does not meet the screening criteria that a management alternative should be consistent with the objectives of the action and should mitigate factors contributing to the continued decline in pelagic longline effort and target species landings. Since this option does not meet these screening criteria, it was not considered a reasonable alternative.

2.10.6 Modify Bluefin Quota Category Allocations

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

Reasons for not analyzing further:

Quota categories are tightly associated with authorized gears and permit types. This structure based on gear and permit type remains a valid way to align quota distribution among diverse fisheries. Modifications to the relative size of the allocations (i.e., the percentages for each quota category) in order to further optimize the use of the bluefin resource should address specific concerns or trends in the fishery. The 2006 Consolidated Atlantic HMS FMP does not specify triggers for the review of allocations. The scope and rationale for the allocation changes under consideration are consistent with NOAA Fisheries Procedural Directive 01-119-01 "Criteria for Initiating Fisheries Allocation Reviews". Triggers for the consideration of allocation changes are described under the rationale for the F alternatives. Additionally, NOAA Fisheries is currently preparing Amendment 12 to the 2006 Consolidated HMS FMP, an amendment that would, among other things, address the 2016 revised National Standard guidelines and the 2017 Fisheries Allocation Review Policy Directive 01-119. NOAA Fisheries published a notice of availability of draft Amendment 12 on August 25, 2020 (85 FR 52329). Because NOAA Fisheries is considering establishing a framework for allocation change in that amendment, this option is not further analyzed here.

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

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

Reasons for not analyzing further:

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

2.10.8 Allow Retention of BAYS Tunas with Buoy Gear

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

Reasons for not analyzing further:

This management option is not analyzed further at this time because there is not a pressing need for management action that NOAA Fisheries is aware of, and there is very limited relevant data or information currently available upon which to base quantitative or qualitative analyses of ecological, socio-economic, or cumulative impacts. Additionally, some data has been collected through Exempted Fishing Permits issued for the Deepwater Horizon OFRP, and additional data continues to be collected, which should be available for further consideration in the future.

2.11 Proposed Regulatory Changes That are Minor Technical Corrections to Existing Regulations

The regulatory changes listed below in Table 2.5 are considered technical or administrative changes that will not have any environmental, social, or economic impacts.

Table 2.5 Proposed Regulatory Changes that Do Not Need Further Analysis or Description

Remove the mandatory '3-calendar days' for retention limit adjustments (50 CFR § 635.23(a)(4)
Clarify definition of CFL (Curved Fork Length) to indicate what "on top of" means (i.e., in dorsal direction above caudal keel)(50 CFR §635.2)

Regarding the proposed removal of the minimum “3-calendar days” before effectiveness of retention limit adjustments, regulations in effect since at least 1999, provide that, in no case shall such adjustment be effective less than three calendar days after filing with the Office of the Federal Register. This rule proposes to remove that minimum period to provide for greater flexibility in management response for the General category. The General category is very dynamic: fish may swim from Massachusetts to Virginia in three days, there is limited quota and seasonal allocations, and high and variable levels of fishing pressure. Given all of this, NOAA Fisheries may need flexibility to more swiftly implement a measure that may provide additional opportunity (in the case of an increased trip limit), or take swift action to slow a catch rate (in the case of a lowered retention limit). NOAA

Fisheries will continue to consider each adjustment on a fact-specific basis, consistent with Administrative Procedure Act requirements and providing for as much notice as possible.

2.12 References

Hoyle, Simon D, et. al. 2014. Recommended approaches for standardizing CPUE data from pelagic fisheries. Western and Central Pacific Fisheries Commission. WCPFC-SC10-2014/SA-IP-10.

NMFS. 2004. Final Amendment 7 to the 2006 Consolidated Atlantic HMS FMP. Final Environmental Impact Statement. August 2004. National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NMFS. 2011 Environmental Assessment for a Rule to Adjust the Atlantic Bluefin Tuna General and Harpoon Category Regulations National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NMFS. 2017. Catch Share Policy. NOAA, NMFS Policy 01-121. Silver Spring, Md.

Squires, Dale, Harry Campbell, Stephen Cunningham, Dewees Christopher, R Quentin Graftone, F Samuel, Herrick Jr, James Kirkley, Sean Pascoe, Kjell Salvanes, Bruce Shallard, Bruce Turris, and Niels Vestergaard. 1998. Individual transferable quotas in multispecies fisheries. Marine Policy 22(2): 135–159.

Szymkowiak, M. and A.H. Himes-Cornell. 2015. Toward individual-owned and owner-operator fleets in the Alaska Halibut and Sablefish IFQ program. Maritime Studies. 14:19. DOI 10.1186/s40152-015-0037-6

3 Description of Affected Environment

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

3.1 Summary of Atlantic Highly Migratory Species Management

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

On the international level, ICCAT has assessed numerous HMS stocks, and has conducted several ecological risk assessments for various HMS species, among other things. Stock assessments and management recommendations are listed on ICCAT's website. International cooperation is critical to the effective conservation and management of bluefin stocks (western Atlantic and eastern Atlantic/Mediterranean), given the species' highly migratory nature. ICCAT conservation and management occurs both through stock assessments and recommendations.

3.1.1 Atlantic HMS Stock Status

The term "stock of fish" means a species, subspecies, geographical grouping or other category of fish capable of management as a unit (Magnuson-Stevens Act § 3(42)). "Stock" may also refer to a multispecies complex managed as a single unit due to the occurrence of two or more species being caught together. Stock assessments measure the impact of

fishing on stocks and project catch levels that maximize the number of fish that may be caught while preventing overfishing, and where necessary, rebuilding depleted stocks. The thresholds that NOAA Fisheries uses to determine the status of Atlantic HMS are presented in Figure 3.1. These thresholds are fully described in Chapter 3 of the 1999 HMS Fishery Management Plan (FMP) (64 Federal Register (FR) 29090, May 28, 1999) and in Amendment 1 to the Billfish FMP (64 FR 29090, May 28, 1999), and were carried over in full in the 2006 Consolidated HMS FMP (71 FR 58058, October 2, 2006). These thresholds are based on those described in a paper providing the initial technical guidance for implementing National Standard 1 of the Magnuson-Stevens Act (Restrepo et al., 1998).

Images like Figure 3.1 often called a "Kobe Plot", are frequently used by stock assessment scientists to summarize the results of various stock assessment models. Generally, model results in the white portion of the figure represent a healthy stock with a status of "not overfished" and "overfishing is not occurring." Similarly, model results in the gray portions of the figure are not desirable, generally representing a stock with a status of "overfished," "overfishing is occurring," or both.

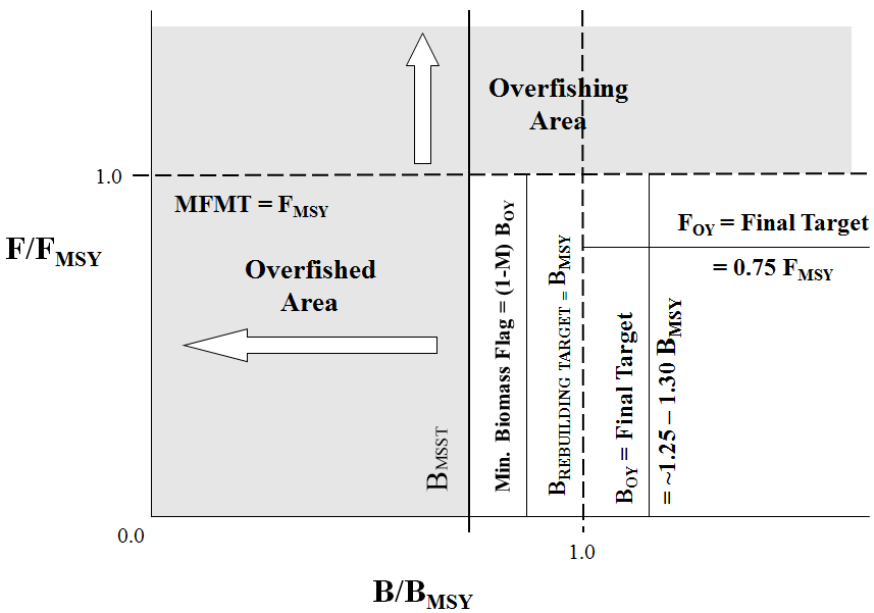


Figure 3.1 Illustration of the Status Determination Criteria and Rebuilding Terms

In summary, domestically, a stock is considered "overfished" when the current biomass (represented by a "B" in the above figure and in stock modeling equations) is less than the biomass for the minimum stock size threshold (MSST). Thus, an overfished stock would be represented mathematically as $B < B_{MSST}$. MSST is determined based on the biomass at maximum sustainable yield (Bmsy) and the natural mortality of the stock. Maximum sustainable yield (MSY) is the maximum long-term average yield that can be produced by a stock on a continuing basis. The biomass (B) can fall below B_{MSY} without causing the stock to be declared "overfished" as long as it still remains above B_{MSST}. If a stock is declared overfished, action to rebuild the stock is required by law. A stock is considered successfully rebuilt once B (B_{year}) is greater than B_{MSY} as defined by ICCAT. It is important to note that

this is different than the domestic definition of an overfished stock status. ICCAT defines an overfished status as B_{year} relative to B_{MSY}, while the domestic definition of an overfished status is B_{year} relative to B_{MSST}.

If the current fishing mortality (F) is greater than the fishing mortality at MSY (F_{MSY}) ($F > F_{MSY}$), it may be determined that overfishing may be occurring for that stock. In the case of F, the maximum fishing mortality threshold is F_{MSY}. Thus, if F exceeds F_{MSY}, and it is determined that overfishing is occurring action must be taken to end overfishing. The status determination criteria for overfishing are the same for HMS under ICCAT and NOAA Fisheries .

A stock is considered healthy when B is greater than or equal to the biomass at optimum yield (B_{OY}) and F is less than or equal to the fishing mortality at optimum yield (F_{OY}). This situation is represented in the white portion of the Kobe plot above.

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

- Maximum Fishing Mortality Threshold = B_{limit} = FMSY.
- Overfishing is occurring = $F_{year} > F_{MSY}$.
- MSST = B_{limit} = (1-M) B_{MSY} when M < 0.5 or MSST = $0.5B_{MSY}$ when M ≥ 0.5 where M = natural mortality. Formula exceptions include blue marlin ($0.9B_{MSY}$), white marlin ($0.85B_{MSY}$), and west Atlantic sailfish ($0.75B_{MSY}$). In many cases an average M across age classes or sensitivity runs from a stock assessment model and is used to calculate MSST. Domestically, an overfished status is defined as Byear relative to B_{MSST}.
- Biomass target during rebuilding = B_{MSY}.
- Fishing mortality during rebuilding < F_{MSY}.
- Fishing mortality for healthy stocks = $0.75F_{MSY}$ (Final target = F_{OY}).
- Biomass for healthy stocks = $B_{OY} \approx 1.25$ to $1.30B_{MSY}$.
- Minimum biomass flag = $(1\text{-}M)B_{OY}$.
- Level of certainty of *at least* 50 percent but depends on species and circumstances.
- For some stocks (e.g., bluefin and albacore tuna), spawning stock biomass (SSB) is used as a proxy for biomass.
- For sharks, in some cases, spawning stock fecundity (SSF) or number of fish (N) can be used as a proxy for biomass since biomass does not influence pup production in sharks. SSF is the sum of the number of mature sharks at age multiplied by pup-production at age.

NOAA Fisheries annually provides a current list of the status of Atlantic HMS in the HMS Stock Assessment and Fishery Evaluation (SAFE) Report, which may be downloaded at the Atlantic HMS website. See Table 2.1 in the most recent SAFE Report for a complete list of stock status summaries. Table 3.1 below summarizes the most recent HMS stock status information for Atlantic tunas as presented in the 2019 SAFE Report (NMFS 2020a). In preparing this action and considering alternatives, NOAA Fisheries considered relevant information in the most recent stock assessments for each of the stocks listed below.

For the quota-managed stocks listed below, the actions considered and analyzed in this document would not affect or alter the ICCAT-adopted quotas or U.S. portion of the quota

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

- Final Rule on Atlantic Bluefin Tuna and Northern Albacore Tuna Quotas; Atlantic Bigeye and Yellowfin Tuna Size Limit Regulations (83 FR 5139, October 11, 2018). In this final rule, NOAA Fisheries modified the baseline annual U.S. quota and subquotas for bluefin and the baseline annual U.S. North Atlantic albacore quota to reflect quotas adopted by ICCAT. Supporting documents, including the Environmental Assessment (EA, NMFS 2018), Regulatory Impact Review (RIR), and Final Regulatory Flexibility Analysis (FRFA), may be downloaded from the HMS website at *www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species/*.
- 2012 Swordfish Quota Adjustment Rule (77 FR 45273, July 31, 2012). In this final rule, NOAA Fisheries analyzed the North Atlantic swordfish quota and quota adjustment process in the EA, Final RIR, and FRFA that were prepared for the rule.

Additional information on the bluefin quota:

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

Due to the unprecedented situation regarding the pandemic in 2020, ICCAT canceled its annual meeting and conducted negotiations via correspondence. Recognizing the significant challenges of complex decision making by correspondence, but also the need to keep management measures in place where measures were expiring, rollovers of expiring measures was ICCAT's default approach. For bluefin, ICCAT's SCRS had conducted a stock assessment update in 2020. However, this strict update format did not provide the SCRS

with enough flexibility to address potential issues with the data and their treatment. Given all of the above, ICCAT adopted Rec. 20-06, which rolled over the current TAC for 2020; provided for a 2021 stock assessment that would incorporate the most recent available data, including any new abundance indices; and specified TAC levels that would be endorsed for 2022 and 2023 to address overfishing based on the 2020 stock assessment update and management scenario 3 analyzed therein, unless ICCAT decides otherwise based on new SCRS advice. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current TAC level resulting in overfishing in 2021, the status of the stock was not changed from "no overfishing occurring" and rebuilding status "unknown." The projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending overfishing. Furthermore, while conservation and management measures domestically have an objective to provide a reasonable opportunity to harvest the ICCAT-adopted U.S. quota and to achieve optimum yield on a continuing basis, in recent years there have been underharvests of the U.S. quota. Rec. 20-06 provides that a new stock assessment will be conducted in 2021 to incorporate the most recent available data. The Commission will review this new scientific advice in 2021 to decide if adjustment to the TAC is needed, as appropriate, on the advice of the SCRS, with a view to ensure addressing overfishing is addressed by 2023 at the latest with at least a 50% probability.

New measures or changes to these ICCAT conservation and management programs may require future domestic rulemaking, consistent with ATCA and the Magnuson-Stevens Act.

Table 3.1 contains the Atlantic HMS stock assessment information and the current stock statuses for the principal pelagic longline target species as of November 2020 under the domestic, and when applicable, international thresholds. The stock status of other relevant species, including other HMS target species and bycatch species are contained in the most recent Stock Assessment and Fishery Evaluation Report (SAFE)(NMFS 2020a). In some cases, these statuses are preliminary as NOAA Fisheries is still reviewing the most recent stock assessment results and has not yet issued formal stock status determinations. NOAA Fisheries quarterly updates U.S. fisheries' stock statuses and provides an annual Status of U.S. Fisheries Report to Congress (Status of Fisheries Report to Congress 2019).

Table 3.1 Atlantic HMS Stock Status Summaries For Pelagic Longline Target (Swordfish and Yellowfin Tuna) and Incidental/Bycatch (Bluefin Tuna, Blue Marlin, White Marlin, Sailfish, Shortfin Mako, Dusky) Species

Species	Current Relative Biomass Level	B_{MSY}	International Threshold	Domestic Minimum Stock Size Threshold	International Stock Status	Domestic Stock Status	Stock Assessment (Last Assessment Year)^
Western Atlantic bluefin tuna	Unspecified*	Unspecified *†	B_{MSY}	0.86 SSB_{MSY}	Unspecified*	Unknown*	2018
Atlantic yellowfin tuna	B_{2018}/B_{MSY} = 1.17 (0.75 - 1.62)	Unspecified †	B_{MSY}	0.5 B_{MSY} (age 2+)	Not overfished	Not overfished	2019
Atlantic bigeye tuna	B_{2017}/B_{MSY} = 0.59 (0.42 - 0.80)	Unspecified †	B_{MSY}	0.6 B_{MSY}	Overfished	Overfished	2018
North Atlantic albacore tuna	B_{2018}/B_{MSY} = 1.32 (1.13 - 1.51)	B_{MSY} = 392,556 mt (349,403 - 405,097)	B_{MSY}	0.7 B_{MSY} (247,789 mt)	Not overfished	Not overfished (Rebuilt)	2016
West Atlantic skipjack tuna	B_{2013}/B_{MSY}: Probably close to 1.3	30,755 mt	B_{MSY}	*Unknown*	Not overfished	Not overfished	2014

*

*In the 2018 bluefin tuna stock assessment and the 2020 stock assessment update, the Standing Committee on Research and Statistics (SCRS) reiterated that it is not possible to calculate biomass-based reference points (e.g., B_{MSY}) absent additional knowledge or a basis for assumptions regarding how future recruitment potential relates to spawning stock biomass.

†A value for BMSY (or its proxy) was not provided in the 2020 stock assessment.

^Upcoming assessments scheduled for 2021 (bigeye and skipjack tuna), and 2023 (yellowfin tuna)

3.2 Bluefin Tuna Management

3.2.1 Overview

International Management

Atlantic bluefin are managed by ICCAT as western and eastern stocks separated by a management boundary at the 45° W meridian. *See* Chapter 1, paragraphs 1 and 2 for explanation of ICCAT, ATCA and Magnuson-Stevens Act. The two-stock hypothesis was supported by NOAA Fisheries' 2011 Endangered Species Act (ESA) Status Review of Atlantic Bluefin Tuna (ABT SRT 2011)[3]. Further evidence of meta- or subpopulations for each stock was considered; however, the Status Review Team found the only conclusive evidence (under ESA definitions) was for two differentiated stocks (i.e., Mediterranean and Gulf of Mexico). The Status Review Team acknowledged evidence suggesting that there may be two discrete populations within the Mediterranean, but did not have enough information to determine the significance of these populations to the species as a whole.

A stock assessment update was conducted for western Atlantic bluefin tuna in 2020 (SCRS 2020). The 2020 assessment report for western Atlantic bluefin tuna noted that the official status of the stock is "not undergoing overfishing" but that due to declines in recruitment, the stock population has declined since the 2017 assessment. Following negotiations via correspondence, ICCAT adopted Recommendation 20-06 for the western Atlantic bluefin tuna stock. This Recommendation, which was based on the Panel 2 Chair's proposal and the SCRS stock assessment' management scenario 3, was instrumental in finding a compromise approach that ensures there is no gap in management. The measures reflect the current best scientific information available, while recognizing that a new stock assessment is needed in 2021 in light of the scientific issues identified with certain data after the 2020 assessment-issues that could have an important impact on the Commission's understanding of the stock status. As noted above, the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, although the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS, as the TAC is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending overfishing. At the same time, the Recommendation ensures that the important work of the SCRS on bluefin tuna management strategy evaluation will not be negatively impacted by the new assessment, and it ensures that management measures in Rec. 17-06 will continue. No action is needed

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

with regard to the codified U.S. quotas for 2021 as the Recommendation maintains the 2,350 mt total allowable catch (TAC) and CPC-specific quotas for 2021.

Application of the western bluefin allocations among CPCs, the percentages of which remained unchanged from the previous recommendation, resulted in a total U.S. quota of 1,272.86 mt, including 25 mt for incidental catch by pelagic longline fisheries in the vicinity of the Northeast Distant Area (NED) boundary. The Recommendation also details work to be undertaken by ICCAT and its scientific body toward the anticipated adoption of management procedures, including a harvest control rule, for western Atlantic bluefin by 2020. For eastern Atlantic and Mediterranean bluefin, Recommendation 17-07 increased the TAC for 2018-2020. Management measures for the eastern fishery were updated in 2018 with Recommendation 18-02, and in 2019 with Recommendation 19-04. Note that at the time of preparation of this draft Environmental Impact Statement (EIS), NOAA Fisheries understands that there is a one-year delay in the work of ICCAT's scientific body on development of bluefin management procedures.

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

Domestic Management

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

Bluefin Quota Management and Annual Quota Allocation to Categories

The Atlantic bluefin fishery is a quota-managed fishery, and catch (landings and dead discards) must be accounted for within the available U.S. quota agreed at ICCAT. Pursuant to its procedures at 50 C.F.R. § 635.27(a) (Bluefin tuna quotas), NOAA Fisheries implemented the 1,247.9 mt U.S. quota from ICCAT (explained above) in a 2018 final rule (83 FR 51391, October 11, 2018). ICCAT recommendations provide for an annual adjustment to the overall quota for under- or overharvest of the previous year's quota. NOAA Fisheries adds available under harvest, if any, to the Reserve category once complete

catch information is available and finalized for the previous year. ICCAT caps the addition of underharvest at 10 percent of allocated quota (i.e., 10% of (1,247.9 +25) = 127.3, Table 11.1). ICCAT also provides an additional 25 mt for catches in the vicinity of the management area boundary, which the United States interprets as longline catches in the NED.

NOAA Fisheries currently allocates the ICCAT quota domestically among seven quota categories, including two incidental categories, the Longline and Trap categories, as well as the categories that direct on bluefin (General, Angling, Harpoon, and Purse Seine) and a Reserve category, used for research and inseason quota transfers as warranted. Because the pelagic longline fishery primarily targets swordfish, yellowfin tuna, and bigeye tuna, and incidentally catches bluefin as bycatch, the Longline quota category provides the pelagic longline fishery with bluefin quota to account for that bycatch. The amount of quota allocated to each category is expressed as a percentage of the U.S. quota and amount (in metric tons) as provided in § 635.27. These allocations (in metric tons) were updated by the 2018 rulemaking that implemented the 2017 ICCAT recommended quota. Each year the annual allocation of quota among the seven quota categories reflects the relevant percentages of each category, the U.S. quota, and an additional amount of quota for the Longline category quota implemented by Amendment 7. As described in Chapter 2, and explained fully in Amendment 7, 68 mt are subtracted from the full U.S. quota (by quota category) before the category percentage allocations are applied, and the 68 mt are added to the Longline category quota. For example, under this accounting method, 1,247.9 is the U.S. bluefin allocation from which 68 mt is subtracted. The resulting quota of 1,179.9 mt (1,247.9 mt - 68 mt) is divided among the quota categories, as shown in Table 11.1.

Subsequent to the deduction of the 68 mt and splitting of the quota among categories, NOAA Fisheries must conduct a process to determine whether a portion of the Purse Seine category quota will be reallocated based on the category's previous years catch, according to a formula that reallocates a percentage of the Purse Seine category quota to the Reserve category in proportion to the amount of catch (landings and dead discards) in the previous year. Amendment 7 implemented this regulation in 2015, after several years of de minimis levels of fishing activity by Purse Seine category participants, to increase the opportunity for the United States to fully catch its quota. The Purse Seine category is currently allocated at least 25 percent of its base quota, even if no catch has occurred during the previous year, however a larger percentage of its base allocation can be distributed provided there was bluefin catch in the previous year. Since 2016, 75 percent of the Purse Seine category's base quota has been reallocated to the Reserve category as there has been no purse seine fishing activity, nor catch. The section of this document that describes the purse seine fishery (Section 3.2.2.2) contains detailed information on this fishery.

Bluefin Quota and Inseason Adjustments

After the annual quota allocations among categories are complete, the category quotas will remain at those levels unless adjusted by NOAA Fisheries inseason, during the fishing year. NOAA Fisheries has the authority to adjust bluefin quotas among or within categories, based on specific regulatory determination criteria and relevant factors, in order to

optimize the use of bluefin quota and comply with the objectives of the FMP. Specifically, NOAA Fisheries is required under ATCA and the Magnuson-Stevens Act to provide U.S. fishing vessels with a reasonable opportunity to catch the ICCAT-recommended quota. Under § 635.27(a)(9), NOAA Fisheries has the authority to transfer quota among fishing categories or subcategories via an inseason action, after considering fourteen regulatory determination criteria provided under § 635.27(a)(8) and listed in Table 3.2.

Based on the above determination criteria NOAA Fisheries has transferred bluefin quota from the Reserve category to the various quota categories (and/or among General category subquota periods inseason (i.e., at various times during the fishing year)). Since implementation of Amendment 7, NOAA Fisheries has published numerous inseason quota transfers from one bluefin quota category (including the Reserve category) to another, as follows: 3 in 2016, 6 in 2017, 6 in 2018, and 8 in 2019. Table 11.6 in Appendix B summarizes fishery management information for the General category (quota), including inseason actions (daily retention limit adjustments, quota transfers, and fishery closures and reopenings), landings and quota use by time period subquota for 2015 through 2019.

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

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

Other Management Measures Applicable to the Affected Fisheries

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

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

3.2.2 Description and Management of the Directed Bluefin Fisheries

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

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

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

Source: SAFIS Federal dealer landings data.

3.2.2.1 Handgear Fisheries

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

The principal gear used to target bluefin both commercially and recreationally is rod and reel. Secondarily, harpoon or handline are used to fish for bluefin commercially. Vessels participating in the bluefin fishery include private vessels, charter vessels, and headboat vessels. Again, it is important to note that vessels permitted in both the Atlantic Tunas General category and the HMS Charter/Headboat category (with a commercial sale

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

Atlantic Tunas General Category

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

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

State	Permits Issued	State	Permits Issued
Massachusetts	961	Delaware	14
Maine	648	South Carolina	12
North Carolina	255	Texas	9
New Hampshire	198	Pennsylvania	6
Florida	123	U.S. Virgin Islands	3
New York	102	Vermont	1
Rhode Island	99	Ohio	1
New Jersey	82	West Virginia	1
Puerto Rico	58	Tennessee	1
Connecticut	44	Georgia	1
Virginia	35	California	1
Maryland	16	Oregon	1
Alabama	16	Washington	1
Louisiana	16	Hawaii	1
Mississippi	15		
		TOTAL	2,721

Table 3.5 Number of Atlantic Tunas Charter/Headbout Category permits by State/Territory in 2019.

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

The General category is currently allocated 47 percent of the baseline annual U.S. bluefin quota (once 68 mt is subtracted and allocated to the Longline category quota). The General category quota is further subdivided into temporal subquotas, shown in Table 3.6 that are based upon historical fishery patterns and the seasonal distribution of bluefin.

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

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

* Although it is called the "January subquota," the regulations allow this fishery to continue until the subquota is reached, or March 31, whichever comes first.

Recent Catch and Landings

Bluefin landings under the General category quota have increased annually since 2012. Over the past five years, this category landed a large percentage of the total bluefin landings (e.g., 80 percent in 2019; Standard Atlantic Fishery Information System (SAFIS)

federal dealer landings data, 2020; Figure 3.2). Inseason transfers have contributed to the ability of the General category to land this amount. Landings can vary considerably however, and in recent years, fishermen have noted a substantial increase in the availability of large medium and giant bluefin in the New England area (SAFIS federal dealer landings data, 2020).

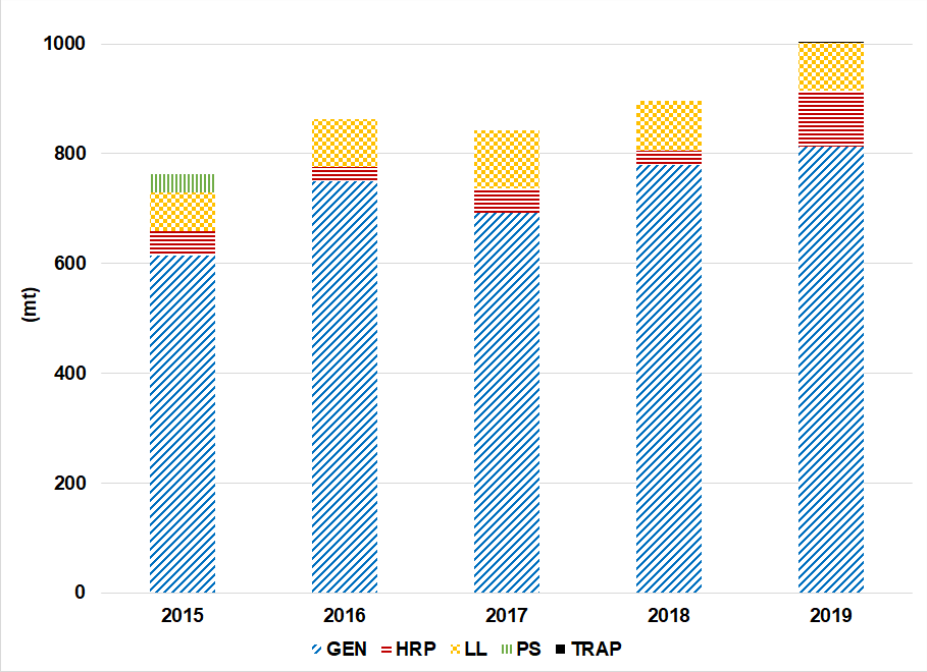


Figure 3.2 **Total commercial handgear landings of bluefin by category. Gen = General; HRP = Harpoon; LL = Pelagic longline; PS = Purse seine**
Source: SAFIS Federal dealer landings data.

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

General Category Cost/Earnings Study - 2018

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

The logbooks were required for each trip targeting HMS. Effort, catch, catch, costs and earnings for each trip were collected. In addition, an annual expenditure form was required at the end of the year to collect information on less trip-specific cost such as boats,

equipment, insurance. Participants were mailed copies of the trip summary form, "no fishing" reports, and annual expenditures form. In addition, participants were also provided a web link to complete the forms online. Of the 587 eligible permit holders selected, 457 returned either a trip or "no fishing" report, which is a 78 percent response rate. Of the 4,239 bluefin landed in 2018 under the General category quota, 2,918 were by vessels selected for reporting in this survey. The proportion of trip reports by month very closely matched landings by month, suggesting that the data received was representative of the fishery.

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

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

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

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

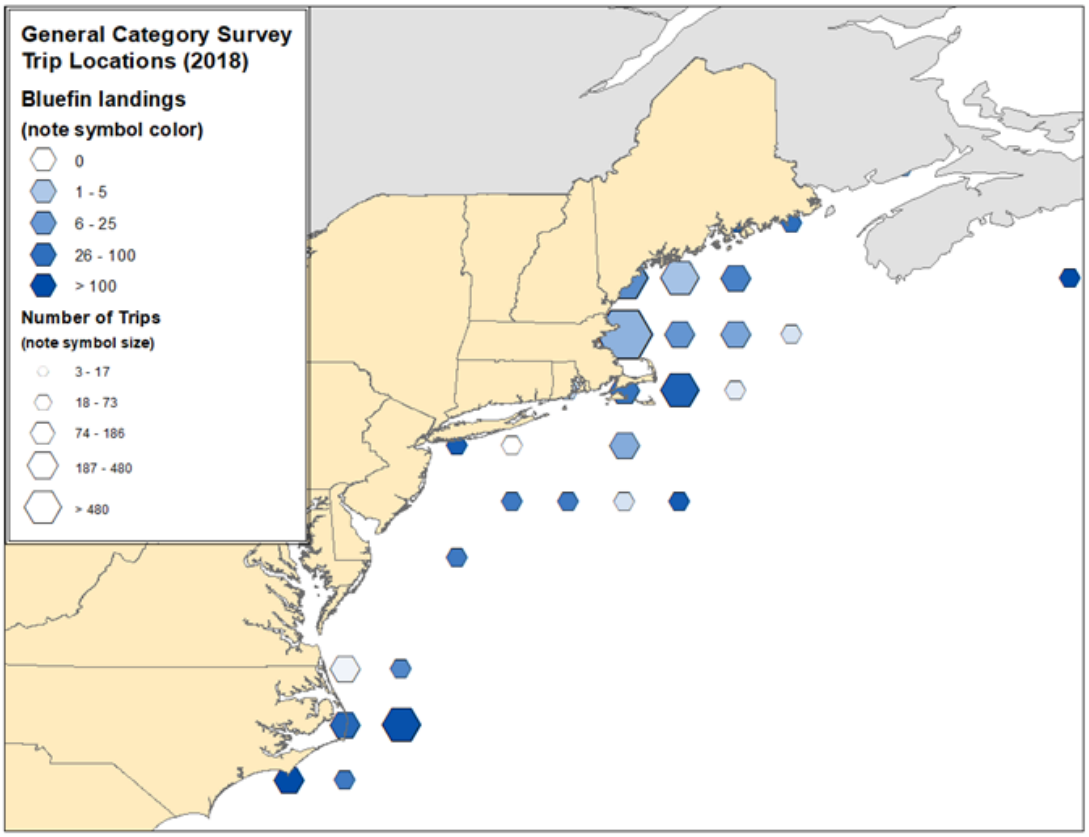


Figure 3.3 General Category Survey Trip Locations (2018)
Source: NMFS. 2018. Atlantic Tunas General Category Cost Earnings Logbook Database

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

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

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

Table 3.8 General category annual fishing expenditure statistics (2018)

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

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

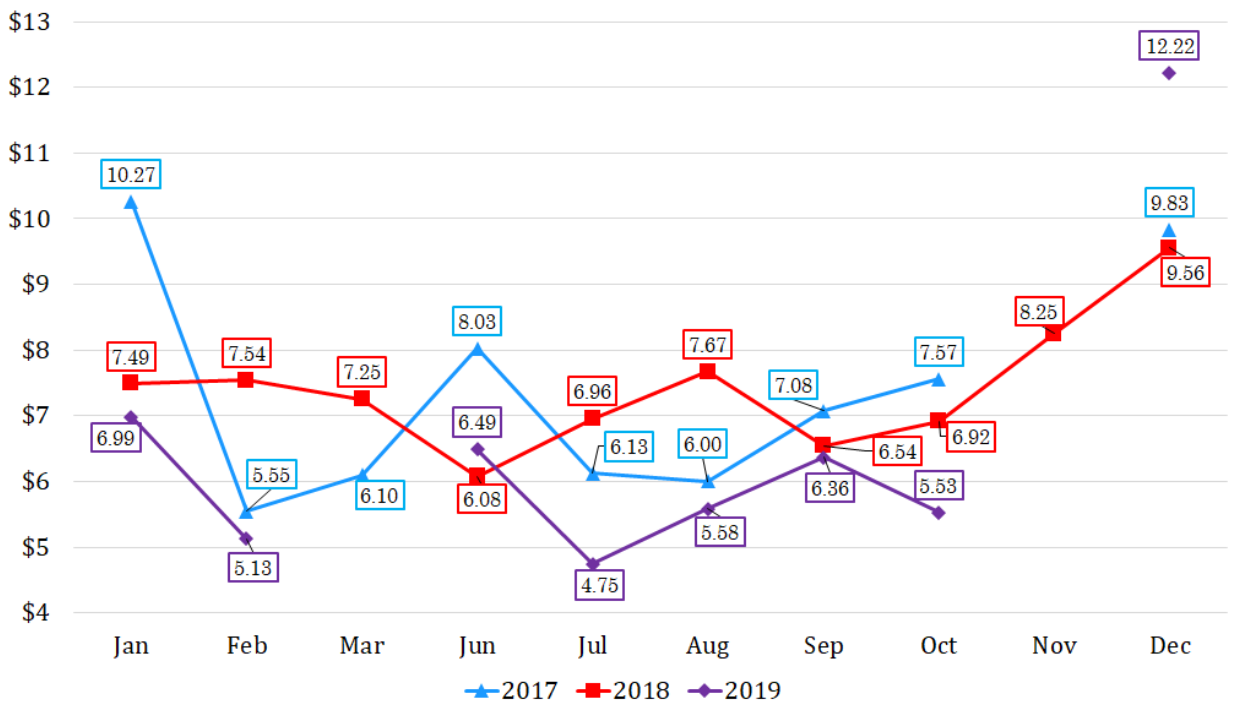


Figure 3.4 **Average price by month for bluefin landed under General category quota, 2017 through 2019**
Source: SAFIS federal dealer landings data

.

Atlantic Tunas Harpoon Category

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

Recent Catch and Landings

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

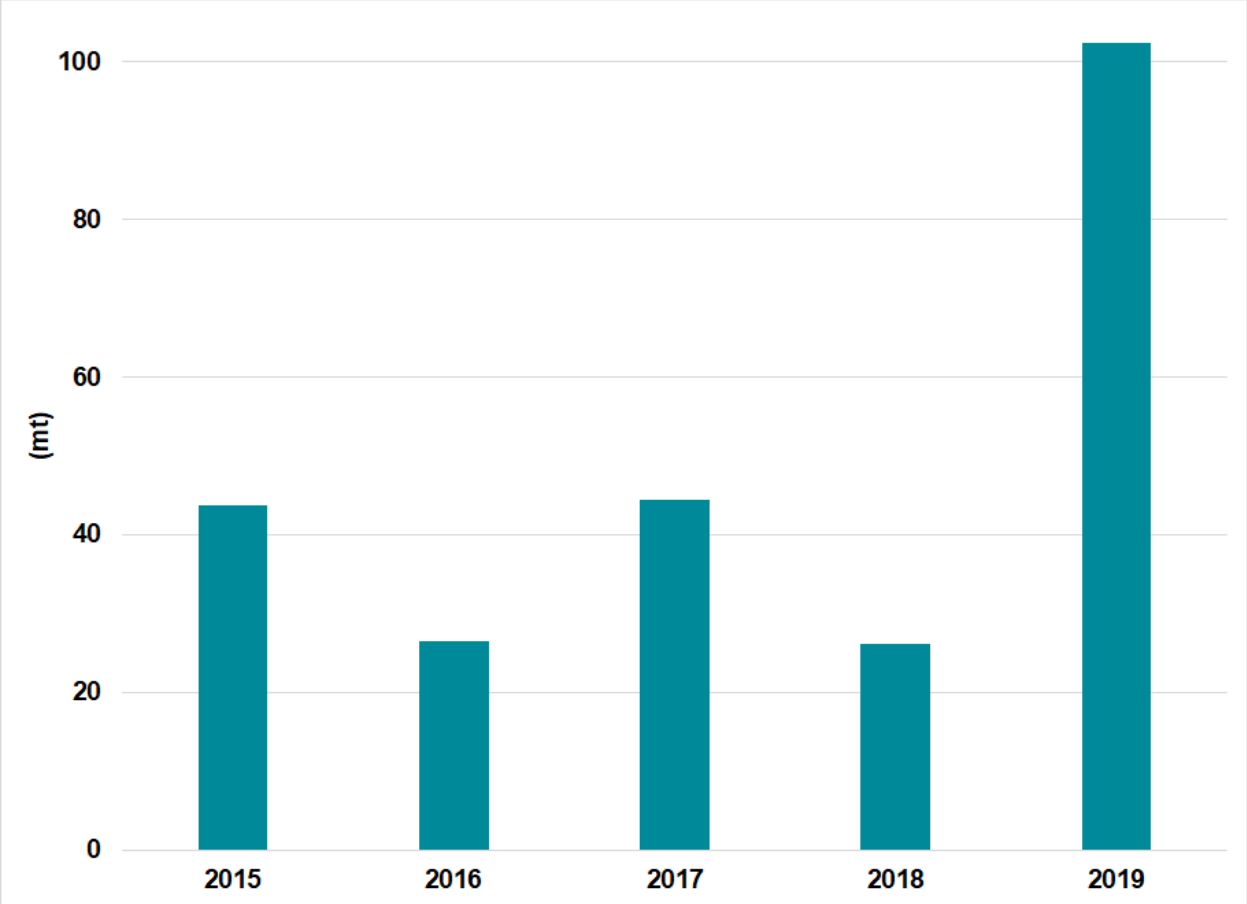


Figure 3.5 **Harpoon category bluefin landings (mt), 2015 through 2019.** Source: SAFIS federal dealer landings data

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

use of harpoon gear tended to be higher for harpoon trips (Table 3.9) when compared to trip costs sampled across General Category trips (Table 3.7).

Table 3.9 Trip cost statistics for successful General category trips reporting the use of harpoon gear (2018)

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

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

HMS Angling Category

The HMS Angling category permit is open access and required to recreationally fish for, retain, or possess any federally-regulated HMS, including sharks, swordfish, white and blue marlin, sailfish, spearfish, bluefin, and BAYS tunas. This requirement extends to catch-and-release and tag-and release fishing. The permit does not authorize the sale or transfer of HMS to any person for a commercial purpose. As of 2018, vessel owners issued an HMS Angling permit intending to fish for sharks are required to obtain a shark endorsement. In 2018, over 20,000 Angling category permits were issued, representing approximately 80 percent of all HMS permits.

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

Table 3.10 Angling Category Bluefin Quota Allocations (2018)

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

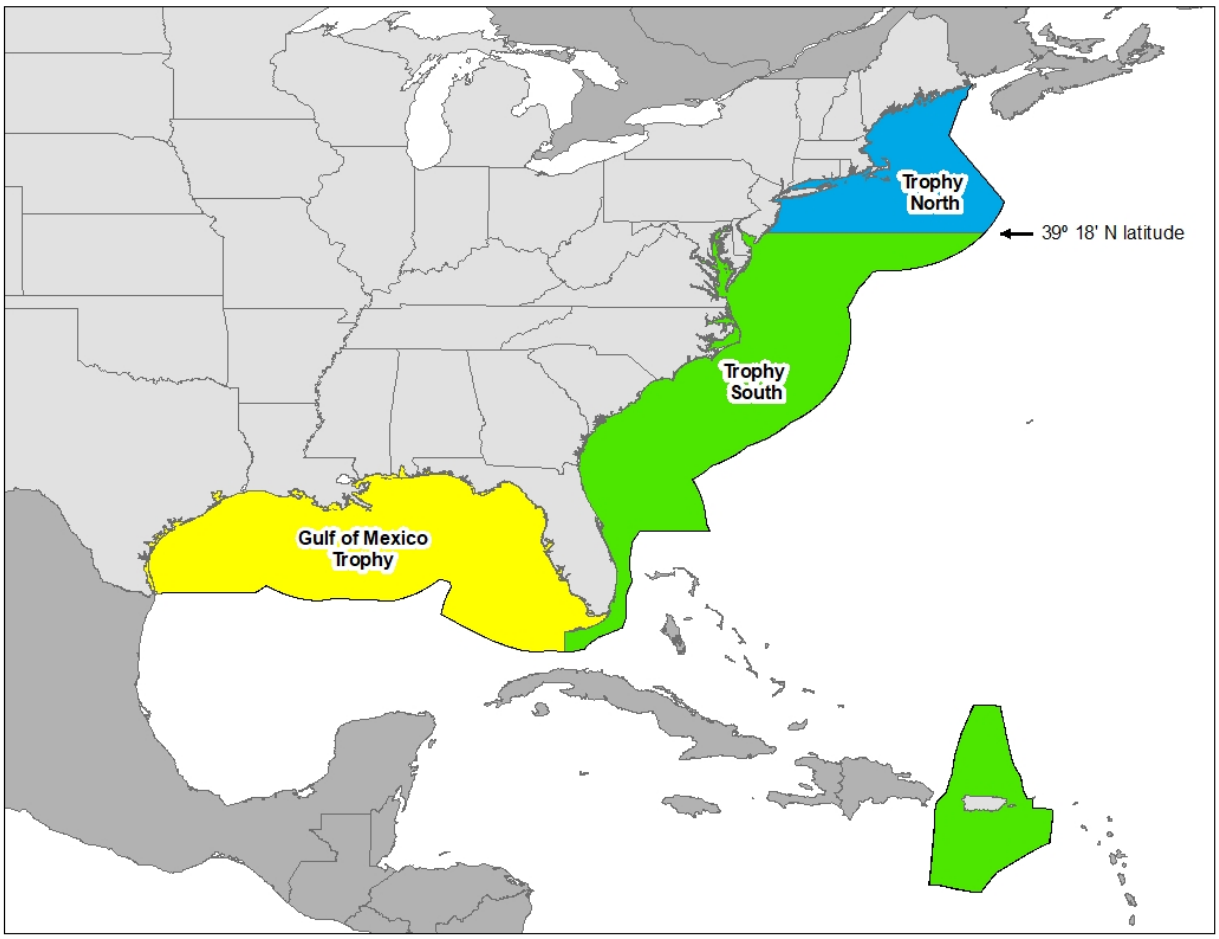


Figure 3.6 Recreational trophy area designations.

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

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

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

Source: NMFS, HMS

Recent Catch and Landings

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

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

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

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

Angling category cost earnings narrative and data

In 2016, NOAA Fisheries conducted a survey of Atlantic Highly Migratory Species (Hutt and Silva, 2019) Angling category permit holders. Atlantic HMS Angling category permit

holders were surveyed about expenditures associated with their most recent HMS fishing trip with surveys going out in bimonthly waves to collect data on trips conducted throughout the year. Ultimately, of the 4,847 Atlantic HMS Angling category permit holders sampled, 1,806 returned completed surveys (1,272 via web; 534 via mail) and 482 were ineligible (i.e., did not fish for HMS during the selected sample wave) resulting in a 42.6 percent response rate. HMS anglers were asked to provide expenditure data for their most recent marine fishing trip spent targeting HMS, and 1,379 of the responses received (76 percent) listed an HMS as either their primary or secondary target species.

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

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

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

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

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

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

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

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

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

HMS Charter/Headboat Category

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

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

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

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

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

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

Source: NMFS. HMS.

Socioeconomic Data

Table 3.16 below shows estimates of the total ex-vessel annual revenues of key Atlantic HMS fisheries, from 2015 to 2018. While bluefin revenues increased in 2018, revenues from yellowfin and swordfish were both lower than in previous years.

Table 3.16 Estimates of the total ex-vessel annual revenues of key Atlantic HMS Fisheries (2015-2018)

Species	Year	Annual Landings (pounds dw)	Average Ex-Vessel Price (per pound)	Ex-Vessel Annual Revenue
Bluefin Tuna	2015	1,347,920	$6.45	$8,716,613
	2016	1,522,634	$7.23	$11,008,644
	2017	1,490,321	$6.45	$9,581,816
	2018	1,587,794	$6.99	$11,010,617
Yellowfin Tuna	2015	1,965,050	$3.71	$8,494,781
	2016	2,351,936	$3.53	$9,622,286
	2017	2,637,684	$3.70	$10,918,095
	2018	1,543,898	$4.03	$7,052,949
Swordfish	2015	2,576,537	$4.07	$10,175,662
	2016	2,488,044	$4.54	$10,351,695
	2017	2,019,857	$4.32	$9,012,183
	2018	1,750,631	$4.10	$7,540,277

Source: HMS eDealer database, 2018 HMS SAFE Report.

3.2.2.2 Atlantic Tunas Purse Seine Category

The Atlantic tunas purse seine fishery, which has been predominantly inactive over the past 15 years, was a historically important directed, limited access fishery for bluefin. The current baseline Purse Seine category quota is 18.6 percent of the U.S. baseline quota, as adjusted per Amendment 7 (2015). Per Amendment 7, NOAA Fisheries subtracts a total of 68 mt from the U.S. baseline quota (subtracted proportionally from all bluefin quota categories) and allocates the 68 mt to the Longline category, before the category percentage allocations are applied.

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

Since 1982, the Purse Seine category has been managed with non-transferrable limited entry permits, and limited to five participants who historically were financially dependent on the fishery. Limited entry was initiated due to the large harvesting capacity of this gear type and its ability to exceed U.S. quotas in very short periods of time. Limited entry was also pursued in this fishery, as it was practical given the small pool of ownership in this sector of the fishery. The intent of the system was to ensure that only those persons who had depended on this fishery for all or part of their livelihood were allowed access. Under this limited entry system, the use of purse seine gear was authorized, and equal baseline quotas of bluefin were assigned to five individual vessel owners. This enabled owners to replace older vessels they owned with newer ones. Thus, NOAA Fisheries limited the purse seine fishery participation to only those historical purse seine vessels or their replacements. Although new entrants are prohibited, an owner of a vessel with an Atlantic Tunas permit in the Purse Seine category may transfer the permit to another purse seine vessel that he or she owns. Regulations establish that NOAA Fisheries may start the bluefin purse seine season between June 1 and August 15 and the fishery closes on December 31 of each year it is open.

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

In 1996, the quotas were made transferable among the five participants provided they notified NOAA Fisheries in writing. There have been *de minimis* landings in this category since 2005, and no landings since 2015. There are currently no active vessels operating in

this fishery. One purse seine vessel fished in 2014-2015 under an exempted fishing permit that allowed an additional 15 percent tolerance for a total retention of 30 percent large medium bluefin. The intent of the exempted fishing permit was to determine if modification to the retention limit of the smaller size range bluefin (smaller than the target size range) would result in the reduction of discarded fish. The vessel owner observed that the relative amount of smaller fish had been increasing in recent years and it had become more difficult to locate schools of bluefin that were composed of predominantly the larger size classes.

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

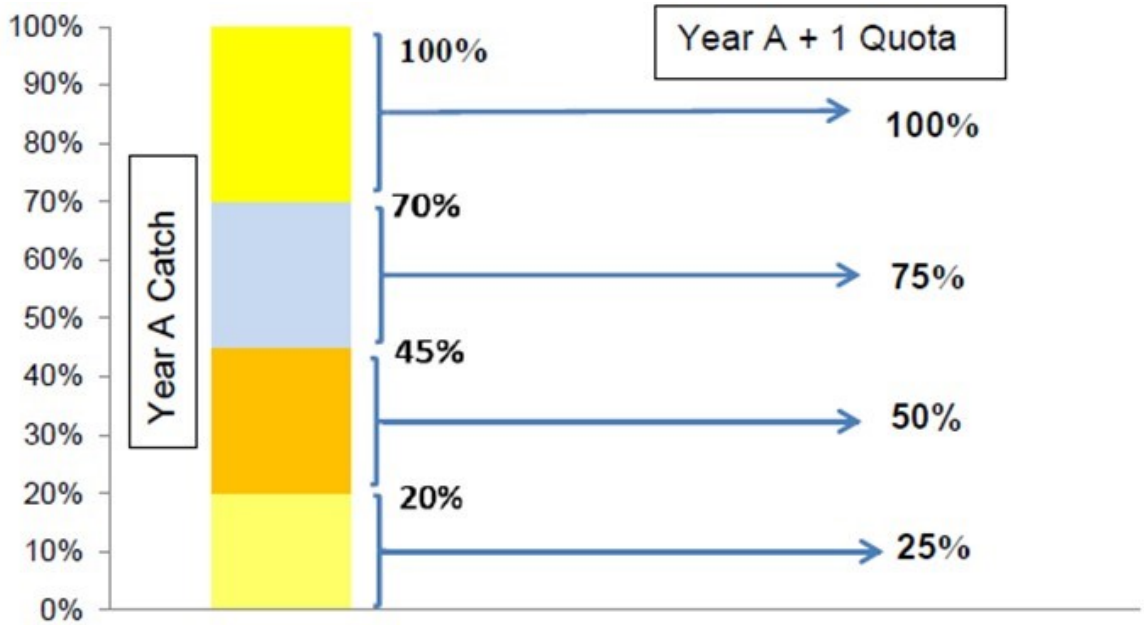


Figure 3.7 **Annual Purse Seine category Reallocation: Relationship between Individual Vessel's Year A Catch and Year A + 1 Quota**
Source: Amendment 7.

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

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

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

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

Catch, Landings, and IBQ Leasing

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

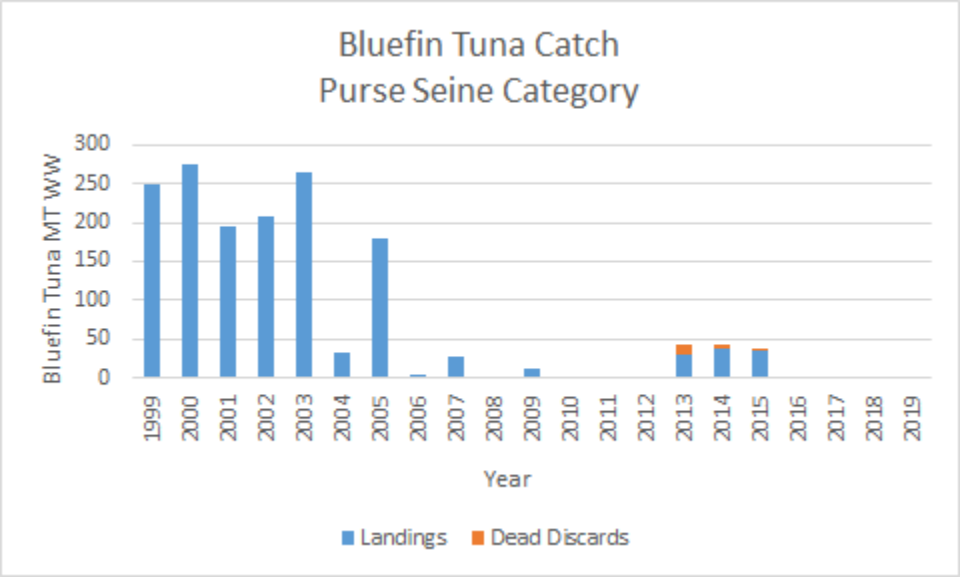


Figure 3.8 **Purse Seine category landings of bluefin from the last 20 year (1999-2019). Source: SAFIS federal dealer landings data and NMFS observer data**

NOAA Fisheries annually makes a determination when the Purse Seine category fishery will start (between June 1 and August 15), based on variations in seasonal distribution, abundance or migration patterns of bluefin, cumulative and projected landings in other commercial fishing categories, the potential for gear conflicts on the fishing grounds, or market impacts due to oversupply. Vessels may continue to fish through December 31, provided the vessel has not fully attained its individual vessel quota. In 2016, 2017, 2018, and 2019, NOAA Fisheries did not open (i.e., announce a start date for) the Atlantic tunas purse seine fishery because there were no active vessels permitted to fish for bluefin with purse seine gear and therefore there was no catch in these years.

The amount of Purse Seine category quota leased to pelagic longline vessels was variable from year to year, and represented from 9.8 percent to 47.7 percent of the 'adjusted' Purse Seine category quota (Table 3.17). Similarly, the value of the leased quota, based on the weighted average price per pound varied from year to year (e.g., from a low of $17,850 to a high of $91,274). The relative amount of allocation leased by pelagic longline vessels from purse seine participants (relative to the total amount of quota leased by pelagic longline vessels) was fairly consistent. During 2015, 2016, 2017, 2018, and 2019, 16-, 28-, 7-, 15-, and 32-percent of the total amount of leased quota (by weight) was leased from Purse Seine category to Longline participants, respectively (Table 3.18). During 2015, only one

Purse Seine category participant was involved in leasing, however during 2016 through 2018, three Purse Seine category participants leased to pelagic longline vessels during each of those years. Two Purse Seine category participants were responsible for most of the leasing from Purse Seine category participants to pelagic longline vessels. Although limited in scope, allocation leases from Purse Seine category participants to pelagic longline vessel owners were a meaningful component of the initial successful transition to the IBQ Program.

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

Year	Purse Seine Category Adjusted Quota (mt)	Purse Seine Category Adjusted Quota (lb)	Purse Seine Quota Leased in pounds by Pelagic Longline Vessels (lb)	Total Purse Seine Quota Leased (%)	Weighted Average Price/pound for Purse Seine leases	Total Value of Leases
2015	82.9	182,763	20,283	11.1	$4.50	$91,274
2016	82.9	182,763	39,647	21.7	$3.00	$53,092
2017	46.1	101,633	9,950	9.8	$1.79	$17,850
2018	46.1	101,633	25,816	25.4	$2.13	$54,882
2019	55.0	121,254	57,869	47.7	$1.25	$72,494

Source: NMFS SERO Catch Shares Online System.

Table 3.18 Amount of Quota Leased from Purse Seine Participants Compared to Total Leased Quota

Year	Amount of Purse Seine Quota Leased (pounds) by Pelagic Longline Vessels	Total Amount of Quota Leased (pounds) by Pelagic Longline Vessels	Percent of Total Leased Quota from Purse Seine participants (%)
2015	20,283	126,407	16
2016	39,647	141,183	28
2017	9,950	152,050	7
2018	25,816	170,160	15
2019	57,869	180,756	32

Source: NMFS SERO Catch Shares Online System.

3.2.3 Description and Management of the Incidental Bluefin Fisheries

3.2.3.1 Pelagic Longline Fishery

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

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

Pelagic longline gear is composed of several parts (Figure 3.9). The primary fishing line, or mainline of the longline system, can vary from five to 40 miles in length, with approximately 20 to 30 hooks per mile. The depth of the mainline is determined by ocean currents and the length of the floatline. The floatline connects the mainline to several buoys and periodic markers which can have radar reflectors or radio beacons attached. Each individual hook is connected by a leader, or gangion, to the mainline. Lightsticks, which contain light emitting chemicals, are used, particularly when targeting swordfish. When attached to the hook and suspended at a certain depth, lightsticks attract baitfish, which may, in turn, attract pelagic predators (NMFS, 1999).

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

Regulations for the U.S. Atlantic pelagic longline fishery include minimum sizes for swordfish, yellowfin tuna, bigeye tuna, and bluefin; gear and bait requirements; limited

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

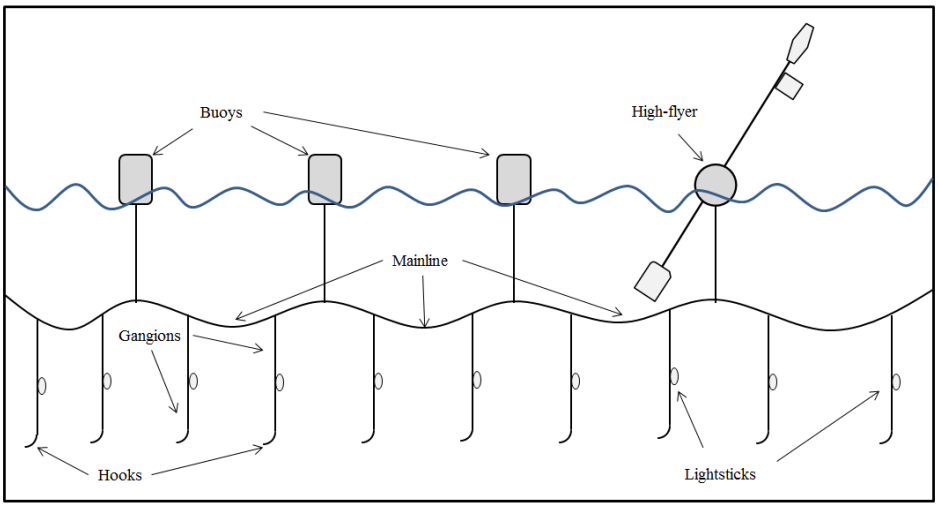


Figure 3.9 **Typical U.S. Pelagic Longline Gear**
Source: Redesign from original in Arocha (1997).

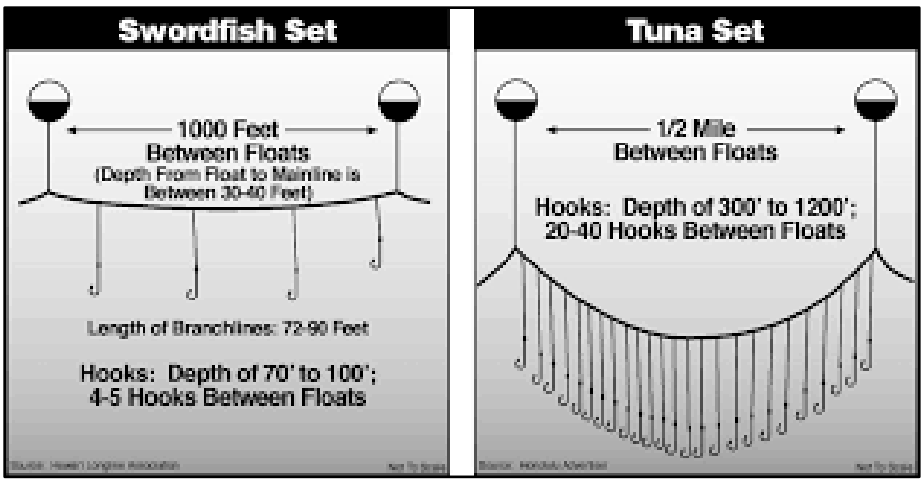


Figure 3.10 **Pelagic Longline Gear Deployment Techniques**
Note: This figure is only included to show basic differences in pelagic longline gear configuration and to illustrate that this gear may be altered to target different species.
Source: Hawaii Longline Association and Honolulu Advertiser.

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

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

Some time/area closures or gear restricted areas for pelagic longline gear were designed to reduce bycatch in the fishery including bycatch of some HMS (e.g., undersized swordfish) and sea turtles. These include the Charleston Bump Closed Area (February 1 - April 30), the East Florida Coast Closed Area (year-round), and Desoto Canyon (year-round). NOAA Fisheries is currently developing a regulatory action titled "Research and Data Collection in Closed and Gear Restricted Areas in Support of Spatial Fisheries Management", that considers approaches to collect data and perform research in these, and other, areas that are currently closed to certain gears or fishing activities for Atlantic HMS. Such research will help evaluate and support spatial fisheries management for Atlantic HMS in the future.

Area-based and weak hook management measures regarding incidental catch of bluefin were modified in a 2020 final rule (85 FR 18812; April 2, 2020). Specifically, the Northeastern United States Pelagic Longline Closed Area and Spring Gulf of Mexico Gear Restricted Area were converted to monitoring areas, and the Cape Hatteras Gear Restricted

Area was removed. For the Northeastern United States Pelagic Longline Closed Area and Spring Gulf of Mexico Gear Restricted Areas, NOAA Fisheries established a three-year evaluation period during which fishing with pelagic longline gear initially will be allowed. Fishing activity in the monitoring areas then will be closely monitored by NOAA Fisheries. Under this process, fishing will be prohibited if the fleet uses more IBQ allocation than pre-established annual thresholds that account for bluefin landings and dead discards caught within the boundaries of the monitoring areas. If no closure notice for the Northeastern United States or Spring Gulf of Mexico Monitoring Areas are filed between June 1, 2020 and December 31, 2022 or April 1, 2020 and December 31, 2022, respectively, the Monitoring Areas will remain open. At the end of the three-year evaluation period, NOAA Fisheries will develop a report on issues such as bluefin catch rates, IBQ allocation debt from vessels fishing in the area, and percentage of IBQ allocation usage. This report will inform any future actions, if warranted.

Secondly, the final rule modified the requirement for pelagic longline fishermen to use weak hooks in the Gulf of Mexico. Specifically, the requirement now applies to January through June, the period when spawning bluefin are abundant in the Gulf of Mexico. Previously the requirement was for the full year. All documentation concerning this rulemaking is available on the HMS Management Division website.

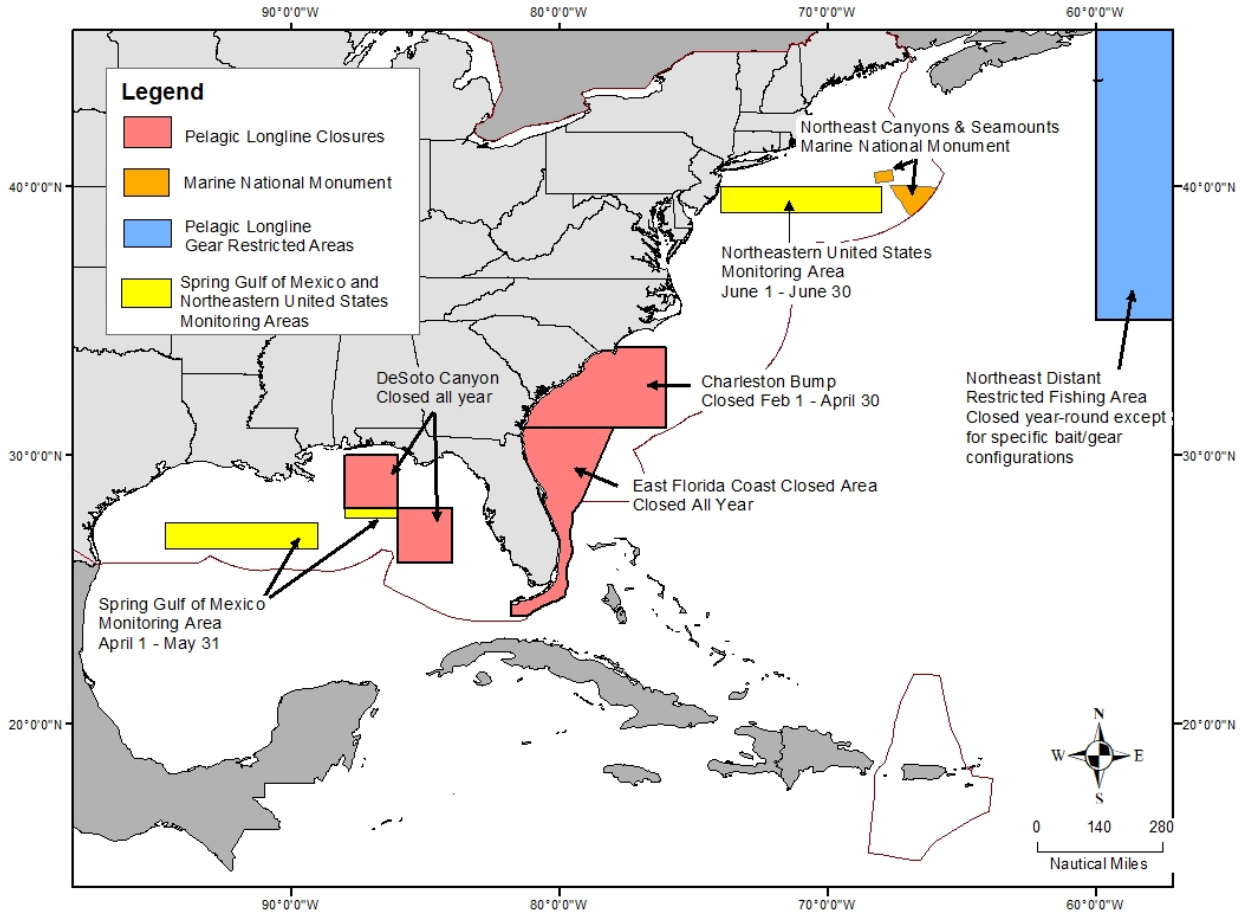


Figure 3.11 Principal Spatially Managed Areas That Prohibit or Restrict Pelagic Longline Fishing by U.S. Flagged Vessels

Limited Access Permits

HMS limited access permit (LAP) regulations at 50 CFR 635.4(l)(2)(iii) state that no person or entity may own or control more than five percent of the vessels for which swordfish directed, shark directed, or Atlantic Tunas Longline category LAPs have been issued. 2019 permit data were analyzed at the Lowest Known Entity level. If an individual owns a LAP, then that individual is the Lowest Known Entity with a 100 percent share in ownership. If a business owns a LAP, then the individual(s) who is the shareholder(s) of that business is the Lowest Known Entity. The Lowest Known Entity can own anywhere from 1-100 percent of a permit, based on their percent share ownership of the business. A few businesses do not have shareholders designated in NOAA Fisheries' Southeast Regional Office (SERO) Permits Information Management System, in which case the business' president was designated as the 100 percent shareholder. The analyzed data includes only LAPs in valid status; expired LAPs were not included. This analysis is necessarily a snapshot in time, as LAP owners can transfer permits or renew permits at any time throughout the year. Based on this analysis, in 2019, the highest percent ownership by a single entity for each HMS LAP type was 3.3 percent of valid Atlantic Tunas Longline

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

Pelagic Longline Individual Bluefin Quota (IBQ) Program

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

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

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

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

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

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

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

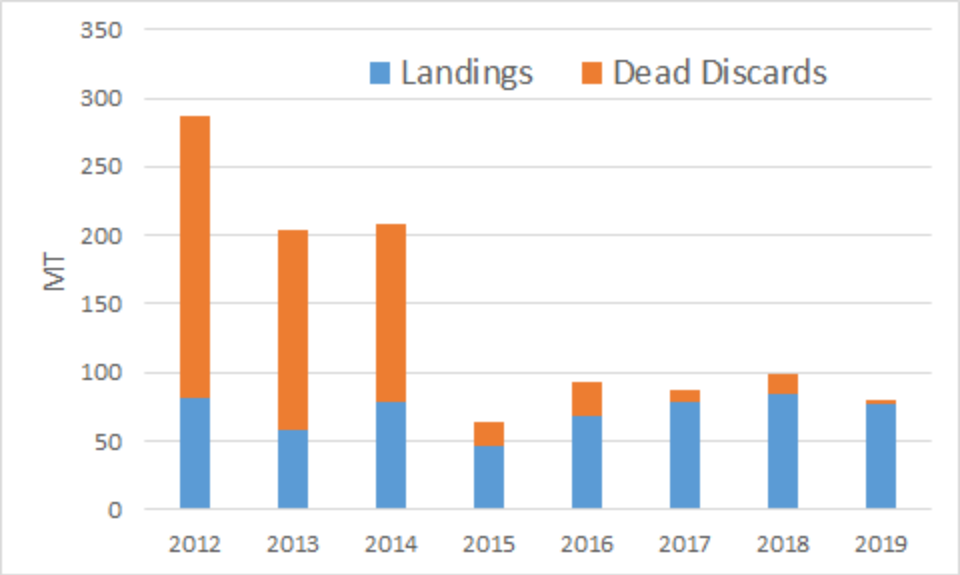


Figure 3.12 **Pelagic Longline Bluefin Landings and Dead Discards (2012-2019), excluding the NED. Source: Dead discard estimates based on observer and logbook data (and VMS data for 2019); landings from SAFIS federal dealer landings data.**

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

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

Table 3.19 2012–2019 Landings, Dead Discards, and Total Catch of bluefin, Including the NED

Year	Landings (mt)	Dead Discards (mt)	Total Catch (mt)
2012	89.6	205.8	259.4
2013	62.9	156.4	219.3
2014	82.5	139.2	221.7
2015	71.4	17.1	88.5
2016	86.2	25.0	111.3
2017	104.1	10.3	114.4
2018	88.0	14.6	102.6
2019	86.3	3.5	89.8

Source: Landings: SAFIS federal dealer landings data; Dead discard estimates based on Observer and Logbook data. *2019 preliminary dead discard estimate based on VMS data.

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

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

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

Source: SAFIS federal dealer landings data.

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

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

Table 3.21 2012–2019 Percent of Total PLL Bluefin Landings (by weight) and Dead Discards (by number) in ATL and GOM, Not Including NED Quota

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

Dead discards, by weight. Note: 2017 first year of DWH Oceanic Fish Restoration Project in Gulf of Mexico.

Sources: Landings: SAFIS federal dealer landings data; Dead discard estimates based on observer and logbook data. *2019 preliminary dead discard estimate based on VMS data.

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

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

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

IBQ Share Eligibility Criteria

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

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

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

The eligibility criteria were successful at not being excessively restrictive, as indicated by the small number of vessels (6) that fished at some time during the IBQ period but had not met eligibility criteria to receive IBQ shares and had to lease IBQ allocation to fish. Fewer IBQ shareholders fished during the IBQ period than were eligible, although a few of the shareholders that did not fish leased allocation to other fishery participants. A different method of IBQ share allocation, and/or distribution of IBQ allocation among permit holders may warrant consideration in the future for several reasons. The current distribution of allocation may not align with vessels' need for it. The share distribution method adopted in 2015 through Amendment 7 was based in part on historical participation (2006-2012) and catch (both the amount of target catch landings and the ratio of bluefin catch to target catch landings) and may not reflect current fishery participation or current restrictions on species that can be landed (e.g., restrictions placed on shortfin mako and porbeagle landings since Amendment 7). Additionally, there were costs incurred by many fishery participants due to the need to lease IBQ allocation to account for their bluefin catch. Given the number of shareholders that were inactive (only 77 percent, 63 percent, and 63 percent of shareholders were active during 2015, 2016, and 2017, respectively), a simpler

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

Fishing Effort and Catch

This section presents data and discusses trends in fishing effort, and catch data for target and incidentally caught species, as well as a more detailed description of fishing practices. Vessel logbook data was analyzed in order to document relevant trends in the fishery, and provide context for the pelagic longline alternatives under consideration. Since 2006, the annual number of fishing trips taken by vessels participating in the pelagic longline fishery has fluctuated (Figure 3.13). Most of the trips were taken in the Atlantic outside the Gulf of Mexico, particularly in 2010 and 2018 when a relatively low number of trips fished in the Gulf. The average number of trips taken annually by individual vessels has remained steady, with most active vessels taking between five and 20 trips per year and a fleet wide mean of 12 trips.

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

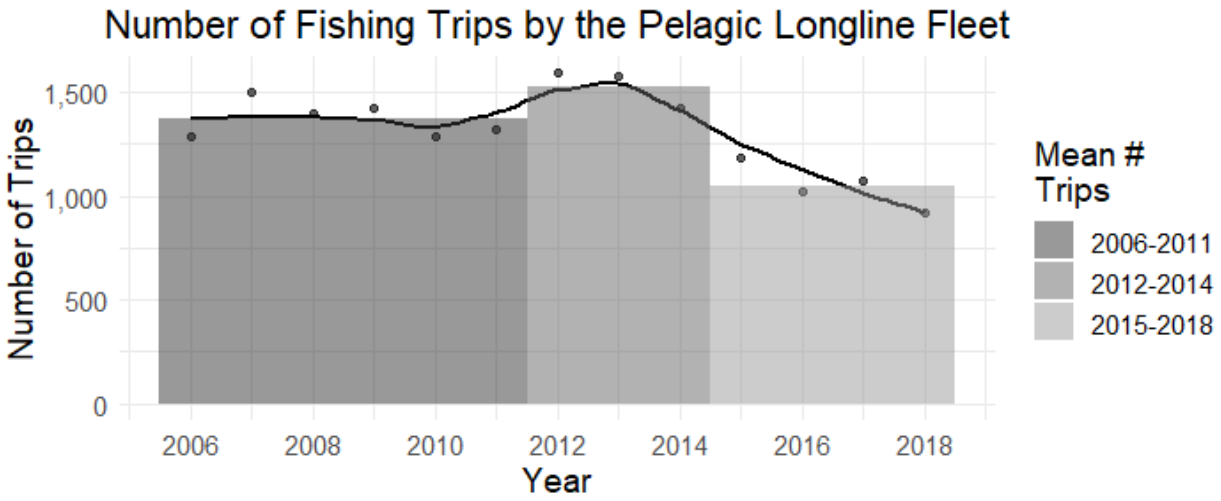


Figure 3.13 **Annual totals of the number of pelagic longline fishing trips. The shaded bars represent the average annual number of trips for each year period presented**
Source: Logbooks.

Table 3.22 shows the average number of hooks fished by the pelagic longline fishery from 2006 through 2018, broken into three time periods corresponding to three regulatory periods. The 2006 through 2011 period encompasses the period after implementation of the 2006 Consolidated HMS FMP, while the 2012 through 2014 period encompasses the average number of hooks prior to the implementation of Amendment 7. The data from 2015-2018 represents post-Amendment 7 activity. Table 3.23 shows the total number of hooks fished by year from 2015 to 2018. The average number of hooks fished by the pelagic longline fishery over time, and the total number of hooks show declining trends.

Table 3.22 Average number of hooks fished by the pelagic longline fishery by regulatory period (2006 - 2018)

Time Period	Average Annual Number of Hooks Fished
2006–2011	6,195,209
2012–2014	7,369,858
2015–2018	4,676,545

Source: Logbooks.

Table 3.23 Total number of hooks fished by the pelagic longline fishery (2015 - 2018)

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

Source: Logbooks.

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

Pelagic Longline Fishery Methods

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

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

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

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

Figure 3.15 below shows the distribution of pelagic longline hooks from 2015 to 2018. The distribution of hooks during this time period is very similar to previous time periods, since 2006 (Figure 11.14, Figure 11.15, and Figure 11.16; Appendix D).

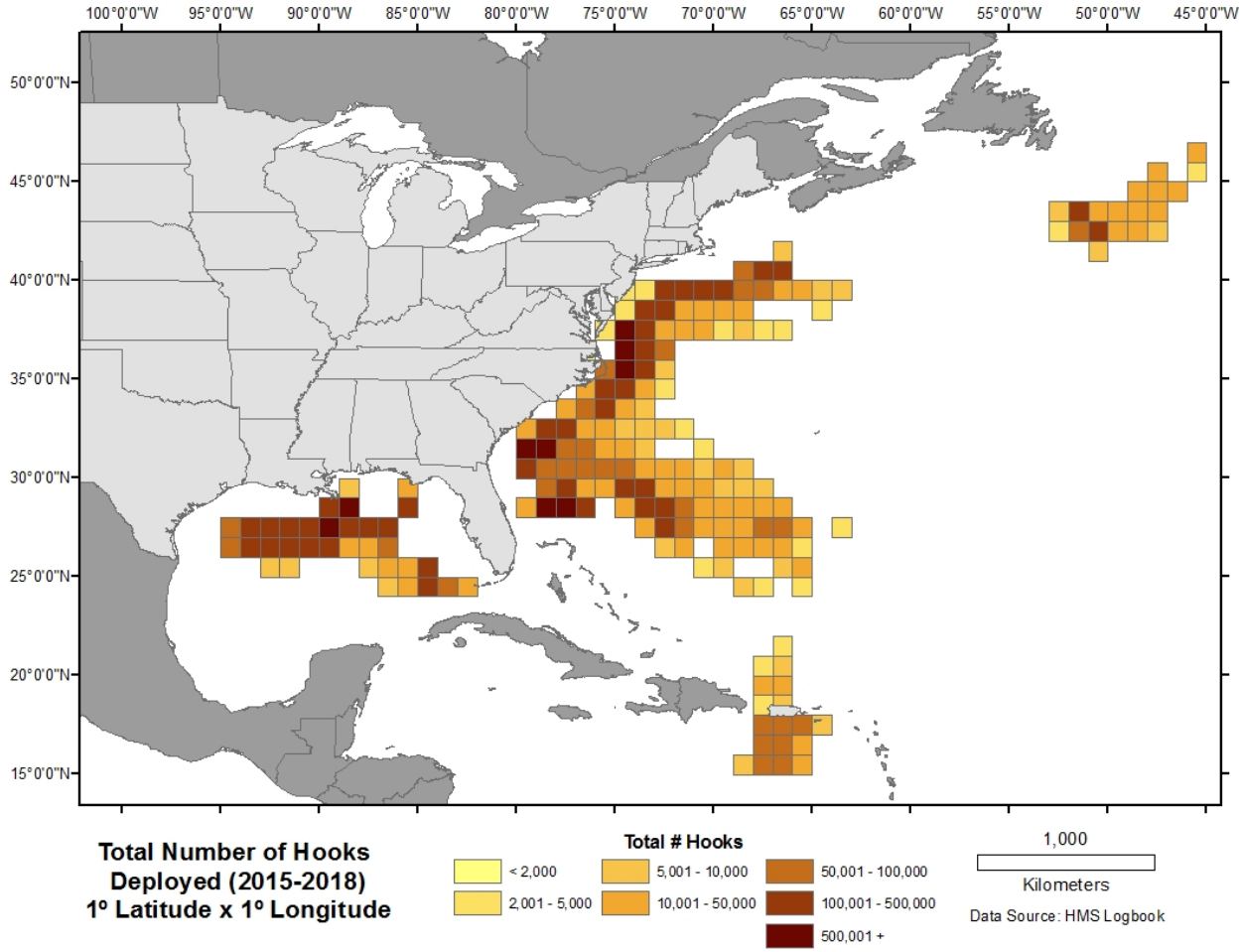


Figure 3.14 **Total number of Hooks Deployed (2015 to 2018)**
Source: Logbooks

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

The pelagic longline fishery experienced moderately high catch-per-unit efforts for swordfish across much of the fishing grounds in the Atlantic, with catch-per-unit effort hotspots occurring in the Grand Banks, Georges Bank, Florida (Blake Plateau and Florida Keys), South Carolina (Charleston Bump region), in the high seas east of the Bahamian Exclusive Economic Zone (EEZ), and in the U.S. Caribbean. Dolphin catch-per-unit effort hotspots occurred mainly within coastal regions of the South Atlantic Bight with some in the Caribbean. Two regional hotspots for yellowfin tuna are apparent in the Gulf of Mexico, and between North Carolina and Georges Bank. In comparison to these three species, catch-per-unit effort is much lower and more dispersed for bigeye and bluefin. A moderate catch-per-unit effort hotspot is apparent just outside of the Florida East Coast Closure, and moderately high catch-per-unit efforts for bluefin are apparent off southern Georges Bank. In general, target species landings have decreased between 2012 and 2017. For example, the number of swordfish, BAYS tunas, and dolphin kept has decreased by nearly 55

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

Figure 3.15 below shows bluefin CPUE from 2015 to 2018. There are diverse locations with relatively high CPUE are the NED, south of Georges Bank, the mid-Atlantic, locations east of Florida and locations in the Gulf of Mexico, that reflect both the broad distribution and variability of bluefin presence.

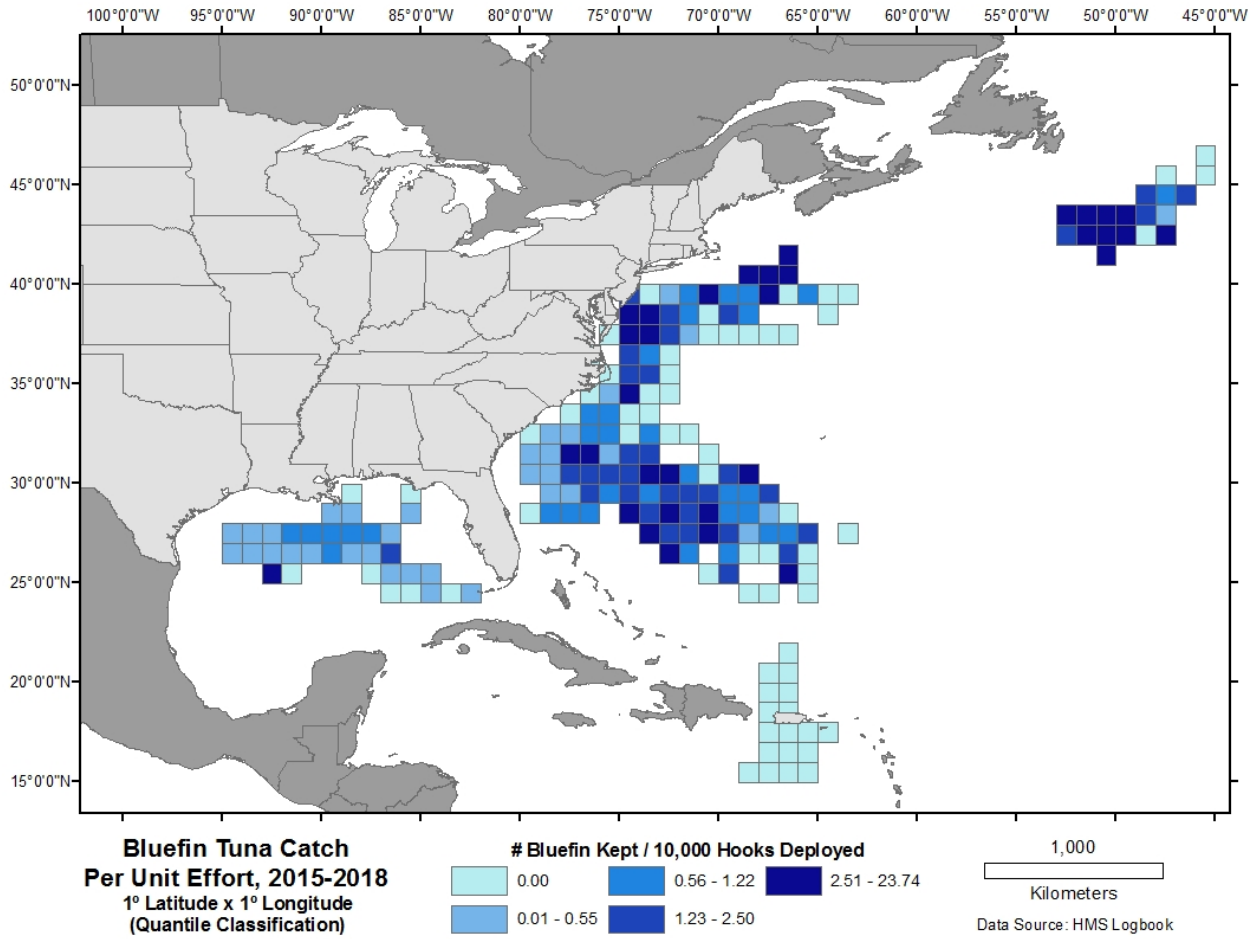


Figure 3.15 **Bluefin CPUE from 2015-2018**
Source: Logbooks

Table 3.24 Reported Numbers of Catch by Species in the U.S. Atlantic Pelagic Longline Fishery (2012–2018)

Species	2012	2013	2014	2015	2016	2017	2018
Swordfish kept	51,544	44,556	32,908	27,730	24,456	23,332	25,088
Swordfish discarded	7,996	4,756	4,655	5,382	4,437	7,116	8,004
Blue marlin discarded	896	844	718	990	1,050	1,562	854
White marlin discarded	1,432	1,239	1,580	2,885	2,153	2,221	1,586
Sailfish discarded	795	456	445	715	855	657	810
Spearfish discarded	270	342	306	837	745	686	459
Bluefin tuna kept*	407	299	392	323	437	501	465
Bluefin tuna discarded dead*	193	84	115	48	162	28	56
Bluefin tuna discarded alive*	353	168	232	158	418	201	254
Bigeye, albacore, yellowfin, and skipjack tunas kept	84,707	67,083	73,339	54,734	56,978	68,329	37,831
Dolphin kept	42,445	34,250	63,217	53,526	46,376	29,141	27,341

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

Table 3.25 ICCAT swordfish total allowable catch and U.S. quota allocation and catch (2012 - 2018)

Year	ICCAT Total Allowable Catch (mt)	U.S. Allocation (mt)	U.S. Catch (Landings & Discards) (mt)	U.S. Swordfish Catch Relative to ICCAT Swordfish Allocation (%)
2012	10,300.8	2,937.59	2,551.13	86.8
2013	10,300.8	2,937.59	2,123.31	72.3
2014	10,300.8	2,937.59	1,462.41	49.8
2015	10,300.8	2,937.59	1,291.73	44.0
2016	10,300.8	2,937.59	1,126.32	38.3
2017	10,300.8	2,937.59	1,036.09	35.3
2018	9,924.81	2,937.59	1,011.9	34.4

Sources: NMFS 2019b, and the Annual Report of the United States to ICCAT (2018). U.S. Department of Commerce, NMFS. ANN-041/2019.

Socioeconomic Data

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

There was a reduction in the annual total revenue of pelagic longline vessels during the IBQ period compared to the Baseline period, but the annual total revenue during the IBQ period was fairly stable ($27.2 million (M), $25.6 M, and $27.1 M, during 2015, 2016, and 2017 respectively). The average revenue per vessel during the IBQ period was less than during the Baseline period, but increased from 2015 to 2017, and during 2017 approached the level it was during 2014 (i.e., $307,422 in 2017 and $316,055 in 2014). These trends in

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

Table 3.26 below shows data on the leasing of IBQ allocation from 2015 to 2019. The overall pattern is an increasing amount (pounds) of IBQ allocation leased over time, with a declining average price. The number of participants was fairly consistent, but expressed as a percentage of active vessels, increased (due to the number of declining active pelagic longline vessels over time).

Table 3.26 Data on the IBQ Leasing Program (2015-2019)

Year	Total pounds of IBQ leased	Number of lease transactions	Number of Leasing market participants	Percent of active vessels leasing	Weighted average price per pound	Number of transactions used to calculate price per pound
2015	126,407	49	44	42	$3.46	14
2016	141,183	81	63	74	$2.52	45
2017	152,050	85	52	60	$1.67	27
2018	170,160	83	55	75	$2.02	31
2019	180,756	76	56	86	$1.40	35

Source: NMFS SERO Catch Shares Online System

Shore-Based Cooperatives and Owners of Multiple Permits or Vessels

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

support for complying with regulations. Such cooperatives may also facilitate the leasing of allocation. The principal cooperative activities appear to occur in the New Orleans, LA area and Fort Pierce, FL.

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

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

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

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

Deepwater Horizon Oceanic Fish Restoration Project (OFRP)

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

In September 2015, the Final Phase IV Early Restoration Plan described this initial restoration project, originally named the Pelagic Longline Bycatch Reduction Project and later to become the Deepwater Horizon OFRP. This project was implemented as a partnership between NOAA, pelagic fishermen in the Gulf of Mexico, and the National Fish

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

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

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

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

were from Florida. All applications were considered. In total, seven vessels were chosen to participate in the pilot, all of which are based in Louisiana. All participants were testing alternative gear (e.g., green-stick). Having all participants from a single state allowed for effective dissemination of best practices and in-depth analysis from a concentrated segment of the Gulf of Mexico market. The pilot project also allowed NFWF and NOAA to easily monitor results and progress in order to make adjustments and enhancements in order to respond to a larger number of participants in subsequent project years. The 2016 Deepwater Horizon OFRP had an annual authorized budget of $20 million and expended $7,188,212.85 (For details on Deepwater Horizon OFRP expenditures please visit https://www.diver.orr.noaa.gov/web/guest/diver-explorer?siteid=4&subtitle=Southeast).

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

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

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

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

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

3.2.3.2 Green-stick Gear Use by Pelagic Longline Vessels

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

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

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

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

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

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

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

3.3 Essential Fish Habitat (EFH)

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

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

NOAA Fisheries originally described and identified EFH and related EFH regulatory elements for all HMS in the management unit in 1999, some of which were updated in 2003 via Amendment 1 to the 1999 HMS FMP (68 FR 45237, August 1, 2003). EFH boundaries published in the 1999 HMS FMP and Amendment 1 to the 1999 HMS FMP were updated in Final Amendment 10 to the 2006 Consolidated HMS FMP (NMFS 2017). Amendment 10 included a complete review and update of the 10 components of EFH, which includes updates to EFH boundaries and text descriptions and an updated review of fishing and non-fishing impacts to EFH. Information presented in this section is summarized from Amendment 10, which reflects the best scientific information available. Amendment 10 incorporates by reference several analyses that were completed in earlier Atlantic HMS FMP amendments. An EFH impacts analysis of all Atlantic HMS gears was completed for the 2006 Consolidated HMS FMP and is shown in Table 3.27.

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

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

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

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

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

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

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

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

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

Gear Impacts

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

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

For more information, please refer to the following websites:

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

Table 3.27 Impact Assessment of HMS Fishing Gear on HMS and Non-HMS EFH

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

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

3.3.1 Bluefin Tuna Distribution, Migration, and EFH

A thorough discussion of bluefin life history is available in Amendment 10 to the 2006 Consolidated HMS FMP (82 FR 42329, September 7, 2017) (Amendment 10), which

addressed EFH for Atlantic HMS. The information below summarizes migration and distribution information that is considered relevant to this action.

Bluefin are highly migratory and in the Western Atlantic generally range from 45° N Lat. to the equator, but have also supported short-term fisheries off Brazil and in the North Sea (Fromentin 2010). The prevailing assumptions have been that mature western bluefin follow an annual cycle of foraging off the eastern U.S. and Canadian coasts from June through March. Bluefin spawn from mid-April through June, mainly in the Gulf of Mexico, which contains the known primary spawning grounds for the western stock of Atlantic bluefin. Protecting these fish during spawning can help the long-term sustainability of the bluefin population. Although individuals may spawn more than once a year, it has generally been assumed that there is a single annual spawning period. However, recent tagging data and the presence of small (less than 235 cm CFL) sexually mature females in the Gulf of Maine in June and July suggest that either individual bluefin do not spawn on an annual cycle (Lutcavage et al., 2012; Block et al., 2005; Fromentin and Powers 2005; Goldstein et al., 2007), or a component of the western stock is spawning somewhere other than the Gulf of Mexico (e.g., in the central North Atlantic or Gulf Stream edge) (Mather et al., 1995; Lutcavage et al., 2012; Goldstein et al., 2007).

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

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

In June, young-of-the-year bluefin (YOY) begin movements in schools to juvenile habitats (McGowan and Richards 1989) thought to be located over the continental shelf around 34° N. Lat. and 41° W. Long. They have also been identified from the Dry Tortugas area in June and July (Richards 1991; ICCAT 1997). Juveniles migrate to nursery areas located between Cape Hatteras, North Carolina and Cape Cod, Massachusetts (Mather et al., 1995).

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

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

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

Spawning, eggs, and larvae

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

Juveniles (< 185 cm fork length (FL))

Coastal and pelagic habitats of the Mid-Atlantic Bight and the Gulf of Maine, between southern Maine and Cape Lookout, from shore (excluding Long Island Sound, Pamlico Sound) to the continental shelf break. EFH in coastal areas of Cape Cod are located between the Great South Passage and shore. EFH follows the continental shelf from the outer extent of the U.S. EEZ on Georges Bank to Cape Lookout. EFH is associated with certain environmental conditions in the Gulf of Maine (16 to 19 °C; 0 to 40 m deep). EFH in other locations, associated with temperatures ranging from 4 to 26°C, is often in depths of less than 20 m (but can be found in waters that are 40-100 m in depth in winter).

Adults (≥ 185 cm FL)

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

Habitat Area of Particular Concern (HAPC)

Pelagic waters of the Gulf of Mexico seaward of the 100m bathymetric line, extending to the seaward extent of the United States' EEZ and eastward to the 82º W longitude meridian.

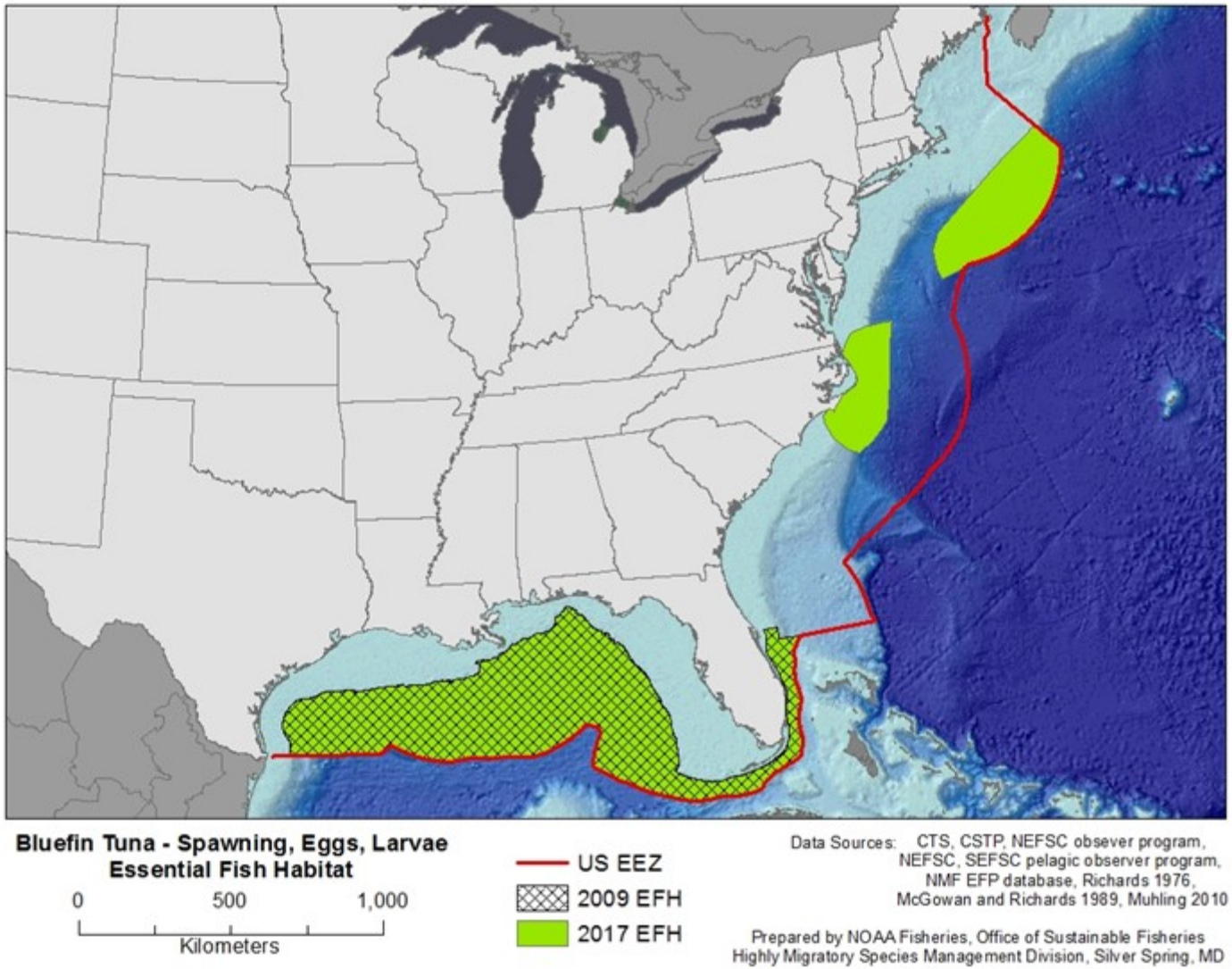


Figure 3.16 **Essential Fish Habitat for Spawning, Eggs, and Larvae of Bluefin Tuna**
Source: NMFS 2017.

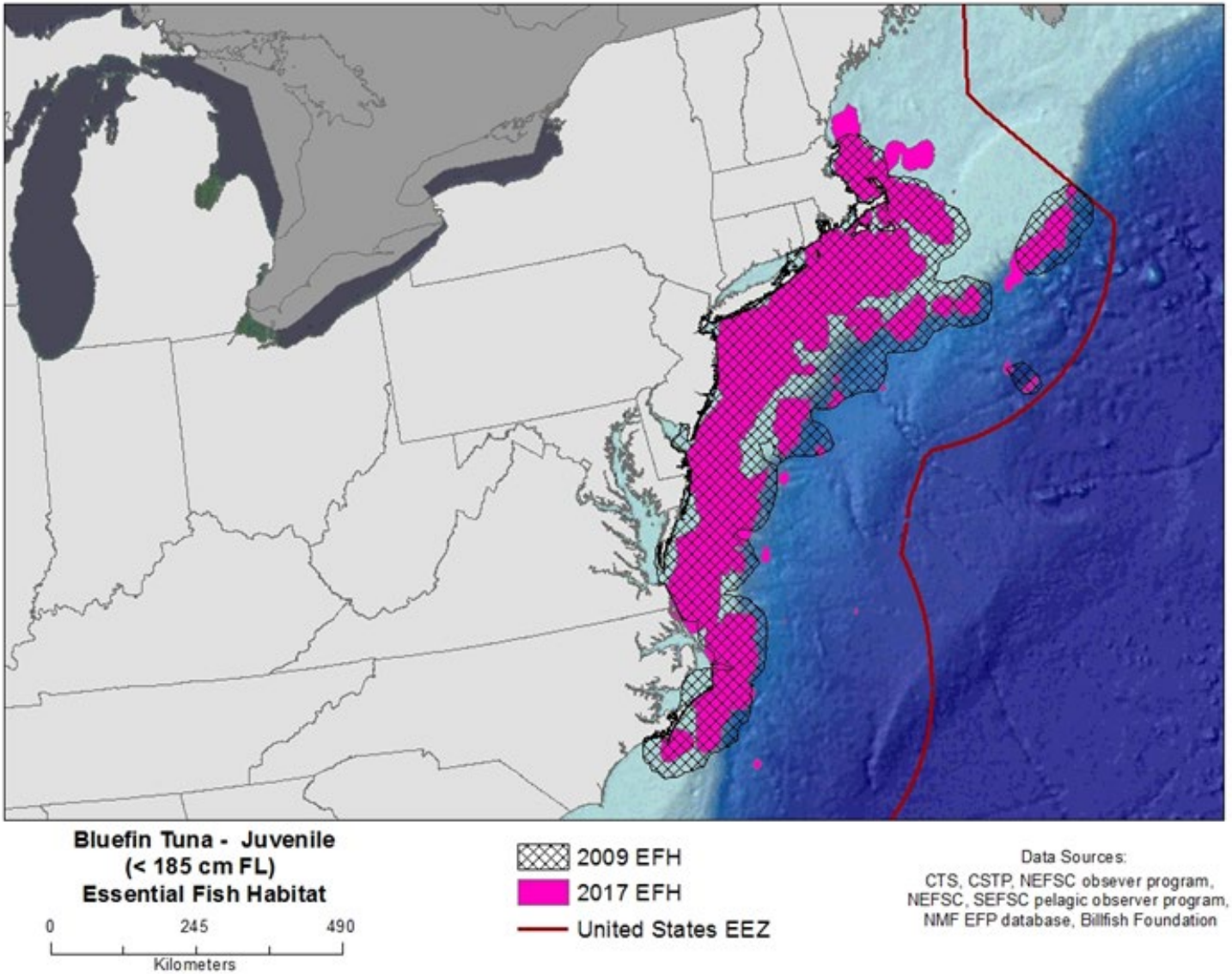


Figure 3.17 **Essential Fish Habitat for Juvenile Bluefin Tuna**
Source: NMFS 2017

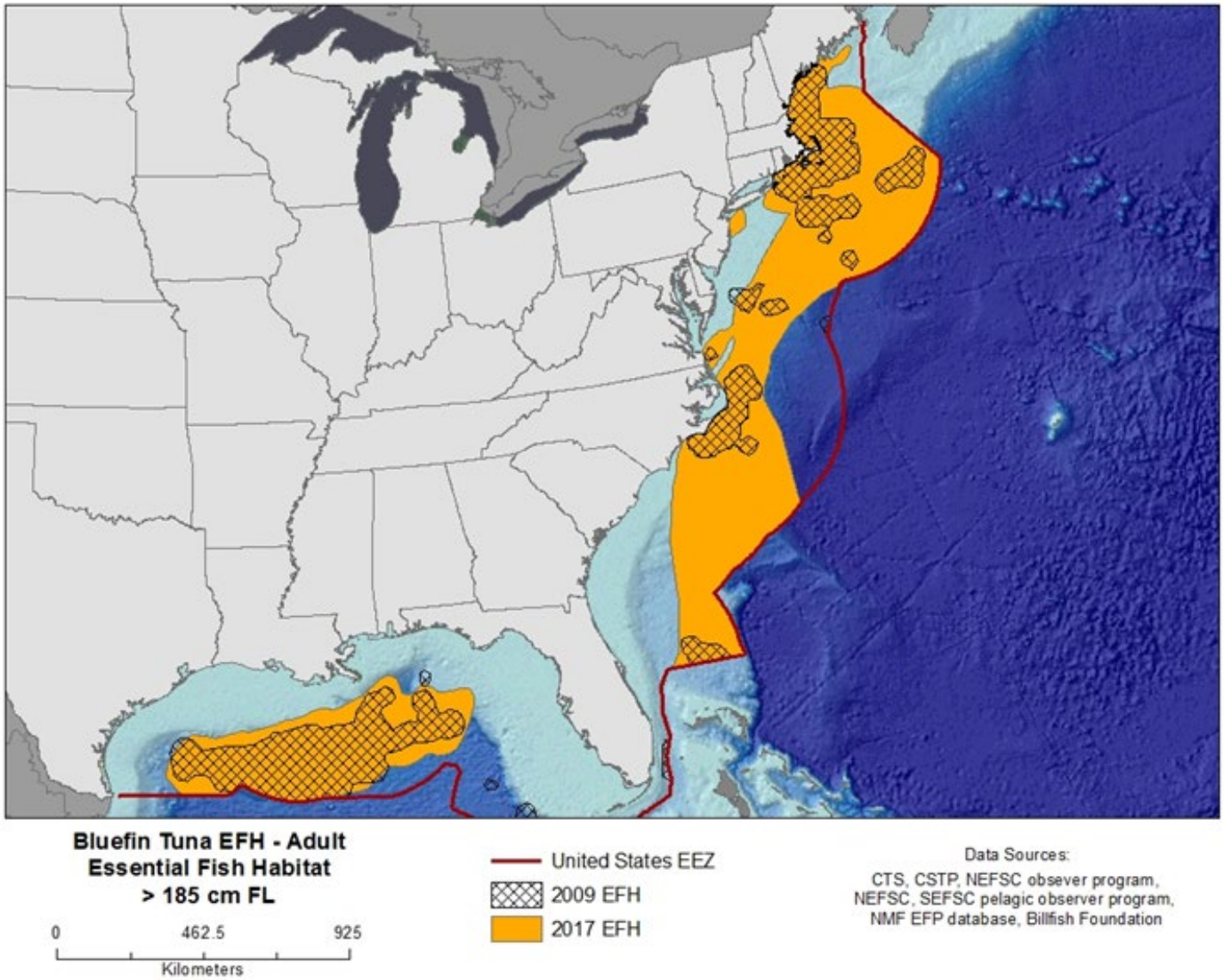


Figure 3.18 **Essential Fish Habitat for Adult Bluefin Tuna**
Source: NMFS 2017

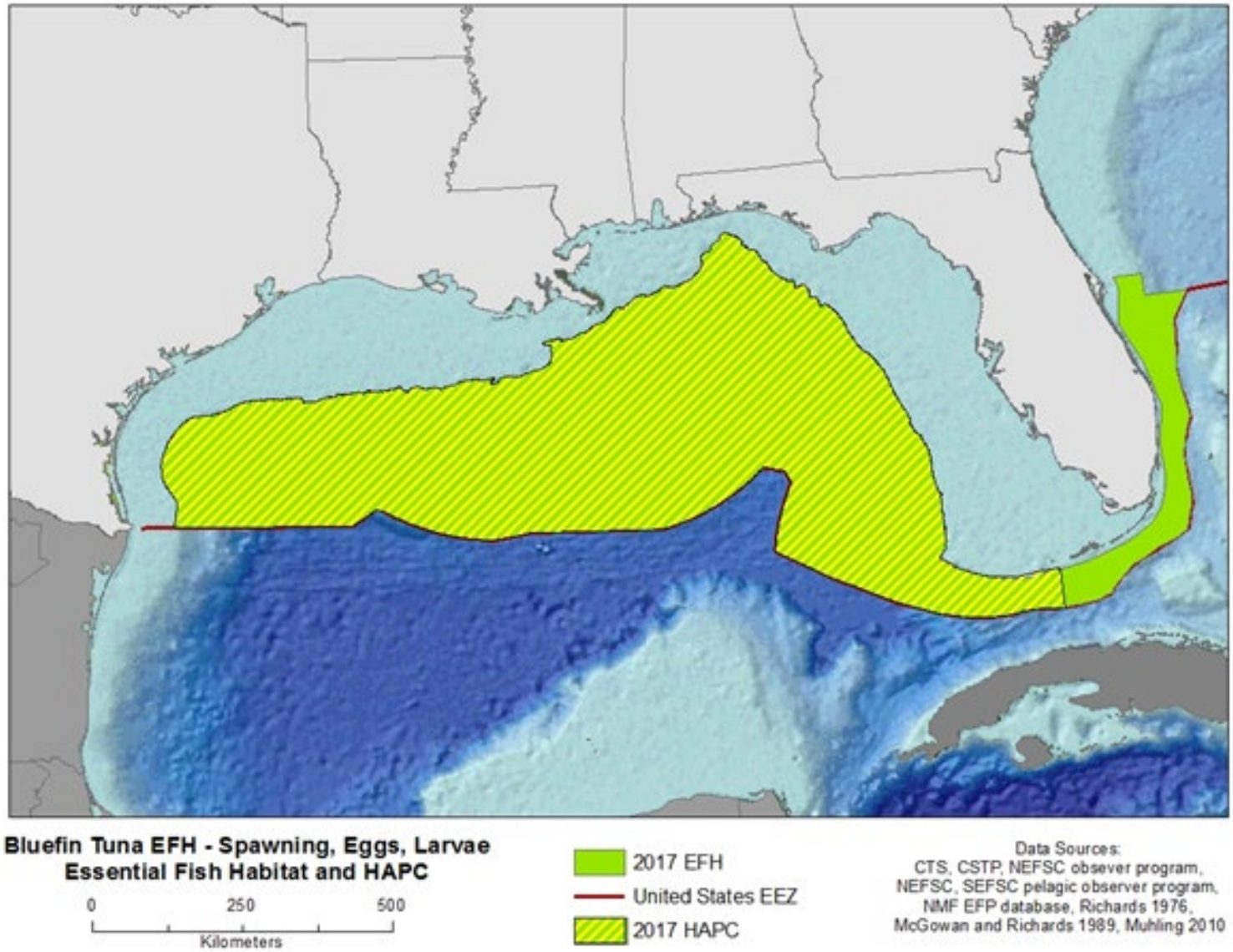


Figure 3.19 **Bluefin Tuna Habitat Area of Particular Concern—Spawning, Eggs, Larval Life Stage**
Source: NMFS 2017

3.4 Bycatch and Protected Species

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

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

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

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

Bycatch Interactions and the Magnuson-Stevens Act

Under the Magnuson-Stevens Act, "bycatch" has a very specific meaning: "Fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards. Such term does not include fish released alive under a recreational catch and release fishery management program" (16 U.S.C. §1802(2)). Fish is defined as finfish, mollusks, crustaceans, and all other forms of marine animal and plant life other than marine mammals and birds (§1802(12). Birds and marine mammals are therefore not considered bycatch under the Magnuson-Stevens Act.

National Standard 9 of the Magnuson-Stevens Act requires that fishery conservation and management measures shall, to the extent practicable, minimize bycatch and, to the extent bycatch cannot be avoided, minimize the mortality of such bycatch (16 U.S.C. § 1851(a)(9)). For Atlantic HMS, National Standard 9 requirements in this regard have been addressed through conservation and management measure when adopted, in the 2006 Consolidated HMS FMP, and in each subsequent amendment, as appropriate. As explained in those actions, in many fisheries, it is not practicable to eliminate all bycatch and bycatch mortality. There are probably no HMS fisheries in which there is zero bycatch because none of the currently authorized fishing gears are perfectly selective for the target of each fishery (although the swordfish/tuna harpoon fishery and speargun fishery likely come closest due to the capacity for selective harvest).

Some relevant examples of fish caught in Atlantic HMS fisheries as bycatch or incidental catch include sea turtles, Atlantic sturgeon, smalltooth sawfish, some sharks, billfish, and undersized fish; species for which there is little or no market such as blue sharks; species caught and released in excess of a bag limit; and prohibited species including those in the prohibited shark complex Below is a list some of the methods that are employed to reduce bycatch in the Atlantic HMS fisheries.

Commercial

1. Gear modifications (including hook and bait types).
2. Corrodible (non-stainless steel) circle hooks.
3. Weak hooks.
4. Time/area closures.
5. Performance standards.
6. Education/Outreach.
7. Prohibiting retention of certain fish.
8. Use of de-hooking devices (mortality reduction only).
9. Handling and release requirements (e.g., in the pelagic longline fishery, sharks that are not retained must have less than 3 ft. of trailing gear attached to the hook when released).
10. Fleet communication and relocation protocols (e.g., vessels must move 1 mile and inform other vessels that dusky sharks are in the area after a dusky shark interaction).

Recreational

1. Use of corrodible (non-stainless steel) circle hooks (mortality reduction only).
2. Use of de-hooking devices (mortality reduction only).
3. Prohibiting retention of fish.

4. Catch and release programs.
5. Education/Outreach.

There are benefits associated with the reduction of bycatch, including the reduction of uncertainty concerning total fishing-related mortality, which improves the ability to assess the status of stocks and to determine the appropriate relevant controls. It is also important to consider the bycatch of HMS in fisheries that target other species as a source of mortality for HMS and to work with fishery constituents and resource manager partners on an effective bycatch strategy to maintain sustainable fisheries. This strategy may include a combination of management measures in the domestic fishery and coordination with Regional Fishery Management Councils or States, and if appropriate, consideration of multi-lateral measures at international bodies such as ICCAT.

Pelagic Longline Fishery Bycatch

To minimize bycatch and bycatch mortality in the domestic pelagic longline fishery, NOAA Fisheries implemented regulations to close certain areas to this gear type (see Figure 3.11) and has banned the use of live bait by pelagic longline vessels in the Gulf of Mexico.

In addition to the regulations mentioned above, to protect sea turtles, vessels using pelagic longline gear onboard must, at all times, in all areas open to pelagic longline fishing except the NED, possess onboard and/or use only 16/0 or larger non-offset circle hooks and/or 18/0 or larger circle hooks with an offset not to exceed 10 degrees. Only whole finfish and squid baits may be possessed and/or utilized with allowable hooks. Vessels fishing in the NED are required to use 18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel or squid baits. All pelagic longline vessels must possess and use sea turtle handling and release gear in compliance with NOAA Fisheries careful release protocols. Additionally, all pelagic longline vessel owners and operators must be certified in the use of the protected species handling and release gear. Certification must be renewed every three years and can be obtained by attending a training workshop. Approximately 18 to 24 workshops are conducted annually, and they are held in areas with significant numbers of pelagic longline permit holders.

In 2009, to protect pilot whales and Risso's dolphins, the Pelagic Longline Take Reduction Plan (PLTRP) (74 FR 23349, May 19, 2009) included a requirement that pelagic longline vessel operators fishing in the Cape Hatteras Special Research Area must contact NOAA Fisheries at least 48 hours prior to a trip, and carry observers if requested. The Pelagic Longline Take Reduction Plan (PLTRP) also established a 20 nautical mile upper limit on mainline length for all pelagic longline sets in the Mid-Atlantic Bight, and required that an informational placard be displayed in the wheelhouse and on the working deck of all active pelagic longline vessels in the Atlantic fishery.

NOAA Fisheries scientists and managers continue to consult as necessary on reporting methodology design considerations, including changes in monitoring and reporting technology, to improve the quality of target and non-target catch estimates as needed while considering cost, technical, and operational feasibilities. NOAA Fisheries uses mandatory

self-reported logbook data (HMS and Coastal Fisheries Logbook Programs, including a supplemental discard report), at-sea observer data (the Pelagic Longline, Southeast Gillnet, and Bottom Longline Observer Programs), mandatory recreational fish landings reports, online reporting of dead discards of bluefin in the commercial harpoon and hook and line fisheries (Atlantic Catch and Landings Reporting Site), and survey data (recreational fishery dockside intercept and telephone surveys) to produce bycatch estimates for HMS fisheries. The incidental catch of bluefin in the pelagic longline fishery is monitored electronically via camera array, and catch reporting via VMS. Post-release mortality of HMS is considered in stock assessments to the extent that the data allow. Fishing mortality estimates from these sources of information, as incorporated in stock assessments, are critical to understanding the overall status and outlook of a stock as well as helping to understand the available options for conservation and management measures for the stock and potential implications for the ecosystem in which it lives.

Pelagic Longline Bycatch Data

NOAA Fisheries collects data on the disposition (released alive or dead) of bycatch species from logbooks submitted by fishermen in the pelagic longline fishery. Observer reports also include disposition of the catch as well as information on hook location, trailing gear, and injury status of protected species interactions. These data are used to estimate post-release mortality of sea turtles and marine mammals based on guidelines for each (Angliss and DeMaster 1998, Ryder et al., 2006). Bycatch information is summarized extensively in the HMS SAFE Report (see Chapter 8 of the 2017 and 2018 versions). Table 3.28 below shows numbers of fish caught in the pelagic longline fishery from 2015 to 2018.

Spatial trends in catch-per-unit effort of HMS bycatch and incidental catch of bluefin and other speices for 2015-2018 were mapped (Figure 3.20 - Figure 3.27), and are summarized here:

- Most of the bluefin discards occurred in locations near the edge of the continental shelf break, in the NED, and in the central Gulf of Mexico (Figure 3.20).
- Swordfish discard catch-per-unit effort was high primarily along the continental shelf break from Georges Bank to the northern border of the Florida East Coast Closed Area, along the west Florida shelf, and in the central Gulf of Mexico (Figure 3.21).
- Dusky shark discard catch-per-unit effort was highest off North Carolina (Figure 3.22).
- Blue marlin discard catch-per-unit effort was highest along and seaward of the U.S. east coast continental shelf break, off the west Florida shelf, and the U.S. Caribbean (Figure 3.23).
- White marlin discard catch-per-unit effort was highest along and seaward of the U.S. east coast continental shelf, in the high seas east of the Bahamian EEZ, and in the U.S. Caribbean (Figure 3.24).
- Roundscale spearfish discard catch-per-unit effort was greatest in the high seas east of the Bahamian EEZ, and in the U.S. Caribbean (Figure 3.25).

- Sailfish discard catch-per-unit effort was highest in the South Atlantic Bight, in the Gulf of Mexico, and in the U.S. Caribbean (Figure 3.26).
- Shortfin mako discards were highest in the Mid-Atlantic Bight, off Georges Bank, and in the Grand Banks/NED (Figure 3.27).

Table 3.28 Reported Numbers of Fish Caught in the U.S. Atlantic Pelagic Longline Fishery (2015–2017)

Species	2015	2016	2017	2018
Swordfish discarded	5,382	4,437	7,116	8,004
Blue marlin discarded	990	1,050	1,562	854
White marlin discarded	2,885	2,153	2,221	1,586
Sailfish discarded	715	855	657	810
Bluefin tuna discarded	210	582	229	358*
Pelagic sharks discarded	45,082	27,900	25,564	14,649
Large coastal sharks discarded	8,839	9,549	11,533	7,988

Sources: Logbooks and 2019 SAFE Report. *VMS data

Table 3.1 in the Three-Year Review (NMFS 2019a) shows bluefin catch, and notes that catch (landings and dead discards) and dead discards in the pelagic longline fishery were reduced substantially during 2015 to 2018 compared to 2012 to 2014, principally as a result of the IBQ Program. For example, total bluefin catch from pelagic longline vessels in 2014 was 208.7 mt and was 98.6 mt in 2018, not including the NED. When including the NED catch the change in total bluefin catch was not as dramatic, but never-the-less still substantial (Three-Year Review, Table 3.2). For example, in 2014, the catch was 221.7, and in 2018, the catch was 102.6. Landing of bluefin, including numbers, was fairly consistent from 2014 to 2018, including the NED, because regulatory dead discards prior to the IBQ Program were 'turned into' landings during 2015 to 2018. In other words, during 2015 to 2018, some of the bluefin that might have previously been discarded dead, were retained and landed. Some of the reduction in dead discards (Three-Year Review, Table 3.1) were due to alterations in fishing strategy resulting from the accountability required by the suite of Amendment 7 regulations.

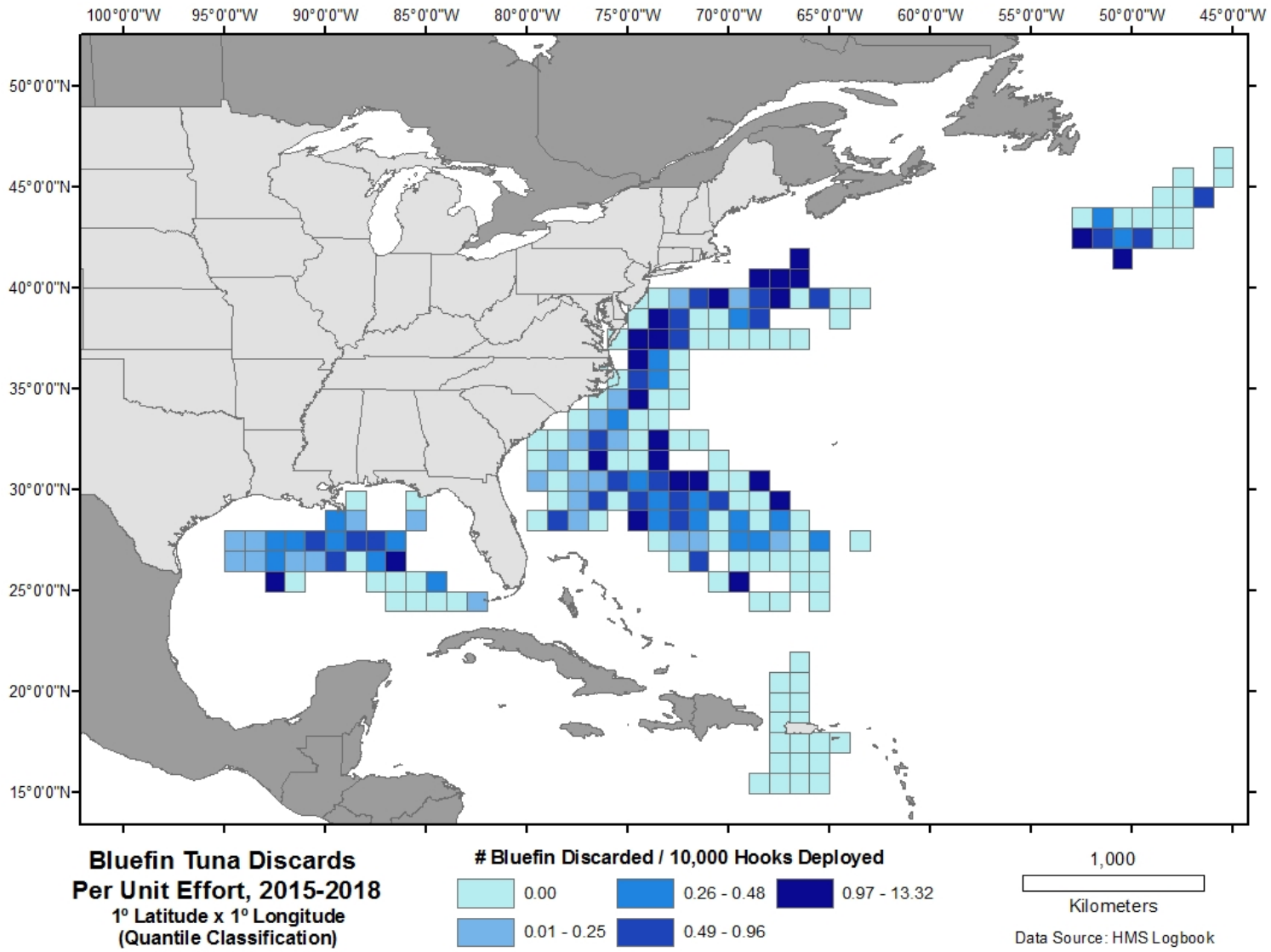


Figure 3.20 **Spatial Distribution of Bluefin Discards within the Pelagic Longline Fishery**
Source: Logbooks.

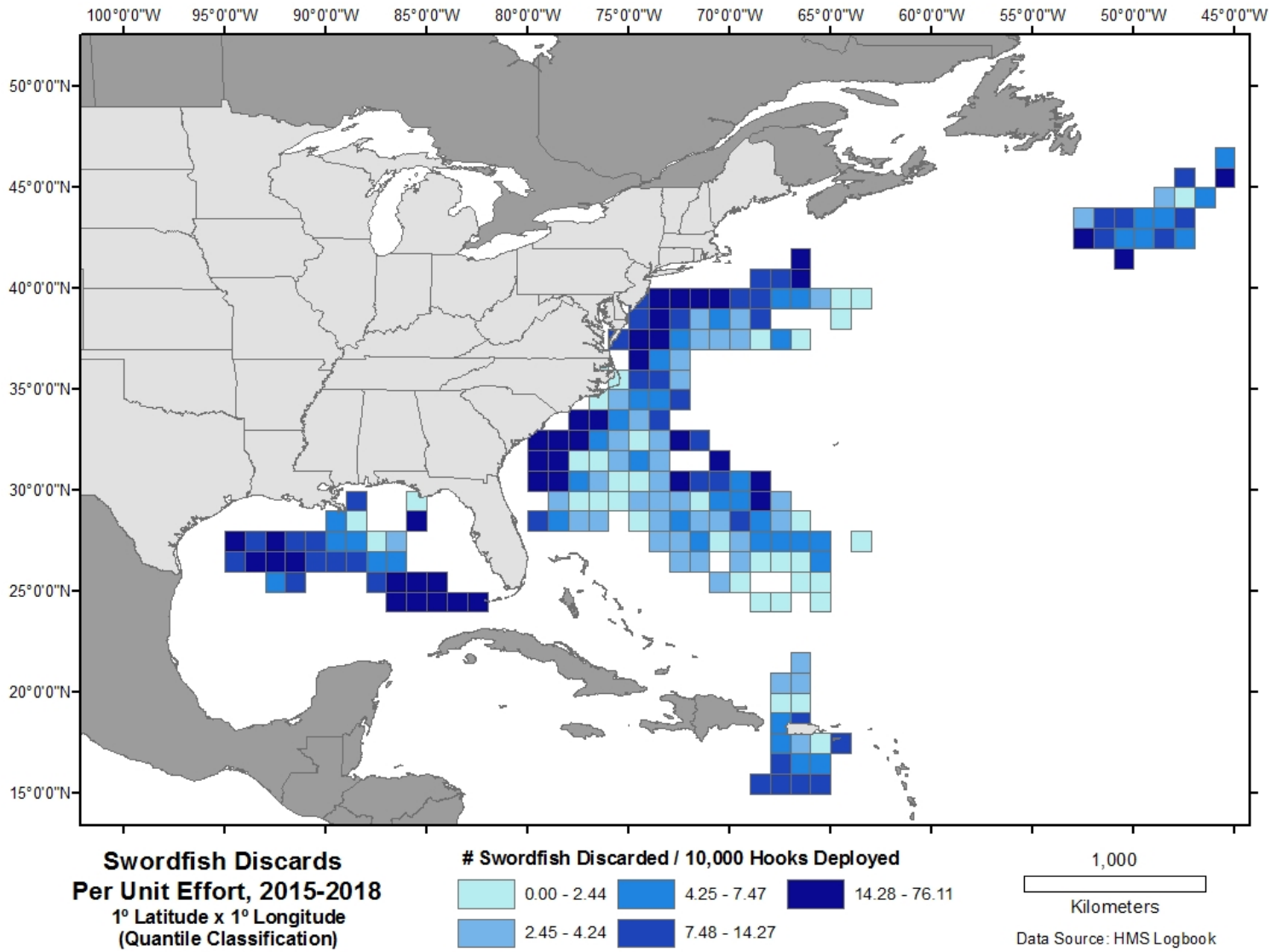


Figure 3.21 **Spatial Distribution of Swordfish Discards within the Pelagic Longline Fishery**
Source: Logbooks.

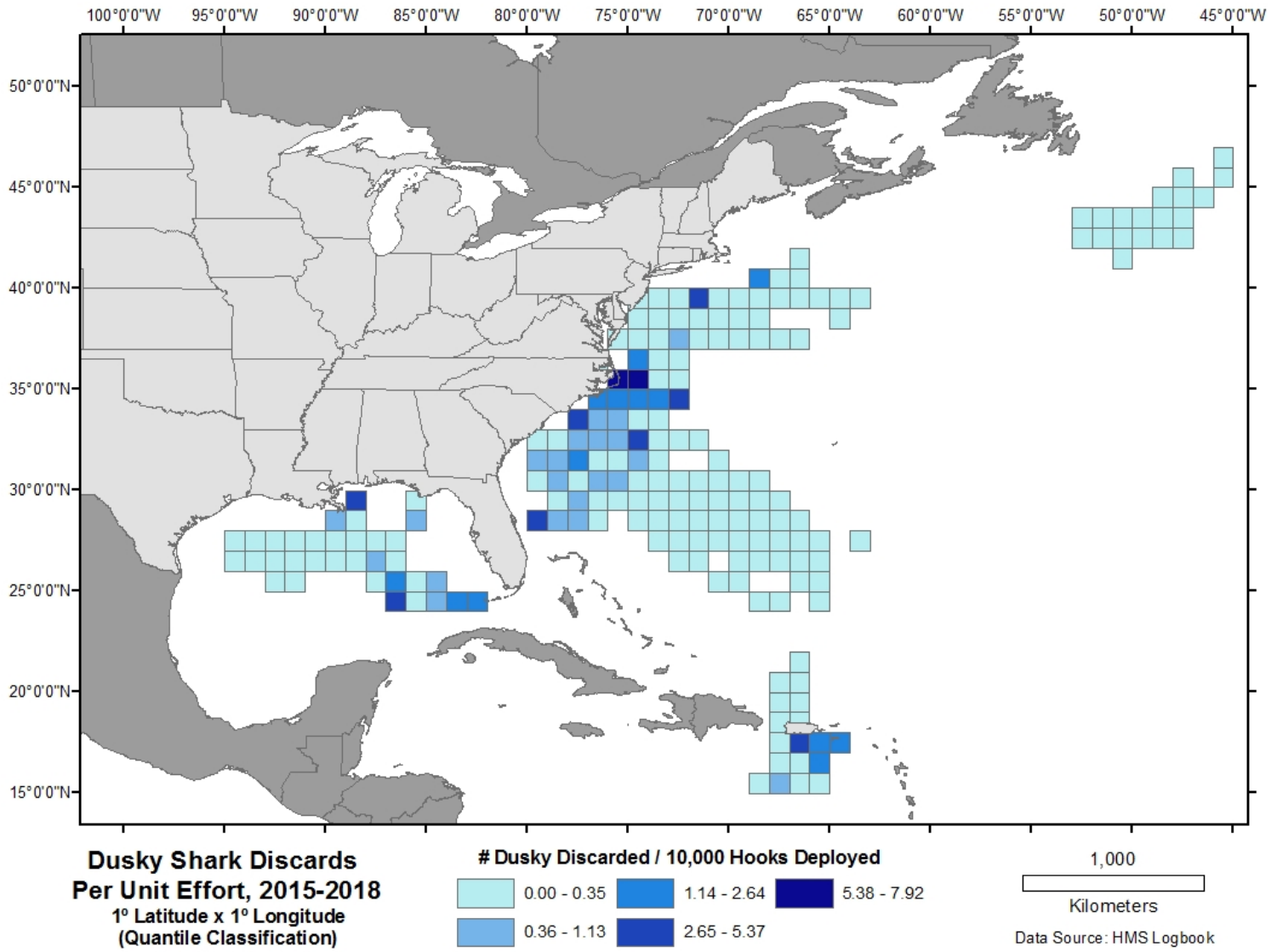


Figure 3.22 **Spatial Distribution of Dusky Shark Discards within the Pelagic Longline Fishery**
Source: Logbooks.

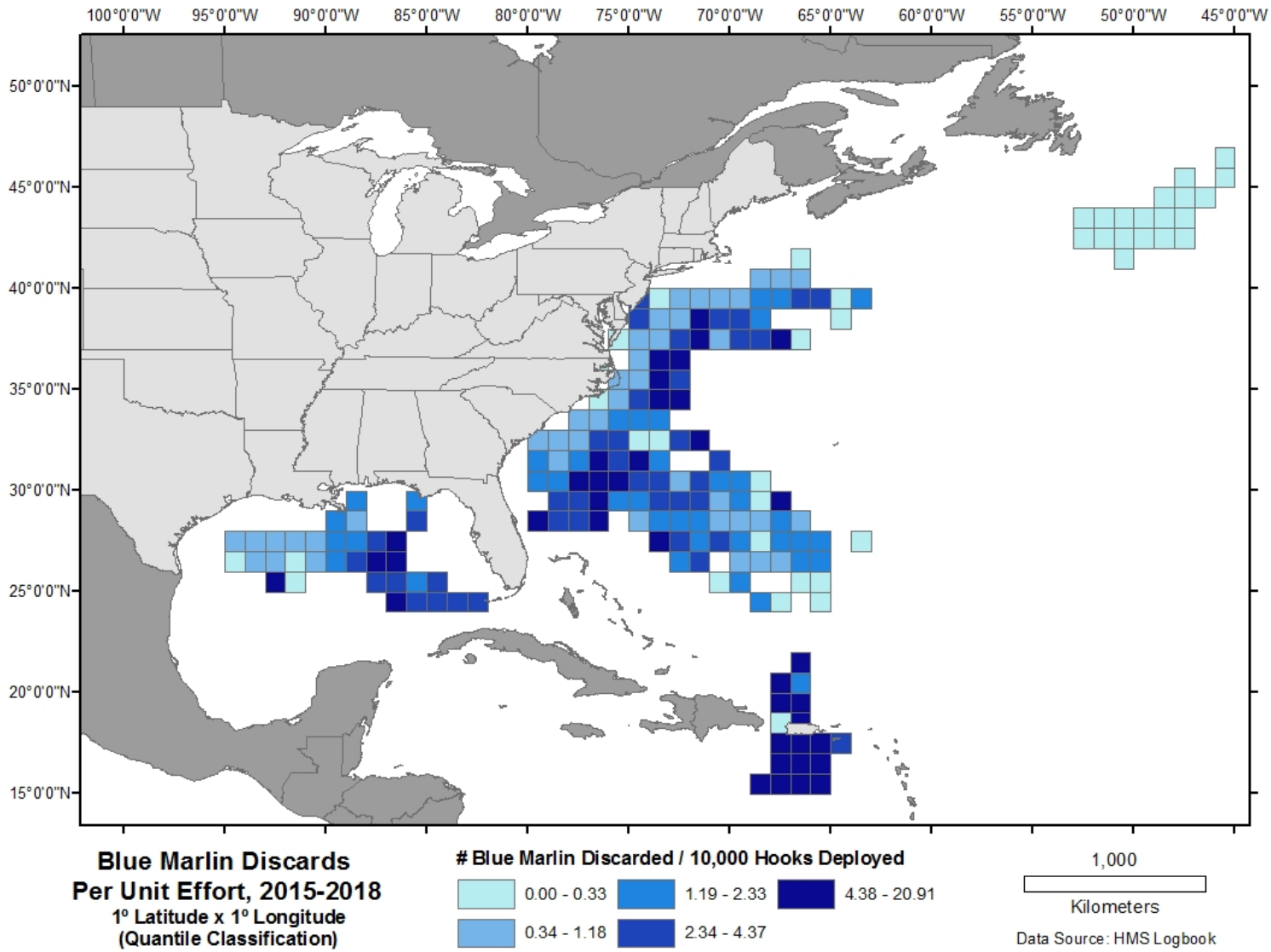


Figure 3.23 **Spatial Distribution of Blue Marlin Discards within the Pelagic Longline Fishery**
Source: Logbooks.

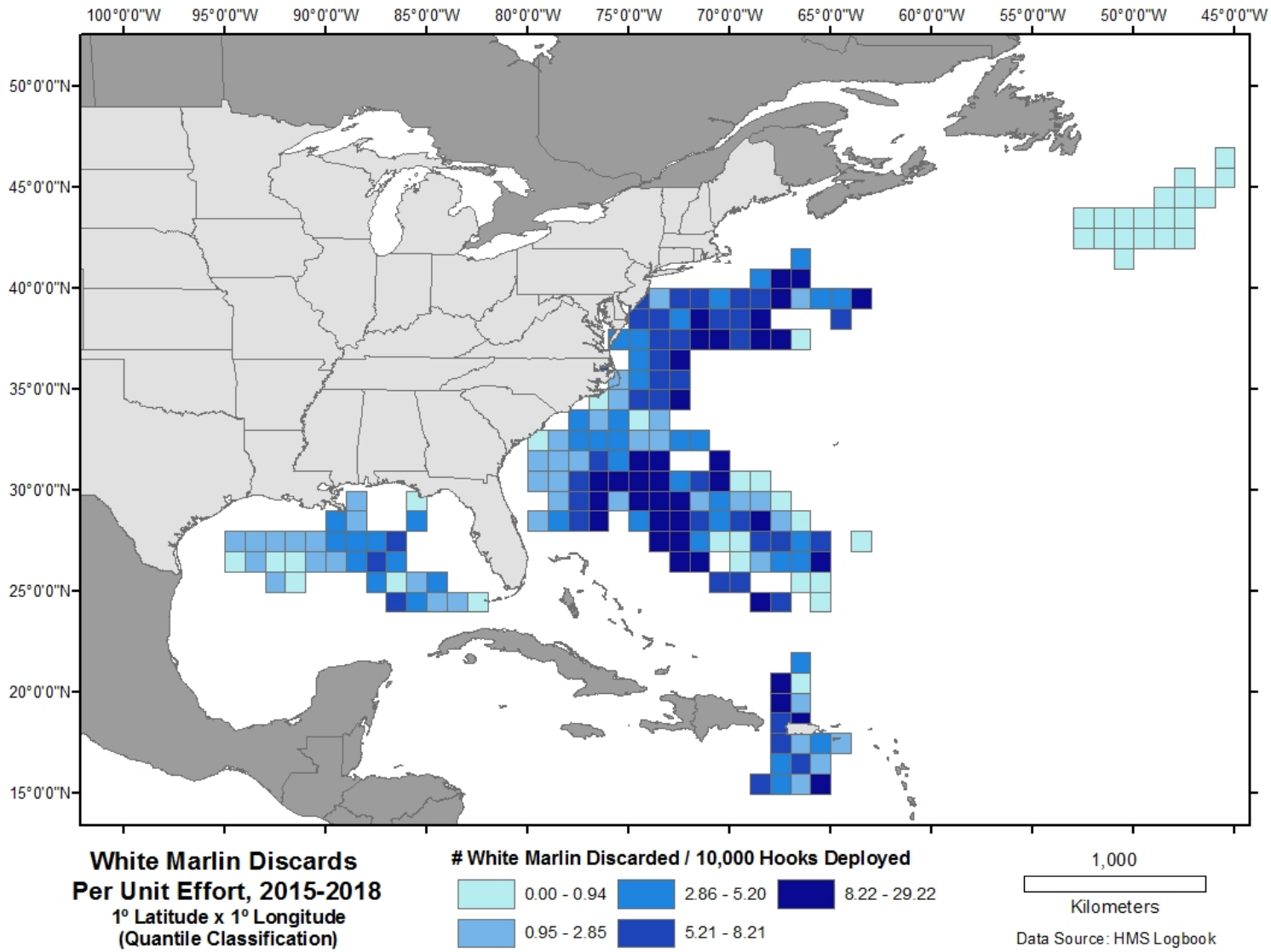


Figure 3.24 **Spatial Distribution of White Marlin Discards within the Pelagic Longline Fishery**
Source: Logbooks.

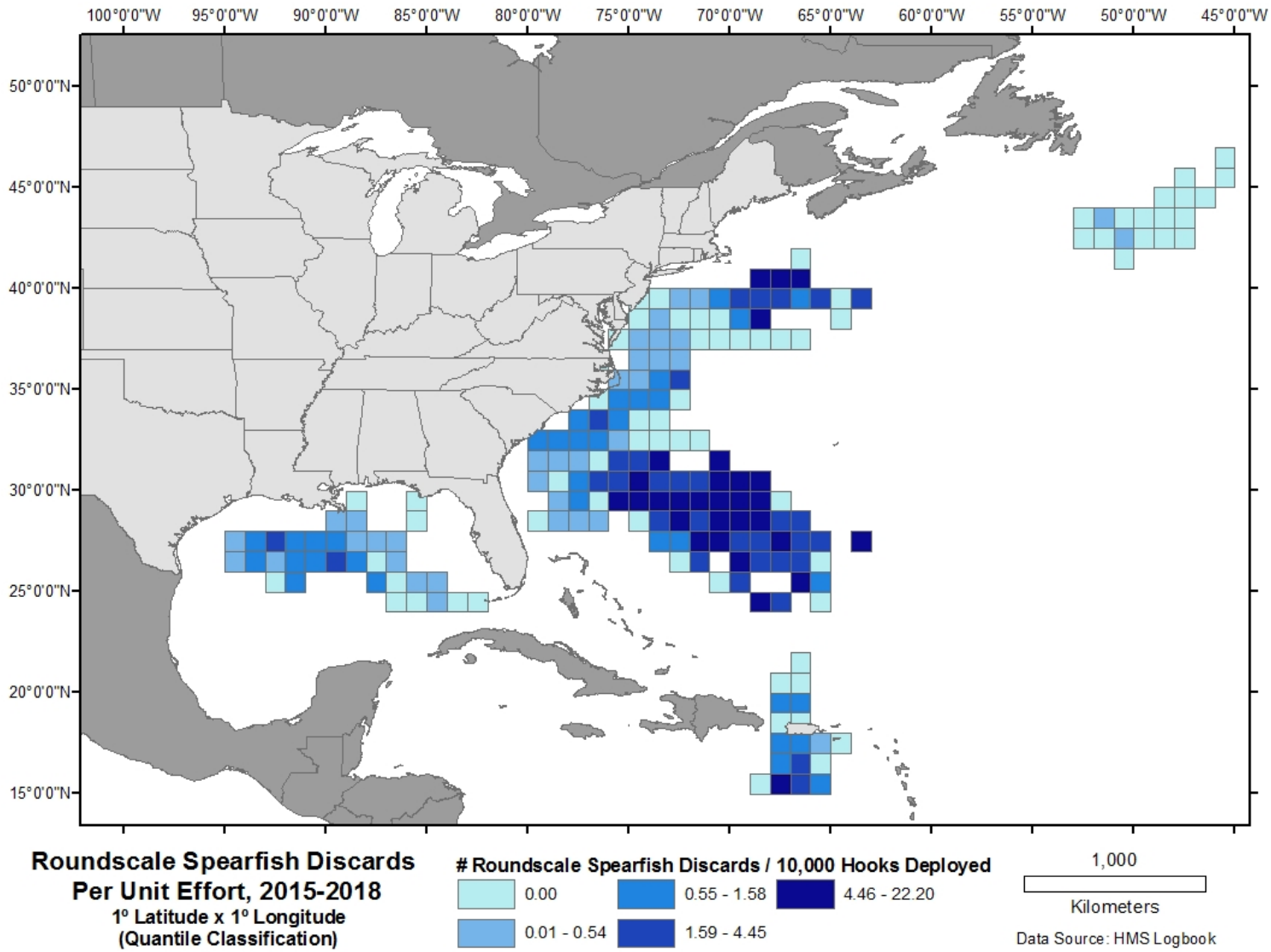


Figure 3.25 **Spatial Distribution of Roundscale Spearfish Discards within the Pelagic Longline Fishery**
Source: Logbooks.

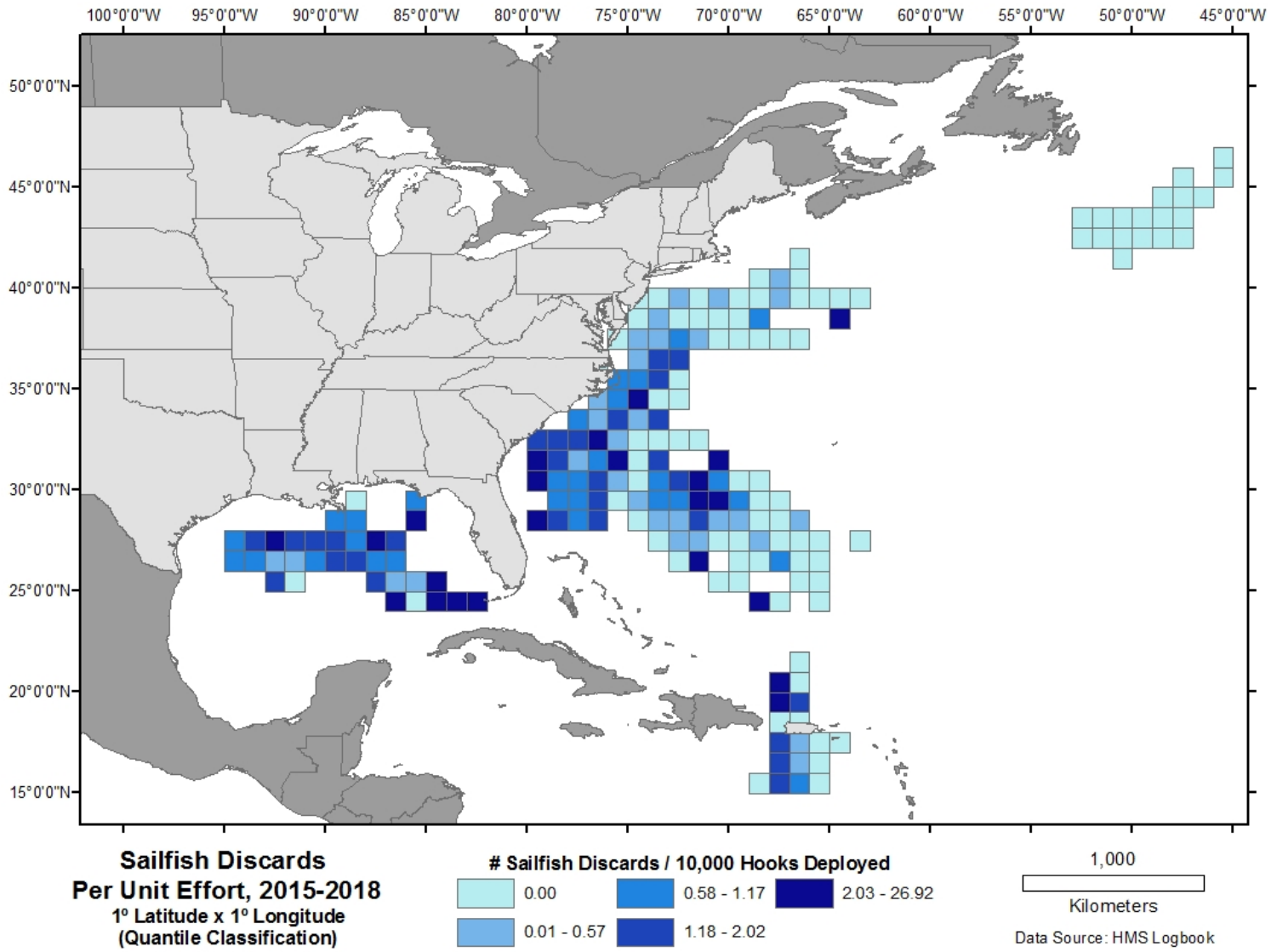


Figure 3.26 **Spatial Distribution of Sailfish Discards within the Pelagic Longline Fishery**
Source: Logbooks.

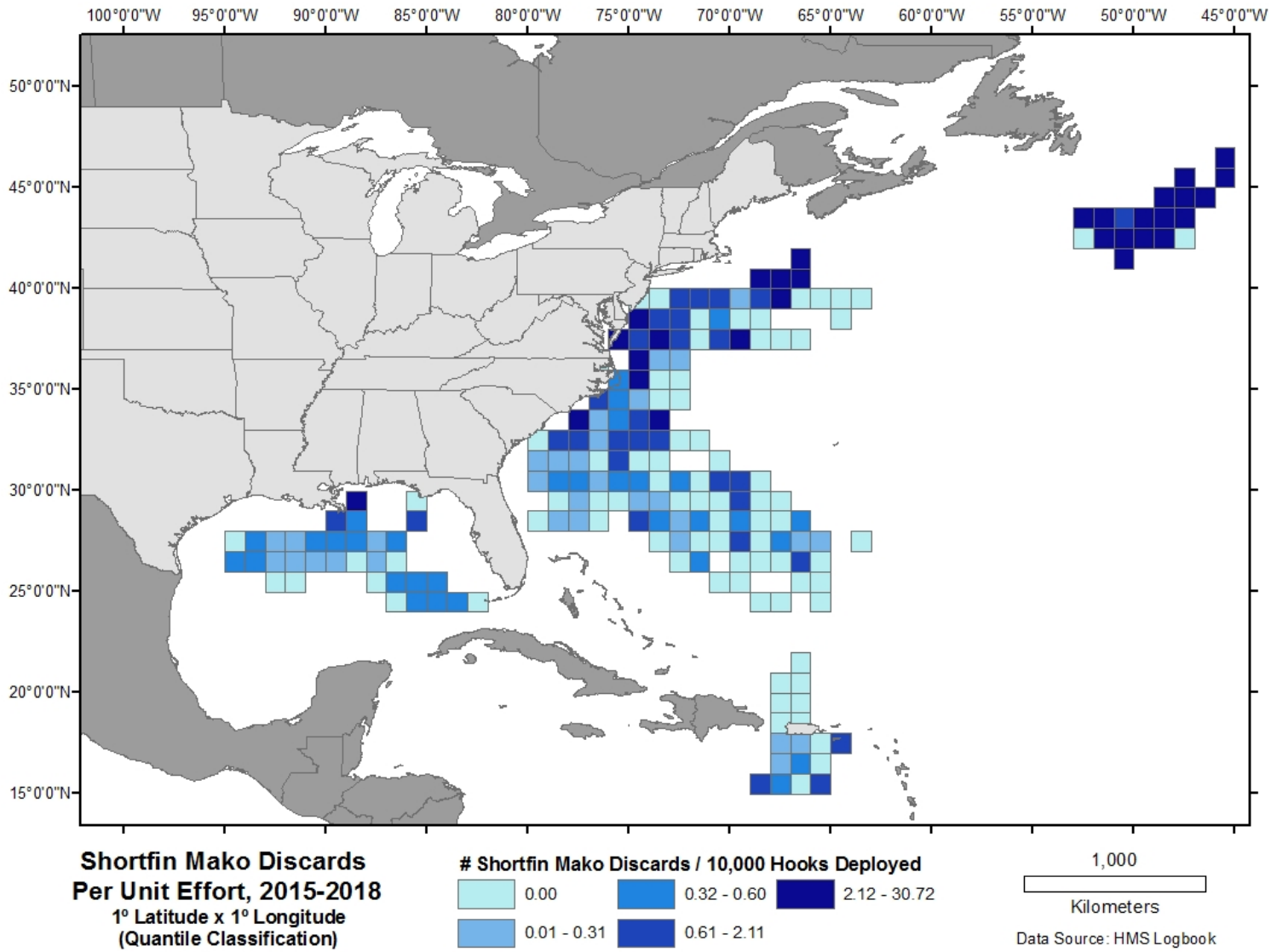


Figure 3.27 **Spatial Distribution of Shortfin Mako Discards within the Pelagic Longline Fishery**
Source: Logbooks.

Pelagic Longline Sea Turtle Interactions

NOAA Fisheries has taken several significant steps to reduce sea turtle bycatch and bycatch mortality in domestic longline fisheries, including: the required use of mitigation gear on pelagic longline vessels and handling/release guidelines and protocols (66 FR 17370); On March 30, 2001, NOAA Fisheries implemented via interim final rule requirements for U.S. flagged vessels using pelagic longline gear on board to have line clippers and dipnets to remove gear on incidentally captured sea turtles (66 FR 17370); and additional gear, bait and safe handling regulations for the Atlantic pelagic longline fishery to further reduce the mortality of incidentally caught sea turtles (69 FR 40734). NOAA Fisheries conducts workshops to educate longline and gillnet fishermen on all regulations and safe handling practices.

Internationally, the United States is pursuing sea turtle conservation through international, regional, and bilateral organizations such as ICCAT, the Asia Pacific Fishery Commission, and the United Nation's Food and Agriculture Organization (FAO) Committee on Fisheries (COFI).

Sea turtle bycatch in the U.S. Atlantic pelagic longline fishery has decreased significantly in the last decade. From 1999 to 2003 (NMFS 2019b), the pelagic longline fleet targeting HMS interacted with an average of 772 loggerhead and 1,013 leatherback sea turtles per year, based on observed takes and total reported effort. In 2005, the fleet was estimated to have interacted with 275 loggerhead and 351 leatherback sea turtles outside of experimental fishing operations (Walsh and Garrison, 2006). In 2017, the U.S Atlantic pelagic longline fishery was estimated to have interacted with 78 loggerhead sea turtles and 292 leatherback sea turtles (Garrison, 2018, unpublished data) (Table 3.29). In 2018, the U.S Atlantic pelagic longline fishery was estimated to have interacted with 61 loggerhead sea turtles and 119 leatherback sea turtles (Garrison, 2019, unpublished data) (Table 3.29). Distribution of interactions varies with species, but in general, interactions per unit effort are higher in the high seas seaward of the Bahamian EEZ, off Georges Bank, and off the Grand Banks (Figure 3.28). The grid cell in Figure 3.29 that had the highest number of interactions per unit effort reflects 3 leatherback and 5 loggerhead interactions that occurred over 14 sets deployed (~12,091 hooks). In 2017, the majority of loggerhead sea turtle interactions occurred in the South Atlantic bight and Gulf of Mexico areas (NMFS 2019b). Interactions with leatherback sea turtles were highest in the mid-Atlantic bight, south Atlantic bight, and Gulf of Mexico areas (NMFS 2019b). The total interactions for the 2013–15 Incidental Take Statement, takes the most recent and complete 3-year period, which were below the level established by the statement in the 2004 BiOp for both loggerheads and leatherbacks (Table 3.28). NMFS monitors observed interactions with sea turtles and marine mammals on a quarterly basis and reviews data for additional appropriate action, as necessary.

On May 15, 2020, NOAA Fisheries issued a biological opinion completing consultation under section 7 of the ESA on the effects of the operation of the pelagic longline fishery for Atlantic HMS, carried out under the 2006 Consolidated Atlantic HMS Fishery Management Plan, as amended. This BiOp analyzed the best available data, the status of the species,

environmental baseline, effects of the proposed action, and cumulative effects. The BiOp concluded that that proposed action (the operation of the Pelagic Longline Fishery for Atlantic Highly Migratory Species (HMS), as managed under the 2006 Consolidated Atlantic HMS Fishery Management Plan (FMP), as amended) was not likely to jeopardize the continued existence of the following ESA-listed species or distinct population segments (DPSs): sperm whales; the Northwest Atlantic DPS of loggerhead, Kemp's ridley, the North and South Atlantic DPSs of green, leatherback, hawksbill, or olive ridley sea turtles; giant manta ray; the Central and Southwest Atlantic DPS of scalloped hammerhead shark; and oceanic whitetip shark. Since no critical habitat will be adversely affected, the BiOp also concluded the action is not likely to destroy or adversely modify designated critical habitat. Under Section 7(b)(4) and Section 7(o)(2) of the ESA, "take" that would otherwise be considered prohibited under Section 9 or Section 4(d) of the ESA, but which is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the reasonable and prudent measures (RPMs) and the terms and conditions of the incidental take statement (ITS) of the Opinion. The BiOp determined that RPMs were necessary or appropriate to minimize the impacts of future takes on sea turtles and other ESA-listed species and to monitor levels of incidental take. There were two RPMs in the BiOp and multiple terms and conditions associated with each. The first RPM addressed sperm whale, sea turtle, giant manta ray, scalloped hammerhead, and oceanic whitetip handling requirements. It requires the HMS Management Division, with the advice of SERO PRD, to ensure that fishermen in the HMS PLL fishery receive relevant outreach materials and provide such materials describing how captured ESA-listed sea turtles and fish should be handled and how gear should be removed from ESA-listed sea turtles, fish, and marine mammals to minimize adverse effects from incidental take and reduce mortality. The HMS Management Division shall provide such training using materials provided by the SERO PRD Division to fishermen. The second RPM requires the HMS Management Division to ensure that any takes of ESA-listed species are monitored and reported, coordinating with the SEFSC as necessary and appropriate. Such reports should allow the agency to: (1) detect any adverse effects resulting from the proposed action; (2) assess the actual level of incidental take in comparison with the anticipated incidental take documented in this Opinion; (3) assess (for sea turtles) the hooking location and gear remaining on every sea turtle released to allow for post-release mortality estimations; and (4) detect when the level of anticipated take (lethal and non-lethal) is exceeded.

To be exempt from the take prohibitions established by Section 9 of the ESA, the BiOp requires that the HMS Management Division comply with eleven mandatory terms and conditions, which implement the RPMs described above. The terms and conditions specify the types of outreach materials that must be provided to PLL fishermen, levels of observer coverage, quarterly reporting of the total take and total mortalities (dead-on-retrieval and post-release mortality) of ESA-listed species in the HMS pelagic longline fishery, and an annual report detailing interactions between ESA-listed species and the HMS pelagic longline fishery.

The 2020 HMS PLL BiOp may be found at: https://www.fisheries.noaa.gov/resource/document/biological-opinion-pelagic-longline-fishery-atlantic-highly-migratory-species.

Table 3.29 Estimated Sea Turtle Interactions and Sea Turtle Incidental Take Levels in the U.S. Atlantic Pelagic Longline Fishery by Species, 2010–2018

Species	Total 2010 to 2012	2013	2014	2015	Total 2013 to 2015	2016	2017	2018	Total 2016 to 2018	*Total 3-Year ITS Level
Leatherback	1,006	366	279	299	944	339	292	119	750	1,764
Loggerhead	1,463	377	259	243	879	154	78	61	293	1,905
Other/unidentified sea turtles	22	0	6	18	24	3	25	4	32	105

*Applies to all subsequent three-year incidental take statement periods (e.g., 2010–12, 2013–15, 2016–18); 2017 data are preliminary estimates. Sources: Garrison and Stokes 2016, 2017, 2019. Garrison 2018, 2019 —unpublished data.

Pelagic Longline Seabird Interactions

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

The NPOA-Seabirds was released in February 2001, and calls for detailed assessments of longline fisheries, and, if a problem is found to exist within a longline fishery, for measures to reduce seabird bycatch within two years. Because interactions appear to be relatively low in Atlantic HMS fisheries, such measures have not been necessary. The 2014 Report on the Implementation of the United States National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries was submitted to the FAO in June 2014.

Observer data indicate that seabird bycatch is low in the U.S. Atlantic pelagic longline fishery (NMFS 2018). In 2017, there were 89 active U.S. pelagic longline vessels in the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea that reportedly set approximately 5.3 million hooks. Seven seabirds were observed taken (two unidentified shearwaters, two herring gulls, one northern gannet, one northern fulmar, and one unidentified seabird). Five seabirds were released dead and two seabirds were released alive.

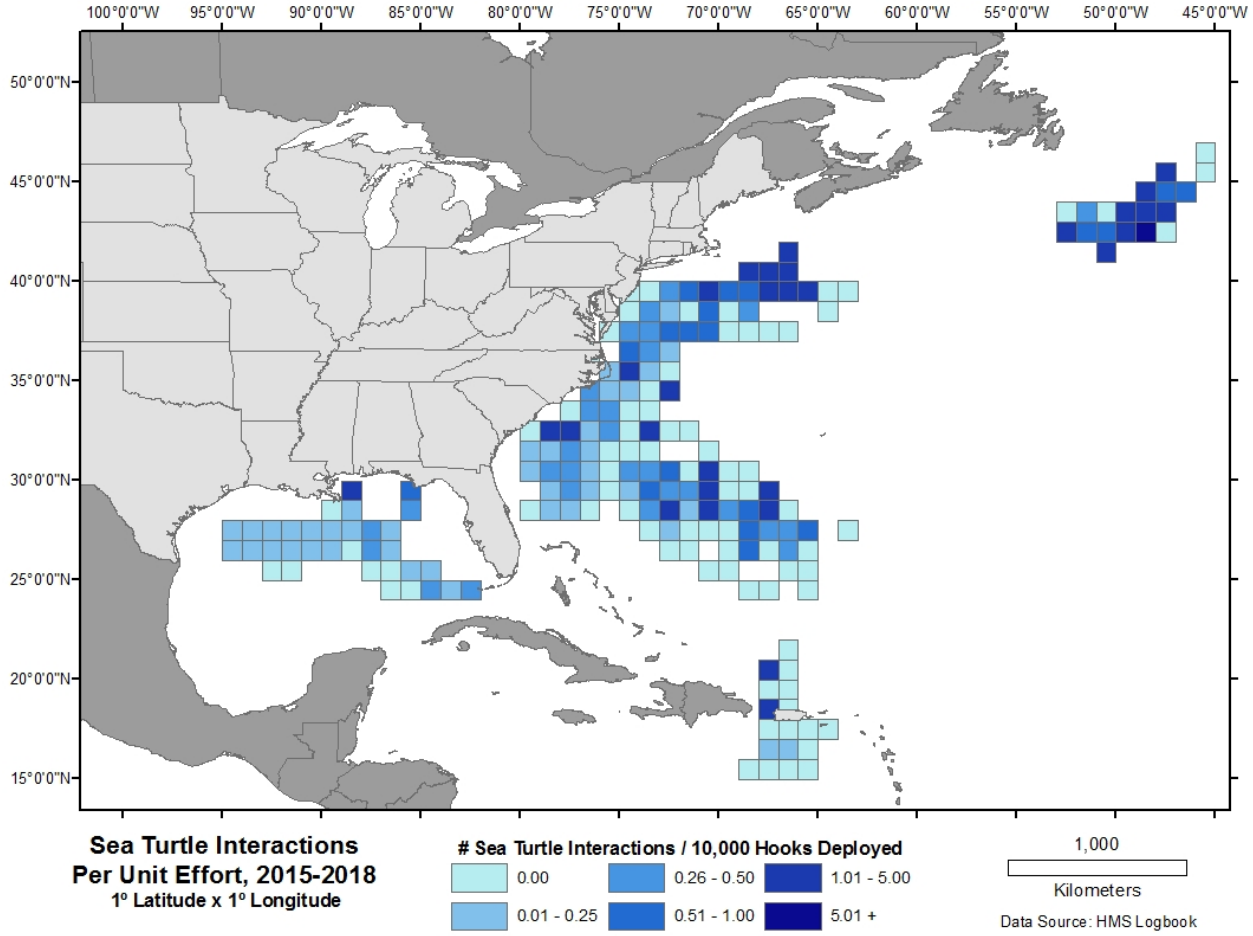


Figure 3.28 **Spatial Distribution of Sea Turtle CPUE within the U.S. Pelagic Longline Fishery**
Source: Logbooks.

Purse Seine Bycatch, Incidental Catch, and Protected Species

Bluefin purse seine fishery bycatch and incidental catch typically consist of undersized target species and non-target finfish (NMFS 2014). The bluefin purse seine fishery is classified as a Category III fishery under the MMPA, and operates under a specified Incidental Take Statement that was issued as part of the June 21, 2001 Biological Opinion (BiOp) on HMS fisheries.

NOAA Fisheries has limited observer data on the bluefin purse seine fishery given the relative limited effort over the past few years. There are no recorded instances of non-tuna finfish, other than minimal numbers of blue sharks, caught in Atlantic tuna purse seines. Anecdotal evidence indicates that if a school of bluefin is determined to be composed exclusively of sublegal (<73") bluefin, they can be released from the net. However, if the school consists of mixed size classes (e.g., large mediums and giants), those fish exceeding the large medium tolerance limit will likely be discarded dead. In 2013-2015, observer coverage of purse seine operations fishing under an EFP that allowed increased retention

of 30 percent large medium bluefin found an average dead discard rate of 28.4 percent (Table 4.25).

Non-pelagic longline HMS impacts on Endangered Species

As with the HMS pelagic longline fishery, NOAA Fisheries has taken many actions over the years to reduce sea turtle and other endangered species bycatch and bycatch mortality in HMS non-pelagic longline fisheries. The details of those actions are described in previous SAFE reports and other documents and are not repeated here.

On May 15, 2020, NOAA Fisheries released a BiOp for all Atlantic HMS fisheries except pelagic longline (in addition to a separate BiOp on the same date, addressing consultation over the PLL fishery for Atlantic HMS). This BiOp concluded that these fisheries (including handgear fisheries) were not likely to jeopardize the continued existence of sea turtles, sawfish, Atlantic sturgeon, scalloped hammerhead shark (Caribbean and Central Atlantic DPS), oceanic whitetip shark, and giant manta ray. NOAA Fisheries is implementing the RPMs and Terms and Conditions of this BiOp.

The BiOp on the operation of the Atlantic HMS fisheries other than PLL can be found here: https://www.fisheries.noaa.gov/resource/document/biological-opinion-operation-atlantic-highly-migratory-species-fisheries.

Recreational Fishery Bycatch

Recreational fishery bycatch statistics are summarized in the Atlantic HMS SAFE Reports. Bycatch in the recreational rod and reel fishery is difficult to quantify because many fishermen may be valuing the experience of fishing over the catch of a targeted species, thus making it difficult to distinguish between target species and bycatch species. HMS established a catch-and-release fishery management program for the recreational Atlantic billfish fishery in 1999. Since fish released alive under a recreational catch-and-release fishery management program are exempt from the Magnuson-Stevens Act definition of bycatch, a result of the program is that all Atlantic billfish released alive, regardless of size, are not considered bycatch. The recreational white shark fishery is, by regulation a catch-and-release fishery only (50 CFR Part 635.26(c)); therefore, white sharks are not considered bycatch. Dead discards of bluefin are counted as bycatch and must be reported online or via phone.

Most evidence suggests that circle hooks reduce at-vessel and post-release mortality rates for many HMS compared to J-hooks without reducing the catch of target species, although this varies by species, gear configuration, bait, and other factors. In a meta-analysis of 42 empirical studies, Reinhardt et al., (2017) compared the effects of hook type on catch rate and at-vessel mortality of 43 and 31 species, respectively. Catch rates were statistically significantly higher for a number of sharks, tunas, and sailfish. This study also found statistically significant evidence that at-vessel mortality of fish caught on J-hooks was higher for a number of billfish, swordfish, tunas, and sharks.

NOAA Fisheries initiated an outreach program to address bycatch and educate anglers on the benefits of circle hooks. NOAA Fisheries created a Careful Catch and Release brochure that provides guidelines on how to increase the survival of large pelagic species caught with hook-and-line. NOAA Fisheries has also developed additional resources for recreational fishermen to reduce bycatch of dusky sharks, which are often misidentified in recreational fisheries. A video on the safe handling and release of prohibited Atlantic sharks is available for anyone to view. Fishery participants that elect to add a shark endorsement to their HMS Angling permits must review this video and take a quiz prior to receiving their permit.

Commercial Handgear Bycatch

Commercial handgear fishery catch statistics (green-stick gear, buoy gear) are summarized in the Atlantic HMS SAFE Reports. In general, there is little bycatch information available on commercial handgear fisheries, however some of these fisheries are very selective and have minimal bycatch (e.g., harpoon). Preliminary results of a study that implemented a temporary, General Category Logbook were presented at the Fall 2019 HMS Advisory Panel Meeting. Several non-HMS fish species and bluefin were reported as bycatch of this fishery (General Category; Table 3.30).

Table 3.30 General Category Discards (by Number) in 2018

Species	Number of Reported Discards	Total Discards (%)
Mackerel	5,358	36
Bluefin tuna	1,994	14
Pollock	1,889	13
Haddock	1,853	13
Cod	1,284	9
Squid	1,035	7
Other	1,258	8

Source: NMFS, unpublished data.

3.5 References

Angliss, R.P. and D.P. DeMaster. 1998. Differentiating serious and non-serious injury of marine mammals taken incidental to commercial fishing operations. NOAA Technical Memorandum NMFS OPR-13: 48 p.

Arocha, F. 1997. The reproductive dynamics of swordfish Xiphias gladius L. and management implications in the northwestern Atlantic. University of Miami, Ph.D. Dissertation. Coral Gables, FL. 383 p.

Block B.A., Teo S.L.H., Walli A., Boustany A., Stokesbury M.J.W., Farwell C.J., Weng K.C., Dewar H., and T.D. Williams. 2005. Electronic tagging and population structure of Atlantic bluefin tuna. Nature. 434: 1121-1127.

Cornic, M., Smith, B.L, Kitchens, L.L., Alvarado Bremer, J.R., Rooker, J.R., Abundance and habitat associations of tuna larvae in the surface water of the Gulf of Mexico. Hydrobiologia. DOI 10.1007/s10750-017-3330-0

Fromentin, J. and J. Powers. 2005. Atlantic bluefin tuna: population dynamics, ecology, fisheries and management. Fish and Fisheries 6(4):281-306. DOI: 10.1111/j.1467-2979.2005.00197.x

Goldstein, J., Heppell, S., Cooper, A. et al. Reproductive status and body condition of Atlantic bluefin tuna in the Gulf of Maine, 2000–2002. Mar Biol 151, 2063–2075 (2007). https://doi.org/10.1007/s00227-007-0638-8

Hutt, C., and G. Silva. 2019. The Economic Contributions of Atlantic Highly Migratory Anglers and Tournaments, 2016. U.S. Department of Commerce, NOAA Tech. Memo. NMFS-OSF-8, 44 p.

Lutcavage ME, Galuardi B, Lam TC. 2012. Predicting potential Atlantic spawning grounds of Western Atlantic bluefin tuna based on electronic tagging results 2002-2011. ICCAT SCRS/2012/157. 7 p.

Mather FJ, Mason JM, Jones AC. 1995. Historical document: life history and fisheries of Atlantic bluefin tuna. Miami: NOAA Technical Memorandum 370 NOAA

Minerals Management Service (MMS), U.S. Dept. of Interior. 1992. Comprehensive Program 1992-1997. Final Environmental Impact Statement (EIS). Outer Continental Shelf EIS/EA MMS 92-0004.

MMS. U.S. Dept. of Interior. 1996. Outer Continental Shelf Oil & Gas Leasing Program 1997-2002. Final Environmental Impact Statement. USDOI, MMS, OCS EIS/EA, MMS 96-0043.

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

NMFS. 2014. Final Amendment 7 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. USDOC, NOAA, NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.

NMFS. 2017. Final Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. USDOC, NOAA, NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.

NMFS. 2018. Environmental Assessment, Regulatory Impact Review, and Final Regulatory Flexibility Analysis for the Atlantic Tuna and Northern Albacore Rule. USDOC, NOAA, NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.

NMFS. 2019a. Three-Year Review of the Individual Bluefin Quota (IBQ) Program. USDOC, NOAA, NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.

NMFS. 2019b. Stock assessment and fishery evaluation (SAFE) report for Atlantic highly migratory species. Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD 20910.

NMFS. 2020a. Stock assessment and fishery evaluation (SAFE) report for Atlantic highly migratory species. Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD 20910

NMFS. 2020b. Final Regulatory Amendment to Modify Pelagic Longline Bluefin Tuna Area-Based and Weak Hook Management Measures. USDOC, NOAA, NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.

Restrepo VR, Thompson GG, Mace PM, Gabriel WL, Low LL, MacCall AD, Methot D, Powers JE, Taylor BL, Wade PR, Witzig JF. 1998. Technical guidance on the use of precautionary approaches to implementing National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Tech Memo NMFS-F/SPO-31.

Richards, W. J., M. F. McGowan, T. Leming, J. T. Lamkin & S. Kelley, 1993. Larval fish assemblages at the loop current boundary in the Gulf of Mexico. Bulletin of Marine Sciences 53: 475–537.

Ryder, C.E., T.A. Conant, and B.A Schroeder. 2006. Report of the workshop on marine turtle longline post-interaction mortality. USDOC, NOAA Tech. Mem. NMFS-F/OPR-29.

SCRS. 2020. Western Atlantic Bluefin Stock Assessment 2020. ICCAT. Scientific Committee on Research and Statistics.

Walsh, C.F. and L.P Garrison, 2006. Estimated bycatch of marine mammals and turtles in the U.S. Atlantic pelagic longline fleet during 2005. NOAA Technical Memorandum. NMFS-SEFSC-539. 51 p.

4 Ecological and Socioeconomic Consequences of Alternatives

This chapter analyzes the impacts of the alternatives described in Chapter 2. Specifically, this chapter contains qualitative and quantitative analysis of the direct and indirect ecological and socioeconomic impacts of the alternatives. The analyses focus on the ecological impacts of the alternatives on bluefin (direct impacts), but also discuss potential impacts on other Atlantic Highly Migratory Species (HMS), protected species (Section 4.9), and essential fish habitat (EFH)(indirect impacts). Where relevant (i.e., facilitating the understanding of the nature of the impact), the impacts are noted as short term or long term (as defined in Chapter 1). The EFH analysis for all of the alternatives has been combined (Section 4.10) due to the low likelihood of the alternatives having an impact on EFH. The socioeconomic impacts focus on fishing vessels (direct impacts), but also include impacts on seafood dealers (indirect impacts). The relevant sources of data and methods used to analyze the alternatives are described under each alternative. Most of the relevant data analyzed is for the time period 2015 through 2018 or 2019. Data availability at the time the analysis in the document began was the most important factor in determining whether 2019 data was included or not. Typically, data such as logbook or observer data must undergo a process of quality control after it is received by the Agency, and therefore, data may not be 'finalized' and ready for use by managers until weeks or months after receipt. In 2015, the wide-ranging regulatory changes implemented by Amendment 7 took effect, so regulations affecting participants of the bluefin fisheries have been fairly consistent during that time period, and are a good analytical basis. Individual analyses may have specific time periods that are relevant, and/or data availability limitations.

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

These alternatives analyze modifications to the IBQ Program: The method of determining eligibility for IBQ shares, the method of distributing IBQ shares (expressed as percentage of the Longline category quota) and the method of IBQ allocation (expressed as pound). Closely related rules regarding the IBQ Program are analyzed in another section.

The ecological impacts of each of the allocation alternatives are discussed briefly below. The ecological impacts of the IBQ share and allocation alternatives on bluefin are neutral. The IBQ share and allocation alternatives would not modify the annual science-based bluefin quota, nor the fishing mortality associated with that quota. Any action considered in the alternatives would manage the bluefin stock within the already-established Total Allowable Catch (TAC) level and U.S. quota, which NOAA Fisheries (NMFS) previously implemented through rulemaking with the appropriate environmental analyses of the effects of quota implementation (NMFS, Sept 2018). Changes in IBQ share percentages may

have an effect on a vessel's fishing strategy (i.e., where and when they fish, or the amount of fishing effort), and therefore may have indirect, minor, short term impacts on HMS target species or bycatch species.

The socioeconomic impacts of the allocation alternatives are also discussed below. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. The principal communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may be most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

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

This alternative would make no changes to the current method of determining IBQ share eligibility, and the distribution of IBQ allocations, including regional designations. The No Action Alternative (current methods) described below are those in the 2006 Consolidated HMS Fishery Management Plan (FMP), as amended by Amendment 7, and modified by subsequent actions.

Ecological Impacts

The ecological impacts of the No Action alternative on bluefin are neutral, because the method of defining eligible shareholders and the distribution of IBQ allocation do not affect the amount of overall Longline category quota that may be caught. Provided the IBQ Program elements continue to function in a manner consistent with its objectives, with individual vessel accountability for bluefin catch, the specific allocation methods would have a neutral ecological impact compared to the overall Longline category quota. The No Action alternative would not modify the annual International Commission for the Conservation of Atlantic Tunas (ICCAT) recommended bluefin quota, nor the U.S. portion of that quota. In 2020, ICCAT adopted Rec. 20-06, which rolled over the current TAC for 2020; provided for a 2021 stock assessment that would incorporate the most recent available data, including any new abundance indices; and specified TAC levels for 2022 and 2023 that would address overfishing based on the 2020 stock assessment update and management scenario 3 analyzed therein, unless ICCAT decides otherwise based on new SCRS advice. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending overfishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the

past several years. Chapter 3 provides additional information on the relevant bluefin quotas. The maximum amount of IBQ allocation that may be caught from the Gulf of Mexico is 35 percent of the quota (based on the amount of IBQ allocation designated as Gulf of Mexico (GOM) under Amendment 7). The Three-Year Review concluded that under the IBQ Program (which included the No Action method of IBQ allocation) bluefin catch was reduced substantially compared to the time period prior to the implementation of the IBQ Program. The ecological impacts on other HMS species (as well as protected species) would also be neutral, because fishing strategies for target species are likely to remain similar under the same quota allocation methods.

Socioeconomic Impacts

The socioeconomic impacts of the No Action alternative on fishery participants and supporting industries are neutral in that the alternative would continue the current system of share definition and allocation and represent no change to the amount of effort that could occur. There would be minor adverse impacts in that the short-term costs associated with the current level of leasing of IBQ allocation would continue, and the relatively high amount of IBQ shares associated with vessels that are not active would remain. The quota was intended to be used by active vessels to account for bluefin catch (and not as a means of speculation or profit by entities not fishing with pelagic longline gear), and allow for turnover in fishery participants, including new entrants.

Based on the data presented in the Three-Year Review, vessels were able to account for bluefin catch using a combination of annual and leased IBQ allocation (Three-Year Review, Table 3.8 and Table 3.9). The shareholder tier and resulting amount of IBQ allocation (high, medium, or low) available to a vessel mattered, as evidenced by the different metrics associated with the three tiers (e.g., amount of bluefin landed by each tier, numbers of vessels leasing, percent of total leased IBQ allocation, percent of total quota debt (Three-Year Review, Table 3.10, Table 6.11, and Table 6.12)). For example, the ratio of the percent of the total leases to the percent of total quota debt was notably greater for vessels in the high tier (Three-Year Review, Table 6.14).

The socioeconomic impacts that would continue under the No Action Alternative result from : (1) The definition of eligible shareholders based on the time period of 2006 through 2012, and (2) the distribution of IBQ allocation based on two factors (allocate bluefin in proportion to a vessel's historical fishing effort, and inversely proportional to the vessel's amount of bluefin interactions relative to its target catch).

Based on the Three-Year Review, the Amendment 7 methods resulted in a lower number of vessels being distributed IBQ allocation than the number of eligible shareholders due to permits that are not associated with vessels, or non-renewed permits. For example, of the 136 defined shareholders only 122 and 112 vessels were distributed IBQ allocation in 2017 and 2018, respectively (Three-Year Review; Table 4.1). Of the vessels distributed IBQ allocation, only a portion actively fished. For example, of the 122 vessels distributed IBQ allocation in 2017, only 86 fished with pelagic longline gear (Table 4.3). The net result is

that only a portion of the overall quota associated with the Longline category is distributed to vessels that are active.

Although, as noted above the impacts of the No Action alternative would be neutral in that there would be no change, the costs associated with the No Action alternative would continue. The socioeconomic impacts of the No Action alternative can be viewed as the constraints and costs associated with the amount of IBQ allocations associated with the No Action alternative. The percentages associated with the high, medium and low tiers are 1.2 percent, 0.6 percent, and 0.37 percent. Applying these percentages to the 2019 Longline category quota of 360,656 pounds, the IBQ allocations associated with high, medium, and low shareholders are 4,317 pounds, 2,157 pounds, and 1,330 pounds per vessel, respectively. There are a total of 43 high tier, 62 medium tier, and 31 low tier shareholders, as defined by Amendment 7. Under the No Action alternative, there would continue to be dissatisfaction among fishery participants that results from the fact that a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel).

Under the No Action alternative there would continue to be the inefficiency associated with annual IBQ allocations that are neither used to account for bluefin catch, nor leased to other shareholders. During 2015, 2016 and 2017, only 77 percent, 63 percent, and 63 percent of shareholders were active, respectively. The constraints and costs associated with the amount of IBQ allocations can be measured by using the IBQ leasing data. To comply with the IBQ quarterly accounting rules, account for catch of bluefin, and maintain a balance of IBQ allocation that reduces risk (i.e., risk associated with the potential need to account for future bluefin catch), vessels leased IBQ allocation in the past, and would likely continue to do under the No Action alternative. To estimate the costs associated with a hypothetical future leasing market under the No Action alternative, we chose both an estimated cost per pound for leased quota and an estimated number of pounds leased.

Based on the weighted average price per pound of leased IBQ allocation from 2017, 2018, and 2019, the overall average cost of leasing IBQ allocation is $1.70 per pound (Table 3.15 in Chapter 3). In 2019, there was a total of 180,756 pounds of IBQ allocation leased (including leased allocation from Purse Seine participants). If the amount leased in the future were 180,000 pounds, the total cost of leasing IBQ allocation would be $306,000. The costs associated with leasing IBQ allocation would also include time spent by leasing market participants communicating with other participants when they are trying to find potential lessors or lessees, and the time spent by lessors online executing the transactions.

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

Under these alternatives, shareholders would be determined annually, based on the application of eligibility criteria intended to define a pool of recently active vessels. Therefore, elements of each of these alternatives include a definition/criterion for

determining the pool of vessels that have recently fished (i.e., defining what an "active" vessel is). In other words, designation of a specific time period and metric to be analyzed to determine which vessels have been recently active (i.e., during the previous 3 years). The second aspect of eligibility is that vessels must have a currently valid Atlantic Tunas Longline category permit. The shareholders determined by Amendment 7 would no longer exist or be relevant. The outcome of assessing those criteria would result in the annual determination of eligible shareholders, and subsequent distribution of IBQ allocation to permitted vessels that recently fished with pelagic longline gear.

Deepwater Horizon Oceanic Fish Restoration Project (OFRP) Participants, who voluntarily took time out of the pelagic longline fishery for set periods of time would not be disadvantaged under these dynamic allocation alternatives. As described in each alternative below, a proxy amount of effort would be utilized for such vessels during the years they participated in the OFRP. Part of the contract participants signed stated that participants would not be disadvantaged by their participation.

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

Alternative A2a would define IBQ shareholders annually based on hooks as the measure of fishing effort. The time period used for determination of eligible permitted vessels (active vessels) would be the three most recent years of available data. VMS bluefin reports would be the basis for defining IBQ shares (due to the timing of NOAA Fisheries' receipt of the data versus logbooks), based upon each individual vessel's fishing effort using pelagic longline gear, relative to the total amount of pelagic longline fishing effort. Based on the share percentages and the Longline category quota, IBQ allocation would be distributed annually to permitted vessels.

Methods:

Active vessels from 2016 through 2018 were determined based on submission of Vessel Monitoring System (VMS) bluefin reports. The years 2016 through 2018 were used in order to facilitate comparison to the other allocation alternatives. Because finalized logbook data from 2019 was not yet available at the time these analyses began, alternatives that utilized logbook data in the analysis were limited to using 2018 as the most recent year of information. From 2016 through 2018, there were a total of 97 vessels that were active in at least one year (including one vessel that was only active in the Deepwater Horizon OFRP). VMS data from 2016 through 2018 was used to calculate the total number of hooks fished by vessel, and the total number of hooks for all vessels for the three years calculated. The total number of hooks per vessel for the three years was then put in numeric order, and then expressed as a percentage of the total number of hooks for the fleet. The percentages associated with an individual vessel ranged from a maximum value of 3.11 percent to a minimum value of .002 percent. The data set (percent values that had been put in order from lowest to highest), were then divided into quarters. Quartile values were then determined (i.e.,the first, second, third, and fourth quartiles at the 25th percentile, 50th percentile, 75th percentile, and 100th percentile (the highest), respectively)

from the range of values of percents. For each of the four quartile ranges (*see* Table 4.1), the percentages for each vessel were summed (sum per quartile). The sum per quartile range was divided by the number of vessels in each quartile range to derive the percent per vessel. The percent per vessel (share percentage) was then multiplied times the total pelagic longline quota (360,656 pounds) to derive the IBQ allocation (pounds) for each vessel. For example, a vessel that had a total of 231,207 hooks set during 2016 through 2018 represented a total of 1.67 percent of the total fishing effort expressed as hooks (13,818,899 total hooks). This percentage (1.67 percent) is in the fourth quartile range (i.e., between the 3rd quartile and 4th quartile; from 3.11- to 1.53-percent). Each of the 24 vessels in the fourth quartile range were assigned an IBQ share percentage of 2.05 percent of the total Longline category quota. Based on the 2019 Longline quota of 360,656 pounds, the IBQ allocation for a shareholder in the fourth quartile would be 7,407 pounds (2.05 percent X 360,656 pounds). One interesting aspect to note was that there were two active vessels that both were associated with the same permit. They were active sequentially. Both vessels would be eligible shareholders, but as a practical matter, only one of the vessels could receive allocation (whichever vessel is permitted). Table 4.1 below shows the key metrics used in the derivation of individual shares.

In the development of a system to assign share percentages to individual vessels, NOAA Fisheries determined that it would be better to assign individual vessels to one of four quartiles, rather than assign each vessel a 'customized' percentage. There were several reasons for this determination: 1) A system of four distinct share percentages is simpler for NOAA Fisheries to implement accurately and would facilitate communication with the fishery; 2) Designation of shares using quartiles eliminates very large and very small percentage shares, which are problematic. The largest percentage share is 3.11 percent (associated with vessels in the fourth quartile) and the smallest is 0.002 percent (associated with vessels in the first quartile). If the share designations were customized, some of the percentages would be very small, and a shareholder would be distributed less than the requisite amount of IBQ allocation under quarterly accountability (e.g., 551 of GOM designated IBQ allocation). If the percentage is too large, the incentives associated with IBQ allocations and the IBQ Program may be eroded (i.e., the incentives for fishing strategies that reduce the likelihood of bluefin interactions). Twelve vessels had individual percentage values that are higher than the largest quartile share percentage (2.05 percent) and fifteen vessels had individual percentage values that are lower than the smallest quartile share percentage (0.17 percent). 3) A system of four distinct share percentages would reduce the amount of annual variability in share percentages of individual shareholders.

For vessels that fished in the Gulf of Mexico and voluntarily participated in the Deepwater Horizon OFRP (Project participants), the calculation methods considered the fact that such vessels had time periods during which they were prohibited from using pelagic longline gear (i.e., March through June 2017; January through June 2018). Therefore, NOAA Fisheries developed a proxy amount of fishing effort that was used in the calculation of allocations for this alternative. The average number of hooks per vessel set in the Gulf of Mexico by non-participants, during the time period of the Project was used as the proxy number of hooks for participants. There were seven participants during 2017 and ten

participants during 2018, including four vessels that participated both years. The relevant information used in the derivation of the proxy values are in the Appendix (Table 11.11).

Ecological Impacts

The ecological impacts of Alternative A2a on bluefin are neutral, because the method of defining eligible shareholders and the distribution of IBQ allocation do not affect the amount of overall longline quota that may be caught. This alternative would not modify the annual ICCAT recommended bluefin quota, nor the U.S. portion of that quota. In 2020, ICCAT adopted Rec. 20-06, which rolled over the current TAC for 2020; provided for a 2021 stock assessment that would incorporate the most recent available data, including any new abundance indices; and specified TAC levels for 2022 and 2023 that would address overfishing based on the 2020 stock assessment update and management scenario 3, unless ICCAT decides otherwise based on new SCRS advice. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending overfishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Chapter 3 provides additional information on the relevant bluefin quotas. Provided the IBQ Program elements continue to function in a manner consistent with its objectives, with individual vessel accountability for bluefin catch, the specific allocation methods would have a neutral direct ecological impact compared to the overall Longline category quota. The maximum amount of IBQ that may be caught from the Gulf of Mexico would be limited under Alternatives B1a, B2, or B3. The Three-Year Review concluded that under the IBQ Program bluefin catch was reduced substantially compared to the time period prior to the implementation of the IBQ Program. The ecological impacts on other HMS species (as well as protected species) would also be neutral, because fishing strategies regarding the location and timing of fishing for target species are likely to remain unaffected by redistribution of bluefin quota to active vessels. Substantial changes in the distribution of fishing effort or total fishing effort in the Gulf of Mexico or Atlantic are not anticipated.

Socioeconomic Impacts

Overall, the socioeconomic impacts of this alternative on fishery participants would be minor and beneficial. Current shareholders and active vessels that are not shareholders would be directly impacted by changes to their share percentages under this alternative, and such changes would be short-term because the set of shareholders would be determined by NOAA Fisheries on an annual basis. As explained in detail below and summarized in Table 4.3, some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. Currently active vessels that are not shareholders (based on the Amendment 7 regulations) would be shareholders under

this alternatives. One adverse impact for shareholders may be a slightly reduced ability for business planning due to the potential annual variability in share percentages. It should be noted however that shareholders would be aware that a substantive change in their amount of fishing effort may result in slight changes in their share percentage in the following year. Adverse impacts on a shareholder could be partially mitigated through leasing IBQ allocation. Such adverse impacts would only be partially mitigated because of the cost of leasing IBQ allocation. It is unknown whether optimization of IBQ shares through allocation only to recently active vessels would have any impacts on seafood dealers. If dynamic allocation results in net beneficial economic impacts to IBQ shareholders, then there may be indirect, beneficial, socioeconomic impacts on dealers and other supporting shoreside businesses resulting from increased target catch. Table 4.1 below contains data on various metrics used in the determination of IBQ share percentages. For example, in the fourth quartile that was defined, there were a total of 24 vessels in the quartile, with a combined percentage of the total fishing effort (expressed as number of hooks) of 49.29 percent. Each of the 24 shareholders in the fourth quartile would receive an IBQ share of 2.05 percent, and an annual IBQ allocation of 7,407 pounds (based on an annual Longline category quota of 360,656 pounds). There would be a total of 97 defined shareholders based on the total number of vessels that submitted VMS bluefin reports from 2016 through 2018.

Table 4.1 Values used in the Calculation of IBQ Share percentages based on Number of Hooks

Quartile	Quartile Value (%)	Count of Vessels per Quartile	Sum per Quartile (%)	Quartile Share Percent per Vessel* (%)	IBQ Allocation per Vessel (lb)
4	3.11	24	49.29	2.05	7,407
3	1.49	24	29.52	1.23	4,435
2	1.02	23	16.8	0.73	2,634
1	0.40	26	4.4	0.17	610
Totals	na	97	100	na	na

Source: VMS data

The percent per vessel is a slightly larger percentage. The percentage displayed here is rounded to two decimal places. The IBQ allocation per vessel (pounds) shown is based on the larger (un-rounded) percentage value.

Some shareholders (and permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease (Table 4.2). The number of shareholders with an increase would be greater than the number of shareholders with a decrease, with a net increase in IBQ share/allocation value as explained below.

Based on the data in Table 4.2 below, 66 vessels would have IBQ allocations larger than the IBQ allocations they would have under the No Action alternative, and be in a better short-term situation with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). Thirty-one vessels would have IBQ allocations smaller when compared to the No Action alternative, and would be in a worse short-term situation with respect to the amount of IBQ allocation they have. It should be noted that all active vessels would be allocated IBQ, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, any economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ to account for bluefin catch in excess of their allocations.

To estimate the economic impacts of the changes in IBQ allocation amounts compared to the No Action, the average cost of leasing IBQ allocation was used as a measure of how costly it would be for vessels to lease IBQ allocation in order to make up for reductions in IBQ allocations resulting from revised Amendment 13 allocations. Specifically, the weighted average cost per pound for leased IBQ allocation from 2017 through 2019 ($1.67, $2.02, $1.40, respectively) were used to derive an overall average ($1.70 per pound). 2015 and 2016 data were not included in the overall average due to the notable downward trend in average leasing costs since 2015 (2015: $3.46; 2016: $2.42). Inclusion of 2015 and 2016 would not result in an overall average that would be representative of recent trends or likely future average leasing costs.

Table 4.2 Gains and Losses associated with Dynamic Allocation based on number of hooks compared to the No Action Alternative

Metric (based on Longline category allocation of 360,656 pounds)	Gains	Losses
Number of vessels gaining and losing IBQ allocation	66 vessels	31 vessels
Range in IBQ allocation gained or lost (per vessel) (lb)	118 - 6,077	720 - 3,707
Average pounds of IBQ allocation gained or lost (lb)	2,362	1,867
Range in lease value of IBQ allocation gained or lost*	$201 - $10,331	$1,224 - $6,302
Average of lease value of IBQ allocation gained or lost*	$4,015	$3,174
Sum of lease value of IBQ allocation gained or lost*	$264,997	$98,383

*based on a lease price of $1.70 per pound (pound x price = value)
Source: VMS data; NMFS SERO Catch Shares Online System.

The following chart (Figure 4.1) shows distribution of IBQ allocation. Specifically, the distribution shows the amount of IBQ allocation (expressed as numbers of bluefin), in various ranges (based on an annual Longline category quota of 360,656 pounds), and the numbers of vessels with that amount of allocation. The figure compares Alternative 4.1.2.1,

allocation of shares based on hooks, to the No Action Alternative (4.1.1). The IBQ allocations in pounds were converted into numbers of bluefin based on a conversion of 551 pounds per bluefin for GOM designated bluefin, and 276 pounds per bluefin for Atlantic (ATL) designated bluefin. The range of the number of bluefin allocated based on hooks is larger than under the No Action Alternative. Under the No Action Alternative, no vessels would be allocated higher numbers of bluefin and relatively more vessels would be allocated fewer bluefin. For example, under this alternative (basing a vessel's IBQ share percentage of the percentage of hooks the vessel fished), based on a Longline category quota of 360,656 pounds, 13 vessels would be distributed an amount of IBQ allocation that equates to between 26 and 30 bluefin. In contrast, under the No Action Alternative, the largest amount of IBQ allocated to a vessel ranged from 16 to 20 bluefin (i.e., 24 vessels would be distributed between 16 and 20 bluefin under the No Action).

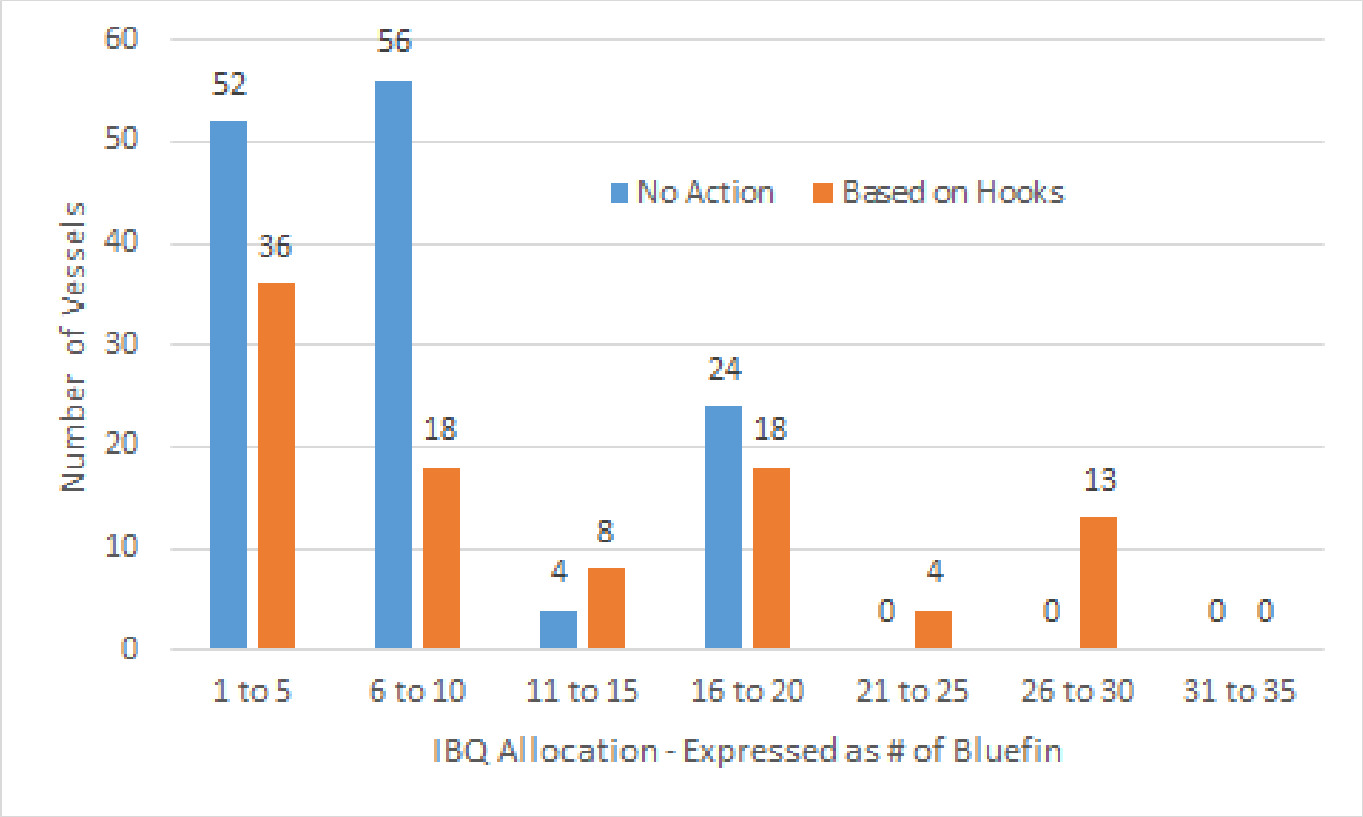


Figure 4.1 **Distribution of IBQ allocation based on Hooks Compared to No Action**
Source: VMS data

Table 4.3 below compares various metrics between the No Action and the Dynamic Allocation based on hooks. The most notable trend is that under dynamic allocation based on hooks, vessels are generally distributed more IBQ allocation than under the No Action alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 97, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel).

Table 4.3 Metrics Comparing No Action to Dynamic distribution of IBQ shares based on number of hooks

No Action			Dynamic Allocation based on Number of Hooks		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Quartile	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
High	4,317 (1.2)	43	4	7,407 (2.05)	24
Medium	2,157 (0.6)	62	3	4,435 (1.23)	24
Low	1,330 (0.37)	31	2	2,634 (0.73)	23
			1	610 (0.17)	26
		Total: 136			Total: 97

All allocations based on an Atlantic Tunas Longline Category quota of 360,656 pounds
Source: VMS data

The Regional Designations associated with dynamic allocation based on the number of hooks are shown in Section 4.2.3.

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

Sub-Alternative A2b would define IBQ shareholders annually based upon each individual permitted vessel's fishing effort using the number of pelagic longline sets, relative to the total amount of pelagic longline sets, as the measure of fishing effort. The time period used for determination of eligible vessels (active vessels) would be the three most recent years of available data. VMS bluefin reports would be the basis for defining IBQ shares, based upon each individual vessel's fishing effort using pelagic longline gear, relative to the total amount of pelagic longline fishing effort, using the number of sets fished as the measure of fishing effort. Based on the share percentages and the Longline category quota, IBQ allocation would be distributed annually to permitted vessels.

Methods:
Active vessels from 2016 through 2018 were determined based on submission of VMS bluefin reports. From 2016 through 2018 there were a total of 96 vessels that were active in at least one year. VMS data from 2016 through 2018 was used to calculate the total number of pelagic longline sets fished by vessel, and the total number of sets for all vessels for the three years calculated. The total number of sets per vessel for the three years was then put in numeric order, and then expressed as a percentage of the total number of sets. The percentages associated with an individual vessel ranged from a maximum value of 2.22

percent to a minimum value of .01 percent. The data set (percent values that had been put in order from lowest to highest), were then divided into quarters. In other words, quartile values were then determined (i.e., 25, 50, 75, and 100 percentiles) from the range of values of percents. For each of the four quartile ranges, the percentages for each vessel were summed (sum per quartile). The sum per quartile was divided by the number of vessels in each quartile to derive the percent per vessel. The percent per vessel (share percentage) was then multiplied times the total pelagic longline quota (360,656 pounds) to derive the amount (pounds) of IBQ allocation for each vessel. For example, a vessel that had a total of 324 sets set during 2016 through 2018, represented a total of 1.77% of the total fishing effort expressed as sets (18,271 total sets). This percentage (1.77 percent) is in the fourth quartile (from 2.22 to 1.60 percent). Each of the 23 vessels in the fourth quartile were assigned an IBQ share percentage of 1.85 percent of the total Longline category quota. Based on the 2019 Longline quota of 360,656 pounds, the IBQ allocation for a shareholder in the fourth quartile would be 6,665 pounds (1.85 percent X 360,656 pounds). Note, the value of 6,665 pounds is calculated based on an unrounded percentage with multiple decimal points and is therefore slightly larger than the value derived from multiplying 1.85 percent time 360,656 pounds). One interesting aspect to note was that there were two active vessels that both were associated with the same permit. They were active sequentially. Both vessels would be eligible shareholders, but as a practical matter, only one of the vessels could receive allocation (whichever vessel is permitted). Table 4.4 below shows the key metrics used in the derivation of individual shares. Reasons for the quartile system are provided under Sub-Alternative A2a, Methods paragraph 2.

For vessels that fished in the Gulf of Mexico and voluntarily participated in the Deepwater Horizon OFRP (Project participants), the calculation methods considered the fact that such vessels had time periods during which they were prohibited from using pelagic longline gear (i.e., March through June 2017; January through June 2018). Therefore, NOAA Fisheries developed a proxy amount of fishing effort that was used in the calculation of allocations for this alternative. The average number of sets per vessel set in the Gulf of Mexico by non-participants, during the time period of the Project was used as the proxy number of hooks for participants. There were seven Project participants during 2017 and ten Project participants during 2018, including four vessels that participated both years. The relevant information used in the derivation of the proxy values are in the Appendix (Table 11.12)

Ecological Impacts

The ecological impacts of Sub-Alternative A2b on bluefin are neutral for the same reasons provided under Sub-Alternative A2a.

Socioeconomic Impacts

Overall, the socioeconomic impacts of this alternative would be minor and beneficial for the same reasons provided under Sub-Alternative A2a, Socioeconomic Impacts paragraph 1. As explained in detail below and shown in Table 4.5, some shareholders would have larger share percentages and some would have smaller share percentages compared to the No

Action Alternative, but with more shareholders benefitting from this alternative. If this alternative results in net beneficial economic impacts to IBQ shareholders, then there may be indirect, beneficial socioeconomic impacts on dealers and other supporting shoreside businesses resulting from increased target catch. Table 4.4 below contains data on various metrics used in the determination of IBQ share percentages. For example, in the fourth quartile that was defined, there were a total of 23 vessels in the quartile, with a combined percentage of the total fishing effort (expressed as number of hooks) of 44.36 percent. Each of the 23 shareholders in the fourth quartile would receive an IBQ share of 1.85 percent, and an annual IBQ allocation of 6,665 pounds (based on an annual Longline category quota of 360,656 pounds). There would be 97 defined shareholders based on the total number of vessels that submitted VMS bluefin reports from 2016 through 2018.

Table 4.4 Values used in the Calculation of IBQ Allocations based on Number of Sets

Quartile	Quartile Value (%)	Count of Vessels per Quartile	Sum per Quartile (%)	Quartile Share Percent per Vessel* (%)	IBQ Allocation per Vessel (lb)
4	2.22	23	44.36	1.85	6,665
3	1.58	24	32.48	1.35	4,880
2	1.13	24	18.78	0.82	2,944
1	0.42	26	4.39	0.17	609
Totals	na	97	100	na	na

. *The percent per vessel is a slightly larger percentage. The percentage displayed here is rounded to two decimal places. The IBQ allocation per vessel (pounds) shown is based on the larger (un-rounded) percentage value. Source: VMS data

The socioeconomic impacts of this alternative would be minor and beneficial overall across fishery participants, but the individual impact does vary by participant. Such impacts are short term. Some shareholders (and permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease (Table 4.5). The number of shareholders with an increase would be greater than the number of shareholders with a decrease, with a net increase in IBQ share/allocation value as explained below. Sixty six vessels would have IBQ allocations larger than compared to the No Action alternative, and be in a better situation with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). Thirty-one vessels would have IBQ allocations smaller when compared to the No Action alternative, and would be in a worse situation with respect to the amount of IBQ allocation they have. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, any economic costs associated with reduced allocations would only be

realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The average cost of leasing IBQ allocation was used to estimate economic impacts, as explained under Sub-Alternative A2a, Socioeconomic Impacts paragraph 5.

Table 4.5 Gains and Losses associated with Dynamic Allocation based on number of sets compared to the No Action Alternative

Metric (based on Longline category allocation of 360,656 pounds)	Gains	Losses
Number of vessels gaining and losing IBQ allocation	66 vessels	31 vessels
Range in IBQ allocation (in pounds) gained or lost (per vessel) (lb)	563 - 6,665	721 - 3,708
Average pounds of IBQ allocation gained or lost (lb)	2,369	1,884
Range in lease value of IBQ allocation gained or lost*	$957 - $11,331	$1,226 - $6,304
Average of lease value of IBQ allocation gained or lost*	$4,028	$3,203
Sum of lease value of IBQ allocation gained or lost*	$265,843	$99,280

*based on a lease price of $1.70 per pound (pounds x price = value)
Source: VMS data; NMFS SERO Catch Shares Online System

Figure 4.2 shows the amount of IBQ allocation (expressed as numbers of bluefin), in various ranges, and the numbers of vessels with that amount of allocation. Under this alternative, more vessels would be allocated a higher number of bluefin than under the No Action alternative. For example, under this alternative (basing a vessel's IBQ share percentage of the percentage of sets the vessel fished), based on a Longline category quota of 360,656 pounds, 19 vessels would be distributed an amount of IBQ allocation that equates to between 21 and 25 bluefin. In contrast, under the No Action Alternative, the largest amount of IBQ allocated to a vessel ranged from 16 to 20 bluefin (i.e., 24 vessels would be distributed between 16 and 20 bluefin under the No Action).

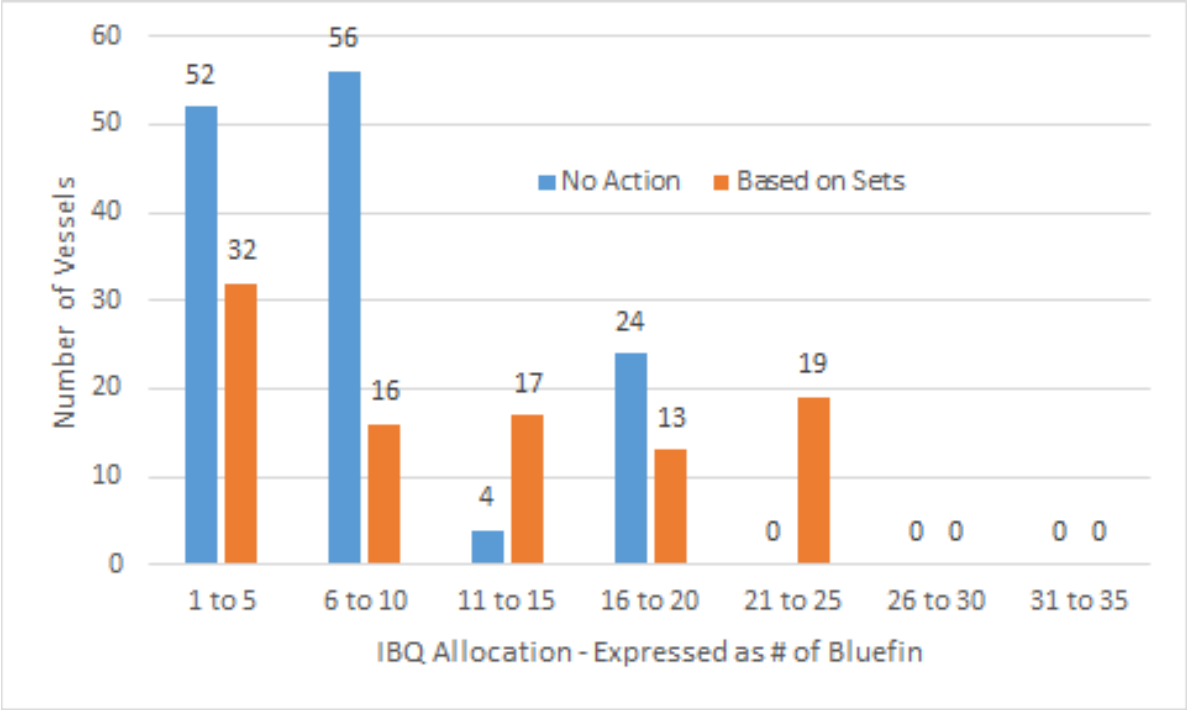


Figure 4.2 **Distribution of IBQ Allocation Based on Sets Compared to No Action**
Source: VMS data

Table 4.6 below compares various metrics between the No Action and the Dynamic Allocation based on sets. The most notable trend is that under dynamic allocation based on sets vessels are generally distributed more IBQ allocation than under the No Action alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 97, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel).

Table 4.6 **Metrics Comparing No Action to Dynamic allocation based on number of sets**

No Action			Dynamic Allocation based on Number of Sets		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Quartile	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
High	4,317 (1.2)	43	4	6,665 (1.85)	23
Medium	2,157 (0.6)	62	3	4,880 (1.35)	24
Low	1,330 (0.37)	31	2	2,944 (0.82)	24
			1	609 (0.17)	26

No Action			Dynamic Allocation based on Number of Sets		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Quartile	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
		Total: 136			Total: 97

All allocations based on an Atlantic Tunas Longline Category quota of 360,656 pounds
Source: VMS data

The Regional Designations associated with dynamic allocation based on the number of sets are shown in Section 4.2.3.

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

Alternative A2c would define IBQ shareholders annually based upon the total amount by weight, of each individual permitted vessel's designated species landings relative to the total amount of designated species landings by pelagic longline fleet, as the measure of fishing effort. Most, but not all landings would count, with the relevant species termed 'designated species'. Designated species would be defined as swordfish and yellowfin, bigeye, albacore, and skipjack tunas. The time period used for determination of eligible vessels would be the three most recent years of available data. A quartile system would be used to assign share percentages to individual vessels for the reasons provided under Sub-Alternative A2a, Methods paragraph 2.

For vessels that fished in the Gulf of Mexico and voluntarily participated in the Deepwater Horizon OFRP (Project participants), the calculation methods considered the fact that such vessels had time periods during which they were prohibited from using pelagic longline gear (i.e., March through June 2017; January through June 2018). Therefore, NOAA Fisheries developed a proxy amount of fishing effort that was used in the calculation of allocations for this alternative. The proxy level of fishing effort would be the average pound of designated species landings by a pelagic longline vessel in the Gulf of Mexico during the months of January through June (the months of the Repose) during the relevant year. There were seven Project participants during 2017 and ten Project participants during 2018, including four vessels that participated both years. The relevant information used in the derivation of the proxy values are in the Appendix (Table 11.13).

Ecological Impacts

The ecological impacts of Alternative A2c on bluefin are neutral for the same reasons provided under Sub-Alternative A2a. While the alternative would affect the distribution of IBQ shares among pelagic longline vessels, and would facilitate additional fishing opportunity for active vessels, the overall amount of allowable bluefin catch would remain within already established limits, including the ICCAT adopted quota for the western Atlantic bluefin stock, and the U.S. portion of that quota.

Socioeconomic Impacts

A discussion of the rationale for selection of the preferred alternative is located below Table 4.15 , and includes information comparing this alternative to other relevant alternatives. Overall socioeconomic impacts of this alternative would be minor and beneficial for the same reasons provided under Sub-Alternative A2a, Socioeconomic Impacts paragraph 1. As explained in detail below (Table 4.8), some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. Table 4.7 below contains data on various metrics used in the determination of IBQ share percentages. For example, in the fourth quartile that was defined, there were a total of 25 vessels in the quartile, with a combined percentage of the total fishing effort (expressed as number of hooks) of 52.37 percent. Each of the 25 shareholders in the fourth quartile would receive an IBQ share of 2.09 percent, and an annual IBQ allocation of 7,555 pounds (based on an annual Longline category quota of 360,656 pounds).

Table 4.7 Values use in the Calculation of IBQ Allocations based on Designated Species Landings

Quartile	Quartile Value (%)	Count of Vessels per Quartile	Sum per Quartile (%)	Quartile Share Percent per Vessel* (%)	IBQ Allocation per Vessel (lb)
4	3.98	25	52.37	2.09	7,555
3	1.43	25	29.37	1.18	4,237
2	0.88	24	15.32	0.64	2,303
1	0.33	25	2.94	0.12	423
Totals	na	99	100	na	na

Source: eDealer and VMS data

The socioeconomic impacts of this alternative would be short-term minor and beneficial overall across fishery participants, but the individual impact does vary by participant. Some shareholders (and permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease (Table 4.8). The number of shareholders with an increase would be greater than the number of shareholders with a decrease, with a net increase in IBQ value as explained below. If this alternative results in net beneficial economic impacts to IBQ shareholders, then there may be indirect, beneficial, socioeconomic impacts on dealers and other supporting shoreside businesses resulting from increased target catch.

Based on the data in Table 4.8 below, 57 vessels would have IBQ allocations larger than compared to the No Action alternative, and be in a better situation with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or

leasing benefits accrued). Forty-two vessels would have IBQ allocations smaller when compared to the No Action alternative, and would be in a worse situation with respect to the amount of IBQ allocation they have. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, any economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The exclusion of dolphin and wahoo from the list of designated species affected the IBQ share percentages of eight vessels. Compared to the IBQ share percentages that they would have received if the dolphin and wahoo were included, four vessels increased in share percentage and four vessels decreased. The difference in percentage shares was relatively minor, with vessel shares moving from one quartile to an adjacent quartile.

The average cost of leasing IBQ allocation was used to estimate economic impacts, as explained under Sub-Alternative A2a, Socioeconomic Impacts paragraph 5.

Table 4.8 Gains and Losses associated with Dynamic Allocation based on Designated Species Landings compared to the No Action Alternative

Metric (based on Longline category allocation of 360,656 pounds)	Gains	Losses
Number of vessels gaining and losing IBQ allocation	57 vessels	42 vessels
Range in IBQ allocation (in pounds) gained or lost (per vessel) (lb)	146 - 7,555	80 - 3,894
Average pounds of IBQ allocation gained or lost (lb)	2,873	1,668
Range in lease value of IBQ allocation gained or lost*	$248 - $12,844	$136 - $6,620
Average of lease value of IBQ allocation gained or lost*	$4,884	$2,836
Sum of lease value of IBQ allocation gained or lost*	$278,384	$119,124

*based on a lease price of $1.70 per pound (pounds x price = value)
.Source: VMS data; NMFS SERO Catch Shares Online System

Under dynamic allocation based on designated species landings, 99 active vessels would be defined based on this three-year period. The following chart (Figure 4.3) shows the amount of IBQ allocation (expressed as numbers of bluefin), in various ranges, and the numbers of vessels with that amount of allocation. Under this alternative, more vessels would be allocated a higher range of allocation than under the No Action Alternative. For example, under this alternative (basing a vessel's IBQ share percentage of the percentage of sets the vessel fished), based on a Longline category quota of 360,656 pounds, 22 vessels would be

distributed an amount of IBQ allocation that equates to between 26 and 30 bluefin. In contrast, under the No Action Alternative, the largest amount of IBQ allocated to a vessel ranged from 16 to 20 bluefin (i.e., 24 vessels would be distributed between 16 and 20 bluefin under the No Action).

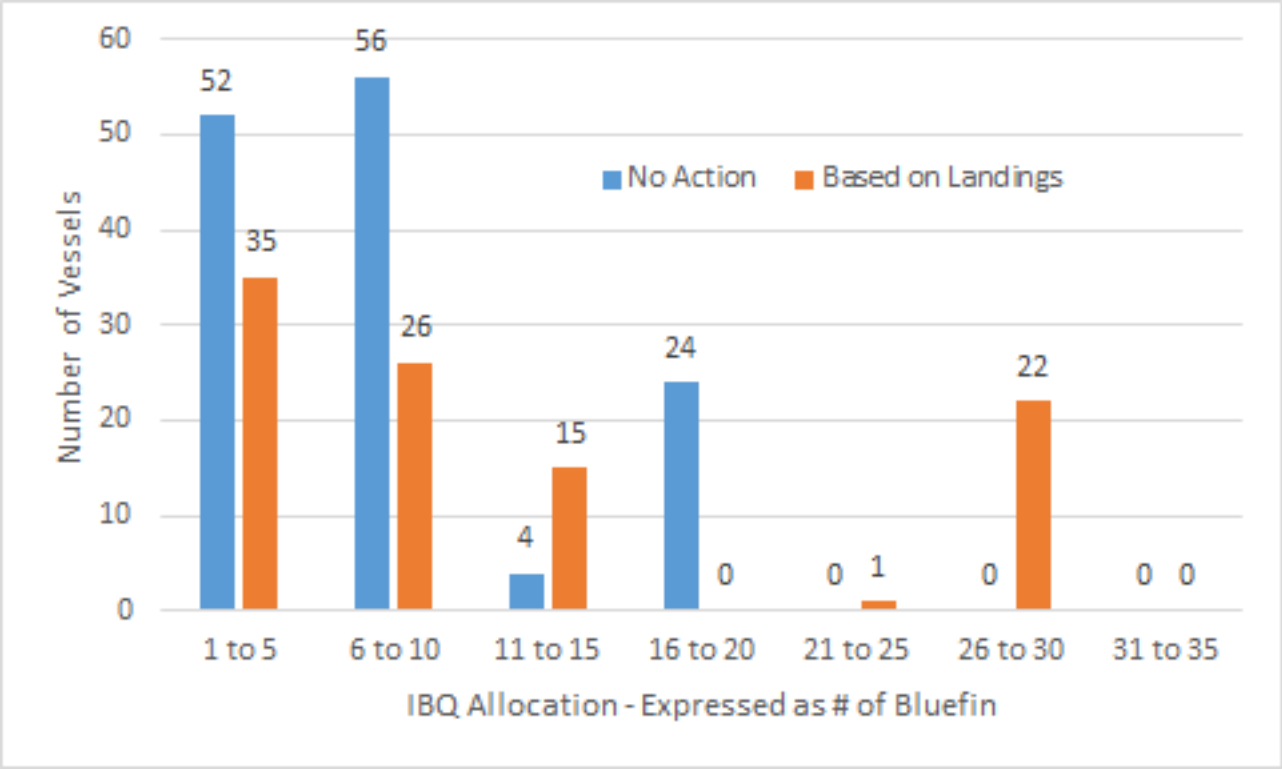


Figure 4.3 **Distribution of IBQ Allocation based on Landings Compared to No Action**
Source: eDealer data

Table 4.9 below compares this alternative to the No Action alternative. The most notable trend is that under dynamic allocation based on designated species landings, vessels are generally distributed more IBQ allocation than under the No Action alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 99, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel).

Table 4.9 Metrics Comparing No Action to Dynamic allocation based on Designated Species Landings

No Action			Dynamic Allocation based on Designated Species		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Quartile	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
High	4,317 (1.2)	43	4	7,555 (2.09)	25
Medium	2,157 (0.6)	62	3	4,237 (1.18)	25
Low	1,330 (0.37)	31	2	2,303 (0.64)	24
			1	423 (0.12)	25
		Total: 136			Total: 99

All allocations based on an Atlantic Tunas Longline Category quota of 360,656 pounds

Figure 4.4 below compares the distribution of bluefin landings to the No Action Alternative and the Dynamic Allocation based on designated species landings. For example, one vessel landed between 26 and 30 bluefin, and under Dynamic Allocation based on landings, 22 vessels would be allocated between 26 and 30 bluefin. The range of numbers of bluefin that would be allocated under Dynamic allocation based on landings, more closely aligns with the range of numbers of bluefin landed, than does the No Action alternative.

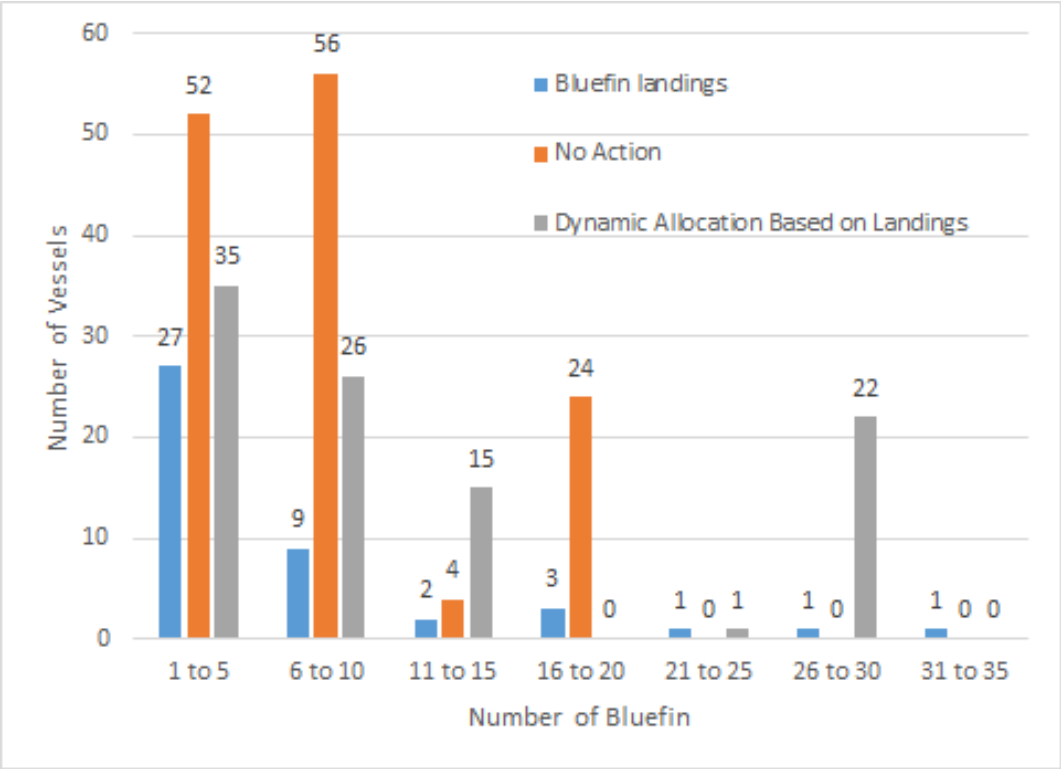


Figure 4.4 Distributions of Bluefin landings; No Action Allocations and Dynamic Allocation based on Landings, expressed as Numbers of Bluefin
Source: eDealer data

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

Sub-Alternative A2d would define IBQ shareholders annually, and distribute IBQ allocation in equal amounts to eligible permitted vessels. An eligible vessel would be any vessel that landed designed species during recent years (i.e., at least one of the three most recent years of available data). The total Longline category bluefin quota would be divided evenly among eligible vessels with valid Atlantic tunas longline permits. Deepwater Horizon OFRP participants would be considered to be active during the relevant years of participation.

Ecological Impacts

The ecological impacts of Alternative A2d on bluefin are neutral for the same reasons provided under Sub-Alternative A2a.

Socioeconomic Impacts

Overall socioeconomic impacts of this alternative would be minor and beneficial for the same reasons provided under Sub-Alternative A2a, Socioeconomic Impacts paragraph 1. As explained in detail below and shown in Table 4.11, some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. Some

shareholders (and permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease (Table 4.10). The number of shareholders with an increase would be greater than the number of shareholders with a decrease, with a net increase in IBQ share/allocation value as explained below. The table below compares various metrics between the No Action and the Dynamic Allocation based on equal allocation. The most notable trend is that under dynamic allocation based equal allocation, vessels currently in the medium and low tiers (93 vessels combined)(i.e., under the No Action Alternative, that have 2,157 pounds and 1,330 pounds, respectively) would have a larger IBQ share percentage and be distributed more IBQ allocation under this alternative based on equal allocation (3,680 pounds), while vessels currently in the high tier (43 vessels) (with 4,317 pounds) would have a lower IBQ share percentage and be distributed less IBQ allocation (3,680 pounds) under this alternative. The number of IBQ shareholders would be reduced from 136 to 98, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel). If this alternative results in net beneficial economic impacts to IBQ shareholders, then there may be indirect, beneficial, socioeconomic impacts on dealers and other supporting shoreside businesses resulting from increased target catch.

Table 4.10 Metrics Comparing No Action to Dynamic Allocation based on Equal Allocation

No Action			Dynamic Allocation based on Equal Allocation		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Quartile	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
High	4,317 (1.2)	43	NA	3,680 (1.02)	98
Medium	2,157 (0.6)	62			
Low	1,330 (0.37)	31			
		Total: 136			Total: 98

All allocations based on an Atlantic Tunas Longline Category quota of 360,656 pounds
Source: eDealer data

Figure 4.5 below shows the distribution of IBQ allocation among vessels, based on the Equal Allocation Alternative, compared to the No Action Alternative. Under the equal allocation alternative, the distribution is narrow. Although all vessels would be allocated the same number of pounds of IBQ allocation (under the Equal Allocation Alternative), when the allocations are expressed as number of fish, taking into consideration the different average sizes of bluefin in the Gulf of Mexico and Atlantic, vessels that have ATL designated IBQ allocation are allocated more fish than vessels with GOM designated IBQ. The weight values used as proxies for the average weight of bluefin in the Atlantic and Gulf

of Mexico were 276 pounds and 551 pounds, respectively. These weights are also the minimum allocation requirements under quarterly accountability.

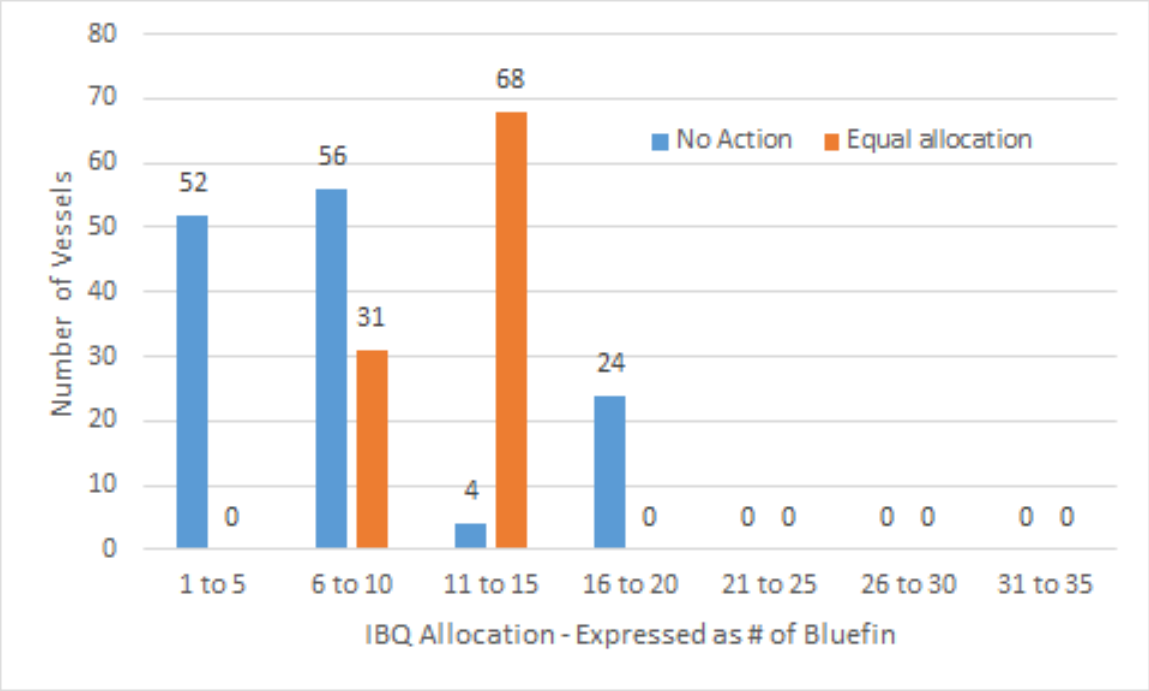


Figure 4.5 **Distribution of IBQ Allocation based on Equal Allocation Compared to No Action**
Source: eDealer data

The average cost of leasing IBQ allocation was used to estimate economic impacts, as explained under Sub-Alternative A2a, Socioeconomic Impacts paragraph 5. Based on the data in Table 4.11 below, 61 vessels would have IBQ allocations larger than compared to the No Action alternative, and be in a better situation with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). Thirty-seven vessels would have IBQ allocations smaller when compared to the No Action alternative, and would be in a worse situation with respect to the amount of IBQ allocation they have. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, any economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations.

Table 4.11 Gains and Losses associated with Dynamic Allocation based on equal allocation compared to the No Action Alternative

Metric (based on Longline category allocation of 360,656 pounds)	Gains	Losses
Number of vessels gaining and losing IBQ allocation	61 vessels	37 vessels
Range in IBQ allocation (in pounds) gained or lost (per vessel) (lb)	1,523 - 3,680	637
Average pounds of IBQ allocation gained or lost (lb)	1,944	637
Range in lease value of IBQ allocation gained or lost*	$2,589 - $6,256	$1,083
Average of lease value of IBQ allocation gained or lost*	$3,305	$1,083
Sum of lease value of IBQ allocation gained or lost*	$201,576	$40,067

* Based on a lease price of $1.70 per pound (pounds x price = value)
Source: eDealer data; NMFS SERO Catch Shares Online System

Discussion of Dynamic Allocation Based on Fishing Effort

As stated in Chapter 2, several of the dynamic allocation alternatives are based on the premise that a vessel's fishing effort is an important determinant of the number of its bluefin interactions. Specifically, the premise that greater fishing effort is associated with a greater need for IBQ allocation. Therefore, allocation based on effort may be a logical and effective method of determining which permitted vessels should receive bluefin quota, consistent with the Amendment 7 objective of allocating to active vessels (and not to inactive vessels). Vessels with more fishing activity are generally more likely to interact with more bluefin, and therefore may need larger amounts of IBQ allocation to account for bluefin retained or discarded dead.

When considering how to best distribute shares among shareholders, one of the underlying questions is: are there meaningful differences among the measures of effort? It is useful to determine whether a relationship between effort and bluefin catch can be demonstrated. Correlation analyses measure the strength of the potential relationship between two factors. The second underlying and closely related question is: what numeric metric represents the need for IBQ allocation? Clearly, landings of bluefin represent a need for IBQ allocation. Secondly, pounds of IBQ leased by lessees and pounds of quota debt are metrics that represent the need for bluefin IBQ allocation, which is logical, but also, when analyzed on an individual vessel level, the relationship between the landings of bluefin and these IBQ allocation metrics can also be demonstrated. There is a moderate correlation between the amount of bluefin landed by vessels (2016 to 2018, eDealer data) and the pounds of IBQ allocation leased and the pounds of quota debt (correlation coefficients of

0.6 and 0.54, respectively). There is a strong correlation between the pounds of IBQ leased and the pounds of quota debt (correlation coefficient of 0.72).

Table 4.12 contains correlation coefficients among various metrics that may logically have some type of relationship. The data in Table 4.12 is intended to answer the question of which alternative is likely to result in an allocation that addresses vessel needs for IBQ allocation, where the need for IBQ allocation is represented by bluefin landings, pounds of IBQ allocation leased by lessees and pounds of quota debt. The largest correlation coefficients are those calculated with the percentage of designated species landings, indicating a stronger relationship between the amount of designated species landings that a vessel has and the amount of IBQ allocation the vessel may need, than the other metrics of fishing effort such as hooks and sets. In other words, the higher correlation coefficient supports the assertion that allocating based on the percentage of designated species may result in relatively closer alignment between vessel IBQ allocations and needs for IBQ allocations, when compared to the other alternatives. For example, the correlation coefficient between pounds of quota debt and percentage of total designated species landings (for individual vessels) is 0.55, whereas the correlation coefficient between pounds of quota debt and percent of total sets is only 0.36. Although none of the correlation coefficients in the table should be characterized as strong, the correlation coefficient data are a relevant consideration in the comparison among alternatives.

Table 4.12 Correlation Coefficients between Effort Metrics and IBQ Program Data (2016-2018)

Metrics used in Correlation Analysis with columns "A", "B", and "C"	(A) Total Bluefin Landings by vessel (lb)	(B) IBQ Leased by Lessees (lb)	(C) Quota Debt (lb)
No Action (A7 share percentages)	0.17	-0.03	-0.13
Percent of Total Hooks	0.34	0.37	0.43
Percent of Total Sets	0.28	0.33	0.36
Percent of Total Designated Species Landings	0.42	0.55	0.59

* Based on all active vessels
Sources: VMS data; eDealer data; NMFS SERO Catch Shares Online System

4.1.3 Alternative A3: Amendment 7 allocation formula, using 2016-2018 data

Alternative A3 would distribute IBQ allocation using the same formula used in Amendment 7, but instead of using data during the period from 2006 through 2012, the alternative would define eligible vessels as those that reported making at least one set using pelagic longline gear (based on logbook data, as in Amendment 7) from 2016 through 2018, and

the relevant catch data used to designate IBQ shareholders to one of three tiers would also be based on 2016 through 2018.

For vessels that fished in the Gulf of Mexico and voluntarily participated in the Deepwater Horizon OFRP, the calculation methods considered the fact that such vessels had time periods during which they were prohibited from using pelagic longline gear (i.e., March through June 2017; January through June 2018). Therefore, NOAA Fisheries developed a proxy amount of fishing effort that was used in the calculation of allocations for this alternative. The proxy level of fishing effort would be the average pound of designated species landings by a pelagic longline vessel in the Gulf of Mexico during the months of January through June (the months of the Repose) during the relevant year. There were seven participants during 2017 and ten participants during 2018, including four vessels that participated both years. The relevant information used in the derivation of the proxy values are in the Appendix (Table 11.14).

Ecological Impacts

The ecological impacts of Alternative A3 on bluefin are neutral for the same reasons provided under Sub-Alternative A2a.

Socioeconomic Impacts

Table 4.13 below compares data on various IBQ share metrics between the No Action Alternative and the Revised Amendment 7 Alternative (A3). The number of tiers (three) would remain the same (high, medium, and low), but the IBQ share percentages would be higher for all tiers. For example, the low tier share percentage under the Revised Amendment 7 formula alternative would be 0.5 percent instead of 0.37 percent and result in a large annual IBQ allocation. Although the defined IBQ share percentages would all be larger, because the alternative entails recalculation of the complex Amendment 7 formula based on more recent data (i.e., 2016 to 2018), for all vessels, some permit holders change tiers, going either 'up' or 'down' with the net result that under this alternative, some permit holders would have a larger IBQ share percentage and other permit holders would have a smaller IBQ share percentage when compared to the No Action Alternative. The number of IBQ shareholders would be reduced from 135 to 99. This decrease in the number of shareholders could reduce dissatisfaction among fishery participants concerned about the relatively large number of inactive permit holders that receive annual IBQ allocation under current regulations.

Table 4.13 Metrics Comparing IBQ Share metrics of No Action to Revised Amendment 7 Formula

No Action			Revised Amendment 7		
Tier	IBQ Allocation per shareholder (lb) & (share %)	Number of shareholders	Tier	IBQ Allocation Per shareholder (lb) & (share %)	Number of shareholders
High	4,317 (1.2)	43	High	5,933 (1.65)	31
Medium	2,157 (0.6)	62	Medium	3,030 (0.84)	24
Low	1,330 (0.37)	31	Low	1,803 (0.5)	44
		Total: 136			Total: 99

Source: eDealer data

The socioeconomic impacts of this alternative would be minor and beneficial overall across fishery participants, but the individual impact does vary by participant. Some shareholders (and permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease (Table 4.14). The number of shareholders with an increase would be greater than the number of shareholders with a decrease, with a net increase in IBQ share/allocation value as explained below. If this alternative results in net beneficial economic impacts to IBQ shareholders, then there may be indirect, beneficial, socioeconomic impacts on dealers and other supporting shoreside businesses resulting from increased target catch.

The average cost of leasing IBQ allocation was used to estimate economic impacts, as explained under Sub-Alternative A2a, Socioeconomic Impacts paragraph 5.

Seventy one vessels would have IBQ allocations larger than compared to the No Action alternative, and be in a better economic position with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). Twenty-eight vessels would have IBQ allocations smaller when compared to the No Action alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they have. It should be noted that the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations.

Table 4.14 Gains and Losses associated with Revised Amendment 7 Formula compared to the No Action Alternative

Metric (based on Longline category allocation of 360,656 pounds)	Gains	Losses
Number of vessels gaining and losing IBQ allocation	71 vessels	28 vessels
Range in IBQ allocation (in pounds) gained or lost (per vessel) (lb)	473 - 5,933	354 - 2,514
Average pounds of IBQ allocation gained or lost (lb)	1,871	1,404
Range in lease value of IBQ allocation gained or lost*	$805 - $10,086	$601 - $4,273
Average of lease value of IBQ allocation gained or lost*	$3,181	$2,387
Sum of lease value of IBQ allocation gained or lost*	$225,848	$66,849

* Based on a lease price of $1.70 per pound (pounds x price = value)
Source: eDealer; NMFS SERO Catch Shares Online System

Figure 4.6 below compares the distribution of IBQ allocation among vessels based on the revised Amendment 7 share distribution method, to the No Action Alternative. The distribution of allocation among vessels is similar for the two alternatives, but for the revised Amendment 7 alternative, there are a higher number of vessels that receive larger distributions. For example, under the No Action alternative, 56 vessels would be allocated between 6 and 10 bluefin, whereas under the revised Amendment 7 alternative, 42 vessels would be allocated between 11 and 15 bluefin.

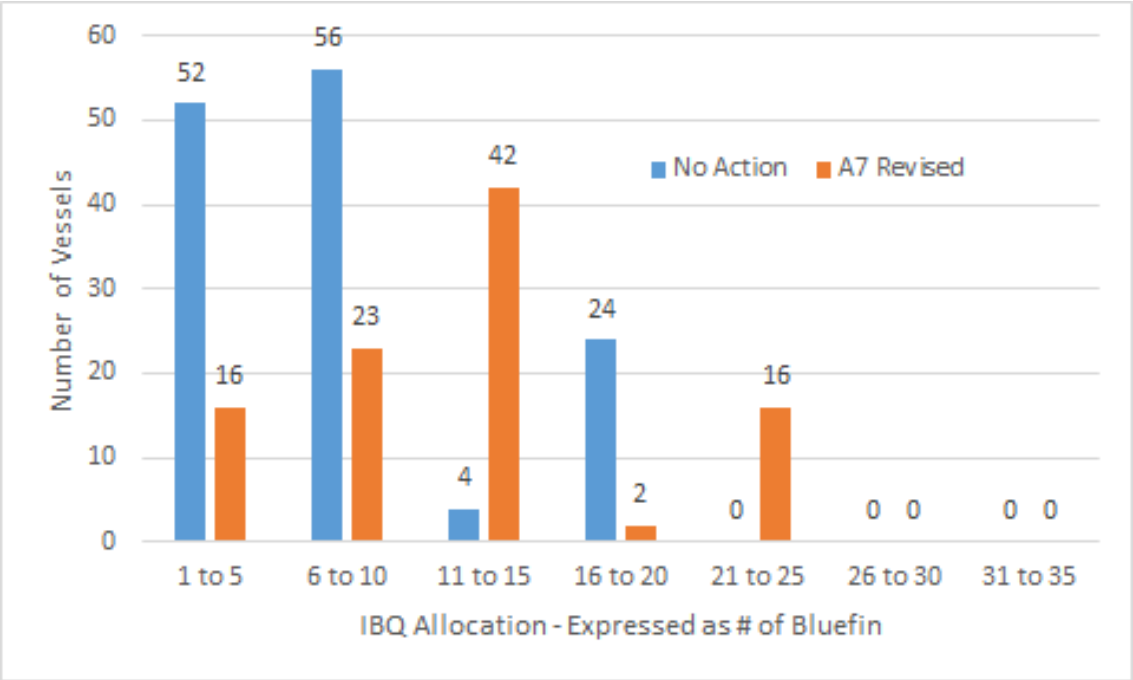


Figure 4.6 **Distribution of IBQ Allocation based on Revised Amendment 7 Method**
Source: eDealer data

Comparison of Allocation Alternatives

Table 4.15 below compares the gains and losses associated with the various allocation alternatives, to the No Action. The number of vessels that would have an increase in their share percentage is greatest under the revised Amendment 7 alternative (71 vessels), and least under the dynamic allocation based on designated species landings (preferred alternative). In contrast, the greatest amount of increase in the total lease value (associated with the amount of increased IBQ allocation resulting from increased share percentages) would be greatest under the dynamic allocation based on designated species landings ($278,384). The lease value is a relevant metric because it represents the value of the IBQ allocation, and potential cost savings to vessels that would accrue to shareholders as a result of being allocated IBQ shares instead of needing to lease the IBQ allocation from another shareholder in order to account for bluefin catch. The amount of increase in the total lease value of two of the other dynamic allocation alternatives however are very similar ($265,843 and $264,997) for dynamic allocation based on sets and hooks, respectively.

Table 4.15 Gains and Losses of Allocation Alternatives compared to No Action

	Number of Vessels		Total Lease Value	
Allocation Alternative	Share increase	Share decrease	Gains	Losses
Dynamic Allocation Based on Hooks (sub-Alternative A2a)	66	31	$264,997	$98,383
Dynamic Allocation Based on Sets (sub-Alternative A2b)	66	31	$265,843	$99,280
Dynamic Allocation Based on Designated Species Landings (*Preferred sub-Alternative A2c*)	57	42	$278,384	$119,124
Dynamic Allocation Equal Allocation (sub-Alternative A2d)	61	37	$201,576	$40,067
Revised Amendment 7 Alternative A3)	71	28	$225,848	$66,849

Source: VMS data; eDealer data; NMFS SERO Catch Shares Online System

Figure 4.7 is a box-whisker plot that shows the shape of the distributions of share percentages for the allocation alternatives ("A7", Alternative A3, Amendment 7 formula using 2016 - 2018 data; "Equal", Alternative A2d, Dynamic distribution of IBQ allocation in equal amounts to active vessels; "Hooks", Alternative A2a, Dynamic allocation based of hooks as the measure of fishing effort; "Landings", Alternative A2c, Dynamic allocation based on designated species landings as the measure of fishing effort; "No Action"; and "Sets", Alternative A2b, Dynamic allocation based on sets as the measure of fishing effort). For each alternative the figure shows the shape of the distributions, including the maximum and minimum percentage shares, and the central value, illustrating how the alternatives compare to one another.

For example, under Alternative A2c (Dynamic Allocation based on Landings) the box indicates the range in percentage shares is wider than the range of all the other alternatives, with a minimum share that is lower (0.12 percent share), and a maximum share percentage that is higher (2.09 percent share). In contrast, the No Action alternative has a much narrower range of percentage shares (maximum of 1.2 percent share and minimum share of 0.37 percent share, and Alternative A2d (Dynamic distribution in equal amounts to active vessels) is a single point, with no box shown because all the percentage

shares are the same (1.02 percent). "A7" refers to the Revised A7 alternative and should not be confused with the No Action Alternative.

Figure 4.7 Distribution of Share Percentages by allocation alternative

Rationale for Selection of Preferred Alternative

Both the ecological and socioeconomic impacts of the preferred alternative are consistent with the objectives of this Amendment. Alternative A2c would not alter the ICCAT-adopted quota or U.S. portion of the quota; manage the fishery consistent with the IBQ Program objectives (e.g., reducing dead discards of bluefin); and modify management of the pelagic longline fishery in response to the Three-Year Review. Alternative A2c, Dynamic determination of IBQ shares based on designated species landings as the measure of fishing effort, is preferred for several reasons. The alternative would have neutral ecological impacts. It would not undermine the accountability inherent in the IBQ Program. This alternative is responsive to the recommendations of the Three-Year Review with respect to consideration of a new distribution method for IBQ shares to ensure that use of quota is optimized, as well as to address new entrants to the fishery. As shown in Table 4.15, this alternative is associated with the greatest amount of increase in the total lease value (associated with the amount of increased IBQ allocation resulting from increased share percentages) compared to the No Action alternative. The correlation analysis data (Table 4.12) supports the assertion that allocating based on the percentage of designated species may result in relatively closer alignment between vessel IBQ allocations and needs for IBQ allocations, when compared to the other alternatives. In Table 4.12 the 'need' for IBQ is represented by the IBQ metrics (total bluefin landings, IBQ leased by lessees, and quota debt).

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

4.2.1 Alternative B1: Regional Designations - No Action

IBQ shares and subsequent associated allocation were designated as either GOM or ATL based on the geographic location of sets used in the determination of allocations. Only Gulf of Mexico allocation can be used to account for bluefin caught in the Gulf of Mexico, while either Atlantic or Gulf of Mexico allocation can be used to account for bluefin caught in the Atlantic. Under the quarterly accountability rules, vessels are required to have a minimum amount of IBQ allocation in order to depart on the first pelagic longline trip in each calendar quarter. The Amendment 7 allocations resulted in 35 percent of the total Longline category quota designated as GOM, and 65 percent designated as ATL. In other words, 35 percent of the total IBQ allocation could be caught in the Gulf of Mexico. The maximum amount is based upon the proportion of total pelagic longline sets in the Gulf of Mexico during the period 2006 through 2012.

Ecological Impacts

The ecological impacts would be neutral, continuing the level of current limitation on bluefin catch from the Gulf of Mexico (i.e., 35 percent of the overall IBQ allocation is designated as GOM and therefore 35 percent of the total IBQ allocation could be caught from the Gulf of Mexico). Vessels can currently fish in the Gulf of Mexico, provided they have the minimum amount of GOM designated IBQ, so the the current rules do not pose a substantial challenge for vessels with little or no GOM designated IBQ. Such vessels may lease GOM designated IBQ to fish in the Gulf of Mexico. Other factors in addition to having GOM designated IBQ allocation (such as home port location, fish availability and markets) are important determinants to fishing in the Gulf of Mexico. Similarly, since this alternative is not anticipated to change the amount or distribution of fishing effort the indirect short- and long-term ecological impacts on other species (including protected resources) are also expected to be neutral.

Socioeconomic Impacts

The socioeconomic impacts of the No Action would be neutral, and mean continuation of the current shareholders, associated share percentages, and regional designations. Vessels that currently do not have GOM designated IBQ allocation but would like to fish in the Gulf of Mexico would need to lease GOM IBQ allocation. These total leasing costs are low because there are very few vessels that fish in the Gulf of Mexico that need to lease GOM designated IBQ (typically four or less vessels). However, the costs associated with vessels leasing GOM designated IBQ allocation would continue, and impact the finances of individual vessels. Because this alternative would not result in meaningful changes to the distribution or amount of target species landings within the fishery, the indirect socioeconomic impacts of the No Action alternative on dealers and other shoreside supporting businesses would be neutral. The affected Atlantic Tunas Longline permit

holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Communities in the Gulf of Mexico and east coast of Florida associated with the pelagic longline fishery are most likely to be impacted by this alternative. For example, Dulac, LA, Panama City, FL, and Fort Pierce Fl. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8.

4.2.2 Alternative B2: Eliminate the Regional IBQ Designations and Cap Bluefin Catch from the GOM

This alternative would eliminate the regional IBQ designations (GOM and ATL), and instead distribute IBQ allocation with no associated regional restrictions on use. IBQ allocation could be used to account for bluefin caught in either the Gulf of Mexico or Atlantic, but there would be a maximum amount of IBQ allocation that could be used to account for landings and dead discards from the Gulf of Mexico. The maximum amount of catch from the Gulf of Mexico would be 35 percent of the total Longline category quota, which is consistent with the amount of IBQ allocation designed as GOM under the current regulations established by Amendment 7. NOAA Fisheries would monitor the catch from the Gulf of Mexico and close the pelagic longline fishery in the Gulf of Mexico when the quota is reached. In addition, this alternative would provide a regulatory mechanism for NOAA Fisheries to modify the 35 percent cap based upon specific considerations such as new scientific data, fishery or stock status information; or changes in the fishery; provided those changes resulted in a cap of 35 percent being inconsistent with the FMP objectives or ICCAT recommendations.

Ecological Impacts

Elimination of the regional designations while establishing a maximum amount of bluefin catch from the Gulf of Mexico (set at 35 percent of the Longline category quota) would have the same net effect and thus neutral ecological impacts on bluefin tuna. The current maximum amount of bluefin catch by pelagic longline vessels from the Gulf of Mexico is 35 percent of the Longline category quota, based on the Amendment 7 regional designations. Specifically, under the Amendment 7 allocations, 35 percent of the IBQ allocations have a regional designation of GOM, which has the effect of capping the amount of bluefin that can be caught from the Gulf of Mexico at 35 percent. If the regional designations were removed to provide more flexibility for vessels, but a 35 percent cap is set on the amount of bluefin that can be incidentally caught from the Gulf of Mexico, then the maximum amount of bluefin that could be could would be the same as the No Action Alternative. Although providing increased flexibility for vessels to fish in the Gulf of Mexico could result in a slight increase in fishing effort in the Gulf of Mexico, and result in more bluefin catch than during recent years, the 35 percent cap would provide the same ceiling on the amount of possible bluefin catch. Vessels can currently fish in the Gulf of Mexico, provided they have the minimum amount of GOM designated IBQ, so the the current rules do not pose a substantial challenge for vessels with little or no GOM designated IBQ. Such vessels may lease GOM designated IBQ to fish in the Gulf of Mexico. Both the Longline category bluefin quota and the portion allowed to be caught in the Gulf of Mexico would remain at relatively low levels

that balance the need for the fishery to account for incidental bluefin catch. If the U.S. bluefin quota were increased, the relative size of the cap on Gulf of Mexico bluefin catch by pelagic longline vessels would remain at 35 percent, but the amount in pounds allowed to be caught would increase. If such an increase is a concern based upon the fishing mortality and stock status, NOAA Fisheries would have a regulatory mechanism to reduce the 35 percent to a level designed to address any relevant stock status concerns. *See* Section 4.2.3 (Alternative B3) below for description of the mechanism. The ecological impacts on other HMS species (as well as protected species) would also be neutral, because fishing strategies for target species are likely to remain similar under this alternative. Substantial changes in the distribution of fishing effort or total fishing effort in the Gulf of Mexico or Atlantic are not anticipated, because the method of determining IBQ shares, and in this case the GOM shares is just one of the many factors that determine whether a vessel will fish in the Gulf of Mexico or the Atlantic.

Socioeconomic Impacts

This alternative may have minor beneficial and minor adverse socioeconomic impacts. There may be a minor beneficial socioeconomic impact on vessels that under the current regulations (No Action Alternative) have only ATL designated IBQ allocation, and currently must lease GOM designated IBQ allocation in order to fish in the Gulf of Mexico. Such vessels would be able to fish in the Gulf of Mexico without the need to lease, which may reduce or eliminate the costs associated with leasing IBQ by such vessels. Although other factors in addition to having GOM designated IBQ allocation (such as home port location, fish availability and markets) are important determinants to fishing in the Gulf of Mexico, facilitation of fishing opportunities in the Gulf of Mexico may result in increased revenue for such vessels. If the elimination of regional designations increases the number of vessels that fish in the Gulf of Mexico, and there are increased landings of target species, there would be minor beneficial economic benefits to dealers in the Gulf of Mexico. For vessels that already fish exclusively in the Gulf of Mexico, with all or most of their IBQ allocation designated as GOM, this alternative may have socioeconomic impacts that are minor and adverse. Such vessels that currently have GOM designated IBQ allocation may experience increased competition for fishing grounds or markets due to any increased fishing effort in the Gulf of Mexico, or face a smaller market for leasing their GOM IBQ allocation to other vessels. Such impacts would be short term. One of the reasons that the impacts are minor is that there are relatively few vessels that need to lease GOM designated IBQ in order to fish there. Substantial changes in the distribution of fishing effort or total fishing effort in the Gulf of Mexico or Atlantic are not anticipated, because the method of determining IBQ shares, and in this case the GOM shares is just one of the many factors that determine whether a vessel will fish in the Gulf of Mexico or the Atlantic. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Communities in the Gulf of Mexico and east coast of Florida associated with the pelagic longline fishery are most likely to be impacted by this alternative. For example, Dulac, LA, Panama City, FL, and Fort Pierce Fl. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8.

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

This alternative would be implemented in conjunction with the dynamic allocation alternatives (A2a (hooks), A2b (sets) or A2c (designated species landings)). Regional designations (GOM and ATL) would be determined on an annual basis as part of the annual dynamic allocation process, the accounting rules for the regional IBQ allocations would remain the same, and a maximum amount of bluefin catch from the Gulf of Mexico and GOM designated IBQ allocation would be set. Specifically, regional designations would be based on the location of the relevant pelagic longline fishing activity used in the annual allocation. There would be a cap on the total amount of GOM IBQ shares. The initial cap would be 35 percent of the Longline category quota, the same as set under Amendment 7. Although the initial cap would be set at 35 percent, the amount of GOM designated IBQ shares (based on the relative amount of fishing effort in the Gulf of Mexico) may be lower. For example, if under Alternative A2b 30 percent of sets analyzed for the determination of annual IBQ allocations was in the Gulf of Mexico, then 30 percent of the IBQ shares (and resultant IBQ allocation) would be designated as GOM. Under a dynamic allocation, the percentage of IBQ shares designated as GOM and ATL would vary, depending upon the location of where vessels fished during the previous three years. During the process of the annual calculation of IBQ shares, if NMFS determines that the total amount of BQ shares (based on the relative amount of fishing effort in the Gulf of Mexico) would be greater than the cap, NMFS would reduce the GOM-designated IBQ shares to equal the GOM IBQ share cap in effect. The reduction in total GOM share percentage would be achieved through equal reductions among IBQ shareholders with GOM designated IBQ shares across the four share percentages. For example, in a given year, if 38 percent of fishing effort based on the fishing effort metric analyzed for the determination of annual shares were from the Gulf of Mexico, only 35 percent of the IBQ shares would be designated as GOM. Because the Gulf of Mexico effort of 38 percent exceeds the 35 percent fleet-wide share default cap, the actual fishing effort would not be used to determine shares. Rather, NMFS would adjust the share percentages downward to reflect the maximum amount of shares that can be issued for the Gulf of Mexico. In this case the amount of GOM shares is equivalent to the Gulf of Mexico cap of 35 percent. In this example, each GOM IBQ share would be reduced by multiplying the share percent by 35/38, or 0.92; a 2.1 percent GOM IBQ share would be reduced to 1.9 percent. The ATL shares would be increased in an analogous manner, so that the total share percentages add up to 100 percent. NOAA Fisheries would notify affected permit holders of any reductions in their IBQ share percentage resulting from this adjustment. This adjustment would not be subject to appeal, because it is not a determination based on the data associated with an individual shareholder, but based upon the need to reduce the total amount of allocated IBQ across all shareholders with GOM designated shares.

As another example, if a vessel under Alternative A2c does not have designated species landings from the Gulf of Mexico during the previous three years, but wishes to fish in the Gulf of Mexico, the vessel would need to lease GOM designated IBQ allocation initially, and then could receive GOM designated IBQ shares and resulting allocation for the following year.

This alternative would provide a regulatory mechanism for NOAA Fisheries to reduce the 35-percent cap, (at the beginning of a year, or inseason) if fishery conditions change and it was no longer consistent with the FMP objectives or ICCAT recommendations. Specifically, such a determination in the Gulf of Mexico would be based upon the considerations listed in the regulations for inseason bluefin quota adjustments (50 CFR § 635.27(a)(8)), such as "Effects of the adjustment on bluefin rebuilding and overfishing"; "Effects of the adjustment on accomplishing the objectives of the fishery management plan"; and "Variations in seasonal distribution, abundance, or migration patterns of bluefin".

Ecological Impacts

Preferred alternative B3 would have neutral ecological impacts on bluefin tuna: it would cap incidental catch in the Gulf of Mexico at its current (Amendment 7) level of 35 percent, but would also provide NOAA Fisheries the regulatory flexibility to reduce the cap if necessary to strengthen the limits on bluefin catch. This alternative regarding regional designations, in conjunction with the preferred alternative for dynamic allocation (based on designated species landings) would have a lower percentage of GOM designated IBQ allocation than any other alternative. This regional designation alternative would not modify the annual ICCAT recommended bluefin quota, nor the U.S. portion of that quota. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending overfishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years.

While the alternative would affect the distribution of regional designations of IBQ shares and allocation among vessels, and may facilitate additional fishing opportunity for active vessels, the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. The ecological impacts on other HMS species (as well as protected species) would also be neutral, because fishing strategies for target species are likely to remain similar under this alternative. Substantial changes in the distribution of fishing effort or total fishing effort in the Gulf of Mexico or Atlantic are not anticipated, because the method of determining IBQ shares, and in this case the GOM shares is just one of the many factors that determine whether a vessel will fish in the Gulf of Mexico or the Atlantic. Based on the data from 2016 to 2018 for active vessels, and the location of the sets, the percentage split of regional designations between the Atlantic and Gulf of Mexico for the dynamic allocation alternatives are in Table 4.16 below. Note these regional designations (shares and allocations) are, as a practical matter the maximum percentage of pelagic longline bluefin that could be caught in the Gulf of Mexico, based on the specific methodologies (and for the dynamic allocations, a specific three year period). The percentages associated with the dynamic allocation methods would vary annually depending upon the location of catch but would be capped, at a maximum percentage of 35

percent designated as GOM shares, with the associated regulatory mechanism for reducing the cap if necessary.

Table 4.16 Comparison of Regional Designations Expressed As Percentage of Total Allocation - by Allocation Alternative

Regional Designation	No Action (%)	Dynamic Allocation based on Hooks (%)	Dynamic Allocation based on Sets (%)	Dynamic Allocation based on Landings* *(Preferred)* (%)	Dynamic and Equal Allocation* (%)	Updated Amendment 7 (%)
GOM	35	31	33	27	27	35
ATL	65	69	67	73	73	65

* Based on location of designated species landings
Source: VMS data; eDealer data

Under all of the dynamic allocation alternatives, the maximum amount of bluefin allocated to the Gulf of Mexico for the short term would be slightly less than under the No Action alternative (i.e., between 27 and 33 percent of the Longline category quota, instead of 35 percent under the No Action alternative). The aspect of the alternative that provides NOAA Fisheries the authority to reduce the maximum amount of IBQ allocation that could be caught from the Gulf of Mexico, would enable NOAA Fisheries to respond to new scientific data, fishery or stock status information, or other changes in the fishery, and maintain a maximum level of bluefin catch from the Gulf of Mexico for the long term that is consistent with the FMP objectives and ICCAT recommendations. The alternative would result in regulations that are more flexible and responsive to potential future changes in circumstances.

Socioeconomic impacts

The overall socioeconomic impacts of this alternative would be minor and beneficial. Although other factors in addition to having GOM designated IBQ allocation (such as home port location, fish availability and markets) are important determinants to fishing in the Gulf of Mexico, this alternative would provide increased flexibility for vessels that currently have ATL designated IBQ shares because the dynamic annual definition of shares and regional designations would enable a vessel to receive annual shares with a GOM regional designation as a result of fishing with pelagic longline gear in the Gulf of Mexico during the previous year (instead of needing to lease GOM designated IBQ allocation annually). Such vessels likely have home ports in the Atlantic. Increased flexibility to catch target species could result in additional revenue for dealers and supporting shoreside businesses as a result of increased landings of target species; therefore, the indirect socioeconomic impacts are expected to be minor and beneficial.

Historical fishery participants in the Gulf of Mexico (likely with home ports in the Gulf of Mexico) would continue to receive GOM designated IBQ share based on their level of activity (in the Gulf of Mexico). Under this system, if a vessel had no designated species landings from the Gulf of Mexico during the previous three years, but wishes to fish in the Gulf of Mexico, the vessel would need to lease GOM designated IBQ allocation initially, and then could receive GOM designated IBQ shares and resulting allocation for the following year. If the number of vessels fishing in the Gulf of Mexico increased, there may be minor, short-term adverse impacts due to increased competition. However, based on the few vessels with home ports in the Atlantic that have fished in the Gulf of Mexico during the past few years, the potential for any adverse socioeconomic impact on vessels with home ports in the Gulf of Mexico, is very low.

If NOAA Fisheries were to exercise its authority to reduce the maximum percentage of GOM designated shares from its current level of 35 percent, and reduce the percentage of total IBQ shares that are designated GOM (e.g., down to between 27 or 33 percent of the total IBQ shares), there would likely be no practical impact because the recent levels of catch of bluefin from the Gulf of Mexico have been very low. If the amount of GOM shares needed to be reduced in order to not exceed the cap (as described in Chapter 2), the impact is likely to be small at the level of individual vessels. Furthermore, based on recent data, it is unlikely that fishing effort would increase to a level that would result in the amount of GOM shares that would exceed the cap. Table 4.17 below contains data on the total IBQ allocations, and GOM designated IBQ allocations, and relevant catch information. The bluefin catch in the Gulf of Mexico as a percentage of total IBQ allocation has been between three and six percent, much lower than the maximum allowable of 35 percent.

In summary, the socioeconomic impacts are expected to be minor and beneficial, because of the increased flexibility for vessels currently without GOM designated IBQ allocation. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Communities in the Gulf of Mexico and east coast of Florida associated with the pelagic longline fishery are most likely to be impacted by this alternative. For example, Dulac, LA, Panama City, FL, and Fort Pierce Fl. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8.

Table 4.17 Gulf of Mexico Designated IBQ and Bluefin Catch in the Gulf of Mexico (2015-2018)

Year	Total Allocation (mt)	GOM Designated IBQ (35% of total allocation) (mt)	Bluefin Catch in Gulf of Mexico (mt)	Bluefin Catch in the Gulf of Mexico, as a Percent of Total Allocation (%)	Bluefin Catch in the Gulf of Mexico as a Percent of GOM Designated Allocation (%)
2015	182.3	63.8	9.3	5	15
2016	182.3	63.8	10.7	6	17
2017	193.3	67.7	12.2	6	18
2018	208.1	72.8	6.9	3	9

Source: NMFS SERO Catch Shares Online System

Rationale for Selection of Preferred Alternative

Both the ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. This alternative would maintain a cap on the amount of bluefin caught from the Gulf of Mexico, and provide NOAA Fisheries the authority to reduce the maximum amount of IBQ allocation that could be caught from the Gulf of Mexico, which would enable NOAA Fisheries to respond to new scientific data, fishery or stock status information; or changes in the fishery, and maintain a maximum level of bluefin catch from the Gulf of Mexico that is consistent with the FMP objectives and ICCAT recommendations. This alternative would increase flexibility for vessels that currently have ATL designated IBQ shares because the dynamic annual definition of shares and regional designations would enable a vessel to receive annual shares with a GOM regional designation as a result of fishing with pelagic longline gear in the Gulf of Mexico during the previous year (instead of needing to lease GOM designated IBQ allocation annually). In conjunction with the preferred alternative for dynamic allocation (based on designated species landings), a lower percentage of IBQ shares would initially be designated as GOM, yet there would be flexibility for the GOM IBQ share percent to increase (up to the cap), in conjunction with fishing effort, in a limited and restrained manner.

4.2.4 Preferred Alternative B4: Maintain Current NED Rules - No Action

This alternative would maintain the current method of inclusion of data from the geographic area comprising the Northeast Distant gear restricted area (NED), in any of the alternatives that define IBQ shares and continue the current IBQ catch accounting rules for fishing in the NED. Vessels do not have to use IBQ allocation to account for bluefin catch from the NED until after the ICCAT-designated 25 mt of bluefin have been caught.

Ecological Impacts

The ecological impacts of continuing with the current IBQ Program's rules regarding the NED would be neutral for bluefin. This alternative would not affect the overall level of bluefin catch. Bluefin catch in the NED would be accounted for under the U.S. bluefin quota. There have been few vessels that fish in the NED, and the associated catch of bluefin has been within the 25 mt NED quota specified by ICCAT (and accounted for with IBQ allocation as required, when the 25 mt NED quota has been caught). Since this alternative would not change current fishing practices, the ecological impacts on other fish species and protected species would also be neutral.

S*ocioeconomic Impacts*

The socioeconomic impacts of the No Action alternative on fishery participants, with respect to the NED rules, would also be neutral. Data associated with vessels fishing in the NED is included as part of the formula defining IBQ shares, and vessels fishing in the NED do not have to use IBQ allocation to account for bluefin catch until after the 25 mt NED quota is utilized. Vessels that fish in the NED would continue to be able to fish there with no impact on the associated IBQ shares. Socioeconomic impacts of the No Action alternative on dealers and supporting shoreside businesses would be neutral because this alternative would not change fishing practices. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Based on where the home or principal port of vessels that fished in the NED in the past, communities from the mid-Atlantic north to Maine associated with the pelagic longline fishery are most likely to be impacted by this alternative. For example, Barnegat Light, NJ, Fairhaven, MA, and New Bedford, MA (as well as Canadian shippers). A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8.

Rationale for Selection of Preferred Alternative

Both the ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. Vessels that fish in the NED would continue to be able to fish there with no impact on the associated IBQ shares. In contrast, Alternative B5 would result in adverse economic impacts.

4.2.5 Alternative B5: Do not include NED fishing activity as part of the data used in calculating IBQ Allocations

This alternative would not include fishing activity in the NED as part of an allocation formula. Specifically, fishing effort in the NED or designated species landings from longline sets in that area would be excluded from the formulas used to establish IBQ shares, unless the 25-mt NED bluefin quota has been caught.

Ecological Impacts

The ecological impacts of this alternative would be neutral for bluefin for the same reasons discussed under Alternative B4, Ecological Impacts. This alternative would not affect the amount of total IBQ allocation, but would only affect the distribution of IBQ allocation among vessels.

Socioeconomic Impacts

The socioeconomic impacts of this alternative are expected to be minor and adverse for vessels that fish in the NED because their fishing effort in the NED would not be reflected in their IBQ share percentage. Depending upon the specific amount of fishing effort, a vessel may receive a lower IBQ share percentage. For example, under Alternative A2a (dynamic allocation based on hooks), the reduction in numbers of hooks may change the assignment of quartile based on the vessel's percentage of total hooks. Nine vessels fished in the NED during 2016 to 2018. Under Alternative A2a, although the number of hooks used to determine IBQ shares would be substantially reduced, because the shares are determined based on quartiles, only one vessel would have a lower percentage share by not including the NED effort in the calculation. It should be noted that if the share percentages were determined based upon each vessel's specific percentage of number of hooks (instead of being assigned to quartiles) the average decrease in the number of hooks for vessels that fished in the NED would be 37 percent (compared to inclusion of this effort in the share percentage). The range of decrease in numbers of hooks was between six percent and one hundred percent. The NED fishery is unique and highly variable, and therefore only a few vessels fish there intermittently. If a vessel fished in the NED during a particular year, their share percentage may be reduced during subsequent years as a result, whether or not any bluefin were caught during that year, and whether or not the vessel choses to fish in the NED during subsequent years.

If NED fishers receive a lower IBQ share percentage relative to their total fishing effort than other vessels, this may put them at a competitive disadvantage. Disadvantaging vessels that fish in the NED may alter the costs and incentives for vessels to fish in the NED, and have an adverse long-term impact on the fishery as a whole because of underutilization of swordfish. In turn this could result in indirect, short- and long-term socioeconomic impacts on dealers and supporting shoreside industries that are minor and adverse. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Based on where the home or principal port of vessels that fished in the NED in the past, communities from the mid-Atlantic north to Maine associated with the pelagic longline fishery are most likely to be impacted by this alternative. For example, Barnegat Light, NJ, Fairhaven, MA, and New Bedford, MA (as well as Canadian shippers). A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8.

4.3 'C' Alternatives: Sale of IBQ Shares

4.3.1 Preferred Alternative C1: No Sale Allowed - No Action

This alternative would continue the current regulations under which no sale of IBQ shares are allowed. Amendment 7 (2015) implemented the current rules, which prohibit sale of IBQ shares, yet allow temporary (annual) leasing of IBQ allocation among Atlantic Tunas Longline category permit holders. IBQ shares are linked to, and non-severable from Atlantic Tunas Longline category permits and may not be sold (Atlantic Tunas Longline category permits may be sold however). Sale of shares is a separate and distinct type of transaction from temporary leasing of IBQ allocation. Atlantic Tunas Longline category permit holders may lease IBQ allocation at any time during a calendar year to another permit holder, but the leased IBQ allocation does not carry over from one year to the next.

Ecological Impacts

The Three-Year Review concluded that, under the IBQ Program, bluefin catch was reduced substantially compared to the time period prior to the implementation of the IBQ Program. The ecological impacts of Alternative C1 on bluefin are expected to be neutral because allowing or not allowing sale of IBQ shares would not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-recommended quota for the western Atlantic bluefin stock and the U.S. portion of that quota. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending ovefishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Provided the IBQ Program elements continue to function in a manner consistent with its objectives, with individual vessel accountability for bluefin catch, the ability to sell IBQ shares would have a neutral ecological impact compared to the overall Longline category quota. The maximum amount of bluefin that may be caught from the Gulf of Mexico would remain limited as described under Alternatives B1a, B2, or B3. The ecological impacts of Alternative C1 on other Atlantic HMS and on protected species are also expected to be neutral because allowing or not allowing sale of IBQ shares does not affect analyzed quotas for target species, where applicable, and is not likely to affect fishing strategies.

Socioeconomic Impacts

The socio economic impacts of Alternative C1 on fishery participants are expected to be neutral because there would be no change to the current regulations. Further, there is little need for Atlantic Tunas Longline category permit holders to accumulate additional IBQ

shares, because for most permit holders, annual allocations (under the A allocation alternatives) combined with a minimal amount of leasing is likely to be sufficient for permit holders to account for incidental bluefin catch. In contrast to many catch share programs where the catch share is associated with a targeted species, bluefin is an incidental catch species in the longline fishery. Continued prohibition on sale of IBQ shares would prevent uncertainty in the IBQ allocation leasing market in both the short term and long term, which would be beneficial to the IBQ Program overall. In addition, prohibition of sale would reduce the likelihood of accumulation of IBQ shares by individual entities. Similarly, reduced uncertainty in the market would likely also result in indirect socioeconomic impacts on dealers and supporting shoreside businesses that are minor and beneficial. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

Rationale for Selection of Preferred Alternative

In conclusion, to maintain stability in the IBQ allocation leasing market and in light of the beneficial socioeconomic impacts as described above and neutral ecological impacts of both C alternatives, no action (Alternative C1) is preferred. Some of the reasons why a catch share program may adopt sale of individual quota shares (National Oceanic and Atmospheric Administration (NOAA) Catch Share Policy, 2010) are not applicable to the IBQ Program. For example, there is neither the need to reduce overcapacity in the Atlantic pelagic longline fishery, nor the need to control entry into the fishery as it is already a limited access fishery.

4.3.2 Alternative C2: Allow Sale of IBQ Shares

This alternative would allow sale of IBQ shares. The activity under consideration via this alternative is the purchase of IBQ shares (not to be confused with the annual leasing of IBQ allocation). Specifically, holders of valid Atlantic Tunas Longline category permits would be able to purchase IBQ shares from each other and retain them for the duration of the IBQ Program. IBQ shares would no longer be linked to specific Atlantic Tunas Longline category permits, as established in Amendment 7. Permit holders would be able to increase or decrease their IBQ share via sale. These sales would be conducted through the online IBQ System, similar to the manner in which IBQ leasing transactions are completed, including a requirement that the price paid for the IBQ shares is reported. Accumulation of shares is addressed in the D alternatives below. Sale of IBQ shares to entities who are not holders of valid Atlantic Tunas Longline category permits (such as seafood dealers, non-governmental organizations, or business speculators) would not be allowed. More specifically, buyers of IBQ shares must be holders of valid Atlantic Tunas Longline category permits issued to a vessel, while a seller of IBQ shares may be the holder of a permit in NOVESID status (not associated with a vessel), or an expired permit. The IBQ allocation leasing rules would

apply concurrently. Both the sale of IBQ shares and the IBQ leasing program would have associated conditions on the eligible participants that relate to permit status. Therefore, there are a number of specific scenarios under which vessels may be restricted from selling IBQ shares or leasing IBQ allocation. For example, if the owner of a permitted vessel purchased IBQ shares, but then sold the vessel and retained the Atlantic Tunas Longline permit in NOVESID status, they would be able to sell the IBQ shares, but not participate in the IBQ leasing market. This alternative would not be consistent with the dynamic allocation alternatives, given that shareholders would be redefined on an annual basis.

Ecological Impacts

The ecological impacts of Alternative C2 are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts.

Socioeconomic Impacts

Alternative C2 is expected to have minor adverse socioeconomic impacts. Sale of IBQ shares provides Atlantic Tunas Longline category permit holders a means of acquiring shares (and associated allocation) instead of participating in the IBQ allocation leasing market, which enables management of their IBQ allocation and business planning on a longer time scale than a single year. Permit holders may be able to save money through a single IBQ share transaction instead of via annual IBQ allocation lease transactions, a beneficial impact. On the other hand, allowing sale of IBQ shares would introduce uncertainty in the IBQ allocation leasing market, which is otherwise robust as described in the Three-Year Review, and that uncertainty could have an adverse impact on the IBQ Program overall in the short and long term. Increased uncertainty would likely also result in indirect socioeconomic impacts on dealers and supporting shoreside businesses. Sale of IBQ shares may result in IBQ shares being associated with vessels that are not active, and there is likely to be concern in the fishery about the potential for accumulation of shares by an entity that may be relatively well funded compared to the average fishery participant. As described above, there is little need for Atlantic Tunas Longline category permit holders to accumulate additional IBQ shares, because for most permit holders, annual allocations (under the A allocation alternatives) combined with a minimal amount of leasing is likely to be sufficient for permit holders to account for bluefin catch. Lastly, this alternative is inconsistent with the dynamic allocation alternatives, because they would redefine shareholders on an annual basis. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

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

The following management alternatives would place a cap on the amount of IBQ shares an entity may hold or acquire; and/or place a cap on the amount of IBQ allocation an entity may lease or use. Existing permit regulations limit the ownership/control of HMS permits to no more than five percent of vessels for which limited access permits have been issued (§635.4(l)(2)(iii)). The management alternatives described below are intended to limit IBQ share acquisition/holdings ,and/or leasing, or use of IBQ allocation quota through the IBQ System, and therefore include references to who or what is limited. In this context, limitations are placed on "entities". In these alternatives, a single entity if defined as the Atlantic Tunas Longline category permit holder where that holder is an individual.

The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

4.4.1 Alternatives Suite D1: Cap Accumulated Sum of IBQ Shares

4.4.1.1 Sub-Alternative D1a: No Action

This alternative would maintain the current regulations under which vessels may not sell IBQ shares, but may temporarily lease IBQ allocation, with the limit on the amount of quota allocation an individual vessel (longline or purse seine) can lease annually as the combined Longline and Purse Seine category allocations. Under this alternative, an entity would continue to be able to accumulate IBQ shares through the purchase of Atlantic Tunas Longline category permits (allowed currently). Existing permit regulations limit the ownership/control of HMS permits to no more than five percent of vessels for which limited access permits have been issued (50 C.F.R. § 635.4(l)(2)(iii)), which in effect establishes a maximum share of total limited access privileges that a privilege holder is permitted to hold, acquire, or use.

Ecological Impacts

The ecological impacts of Alternative D1a are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A limited access privilege accumulation cap does not affect the amount of overall Longline category bluefin quota that may be caught.

Socioeconomic Impacts

Based on data from 2015 to 2019, Alternative D1a is expected to have neutral socioeconomic impacts. The IBQ Program has been functioning under these regulations since 2015, and there have been no reported or observed issues relating to excessive accumulation of IBQ shares. However, it is possible that some vessel owners may be concerned about the accumulation of excessive IBQ shares, given the economic diversity of the pelagic longline fleet. Although most vessel owners only own one vessel, some own, or have interest in multiple vessels. In 2015-2019, the highest level of IBQ shares held by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. This has been fairly stable over time (Figure 4.8). In addition, the preferred alternatives under the IBQ allocation alternatives (A alternatives) are designed to update and more closely align the distribution of IBQ shares with the current fishing activity and need for IBQ allocation of the pelagic longline fleet, which could reduce the likelihood that entities would seek to buy additional Atlantic Tunas Longline category permits with IBQ shares, or buy additional IBQ shares if allowed under this Amendment.

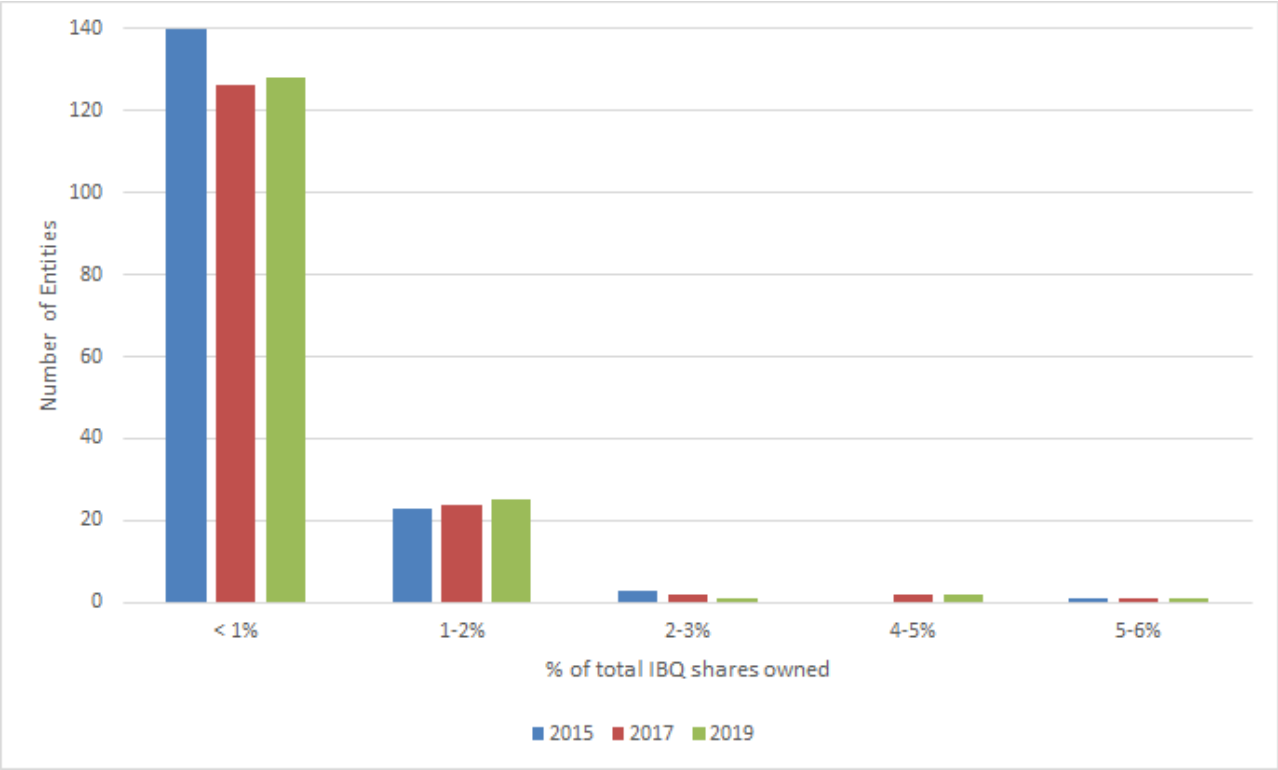


Figure 4.8 **Percent of total IBQ shares held by entities holding Atlantic Tunas Longline category permits with IBQ shares, on January 1 of 2015, 2017, and 2019**
Source: SERO Permits Information Management System and NMFS SERO Catch Shares Online System

Although based on past data, the risk may be low, it is possible in the future, under the No Action Alternative, there would be adverse socioeconomic impacts if one entity was to buy

Atlantic Tunas Longline category permits with IBQ shares, or buy IBQ shares if allowed under Alternative C2, and control an excessive portion of the market. Even though there is a limit on permits under current regulations, that does not necessarily mean that there would be a corresponding limit on excessive shares. For example, an entity could purchase permits up to the five percent limit and those permits could be associated with a large amount of IBQ shares. Regarding potential influence over the market, U.S. landings of Atlantic bluefin with pelagic longline gear are a very small percentage of Atlantic-wide bluefin landings. In 2018, U.S. pelagic longline landings of Atlantic bluefin were 0.3 percent of total Atlantic bluefin landings (88 mt out of 29,752 mt), based on ICCAT Task I catch data. Combining this with bluefin landings from other oceans, neither the U.S. industry under the IBQ Program nor a single entity participating in the IBQ Program exert an influence over the global bluefin market.

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

This alternative would cap the percentage of IBQ shares that an entity may hold or acquire, at seven percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

Ecological Impacts

The ecological impacts of Alternative D1b are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A limited access privilege accumulation cap does not affect the amount of overall Longline category bluefin quota that may be caught.

Socioeconomic Impacts

Alternative D1b is expected to have direct minor adverse socioeconomic impacts if vessel owners are interested in purchasing additional permits in order to increase their IBQ shares, (or purchase IBQ shares if allowed under Alternative C2). In 2015-2019, the highest level of IBQ shares held by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would receive on an annual basis would be between six and seven percent of total shares. If the IBQ shareholding trend from 2015-2019 continues, implementing a cap at seven percent may not impact most of the fleet. However, there could be minor adverse economic impacts, if entities have business plans to acquire additional shares through the purchase or permits (or sale of shares if allowed under Alternative C2) that would result in shares exceeding a seven-percent cap.

In the long term, if an entity has business plans to acquire additional Atlantic Tunas Longline category permits, it would need to consider its existing IBQ shares and would be limited to buying a permit(s) that does not cause it to exceed the seven percent cap. The entity could also buy a permit with no IBQ shares. Another impact could occur if, under the preferred 'A' alternatives, the number of active vessels decreases and therefore the relative IBQ share percentage associated with each vessel owner/entity increases. At a seven-percent cap, an entity could have to forgo a portion of the IBQ shares they would otherwise receive to stay at or below the cap. The seven-percent cap – along with the existing limit on Atlantic Tunas Longline category permits (*see* 50 C.F.R. § 635.4(l)(2)(iii) explained under Alternative D1a) and prohibition on sale of IBQ shares (preferred Alternative C1) – could conceivably limit the amount of fishing activity and target species landings. However, limitation of fishing activity due to a limit on IBQ shares is not likely, because of the high likelihood of a successful IBQ leasing market and the availability of affordable IBQ allocation for lease. For these reasons, Alternative D1b could have only minor adverse socioeconomic impacts on fishery participants and on dealers and supporting businesses.

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

This alternative would cap the percentage of IBQ shares that an entity could hold or acquire at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

Ecological Impacts

The ecological impacts of Alternative D1c are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A limited access privilege accumulation cap does not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota.

Socioeconomic Impacts

Based on data from 2015 to 2019, Preferred Sub-Alternative D1c is expected to have neutral socioeconomic impacts on fishery participants. If an entity acquired 25 percent of the IBQ shares, it is likely that other shareholder would still be able to sustain an IBQ leasing market, and vessels would be able to account for bluefin catch using IBQ allocations. In 2015-2019, the highest level of IBQ shares held by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would receive on an annual basis

would be between six and seven percent of total shares. If the IBQ shareholding trend from 2015-2019 continues, implementing a cap at 25 percent would not impact the fleet. This cap level would not preclude an entity from having several Atlantic Tunas Longline category permits, and being a shareholder of up to 25 percent of the shares, based on substantial fishing effort, under Preferred Alternative A2c. This cap level would allow flexibility in entities' business planning to increase fishing effort, or acquire more shares, by acquiring additional Atlantic Tunas Longline category permits or under Alternative C2. Based on the data described above, it seems unlikely that entities would seek to acquire additional shares that would exceed a 25-percent cap.

Implementing a cap to prevent acquisition of excessive IBQ shares would prevent a single entity from controlling an excessive portion of the market, would address potential concerns among vessel owners, and accumulation of shares by a single entity and reduce any associated uncertainty, which would be a minor, beneficial socioeconomic impact. Overall, however, given the above minor conflicting potential impacts, a share cap percentage is anticipated to have a neutral socioeconomic impact on vessel owners. In addition, this share cap is anticipated to have a neutral socioeconomic impact on dealers or supporting shoreside businesses because this alternative mainly affects the business practices of fishery participants.

Rationale for Selection of Preferred Alternative

Both the ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. All of the cap alternatives have neutral ecological impacts. Preferred Alternative D1c has neutral socioeconomic impacts and is a cap level that balances conflicting criteria (i.e., a need to provide flexibility for entities to have shares in an amount that facilitates the operation of their business, and the need to set a share cap at a level that prevents excessive accumulation of shares by an entity). The 25 percent cap would balance the need to address the Magnuson-Stevens Act requirement to cap shares and address concerns about consolidation, which may not be fully addressed with a higher cap, with the need to provide flexibility for the fishery participants to operate in a manner that allows bluefin bycatch to be accounted for, and allows for various business models, including cooperatives and limited consolidation that enable efficiencies to remain profitable and competitive in the international seafood market. A cap of 25 percent is a level well above the maximum amount of shares held by an entity in the fishery to date, which would provide flexibility for an entity to accumulate shares at a higher level, yet still limit shares held to a level that does not come close to a high percentage on a scale of zero to one hundred. Some accumulation of shares by a single entity may be sought in order to gain efficiencies, facilitate cooperative organizations, or as a source of revenue through leasing to others. Further, some accumulation of shares may enable management of their IBQ allocation and business planning on a longer time scale than a single year. Incentives to accumulate shares are limited by the fact that bluefin may not be targeted, and contribute relatively little to total revenue in the fishery. In contrast to the Preferred Alternative, Alternative D1b is expected to have minor, adverse socioeconomic impacts, if vessel owners are interested in purchasing additional permits in order to increase their IBQ shares. While Alternative D1a (no action) provides a limit on shares by limiting the

ownership/control of HMS permits, having an explicit cap on shares is preferred. Although Alternative D1d, described below would in all likelihood have a neutral impact, the cap (50%) is not a level that is warranted (for reasons described in below). For this reason, Alternative D1c is the preferred alternative at this time.

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

This alternative would cap the percentage of IBQ shares that an entity could hold or acquire, at 50 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with those shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements.

Ecological Impacts

The ecological impacts of Alternative D1d are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A limited access privilege accumulation cap does not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota.

Socioeconomic Impacts

Sub-Alternative D1d is expected to have neutral socioeconomic impacts on fishery participants. Based on data from 2015 to 2019, there is a low likelihood that such a cap would affect any fishery participants. In 2015-2019, the highest level of IBQ share ownership by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would own on an annual basis would be between six and seven percent of total shares. If the IBQ shareholding trend from 2015-2019 continues, implementing a cap at 50 percent would not impact the fleet. This cap level would allow flexibility in entities' business planning to acquire more shares, by acquiring additional Atlantic Tunas Longline category permits or under Alternative C2. Based on the data described above, it seems unlikely that entities would seek to acquire additional shares that would exceed a 50-percent cap. Therefore, impacts would be neutral.

However, if conditions changed and an entity held shares that approached 50 percent (through acquisition or decline in the number of entities in the fishery), under this alternative the type of impacts on the fishery as a whole could be adverse. If a single entity could control 50 percent of the IBQ shares / IBQ allocation market, those entities not in control of the shares may have inadequate IBQ shares / IBQ allocations to account for bluefin catch.

A share cap percentage is anticipated to have neutral socioeconomic impacts on dealers or supporting shoreside businesses because this alternative mainly affects the business practices of fishery participants.

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

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

This alternative would maintain the Amendment 7 limit on the amount of quota allocation an individual vessel (longline or purse seine) can lease annually as the combined Longline and Purse Seine category allocations on an annual basis. Long-term control of IBQ allocation by an entity through leasing is not possible, because leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year. The amount of IBQ an entity may use is limited by the amount of IBQ they are allocated and the amount they lease from other vessels. The amount of IBQ allocated is limited by the shares associated with the permit, which is capped under Alternative D1c. Investment in leasing large amounts of IBQ is not likely to occur because the IBQ would not carry over from one year to the next and therefore the investment in IBQ would not likely be a good investment, due to the short-term nature of the lease. The likely reason a vessel might need to lease a lot of IBQ would be to account for an unusually large catch of bluefin, which is consistent with the objectives of the IBQ Program. In contrast to catch share programs where the catch share is a target species, there are not strong incentives to accumulate large amounts of IBQ allocation. The limited bluefin market is also likely to serve as a disincentive for vessels to accumulate IBQ allocation through leasing in order to target bluefin.

Ecological Impacts

The ecological impacts of Alternative D2a are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A cap on IBQ allocations used does not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. The IBQ Program restrictions, in conjunction with market constraints serve as incentives that are likely to maintain bluefin catch below the total IBQ allocation (fishery-wide).

Socioeconomic Impacts

Preferred Sub-Alternative D2a is expected to have neutral socioeconomic impacts on fishery participants. The IBQ Program has been functioning under these regulations since 2015, and there have been no reported or observed issues relating to excessive accumulation of IBQ allocation. The highest amount of IBQ allocation that a single entity held in a given year, including leased allocation, was 6.5 percent, 12.3 percent, and 8.8 percent of the total annual allocation (i.e., the Longline category bluefin quota) in 2015, 2017, and 2019, respectively. The IBQ Program was designed to provide ample flexibility for vessel owners to lease IBQ allocation in the amounts that they need to account for

bluefin catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin. Preferred Alternative D1c would set a cap on IBQ shares, thus limiting accumulation of annual IBQ allocations resulting from those shares. Leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year, therefore there is no long-term concern about excessive accumulation of allocations. In addition, the preferred alternatives under the IBQ allocation alternatives (A alternatives) are designed to update and more closely align the distribution of IBQ shares and resulting allocation with the current fishing activity and need for IBQ allocation of the pelagic longline fleet, which could reduce the likelihood that entities would seek to lease additional allocation.

Rationale for Selection of Preferred Alternative

Leasing of IBQ allocation from one entity to another requires both entities to agree upon the transaction. Therefore, short-term control of IBQ allocation by an entity through leasing that would result in negative impacts (i.e., excessive control of IBQ allocation) is unlikely. Furthermore, long-term control of IBQ allocation by an entity through leasing is not possible, because leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year. As noted above, the IBQ Program has been functioning under the current regulations (without a cap on the amount of IBQ allocation that may be leased by an entity) since 2015, and there have been no issues relating to excessive accumulation of IBQ allocation. To maximize flexibility in the IBQ Program for entities to lease IBQ allocation in amounts they need, while not resulting in any adverse ecological or socioeconomic impacts, no action (Alternative D2a) is preferred at this time.

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

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

Ecological Impacts

The ecological impacts of Alternative D2b are expected to be neutral for the same reasons provided under Alternative C1, Ecological Impacts. A cap on IBQ allocations does not affect the amount of IBQ shares distributed, and the overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota.

Socioeconomic Impacts

Sub-Alternative D2b is expected to have neutral socioeconomic impacts on fishery participants given prior years' information on leased allocations and due to the design of the preferred A alternatives, cap on IBQ shares, and annual leasing of IBQ allocation. *See* explanation under Sub-Alternative D2a, Socioeconomic Impacts paragraph 1. If a similar

level of IBQ allocation leasing continues as in prior years, a 25 percent allocation cap would not impact the fleet. In addition, it is not likely that an entity would reach a 25-percent cap through the annual IBQ allocation they would receive under the A alternatives. This cap level would likely allow flexibility in entities' short-term business planning to lease IBQ allocation to account for bluefin catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin.

Based on prior years' leasing information (*see* Sub-Alternative D2a, Socioeconomic Impacts paragraph 1), it seems unlikely that entities would seek to acquire additional shares that would exceed a 25-percent cap. Therefore, impacts would be neutral.

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

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

4.5.1 Alternatives Suite E1: Dealer Reporting Requirements

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

This alternative would make no changes to the current dealer reporting requirements that were implemented by Amendment 7 in support of the IBQ Program (50 C.F.R. § 635.15(b)(4)(iii)). Vessel owner/operators are currently required to coordinate with dealers to enter data on bluefin landings and discarded dead bluefin into the IBQ System via the dealer's account, when a dealer is entering data on bluefin purchased from the vessel owner/operator, at the end of a fishing trip. This requirement was instituted to ensure accurate dead discard data is collected and entered into the IBQ accounting system, and associated with the correct vessel account. Secondly, vessel operators are required to provide their vessel PIN to the dealer in order for the dealer to be able to enter relevant data on bluefin dead discards or landings into the IBQ System. Separate from the above regulation, vessel operators are also required to submit bluefin catch information via VMS.

Ecological Impacts

The ecological impacts on bluefin, other Atlantic HMS, and protected species are expected to be neutral because this report is an administrative requirement and does not affect fishing practices or catch.

Socioeconomic Impacts

This alternative would have minor, adverse socioeconomic impacts because it would continue to require vessel operators and dealers to collaborate in submitting dead discard information that is also supplied independently by the vessel operators by way of VMS. The requirement to submit the same dead discard information in two different reporting systems can be frustrating for fishermen due to the additional reporting burden. During the time-period when NOAA Fisheries was collecting two data streams, we was able to verify information that was collected, and determine that compliance with the VMS reporting requirement was substantially better than compliance with the dealer reporting of bluefin dead discard data. The second aspect of this alternative, the requirement for fishermen to submit a PIN when dealers entered landings data, was also frustrating for fishermen and dealers alike since fishermen were frequently either not available when dealers entered the data, or did not have access to their PIN. Fishermen chose to provide their PIN to dealers which allowed the data to be entered, but did not provide the data verification that was the objective of the original requirement. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

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

This preferred alternative would maintain VMS reporting requirements and modify two aspects of the dealer reporting requirements for the IBQ Program. First, this alternative would eliminate the reporting of dead discards by the dealer. Secondly, this alternative would eliminate the requirement that vessel operators or owners confirm the landing information entered into the IBQ system by the dealer is accurate by entering the PIN associated with the vessel account.(described in Sub-Alternative E1a). Instead, this alternative would use email notification by NOAA Fisheries via the IBQ System (or a message within the IBQ System) that would inform the vessel owner when a dealer conducts a transaction with that vessel's IBQ account to provide a means of vessel operator oversight of dealer transactions with their IBQ vessel account. The source of real-time dead discard data would be the VMS data regarding dead discards, entered by the vessel operator via the bluefin set report, from sea. The requirement that the dealer enter the data on bluefin *landings* into the online IBQ System via the dealer account would continue.

Ecological Impacts

The ecological impacts of this alternative are expected to be neutral. This alternative removes the redundant requirement for dealers to submit dead discard reports (which vessel operators report through VMS), and removes an administrative requirement (entering vessel PIN) that is not fulfilling its intended objective. Fishing practices of

participants would not change in such a way that catch of bluefin, other HMS, or protected resources would increase or decrease as a result of modifications to dealer reporting requirements.

Socioeconomic Impacts

This alternative is expected to have minor, beneficial impacts for dealers and fishery participants because they are relieved of reporting requirements (dead discards via the Catch Shares Online System) and are no longer required to collaborate with fishermen for landings data entry. The removal of the PIN collaboration will reduce frustration for both fishermen and dealers. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

Rationale for Selecting the Preferred Alternative

Both the ecological and socioeconomic impacts of this alternative would be consistent with the objectives of this Amendment. This alternative would streamline the reporting process, while maintaining consistent data on bluefin landings and dead discards. Dead discard data will continue to be submitted by the vessel operators through VMS reports.

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

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

This alternative would continue the current requirement that EM hard drives be submitted after each trip using pelagic longline gear, according to the instructions provided by NOAA Fisheries. Specifically, vessel operators are required to mail in the computer hard drive from the EM System at the end of each pelagic longline trip, regardless of how full the hard drive is (how much memory is left on the hard drive). The following, associated instructions would remain unchanged: The vessel operator must remove both hard drives from the EM System, put them in a padded envelope, with a pre-paid, self-addressed mailer or label, and send to the third-party contractor (address and information provided by NOAA Fisheries). The vessel operator must provide a pre-paid, self-addressed mailer or label to receive their replacement drives. The computer hard drives (and mailer or label) should be sent via United States Postal Service (USPS) or FedEx (or another traceable method) to the address as instructed by NOAA Fisheries. Subsequently, the replacement hard drives for the vessel will be sent to the address provided by the vessel operator. The vessel operator is responsible for providing the pre-paid mailer or label (to enable mailing

of the replacement hard drives). The vessel operator is also responsible for obtaining padded mailers for shipping the hard drives to the third party contractor.

Ecological impacts

The ecological impacts on bluefin, other Atlantic HMS, and protected species would be neutral since this alternative does not modify the frequency of data submitted to NOAA Fisheries. Maintaining the current shipping frequency would not impact the subsequent logistics conducted by the NOAA Fisheries contractor (e.g., tracking hard drives, downloading data, reviewing and storing data), and therefore would not impact the programmatic goals of the EM Program which is to validate the self-reported bluefin set reports. The ecological benefits of the EM Program as determined in Amendment 7 (79 FR 71510; December 2, 2014) would not be impacted by this alternative, therefore this alternative has neutral ecological impacts.

Socioeconomic Impacts

Alternative E2a would have minor adverse socioeconomic impacts on fishery participants when compared to the preferred alternative. Currently vessel owners or operators must mail hard drives to NOAA Fisheries after each fishing trip. When compared to the preferred alternative, this would maintain a higher cost burden by requiring transactions after each trip. This would also maintain a higher burden in terms of time. Operators would have to spend time pulling, packaging, and shipping hard drives after each trip, instead of after every other trip.

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

This alternative would require that the vessel operator mail the hard drives at the completion of every two trips, instead of after *each* pelagic longline fishing trip.

Ecological impacts

The ecological impacts on bluefin, other Atlantic HMS and protected species would be neutral since this alternative is administrative in nature, and only modifies the rate at which data is submitted to NOAA Fisheries. The reduction in shipping frequency would not impact the subsequent logistics conducted by the NOAA Fisheries contractor (e.g., tracking hard drives, downloading data, reviewing and storing data) therefore would not impact the programmatic goals of the EM Program, which is to validate the self-reported bluefin set reports. The ecological benefits of the EM Program as determined in Amendment 7 (Amendment 7; 79 FR 71510, December 2, 2014) would not be impacted by this alternative, therefore this alternative has neutral ecological impacts.

Socioeconomic Impacts

This alternative would have minor beneficial socioeconomic impacts for fishery participants by reducing the costs and time associated with mailing EM hard drives. Table 4.18 below shows the highest, lowest and average number of hard drive transactions (a

transaction is a complete shipment to and from NOAA Fisheries) by vessel between 2016 and 2019. Alternative E2b would reduce the frequency of hard drive shipments in half by allowing vessels to send hard drives in after every second trip (i.e., from 34 shipments per year to 17). Each active vessel is expected to ship at least 1 hard drive per year, as NOAA Fisheries would require any data recorded in a given year be submitted to NOAA Fisheries prior to the next fishing year. Assuming a shipping cost of $20 per transaction. This reduction in shipping frequency would save operators an average of $120 per year. Reducing shipping frequency also saves vessel operators additional time and logistics, by only having to pull, package and ship hard drives after every other trip. The time-savings provided by this alternative are difficult to quantify, as vessel operators shipping methods will influence the amount of time saved, however this would provide a minor beneficial impact by providing time-savings to the vessel operators. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

Table 4.18 High, average, and lowest numbers of hard drives shipped per year from 2016-2019 by vessels in the EM Program

	2019	2018	2017	2016	Average
high	34	34	34	32	34
mean	12	12	12	11	12
low	1	1	1	1	1
Total	847	892	1019	1011	942

Source: NMFS HMS Electronic Monitoring Program.

4.5.3 Alternatives Suites E3: Electronic Monitoring - Camera Installation

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

This alternative would retain the current regulations regarding EM camera installation. Current EM Systems have a minimum of two cameras, one facing the processing area of the deck where the retained fish are processed, and the other facing the rail where fish are brought on board. This current camera configuration allows for a full view of the processing area and a limited view of the rail. Under this alternative, NOAA Fisheries would continue to install video cameras in similar manners and locations as under current procedures. Specifically, 'rail cameras' do not require vessels to install boom-mounted cameras.

Ecological impacts

The ecological impacts of the No Action Alternative on bluefin would indirect, minor and adverse due to the continuation of the current level of management uncertainty. This alternative would continue the current regulations for installation of cameras, which does not include explicit NOAA Fisheries authority to require the rail camera to be mounted with a boom. Cameras are currently mounted on vessel structures (such as wheelhouse) which limits the installation options, and in the case of the rail camera may limit the field of view. This limited point of view may reduce the number of discard events detected by the cameras because the camera may be blocked by structures on the vessel or the camera angle may not be sufficient to catch the fishing activity that occurs by the rail. The underestimation of discarding events results in less accurate data from the EM Systems. The EM system is not the only source of bluefin dead discard information. Although the utility of the EM data is diminished, the ecological impacts are minor because NOAA Fisheries currently utilizes observer data to estimate dead discards. The impacts on shortfin mako are also minor and adverse. Since EM is not currently used to monitor other stocks of Atlantic HMS or protected species, the ecological impacts of this alternative on other species are neutral.

Socioeconomic impacts

The socioeconomic impacts of Alternative E3a would be neutral compared to the preferred alternative. This alternative would not cause any behavioral changes for the fleet: vessel operators would continue to operate as they have since implementation of the EM Program during Amendment 7 (Amendment 7; 79 FR 71510, December 2, 2014). The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

4.5.3.2 Sub-Alternative E3b (Preferred Alternative): Clarify and expand regulations for installation of cameras

This alternative would clarify the current regulations regarding camera installations to explicitly authorize for NOAA Fisheries to require installation of permanent or semi-permanent hardware in order to mount and install video cameras at locations on vessels as necessary to obtain optimal views, and for NOAA Fisheries, working in conjunction with the vessel owner/operator, to make relatively minor modifications to the vessel structure to mount cameras in locations that provide required views of the vessel and adjacent areas. For example, installation of a boom may be required to enable a camera angle that provides an optimal view of the rail and outboard area. This view would be a wide angle that would capture the entire hauling activity of the fish while coming on board the vessel over the rail. The boom would likely be a customized piece of hardware that is fixed or movable (e.g., extended or lowered prior to fishing activities starting) to provide the optimal view of the

area of the water surface and outboard of the rail, down to the water surface, where the fish are hauled out of the water. This alternative would result in more substantial mounting systems for rail cameras that may include new permanent or semi-permanent structures and/or current vessel structures such as booms or stabilizers as mounts for cameras. Figure 4.9 below shows a diagram of camera configurations in the Hawaiian longline fleet, that includes a camera mounted on a boom (green dot), and depicts the field of view of the camera as a blue triangle.

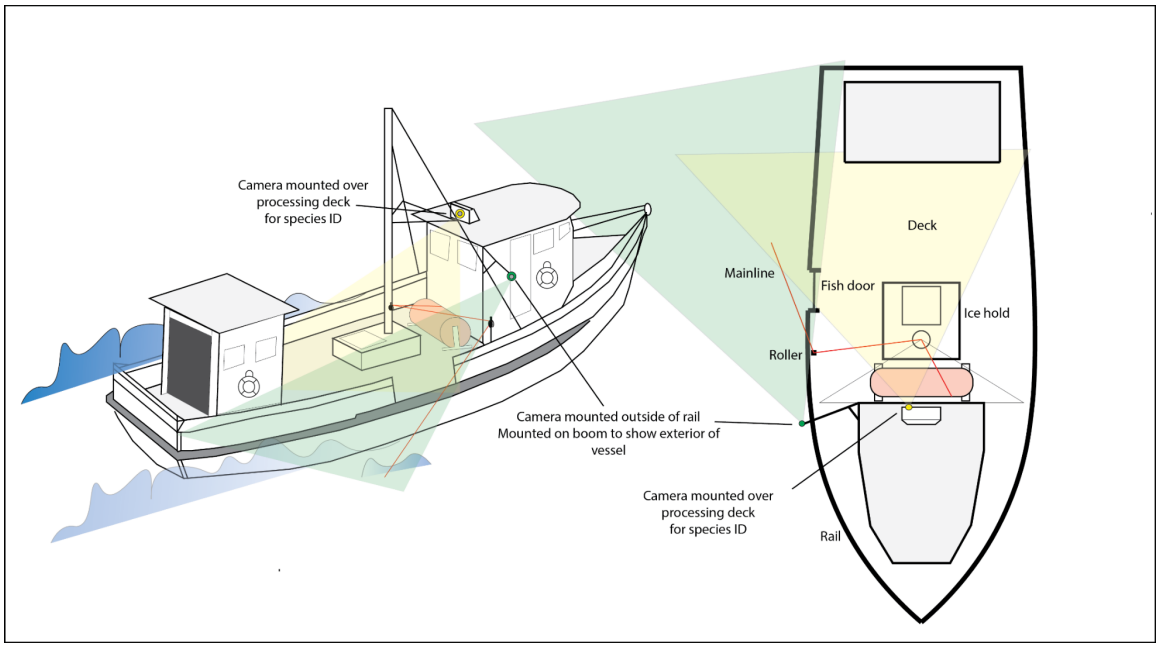


Figure 4.9 Diagram of EM camera configurations in the Hawai'i longline fleet, this configuration would be implemented by the preferred Alternative E3b (Hawai'i)
Source: NMFS

Ecological impacts

Preferred Alternative E3b is expected to have indirect, ecological impacts that are minor and beneficial. Augmenting NOAA Fisheries authority to require installation of permanent or semi-permanent hardware in order to mount and install video cameras at locations on vessels as necessary to obtain optimal views, may improve accuracy of the discard data derived from the EM Program. Adding a camera mounted to a boom would provide a better view of the hauling area as shown in Figure 4.9 above. The current EM System has the camera mounted on the vessel usually around the wheelhouse or forward of the hauler. This angle looks across the rail and out starboard to the vessel, when compared to the view in Figure 4.9 that views down the rail to the stern. Fish are typically haul from the stern to the fish door and brought on board, this modified view would likely increase the probability that a discard event that occurs in the water would be detected by review staff. These vessels typically cut the gangion as close to the discarded fish as possible without taking a discarded fish out of the water. The length at which the gangion is cut could affect where and if that fish appears in the rail camera field of view. By changing the camera

placement, the angle shifts to one that would provide a greater probability that discarded fish in the water are detected and recorded by the rail camera.

Vessel operators are required to submit bluefin set reports after each fishing set with discard information to support the IBQ System. The EM Program was designed to validate the self-reported bluefin set reports. Modifying the camera array to mount the rail camera on the boom would likely result in increased detection of discard events that occur while the fish remains in the water. Better detection of the discard events would improve validation of the bluefin set reports and incentivize accurate reporting. Accurate reporting and monitoring would reduce management uncertainty in the fishery. The impacts are minor because the EM system is not the only source of bluefin dead discard information. Although the utility of the EM data would be enhanced, the ecological impacts are minor because NOAA Fisheries currently utilizes observer data to estimate dead discards. Reducing the management uncertainty would result in an indirect, minor beneficial ecological impact. Similarly, the impacts on shortfin mako are also minor and beneficial. Data that is more robust is likely to provide ecological benefits in the long-term.

Socioeconomic impacts

The socioeconomic impacts of modifying the camera installation and placement are minor adverse. Vessel crews would be required to extend, lower, or raise the boom mounted camera during fishing activities, if needed. Further, it is possible that the process of docking vessels could be more complex if the boom may come in contact with dock pilings. These additional logistics may represent an increased time burden and a slight increase in the complexity of their fishing operation. However, this time burden would only be a couple of minutes to extend, lower or raise at the start and end of each fishing trip. Crew may also be required to access the camera during the trip in order to clean the lens. The process of cleaning the lens may be more difficult if the camera is mounted on a boom.

The cost associated with the installation of booms would be paid by NOAA Fisheries as funds are available. NOAA Fisheries estimates that to add a boom and mount a camera could cost up to $1,000 dollars per vessel. With an active fleet of 86 vessels, the total cost to the agency is estimated to be $86,000. Installation of booms would be phased in over time, with installations scheduled concurrently with service provider visits for routine maintenance. The total cost of boom installations, if required on all active vessels compared to the overall EM Program, represents approximately 8 percent of the annual operating cost and would only be a one-time cost. Since NOAA Fisheries would cover the cost of installations of the boom, and re-mounting the camera, there would be no economic burden on the fleet. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

Rationale for Selecting the Preferred Alternative

Both the ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. The ecological impacts are minor and beneficial, and the socioeconomic impacts are minor adverse. This alternative would enhance installation of video cameras where necessary, and increase the likelihood of detection of discard events, and therefore improve validation of the bluefin set reports, and incentivize accurate reporting.

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

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

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

Ecological impacts

The ecological impacts of the No Action Alternative would be minor adverse. Under the current regulations, it is likely that some fish brought on board may not be processed in view of the camera. Secondly, depending upon the distance of the fish from the camera and angle to the camera, analysis of the video may not be able to determine species or estimate total length. Although the data to date indicate that the EM System is robust at detecting retained bluefin, the size estimation is less accurate, based on comparisons with other data such as VMS, logbook, and observer. Size information may be relevant to the identification of tuna species in addition to morphological characteristics. Less accurate EM information increases reporting and monitoring uncertainty, and therefore this alternative may have minor adverse impacts. The EM system is not the only source of bluefin dead discard information. Although the utility of the EM data is diminished, the ecological impacts are minor because NOAA Fisheries currently utilizes observer data to estimate dead discards. Similarly the impacts on shortfin mako are also minor and adverse.

Socioeconomic impacts

The socioeconomic impacts of this alternative are neutral. No additional handling requirements or measurement tools would be required under this alternative, and therefore there would be no additional labor or equipment costs to vessel operators. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are

likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

4.5.4.2 Sub-Alternative E4b (Preferred Alternative): Specify Additional Fish Handling Protocols for Electronic Monitoring

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

Ecological impacts

This alternative would have minor beneficial impacts as a result of potential improvements to bluefin data. Depending upon the distance of the fish from the camera and angle to the camera, analysis of the video may not be able to determine species or estimate total length. Although the data to date indicate that the EM System is robust at detecting retained bluefin, the size estimation is less accurate, based on comparisons with other data such as VMS, logbook, and observer. More accurate size information would result from placement of the retained fish on a standardized reference grid. Size information may be relevant to the identification of tuna species in addition to morphological characteristics. More accurate fish identification and sizing would decrease reporting and monitoring uncertainty, and therefore this alternative would have minor beneficial long-term impacts. The impacts are minor because the EM system is not the only source of bluefin dead discard information. Although the utility of the EM data would be enhanced, the ecological impacts are minor because NOAA Fisheries currently utilizes observer data to estimate dead discards. Similarly, the impacts on shortfin mako are also minor and beneficial. Data that is more robust is likely to provide ecological benefits in the long-term.

Socioeconomic impacts

This alternative may increase costs to vessel owners, in terms of the time required to process fish, or costs associated with a measurement tool such as a processing mat or painted grid on the deck. Nonskid deck paint costs between about $35 and $85 a gallon. A 4-by 8-foot all-weather mat, custom printed with a grid may cost approximately $225 per mat.

The sociological impacts in the short term would be minor and adverse as the crew would need to modify their fish handling procedures to place all fish on the grid. The impacts would likely decrease over time as crew practiced the new handling procedures, and therefore would have neutral long-term impacts on operations. The affected Atlantic Tunas

Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

4.5.5 Alternatives Suite E5: Cost Recovery Program

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

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

This alternative would make no changes to the current regulations, under which there is not a cost recovery program in place. A cost recovery program is a program designed for NOAA Fisheries to recover a portion of the costs required to administer, monitor, and enforce a catch share program.

Ecological Impacts

The ecological impacts of the No Action alternative, which would not implement a cost recovery program, would be neutral. Not instituting a cost recovery program would not have any ecological impacts because the IBQ Program would continue operating under its current scope regardless of any cost recovery.

Socioeconomic Impacts

Currently, there is no cost recovery program in place for the IBQ Program. NOAA Fisheries currently covers the costs of the IBQ program. Alternative E6a, the No Action Alternative, would not result in any change. Therefore, there would not be any socioeconomic impacts associated with the no action alternative.

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

This alternative would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by dealers for a particular year is warranted. Annually, NOAA Fisheries will estimate its incremental costs associated with the IBQ Program (including costs associated with the cost recovery program) and the total ex-vessel value of bluefin sold from the pelagic longline fishery; and

notify the public whether a cost recovery fee will be charged for the year. If NOAA Fisheries determines the annual cost recovery fee is warranted, NOAA Fisheries will mail bills to dealers that purchased bluefin from pelagic longline vessels (based upon dealer landings data). Dealers would be billed based on the ex-vessel value of the bluefin purchased from pelagic longline vessels. Dealers would pay the cost recovery fee through the online IBQ Program website and the associated pay.gov link.

Estimation of Recoverable Costs

Based on fiscal year 2020 budget numbers, NOAA Fisheries allocated $1,576,930 in catch share funds for staff labor, $733,360 for EM data storage and review, and $805,460 for EM installation and maintenance. The combined budget allocation to the IBQ Program was $3,115,750 for fiscal year 2020. Based on this number, NOAA Fisheries estimates future IBQ Program cost to be approximately $3.1 million per year.

Estimation of Ex-Vessel Value of Catch Share Species

In the case of the IBQ Program, the relevant ex-vessel value is solely the value of bluefin landed, not including the ex-vessel value of the target species that are not managed under the IBQ Program, such as the swordfish, yellowfin tuna, etc., which comprise the majority of the value of the fishery. NOAA Fisheries will calculate the average ex-vessel price per pound (price paid by dealer to the vessel) for pelagic longline bluefin on an annual basis using dealer data, and derive a total ex-vessel value of bluefin for the pelagic longline fishery as a whole (total pounds of bluefin sold to dealers). Table 4.19 provides the total annual bluefin sales by Atlantic Tunas Longline category permit holders. The average annual bluefin sales were $839,276 between 2016 and 2018. If landing from bluefin caught in the NED area are excluded (IBQ allocation is not required for bluefin landings for the first 25 mt in the NED), average annual sales were just $689,406 between 2016 and 2018.

Table 4.19 Annual bluefin tuna sales for the Atlantic Tunas Longline category 2016-2018

	2016	2017	2018	Average
Longline Bluefin Tuna Sales	$752,235	$892,492	$873,101	$839,276
Excluding NED	$594,468	$633,579	$840,173	$689,406

Source: Standardized Atlantic Fishery Information System (SAFIS)

Under the Magnuson-Stevens Act, recoverable costs are capped at three percent of the ex-vessel value of the catch share species. Given the value of bluefin ex-vessel landings between 2016 and 2018, NOAA Fisheries estimates an annual average of $20,862 (or $25,178 if NED bluefin sales are included) in cost could be recovered for the IBQ Program. See Table 4.20 below.

Table 4.20 Three Percent of Annual bluefin tuna sales for the Atlantic Tunas Longline category 2016-2018

	2016	2017	2018	Average
3 percent of Longline Bluefin Tuna Sales	$22,567	$26,775	$26,193	$25,178
Excluding NED	$17,834	$19,007	$25,205	$20,682

Source: SAFIS

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

Annually, NOAA Fisheries will compare its incremental costs associated with the IBQ Program to the estimate of total ex-vessel value of bluefin sold from the pelagic longline fishery to determine recoverable costs. It is likely that the recoverable costs will be limited to three percent of the ex-vessel value of the bluefin sold given that it is estimated that the program's incremental costs are approximately $3.1 million per year and the maximum potential costs recovery based on three percent of ex-vessel value would average $20,862 (or $25,178 if NED bluefin sales are included). If the recoverable costs were $25,178, and the pounds of bluefin landed were 164,252, then permit holders would be charged $0.153 per pound of bluefin landed.

Determination of Cost Recovery Fee

NOAA Fisheries would make an annual determination whether a cost recovery fee for dealers for the previous year is warranted, publish a notice in the Federal Register, notify permit holders, and provide relevant information on the amount owed, and instructions for payment through the online IBQ System. The determination of whether to impose a cost recovery fee would be based on consideration of the cost of the recovery program itself: the administrative/operational cost to NOAA Fisheries associated with implementing the cost recovery program (as distinct from the operational costs associated with the routine administration of the IBQ Program). Specifically, NOAA Fisheries would need to annually calculate the ex-vessel value of bluefin, calculate individual fees, develop a Federal Register document providing formal public notification, develop the annual report, communicate with individuals in the fishery to educate them about the process and assess the fees, and conduct oversight of collection of fees including follow-up and enforcement, oversight of cost recovery program, and database/computer costs. If the total funds to be recovered (estimated recoverable costs) are similar to or less than the cost of the Cost Recovery Program, no cost recovery fee would be levied for individual permit holders. Permit holders not paying the fee, or delinquent in payment would be subject to relevant enforcement penalties, including permit revocation.

Collecting the cost recovery fee would incur costs for staff labor associated with calculating the fee, tracking payments, pursuing delinquent payments, and preparing annual reports. There would also be some information technology costs to develop a cost recovery data

and billing system. There are no additional payment transaction costs to NOAA Fisheries for the transaction made via Pay.gov. Therefore, NOAA Fisheries estimates that this cost would be limited to labor and information technology costs.

Annual Report

Given the potential economic impacts of annual cost recovery fees, and the importance of transparency, NOAA Fisheries would prepare an annual report that summarizes relevant information including the estimation of recoverable costs, estimation of ex-vessel value of bluefin, comparison of incremental costs to ex-vessel value to determine recoverable costs, and the determination of cost recovery fees. This report would be made available to the public on-line or as part of the annual SAFE Report.

Ecological Impacts

The cost recovery program or the cost recovery report would not have any direct short- or long-term ecological impacts. This alternative may result in the imposition of cost recovery fees on permit holders. Therefore, the direct short- and long-term impacts are neutral.

There could be some indirect ecological impacts associated with the collection of cost recovery fees from IBQ Program participants if that occurs. A fee of up to three percent of bluefin landings could further increase the cost of landing bluefin in addition to the cost associated with using IBQ allocation (or leasing allocation) to account for that landing. This increase in cost could further disincentivize the landing of bluefin and could further encourage pelagic longline vessel operators to avoid interactions with bluefin. This could result in some minor long-term beneficial ecological impacts resulting from potentially reduced bluefin mortality.

Socioeconomic Impacts

A cost recovery fee, if implemented, would have a minor adverse economic impact on permit holders that land bluefin. They would incur up to a three percent fee on any sale of bluefin to dealers The long-term impacts are uncertain given that the fee may stop in the future if the collection program costs exceed estimated recovered costs. It is likely that the number of vessels that would be affected by this requirement, would not be larger than 60 vessels. Since 2017, no more than 58 unique pelagic longline vessels have landed bluefin tuna.

NOAA Fisheries would incur costs annually as a result of the time required to determine whether a cost recovery fee will be charged, and as a result of the process of charging a cost recovery fee if NOAA Fisheries makes a determination that a fee for a particular year is warranted. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and

Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

Rationale for Selecting the Preferred Alternative

The Magnuson-Stevens Act requires implementation of cost recovery programs for catch share programs. The preferred alternative would comply with the Magnuson-Stevens Act requirement, and provide the flexibility to determine on an annual basis whether charging a cost recovery fee is warranted, and result in a regulation that enables NOAA Fisheries to reasonably consider net costs and benefits. Given the fact that the IBQ Program manages a bycatch species, with a relatively low ex-vessel value, such flexibility is important.

4.6 'F' Alternatives: Modifications to the Purse Seine Category Management Measures and Other Category Quota Allocations

These alternatives continue the process that began with Amendment 7 to address quota allocations in a changing fishery. The alternatives analyze potential changes to the current management of the Atlantic Tunas Purse Seine category fishery, and adjustments to other category quota allocations. The purse seine fishery was last active in 2015, and there are currently no vessels with Purse Seine category permits. During the past 15 years, the fishery has operated at a de-minimis level of activity. Between 2010 and 2019, only one Purse Seine category participant fished, sporadically, making only a few sets between 2012-2015, and accounting for only a small percentage of total annual bluefin landings each year (6, 5, and 4 percent, in 2013, 2014, and 2015, respectively). The alternatives in this section propose ending the Purse seine category, and redistributing the Purse seine category quota to other fishing categories. These alternatives include ending the fishery immediately, or at a sunset date two years after the implementation of Amendment 13. Alternative F1b also proposes to formalize the redistribution of a dead discard allowance to the Longline category.

Ecological impacts of quota allocation alternatives –

The quota allocation alternatives in Amendment 13 build upon an extensive regulatory framework for management of the domestic bluefin fishery, described in Chapter 3. As discussed in Section 3.2, ICCAT Recommendation 17-06 established interim conservation and management measures for 2018 through 2020 for the western Atlantic bluefin stock, including the current 2,350-mt Total Allowable Catch and the U.S. quota. The ICCAT recommendations and recommended quotas take into account stock assessment uncertainties. In 2020, ICCAT adopted Rec. 20-06, which rolled over the current TAC for 2020; provided for a 2021 stock assessment that would incorporate the most recent available data, including any new abundance indices; and specified TAC levels for 2022 and 2023 that would address overfishing based on the 2020 stock assessment update and management scenario 3 analyzed therein, unless ICCAT decides otherwise based on new SCRS advice. The status of the stock after the 2020 stock assessment update remained "no

overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending overfishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Chapter 3 provides additional information on the relevant bluefin quotas. The allocation alternatives considered here would *not* increase or decrease the overall authorized bluefin harvest levels by bluefin fisheries. Rather, the management measures would affect the time, place, and manner in which U.S. fisheries may harvest the U.S. bluefin quota and the relative volumes of fish that may be caught by each of the categories. The impact to bluefin is neutral for each alternative, unless otherwise described below. There may be minor indirect impacts on pelagic longline target species if the fishing strategies of pelagic longline vessels are modified as a result of potential changes to bluefin allocation. Such impacts are likely to be neutral because minor changes to the time and place of catch are unlikely to affect the overall level of catch of target species. The preferred Purse Seine category alternatives (F2b and F4) promote conservation by optimizing yield through allocation of quota to active bluefin categories and by encouraging a rational, more easily managed use of the resource through discontinuation of a non-active category.

Socioeconomic impacts for Alternatives F1-F4

The section for each alternative describes the gross socioeconomic impacts of each alternative or sub-alternative. Alternative F1b is a preferred alternative with minor economic impacts that are integrated into the analyses for Alternatives F3-4. Alternatives F2a-c address the timing of terminating the Purse seine category, which would release its quota allocation for redistribution to the other categories. The analyses for Alternatives F2a-c focus on the impacts to the Purse Seine category for loss of quota.

The redistribution of Purse Seine category quota is analyzed in Alternatives F3-4. These alternatives are all expected to have a direct beneficial impact to the categories receiving quota, since these alternatives would provide more certainty about how the Purse seine category quota would be redistributed than the status quo does. Beneficial impacts for the Angling category (recreational) are likely to be less than the commercial categories since the Angling category has not landed its full quota for the last five years (Table 11.3 in Appendix B), and does not appear to be quota limited. Since the Angling category does not generate revenue directly for bluefin landings, this qualitative description serves as the impact analysis for the Angling category. The affected Atlantic Tunas Longline permit holders and potential participants in the purse seine fishery, and businesses related to these fisheries are likely to be affiliated with varies coastal communities. A vulnerability analysis of the principal communities associated with the pelagic longline fishery is in Chapter 8. These communities are Barnegat Light, NJ, Beaufort, NC, Dulac, LA, Fairhaven, MA, Fort Pierce, FL, Islip, NY, New Bedford, MA, Ocean City, MD, Port Royal, SC, and Wanchese, NC. The communities that may most vulnerable are Dulac, LA, Fort Pierce, FL and Wanchese, NC.

Analytical Methods

The approaches used for quantitative analysis in this section have several common principles:

1) The analysis of all the purse seine alternatives include a 5-year time horizon for economic impacts so the effects of alternative combinations may be compared using the same time scale. Several of the purse seine alternatives (i.e., F2c1 and F2c2) are based on a future sunset date, while others would be implemented upon implementation of Amendment 13 ('immediately'). Because the year of implementation cannot be determined at this time, the comparisons reference Year 1 (i.e., year of Amendment 13 implementation) through Year 5. For example, if Amendment 13 were implemented on January 1, 2021, then the two-year sunset period would end at the beginning of Year 3 (January 1, 2023).
2) The quantitative analyses assume that increases in quota result in proportional increases in revenue for each commercial category receiving quota. It is important to note that there may be other unquantified factors that could affect this assumption (and result in reduced revenue), such as product quality, and the amount of product on the market at any given time.
3) Alternatives F3-4 also compare the economic impacts for F alternative combinations, in order to describe the net impacts of these alternatives. The analyses for Alternatives F3-4 include the combinations in the matrix in Table 4.21 below. The method for calculating quota allocations that constitutes preferred Alternative F1b is included in each combination, but since the impacts from F1b are mostly neutral (except for long term hypothetical impacts under an ICCAT quota change), they are not re-iterated in the discussion of impacts for each combination. Likewise, No Action Alternative F1a is not discussed in these combinations. The "No Action" Alternative F2a is not included in this matrix of analyses because there would be no reallocation of quota under that alternative.

Table 4.21 Matrix of Analyses of Alternatives F3a, F3b, and F4 with other F Alternatives

F3a combinations	F3a + F1b + F2b	F3a + F1b + F2c1	F3a + F1b + F2c2
F3b combinations	F3b + F1b + F2b	F3b + F1b + F2c1	F3b + F1b + F2c2
F4 combinations	F4 + F1b + F2b	F4 + F1b + F2c1	F4 + F1b + F2c2

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

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

Under this alternative, NOAA Fisheries would continue to use the current mathematical method of applying the annual adjustment to account for dead discards by the Longline

category. The annual subtraction of 68 mt (from all bluefin quota categories) was established by Amendment 7 as an initial means of resolving the change in ICCAT recommendation that removed the United States' separate annual allowance for pelagic longline fishery dead discards of 68 mt. NOAA Fisheries now provides this allowance domestically by subtracting 68 mt from the U.S. quota of 1,247.9 mt. NOAA Fisheries then applies the corresponding category percentage allocations to the remaining 1,179.9 mt, And adds the 68-mt discard allowance into the Longline category quota.

Ecological Impacts

The ecological impacts of this alternative are neutral because this is a mathematical method: it does not change the ICCAT quota allocation, distribution of quota to the domestic fishing categories, or fishing activity. Thus, there would be no change in impacts to target or incidental catch species or protected species.

Socioeconomic Impacts
The socioeconomic impacts for this alternative would also be neutral because this is a mathematical method. There would be no change to economic value of current fisheries (Table 4.22), nor would there be any sociological impacts from maintaining the status quo.

Table 4.22 Ex-vessel gross revenues ($) in the U.S. Atlantic Bluefin fishery by commercial fishing category, 2015-2019

Category	2015	2016	2017	2018	2019	Average 2015-2017
General	7,426,294	9,660,993	8,154,882	9,749,452	8,280,104	8,728,146
Harpoon	465,853	379,034	511,380	319,867	968,153	599,800
Incidental	603,101	752,235	892,492	908,809	650,343	817,215
Purse Seine	238,712	N/A	N/A	N/A	N/A	0

Source: SAFIS

Revenues contained in the table reflect calendar year summaries. Source: dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System Bluefin Dealer Report Database.

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

This alternative simplifies the annual quota allocation process. Specifically, this alternative makes a change to the mathematical method used in the annual quota allocation process in order to achieve a similar result through simpler means. Instead of a two-step process of subtracting the 68 mt and then applying the respective quota category percentages, there

would be a one-step process. The current process was put in place by Amendment 7 as an initial means of resolving the change in ICCAT recommendation that no longer provided an allowance of 68 mt to the United States for pelagic longline fishery dead discards.

The proposed new percentages for each category are given in Table 4.23. For example, the base allocation for the Longline category is changed from 8.1 percent to 13.1 percent, while the base allocation for the General category is changed from 47.1 percent to 44.5 percent.

Under the current quota allocation method implemented by Amendment 7, NOAA Fisheries subtracts 68 mt from the U.S. baseline bluefin quota (subtracted proportionally from all bluefin quota categories, adding up to 68 mt in total) and allocates the 68 mt to the Longline category. In other words, under the current method all categories, including Longline, 'contribute' towards a total of 68 mt that goes to the Longline category. This subtraction occurs prior to the allocation according to the relevant percentages (i.e., under current regulations the Longline category receives 8.1 percent after subtraction of 68 mt from the U.S. baseline quota). Specifically, in current practice, NOAA Fisheries subtracts 68 mt from the U.S. quota of 1,247.9 mt, and then applies the corresponding percentage allocations to the remaining 1,179.9, and adds the 68 mt to the Longline category. This alternative would recognize the additional 68 mt provided to the Longline category as a part of its annual baseline percent allocation.

Table 4.23 Comparison of Annual U.S. Bluefin Category Quotas (in %, and mt) under Sub-Alternatives F1a (No Action) and F1b (Preferred)

	Sub-Alternative F1a (No Action)		Sub-Alternative F1b (Preferred)		
Category	U.S. Base quota minus 68 metric tons (%)	U.S. Base quota minus 68 metric tons (mt)	For calculation of *actual %* of U.S. Base Quota – plus 68 metric tons Longline category allocation	Calculated Effective Allocation (Percent of U.S. Base Quota 1,247.9 metric tons) (%)	Current codified allocation (mt)
General	47.1	555.7		44.5	555.7
Harpoon	3.9	46		3.7	46
Purse Seine	18.6	219.5		17.6	219.5
Longline	8.1	95.6[1]	+ 68	13.1	163.6[1]
Trap	0.1	1.2		0.1	1.2
Angling	19.7	232.4		18.6	232.4

	Sub-Alternative F1a (No Action)		Sub-Alternative F1b (Preferred)		
Category	U.S. Base quota minus 68 metric tons (%)	U.S. Base quota minus 68 metric tons (mt)	For calculation of *actual %* of U.S. Base Quota – plus 68 metric tons Longline category allocation	Calculated Effective Allocation (Percent of U.S. Base Quota 1,247.9 metric tons) (%)	Current codified allocation (mt)
Reserve	2.5	29.5		2.4	29.5
Total	100	1179.9		100	1247.9

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

The percentages are calculated by determining what percent each category's base allocation is of 1,247.9 mt after the 68 mt reallocation to the Longline category has occurred. For example, the base allocation for the Longline category is changed from 95.6 mt to 95.6 mt + 68.0 mt = 163.6 mt or 13.1 percent of 1,247.9.

Combining this alternative with other alternatives affecting IBQ allocations

Table 4.39 (located in the section containing the analysis of Preferred Alternative H2), shows the allocations for each category, expressed as a percentage and metric tons, that would be implemented based on the combination of the preferred quota alternatives (F1b, F2b, F4, and H2): F1b (modification of the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category); F2b (discontinuation of the Purse Seine category and reallocation of the quota without a time delay); F4 (reallocation of the Purse Seine category quota to directed categories only); and H2 (modification of the Angling category allocations).

Ecological Impacts

For similar reasons explained in the No Action (F1a) alternative, the ecological impacts are expected to be neutral because the overall U.S. quota and the amount of quota in metric tons (mt) currently distributed to each quota category would not change from the status quo, and would be consistent with the ICCAT recommended bluefin quota, and the U.S. portion of the quota.

If ICCAT increases the U.S. quota in the future, the amount of quota (in metric tons) that would be allocated to the Longline category domestically would increase slightly more than it would under the No Action Alternative (F1a) alternative. This is because this alternative would increase the Longline category percentage allocation to 13.1 percent in this

alternative, whereas it would be 8.1 percent (plus 68 mt) under the No Action Alternative. If the future ICCAT quota were to decrease, then under Alternative F1b the amount of quota the Longline category received would be less than the No Action Alternative (F1a).

Table 4.24 uses an example to illustrate the difference between the two alternatives for future hypothetical increased and decreased ICCAT quota amounts. Under the No Action Alternative (F1a), the Longline category would receive an allocation of 184 mt under an increased hypothetical ICCAT quota of 1,500 mt, while the Preferred Alternative F1b would result in a Longline category quota of 196.5 mt, a relatively small increase of 12.5 mt. Direct impacts from this small increase in quota would be neutral because it would be accounted for under the ICCAT quota. Indirect impacts to restricted and protected species are also expected to be neutral because the small increase in quota under this scenario is not expected to contribute to any changes in Longline category fishing behavior such as increased fishing effort. Conversely, a hypothetical future decrease in ICCAT quota under this alternative would result in a decreased allocation to the Longline category compared to the No Action Alternative (F1a). As shown in Table 4.24, under a hypothetically decreased 900-mt ICCAT quota, this alternative would result in a smaller allocation to the Longline category (decreased by 17.4 mt) compared to the No Action Alternative (F1a).

Table 4.24 Example illustrating effect of Sub-Alternative F1b from hypothetical increase or decrease to the annual U.S. bluefin quota from ICCAT

Comparison of ICCAT Quota	Calculation of Longline Quota Amount	Current ICCAT quota 1,247.9 mt	Hypothetical Future ICCAT quota of 1,500 mt	Hypothetical Future ICCAT quota of 900 mt
No Action Alternative F1a	(Quota - 68) * 8.1% + 68 mt	163.6 1,247.9 - 68 = 1179.9 (8.1%*1,179.9) + 68 =163.6	184.0 1,500 - 68 = 1,432 (8.1% * 1,432) + 68 = 184.0	135.4 900 - 68 = 832 8.1% * 832) + 68 = 135.4
Alternative F1b	Quota * 13.1%	163.6	196.5	118

Socioeconomic Impacts

Alternative F1b would have neutral socioeconomic impacts for the same reasons explained in the No Action (F1a) alternative. However, if ICCAT increases the U.S. quota in the future, this alternative would have minor positive long term socioeconomic impacts for Longline category participants when compared to the status quo because the category would be allocated slightly more quota than under the No Action Alternative (see Table 4.24). Conversely, in the event of an ICCAT quota decrease, the impacts for the Longline category would be minor negative. Socioeconomic impacts for the other categories would be minor negative in an ICCAT quota increase scenario, and minor positive for a quota decrease.

Rationale for Selection of Preferred Alternative

Both the ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. Sub-Alternative F1b is preferred at this time, because it would simplify the quota regulations by making a slight change to the mathematical method used in the annual quota allocation process and have neutral impacts.

4.6.2 Alternatives Suites F2, F3, F4: Purse Seine category and quota allocation

4.6.2.1 Sub-Alternative F2a: Continue Purse Seine Category - No Action

This sub-alternative would maintain all aspects of the current quota allocation (with the exception of other quota allocation alternatives considered in Sections G, H, and I, regarding the General and Harpoon categories) and Purse Seine category regulations. NOAA Fisheries would continue to reallocate a portion of the baseline Purse Seine category quota annually to the Reserve category based on prior-year landings. NOAA Fisheries would then use its authority for inseason actions to redistribute Reserve category quota as appropriate, using the criteria listed in Table 3.2.

Ecological Impacts

The ecological impacts of alternative would be neutral because it does change the ICCAT recommended bluefin quota, the U.S. portion of the quota, or the distribution of quota to the domestic fishing categories, or fishing activity. Thus, there would be no change in impacts to target or incidental catch species or protected species.

Socioeconomic Impacts

The socioeconomic impacts for this alternative would be neutral because quota and quota allocation methodologies would not change. The Purse Seine category would continue to receive quota based on activity level, and could either fish or lease that quota via the IBQ system. There would likely continue to be a large annual transfer of Purse Seine category quota to the Reserve category, which could be redistributed via inseason action. For example, the General category has recently been the recipient of much transferred quota, as indicated in Table 11.3 in Appendix B, which shows the percentage of the base quota caught for each category from 2015-2019. The General category caught between 131.7 to 161 percent of their base quota during these years; the quota beyond 100 percent was a result of inseason actions. As discussed in Chapter 3, the inseason distribution of quota is based on seasonal determinations following the criteria listed in Table 3.2.

The current economic costs associated with this alternative would continue. The revenue for each commercial category over the last five years is given in Table 4.22. The last column of this table gives the 2015-2017 average revenue. There would be opportunity costs associated with the unused Purse Seine category quota that would not be reallocated to the other quota categories, and uncertainty about how much Purse Seine category quota will be reallocated and how it will be reallocated. Additional investment in the fishery is

unlikely because of the availability of a large amount of Reserve quota and uncertainty associated with the inseason quota distributions.

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

This sub-alternative would discontinue the Purse Seine category through redistribution of Purse Seine category quota effective upon implementation of the A13 final rule. The ability of vessels to obtain an Atlantic Tunas Purse Seine category permit would also end. NOAA Fisheries would remove purse seine from the list of authorized gear and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants. This alternative could be implemented in conjunction with one of the methods of reallocation described under Alternatives F3 (reallocation to all other quota categories; a) and b) and F4 (reallocated to only directed quota categories; *Preferred*), and is intended only to address the timing of the discontinuation of the Purse Seine category. The impacts associated with discontinuing the Purse seine category will be discussed under this alternative, while the impacts associated with quota reallocation will be discussed under the reallocation alternatives. The impacts from each set of alternatives for discontinuance and reallocation (e.g., F2b (this alternative, discontinue 'immediately') + F3 (reallocation to all other quota categories)) are considered additive and as discussed previously, will be considered in conjunction with preferred alternative F1b (regarding the 68-mt math and simplifying the quota process).

Combining this alternative with other alternatives affecting IBQ allocations

Table 4.39 (located in the section containing the analysis of Preferred Alternative H2), shows the allocations for each category, expressed as a percentage and metric tons, that would be implemented based on the combination of the preferred quota alternatives (F1b, F2b, F4, and H2; i.e. F1b (modification of the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category); F2b (discontinuation of the Purse Seine category and reallocation of the quota without a time delay); F4 (reallocation of the Purse Seine category quota to directed categories only); and H2 (modification of the Angling category allocations)).

Ecological Impacts

The ecological impacts associated with the discontinuation of the Purse Seine category upon Amendment 13 implementation compared with the No Action Alternative would be neutral. Impacts of reallocating Purse Seine category quota are analyzed in other alternatives below.

Socioeconomic Impacts

This alternative would have moderate adverse socioeconomic impacts to Purse Seine category participants compared to the No Action Alternative (F2a). Under this alternative,

quota allocations would no longer be distributed to Purse Seine category participants, so neither fishing for bluefin or leasing as part of the IBQ Program would be allowed after the effective date of Amendment 13. The analysis of socioeconomic impacts is therefore described according to the potential revenue loss because of the loss of opportunity to lease IBQ allocation, and the potential revenue loss as a result of the loss of opportunity to land bluefin.

A limited entry permit system with non-transferable individual vessel quotas for purse seining was established in 1982, resulting in five qualified participants and excluding new entrants. These historical participants have sold the fishing vessels they used to fish for bluefin, but have continued to be authorized to lease their annual quota distribution through the IBQ system to pelagic longline vessels. The direct impacts on the historical Purse Seine category participants would be the loss of potential revenue associated with leasing bluefin quota to pelagic longline vessels participating in the IBQ Program. The vessel that was most recently active in the fishery was sold to a new owner, so this alternative would not impact the value of the vessel that was most recently used in the purse seine fishery. Because the purse seine fishery is restricted to historical participants under current regulations, this alternative would have no impact on any other vessel owner (i.e., non-historical participants) that may desire to participate in the purse seine fishery.

Estimation of Potential Revenue Loss from Leasing Bluefin Quota

Revenue from leasing bluefin quota is estimated in this analysis of socioeconomic impacts, because Purse Seine category participants have not fished since 2015, but have been actively leasing quota to pelagic longline vessels through 2019. Table 3.15 shows the actual value of Purse Seine category quota leases that took place over the last five years (2015-2019). The potential annual value of purse seine-related leases using this leasing data can be estimated. The weighted price per pound for purse seine-related leases shows a declining trend over the last five years, so the most recent cost of $1.25 per pound was used to estimate a maximum annual loss of $151,568 (121,254 pounds x $1.25 per pound) category-wide (i.e., 55 mt) or $30,314 per participant, assuming all allocated Purse Seine category quota would be leased. However, since the greatest amount of purse-seine related quota leased was 47.7 percent in 2019 and not 100 percent, a more likely estimate of revenue lost was generated by using the average amount of quota leased each year over the time series (30,713 pounds) multiplied by $1.25 per pound to estimate a loss of $38,391 per year category-wide or $7,678 per participant. The average amount of quota leased was used as a basis for this estimate instead of the most recent year because the time series for the amount of purse seine-related quota leased shows no discernible trend (Table 3.17 and Table 3.18).

Estimation of Potential Revenue Loss from Bluefin Landings

The other impacts of this alternative are indirect adverse impacts, specifically, the loss of potential future fishing revenue, as described below. The historical Purse Seine category participants have not fish for bluefin or derived any revenue from bluefin landings for

many years. These participants last landed fish during the 2013-2015 seasons (Table 3.3). It is unlikely that historical Purse Seine category participants would choose to fish again because of such limited activity over the last 15 years. Furthermore, the historical participants have sold the vessels that historical fishery participants used to fish for bluefin to new owners outside of those participants.

The estimation of potential revenue loss from bluefin landings from this alternative as described below includes multiple components: 1) Estimation of dead discards (because dead discards are relevant to the catch totals used in determining potential Purse Seine category quotas), Table 4.25; 2) Estimation of the value of bluefin to the Purse Seine category fishery; and 3) Calculation of potential losses based on range of potential Purse Seine category quotas (Table 4.26). Four quota scenarios are used to estimate the range of potential economic losses because under the current regulations the size of the Purse Seine category quota is variable. Specifically, there are four potential quota amounts possible, based upon the amount of catch during the previous year. Because the relevant catch includes both landings and dead discards, a value for potential future dead discards was derived using the observer data collected during the 2013-2015 seasons (Table 4.25). One purse seine vessel fished in 2014-2015 under an exempted fishing permit (EFP)(to obtain information on bluefin discard rates) that allowed an additional 15 percent tolerance for a total retention of 30 percent large medium bluefin (measuring 73 to less than 81 inches). Specifically, the intent of the EFP was to determine if modification to the retention limit of large medium bluefin (smaller than the target size range, i.e., giant bluefin, measuring 81 inches or greater) would result in the reduction of discarded large medium bluefin. While fishing under the EFP, the vessel owner reported that the relative amount of smaller fish had been increasing in recent years and it had become more difficult to locate schools of bluefin that were composed of predominantly the larger size classes.

An analysis was performed to estimate the amount of dead discards that would have occurred under the regulations (only 15 percent allowed to be retained). In the analysis, shown in Table 4.25, the status quo regulations that allow retention of large medium bluefin in an amount equivalent to 15 percent of the total bluefin catch, was applied to the observer data to estimate the amount of discards that would have occurred (Table 4.25). The average annual dead discard estimate is 28.4 percent of catch (see row "k"; (32.2 + 21.0+31.9)/3), or conversely, Landings = Catch x 71.6 %. At an adjusted quota of 55 mt, the Purse Seine category could potentially land up to 39.4 mt and discard up to 15.6 mt, depending upon the number of participants fishing. Catch of 55 mt equates to 11 mt per vessel, which is 25 percent of the 43.9 mt annual allocation, and would result in the 50 percent quota level for each vessel (Table 11.2, Appendix) in the following year.

Table 4.25 Calculation of annual dead discard estimate for Purse Seine category fishery

Data type or calculation	2013	2014	2015
a) Landings Total	28.8	37.6	34.0

Data type or calculation	2013	2014	2015
b) Landings Giant	26.99	28.07	22.5
c) Landings Large Medium	1.85	9.57	11.5
d) Discards	13.7	4.2	4.9
f) Total Catch	42.5	28.07	22.5
g) Large medium landings + Discards	15.55	13.77	16.40
h) 15% Large medium tolerance (calculated)		4.95	3.97
i) Dead Discards (calculated)		13.77-4.95 = 8.82	16.4-3.97=12.43
j) Landings (calculated)		28.07 + 4.95 = 33.02	22.5+3.97 = 26.47
k) Dead Discards (%)	32.2	21.1	31.9
l) Data type or calculation	2013	2014	2015
m) Landings Total	28.8	37.6	34.0

With respect to the estimated value of potential bluefin landings by purse seine vessels, Figure 4.10 shows the annual average price of bluefin category landings since 2009. The average price for Purse Seine category landings for the three most recent years of activity (2013-2015) was $4.66 per pound round weight. Although these data are from several years ago, the value of bluefin per pound in recent years has ranged between approximately $4.00 and $6.00 per pound (Figure 4.10) for categories with landings, and the values for 2013-2015 for all categories are in line with recent prices.

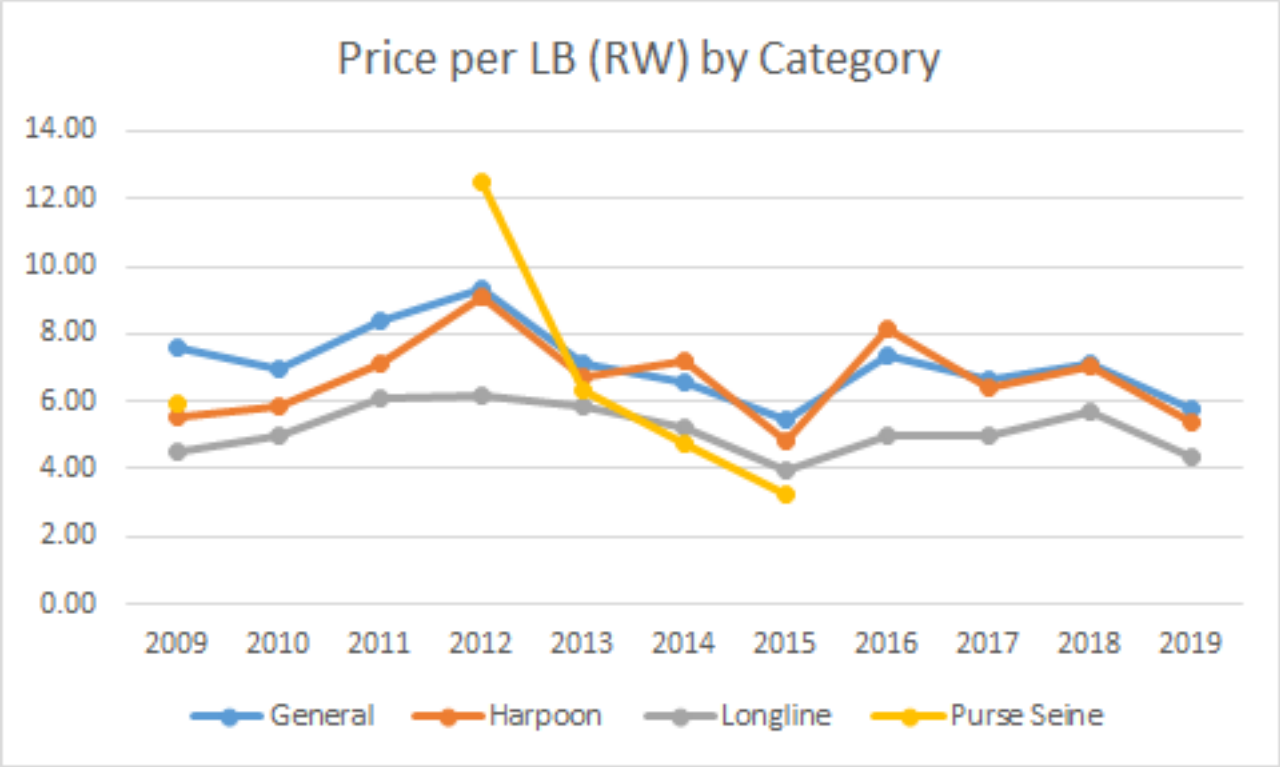


Figure 4.10 **Average price per pound (round weight) for bluefin landings by category (2009-2019)**
Source: SAFIS

An analysis of the range of estimated potential annual revenues for Purse Seine category landings for a range of four different annual quota amounts is shown in Table 4.26. A hypothetical range of four quotas is used to reflect the various potential quotas that may be relevant, as well include the scenario of the sunset provision in Alternative F4 (discontinue in the future). The most likely estimate of future Purse Seine category fishing activity is zero landings, because the category has not fished since 2015, and there are currently no vessels issued a Purse Seine category permit. Therefore, the most likely scenario of lost revenue from bluefin landings resulting from this alternative is zero. However, the maximum possible amount of landings and annual revenue is also provided in Table 4.26 to provide a possible range for the analysis of potential impacts. The range of potential annual revenue losses from landings represents the highest possible range, because it is based on five purse seine vessels. Under the current regulations in which the annual allocation to Purse Seine category vessels is based on the previous year's catch, it is possible that the allocation to the Purse Seine category could be either 25, 50, 75, or 100 percent of the Purse Seine category quota. The amount of potential annual bluefin revenue loss from a single vessel, based on the lowest level of quota was estimated at $80,916. The maximum amount of annual revenue the Purse Seine category could derive, if all five historical permits were used, and taking into consideration dead discards, is estimated to be $1.61 million (based on 100 percent of the Purse Seine category quota).

Table 4.26 Estimated annual revenues for Purse Seine category landings over a range of quotas

Quota Scenario	Quota allocation (% / mt / lb)	Landings (Catch x 71.6%)	Revenue per vessel fishing ($4.66 per pound)	Revenue for category fishing (5 vessels)
Scenario A	25 / 11 / 24,251	17,364	$80,916	$404,581
Scenario B	50 / 22 / 48,502	34,727	$161,828	$809,139
Scenario C	75 / 32.9 / 72,532	51,933	$242,008	$1,210,039
Scenario D	100 / 43.9 / 96,782	69,295	$322,915	$1,614,574

Rationale for Selection of Preferred Alternative

Alternative F2b (discontinue Purse Seine category and reallocate 'immediately') is preferred at this time for the following reasons. Both the ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. For example, the first objective focuses on the optimization of the use of bluefin quota. Reallocation of the Purse Seine category quota from an inactive quota category to active, directed bluefin categories would maximize the overall benefits for the fishery. Specifically, it would create opportunities for other active fisheries and have neutral ecological impacts. Although there would be indirect adverse economic impacts on the historical participants of the fishery due to a loss in potential income from leasing IBQ allocation, the historical Purse Seine category participants are not currently economically dependent upon bluefin landings. The use of bluefin quota solely as a means of profit by non-fishing vessel owners (i.e., Purse Seine category participants leasing to pelagic longline vessels) is not as consistent with the Amendment 7 design objective that the focus of the leasing program is to provide flexibility for active pelagic longline vessels to obtain bluefin quota in order to account for bluefin catch). Since 1982, the Purse Seine category has been managed with non-transferrable limited entry permits, and limited to five participants who historically were financially dependent on the fishery. The dependence upon the purse seine fishery by the historical participants, which was the reason for the creation of the Purse Seine category in 1982 and continued until 2005, no longer exists. The purse seine participants last landed fish in 2015 (Table 3.3). It is unlikely that historical Purse Seine category participants would choose to fish again because of such limited activity over the last 15 years. Furthermore, the historical participants have sold the vessels that were used to fish for bluefin to new owners. The opportunity afforded the original participants in the fishery in 1982 through the creation of the Purse Seine category, and subsequent opportunity to continue participation in fishery provided by Amendment 7 in 2015 provided fair consideration of the interests of the historical participants.

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

These alternatives (F2c1 and F2c2) would discontinue the Purse Seine category and redistribute the Purse Seine category quota two years after implementation of Amendment 13 (i.e., Year 3). There are two sub-alternatives that vary with respect to what activity (i.e., leasing and/or fishing) would be allowed prior to the sunset date. The ability of vessels to obtain an Atlantic Tunas Purse Seine category permit would also end. NOAA Fisheries would remove purse seine from the list of authorized gear and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants.

These alternatives could be implemented in conjunction with any of the methods of reallocation described under Alternatives F3 (a and b; proportionally to all categories) and F4 (proportionally only to directed categories; Preferred), and is intended only to address the timing of the discontinuation of the Purse Seine category. The impacts from discontinuing the Purse Seine category will be discussed under this alternative, while the impacts associated with quota reallocation will be discussed under the reallocation alternatives. The impacts from the set of alternatives for discontinuance and reallocation (e.g., F2b (discontinue immediately) and F3a (proportionally to all categories, with no Longline category restrictions)) are considered additive.

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

This alternative is one of two sub-alternatives that would discontinue the Purse Seine category after two years. Prior to the sunset date, the Purse Seine category quota would be reduced to 25 percent of its current amount. This alternative, in conjunction with preferred Alternative F1b, would result in a quota reduction from the current level of 17.6 percent to a new level of 4.4 percent. The remaining portion of Purse Seine category quota (i.e., the other 75 percent) would be reallocated to the other bluefin quota categories in accordance with one of the reallocation alternatives described below. This alternative would result in a set quota percentage, in contrast to the No Action Alternative, which considers the previous year's catch by Purse Seine category participants in determining the amount of quota available to each participant in the current year. This alternative would allow current Purse Seine category participants to receive their annual allocation and lease it (via the IBQ System) to and from other Purse Seine category participants or Atlantic Tunas Longline permit holders through the end of Year 2. It also would allow them to fish for Atlantic tunas, including bluefin, with purse seine gear if the vessel is issued a valid Purse Seine category fishing permit until this date. After two years, there would be no Purse Seine category quota.

Ecological Impacts

All ecological impacts associated with the sub-alternatives for discontinuation of the purse seine fishery two years after Amendment 13 implementation (end of Year 2), compared with the No Action Alternative, would be neutral. Impacts of reallocating Purse Seine category quota are analyzed in other alternatives below. The overall amount of allowable bluefin catch would remain within already-established limits, including the ICCAT-adopted quota for the western Atlantic bluefin stock and the U.S. portion of that quota. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending ovefishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years.

Socioeconomic Impacts

Socioeconomic impacts are described after sunsetting and for the two-year period prior to sunsetting. Upon sunsetting in year 2, socioeconomic impacts for Alternative F2c1 are the same as Alternative F2b (discontinue Purse Seine category upon implementation of Amendment 13). There would be the direct adverse impact from the loss of leasing revenue and the indirect adverse impact of the loss of potential revenue from the sale of bluefin. Historical participants are not currently reliant on revenue from the sale of bluefin because the fishery is not active.

The range of potential annual fishing revenue losses are the same as those shown in Table 4.26. The amount of potential annual bluefin revenue loss from a single vessel, based on the lowest level of quota was estimated at $80,916. The maximum amount of annual revenue the Purse Seine category could derive, if all five historical permits were used, and taking into consideration dead discards, is estimated to be $1.61 million (based on 100 percent of the Purse Seine category quota being allocated). As discussed previously, this is characterized as loss of potential revenue because it is likely that no fishing will occur based on recent inactivity, in which case there would be no actual loss of revenue (but a loss of potential revenue). The likely loss in leasing revenue is the same as noted in Alternative F2b, which estimates the annual category-wide and individual participant losses of revenue associated with leasing in the IBQ system to be $38,391 and $7,678, respectively, based on the average amount of quota leased since 2015.

During the two year period prior to sunsetting there would be the loss of some potential landings revenue because of the lower quota for the Purse Seine category. There would be the potential loss of 75 percent of the Purse Seine category quota, because it would be allocated only 25 percent of the current level (Table 4.26, Scenario C). The potential loss in landings revenue associate with 75 percent of the quota is $1.2 million. It should be noted however that this alternative would result in a level of allocation the same as in recent

years (i.e., 25 percent). Furthermore, it is highly unlikely that the Purse Seine category will have any future fishing activity (based on recent inactivity and no fishing vessels with requisite permits). The possible impacts described not likely, because a high level of catch over sequential years would be required for the full quota (100 percent) to be allocated. Given that leasing could continue until year 2, and the level of allocation would be similar to what it has been, there is not likely to be any loss of revenue associated with leasing.

Table 4.27 below summarizes the potential annual revenue losses associated with alternatives F2b, F2c1 and F2c2. Explanation of these losses are described in the text, but this table is intended to augment the text by summarizing the types of losses during the relevant time periods.

Table 4.27 Summary of potential annual revenue loss to Purse Seine category associated with alternative F2b, F2c1, F2c2

Alternative	Upon Implementation of Amendment 13	Upon Sunsetting - Two Years After Implementation of Amendment 13
F2b *(no Purse Seine category quota)*	Range of leasing revenue loss: $7,678 (1 participant) - $38,391 (category-wide) Range of landings revenue loss: $80,916 (1 vessel, low quota) – $1.61 M (5 vessels, max. quota)	N/A
F2c1 *(25% of current Purse Seine quota; leasing and landing allowed)*	No leasing revenue loss Range of landings revenue loss: Up to 75% of F2b values	See F2b (Upon implementation of Amendment 13)
F2c2 *(25% of current Purse Seine quota; only leasing allowed)*	No leasing revenue loss Range of landings revenue loss: F2b values	See F2b (Upon implementation of Amendment 13)

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

This alternative is similar to Alternative F2c1 (i.e., a reduction in the size of the quota to 4.4 percent of the bluefin quota for 2 years until sunset date) but would only allow Purse Seine category participants to *lease* (not fish) their quota allocations.

Ecological Impacts

This sub-alternative would have the same ecological impacts as Sub-Alternative F2c1.

Socioeconomic Impacts

Socioeconomic impacts are described for the two-year period prior to sunsetting and for the period after sunsetting. Socioeconomic impacts for Alternative F2c2 are similar to Alternative F2c1, but with the added limitation that Purse Seine category participants could not fish their quota (during the two-year period prior to sunsetting). Only leasing activity would be allowed under this alternative until the end of Year 2.

During years 1 and 2 when leasing is allowed, the likely loss in leasing revenue is the same as noted in Alternative F2c1. Given that leasing could continue until year 2, and the level of allocation would be similar to what it has been, there is not likely to be any loss of revenue associated with leasing.

The reduction of the size of the Purse Seine quota under this alternative would not affect the estimated loss in leasing revenue, because the estimate is based on the average amount of leasing that has actually occurred, which has been under conditions of a reduced Purse Seine quota (due to zero annual catches).

The loss of potential fishing revenue both prior to and as of sunsetting, is similar to that estimated for Alternative F2b, since fishing would not be allowed under this alternative. The most likely estimate of future Purse Seine category fishing activity is for zero landings since the category has not fished since 2015. Historical participants are not currently reliant on revenue from the sale of bluefin because the fishery is not active. However, similar to Alternative F2b, the amount of potential annual bluefin revenue loss from a single vessel, based on the lowest level of quota was estimated at $80,916. The maximum amount of annual revenue the Purse Seine category could derive, if all five historical permits were used, and taking into consideration dead discards, is estimated to be $1.61 million (based on 100 percent of the Purse Seine category quota).

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

These alternatives (F3a and F3b) would reallocate the Purse Seine category quota proportionally to all other quota categories (i.e., based on the current percentages associated with each quota category) and result in revised allocations and quotas as shown in Table 4.28. These alternative would be combined with Alternative F1b (change in percentage allocations to reflect 68 mt), and either F2b (discontinue Purse Seine category upon implementation of Amendment 13) or F2c1 or F2c2 (discontinue Purse Seine category after 2-year period). The latter three alternatives give a range of options for when the Purse Seine category would be discontinued and the quota would be available for distribution to the other categories. Alternative F2b would make the quota available upon

implementation of Amendment 13, while alternatives F2c1 or F2c2 would make the quota available beginning in Year 3.

Table 4.28 Revised allocations (% and mt) for each category based on reallocation of the Purse Seine category quota for Sub-Alternatives F2c1 and F2c2 (and underlying calculations) and estimated annual revenue associated with the allocation increase

	General	Angling	Purse Seine	Longline	Harpoon	Reserve	Trap	TOTAL
Allocations under Alternative F1b (%)(*converting 68 mt to %*)	44.5	18.6	17.6	13.1	3.7	2.4	0.1	100
Quota (mt)	555.7	232.4	219.5	163.5	46	29.5	1.2	1,247.9
Redistribution calculation	(44.5/82.4) x 17.6	(18.6/82.4) x 17.6	N/A	(13.1/82.4) x 17.6	(3.7/82/4) x 17.6	(2.4/82.4) x 17.6	(0.1/82.4) x 17.6	-17.6
Additional amount (%)	9.5	4.0	N/A	2.8	0.8	0.5	<0.1	17.6
Additional amount (mt)	118.1	49.6	N/A	34.9	10.2	6.7	0.0	219.5
New allocation (%)	54	22.6	0	15.9	4.5	2.9	0.0	100
New allocation (mt)	673.8	282.0	0	198.4	56.2	36.2	0.0	1,247.8
Average price per pound (2017-2019)*	6.49	N/A	N/A	5.02	5.85	6.31	6.31	NA
Estimated Annual Revenue for Additional Amount (Alternative F3a)	1,689,758	N/A	N/A	386,516	131,548	93,204	N/A	2,301,026
Estimated Annual Revenue for Additional Amount (alternative F3b)	1,689,758	N/A	N/A	386,242	131,548	93,204	N/A	2,300,751

* Overall average price per pound for all categories was used for calculation of Reserve and Trap category revenues. Note; Sum of columns do not equal total column due to rounding.

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

This alternative would result in the amount of quota reallocated from the Purse Seine category to the Longline category shown in Table 4.28 (as in Alternative F3, proportionally to all categories), and would include allocation of both ATL and GOM area designations . Specifically, the additional quota would be designated as ATL or GOM IBQ allocation, consistent with the relevant method of calculating regional IBQ shares and distributing IBQ allocation.

Ecological Impacts

The impact of this alternative is evaluated in combination with alternatives that would reallocate Purse Seine category quota upon implementation of Amendment 13 (Sub-Alternative F2b) or after a two-year period (Sub-Alternatives F2c1 or F2c2). Impacts to bluefin under this alternative would be neutral because the amount of bluefin catch would be at or below the U.S. portion of the ICCAT recommended bluefin quota quota. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending ovefishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Most of the bluefin quota categories that would receive redistributed Purse Seine category quota target bluefin with rod and reel or harpoon gear, and have minimal indirect impacts on non-bluefin species. For the Longline category, the regional designation of GOM IBQ allocation would remain (i.e., one of the relevant alternatives B1, B2, or B3 - modifications to rules closely linked to IBQ allocations - would be in effect in combination with this alternative). This alternative could have slightly adverse indirect impacts for pelagic longline bycatch species such as white and blue marlin, roundscale spearfish, Atlantic sailfish, shortfin mako, dusky sharks and sea turtles, if the additional bluefin quota results in an increase in pelagic longline vessel fishing effort beyond that which is currently occurring. However, such an increase in effort is unlikely. The Three-Year Review noted that the IBQ Program may have been a contribution factor in declining effort, but did not describe a strong relationship between IBQ allocation and fishing effort. Further, the Longline category overall has not been quota limited (i.e., annual landings plus discards greater than annual quota) since Amendment 7 was implemented. In combination with Sub-Alternative F2c1 or F2c2, this alternative would have neutral impacts during the two-year transition period, prior to discontinuation of the fishery for the reasons described above.

Socioeconomic Impacts

Socioeconomic impacts for Sub-Alternative F3a would be moderately beneficial for the commercial quota categories that would receive redistributed quota after the Purse Seine

category was terminated. There would also be indirect benefits for seafood dealers because of increased bluefin landings from the directed fishery.

Annual revenue for each category is calculated in Table 4.28. Total revenue that could accrue due to bluefin quota associated with the Reserve category was also estimated because quota from the Reserve can be transferred to other quota categories via inseason action during the fishing year. Inseason actions are developed pursuant to the criteria listed in Table 3.2.

As shown in Table 4.28, the estimated annual increase in revenue for commercial quota categories receiving redistributed Purse Seine quota totals $2.30 million. Estimated annual revenue loss to the Purse Seine category is described under Sub-Alternative F2b, Socioeconomic Impacts. Looking at all of the categories combined, net impacts of this alternative are beneficial: it would result in an increase in revenue of approximately $2.3 million annually.

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

This alternative would result in the same amount of quota reallocated from the Purse Seine category to the Longline category (as discussed under Sub-Alternative F3a), but would place a restriction on the regional use of such quota by the Longline category, which lands bluefin under the context of the IBQ Program. Specifically, all of the additional quota would be designated as ATL IBQ allocation, which could not be used to account for bluefin caught in the Gulf of Mexico.

Ecological Impacts

In combination with alternatives that would reallocate Purse Seine category quota upon implementation of Amendment 13 (Sub-Alternative F2b) or after a two-year period (Sub-Alternatives F2c1 or F2c2), this alternative is expected to have neutral impacts to bluefin, and could have slightly adverse indirect impacts for pelagic longline bycatch species such as white and blue marlin, roundscale spearfish, Atlantic sailfish, shortfin mako, dusky sharks and sea turtles, if the additional bluefin quota results in an increase in pelagic longline vessel fishing effort beyond that which is currently occurring. However, such an increase in effort is unlikely, for the reasons provided under Sub-Alternative F3a, Ecological Impacts. Impacts to bluefin under this alternative would be neutral because all bluefin catch would be within the U.S. portion of the ICCAT recommended quota. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending ovefishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United

States has underharvested its overall quota over the past several years. The directed categories that would receive redistributed Purse Seine category quota have minimal indirect impacts bycatch species due to the fishing gear and techniques used. In combination with Sub-Alternative Fc1 or F2c, this alternative would have neutral impacts during the two-year transition period.

Socioeconomic Impacts

For the same reasons provided under Sub-Alternative F3a, socioeconomic impacts for Sub-Alternative F3b would be moderately beneficial for most of the commercial quota categories that would receive redistributed quota after the Purse Seine category was terminated. There would also be indirect benefits for seafood dealers because of increased bluefin landings. *See second through fourth paragraphs of Sub-Alternative F3a, Socioeconomic impacts (explaining calculation of annual revenue for each category, net impacts for Purse Seine and other categories, and neutral impacts of Sub-Alternative F3b when combined with Sub-Alternative F2c).*

For the Longline category, this alternative would have negligible impacts, because pelagic longline vessels fishing in the Gulf of Mexico with GOM designated IBQ shares have utilized a low percentage of GOM designated IBQ (e.g., eight percent of GOM designated IBQ, three percent of total IBQ, in 2019). The fact that the additional bluefin quota from the Purse Seine category would not be redistributed to vessels with fishing history in the Gulf of Mexico would not represent a loss in potential target species or bluefin revenue. The average price per pound of Longline category fish purchased during 2017-2019 in the Gulf of Mexico ($5.11) was slightly higher than Atlantic fish ($5.02 per pound); however only a total of 14.5 mt of bluefin was landed in the Gulf, out of 365.8 mt landed in total (3.9 percent of total landings) during this time period (Table 3.19). The reduction in revenue if all bluefin were landed in the Atlantic at the lower price is approximately $274 per year (Table 4.28).

4.6.2.9 Preferred Alternative F4: Reallocate Purse Seine category quota proportionally but only to directed bluefin categories, including Reserve (not Longline or Trap)

As shown in Table 4.29, this alternative would result in additional quota for the directed categories in slightly greater amounts than alternative F3 (where the quota is redistributed to directed and non-directed categories) for status quo amounts for the Longline and Trap categories. Note that Alternative G3c relates to this alternative and is specifically about allocating quota among General category subquota time periods.

Table 4.29 The new allocations (% and mt) for each category based on reallocation of the Purse Seine category quota for Alternatives F4 (reallocate to directed categories only) and underlying calculations

	General category	Angling category	Purse Seine category	Longline category	Harpoon category	Reserve category	Trap category	Sum
Allocations under Alternative F1b (%)(*converting 68 mt to %*)	44.5	18.6	17.6	13.1	3.7	2.4	0.1	100
Quota (mt)	555.7	232.4	219.5	163.5	46	29.5	1.2	1,247.9
Redistribution calculation	(44.5/69.2) x 17.6	(18.6/69.2) x 17.6	N/A	N/A	(3.7/69.2) x 17.6	(2.4/69.2) x 17.6	N/A	17.6
Additional amounts (%)	11.3	4.7	N/A	N/A	0.9	0.6	N/A	17.6
Additional amount (mt)	140.6	58.4	NA	NA	11.4	7.9	NA	218.3
New allocation percentages (%)	55.8	23.3	0	13.1	4.6	3.0	0.1	99.9
New allocation totals (mt)	696.3	290.8	0	163.5	57.4	37.4	1.2	1,247.9
Average price per pound (2017-2019)*	6.49	NA	NA	NA	5.85	6.31	NA	NA
Estimated Annual Revenue for Additional Amount, under Alternative F4	2,011,768	NA	NA	NA	147,044	110,395	NA	2,269,208

Note: Sum of columns do not equal total column due to rounding

Combining this alternative with other alternatives affecting IBQ allocations

Table 4.39 (located in the section containing the analysis of Preferred Alternative H2), shows the allocations for each category, expressed as a percentage and metric tons, that would be implemented based on the combination of the preferred quota alternatives (F1b, F2b, F4, and H2): F1b (modification of the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category); F2b (discontinuation of the Purse Seine category and reallocation of the quota upon implementation of Amendment 13); F4

(reallocation of the Purse Seine category quota to directed categories only); and H2 (modification of the Angling category allocations).

Ecological Impacts

The ecological impacts of Alternative F4 would be neutral because the overall quota amount would not change from the status quo, U.S. portion of the ICCAT recommended bluefin quota and the categories receiving increased quota have little to no bycatch.The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending ovefishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Impacts to bluefin would not change because the bluefin quota would not change. These impacts would be the same in combination with both Alternatives F2b and F2c (1 & 2). Since the impacts are neutral, the sunset period in F4 alternatives would not cause any difference in impact.

Socioeconomic Impacts

Socioeconomic impacts for Alternative F4 would include estimated increases in revenue for the commercial quota categories that received the redistributed quota after the Purse Seine category was terminated. Annual revenue increases for each directed category are calculated in Table 4.29. Revenue for the Reserve category was also calculated, because quota from the Reserve can be transferred to other commercial categories or the Angling category via inseason action during the fishing year. Inseason actions are developed pursuant to the criteria listed in Table 3.2.

When combined with Sub-Alternative F2b (immediate disbursement), the socioeconomic impacts for Alternative F4 would be moderately beneficial for directed category participants and infrastructure associated with the directed categories receiving quota. As shown in Table 4.29, the estimated annual increase in revenue for these categories totals $2.26 million. Net impacts are also beneficial, since the estimated annual revenue loss for the Purse Seine category is small relative to the annual benefits for the non-Purse Seine directed categories. See Sub-Alternative F2b, Socioeconomic Impacts paragraph 2. Increases in the amount of bluefin quota for the Angling category may result in increased recreational opportunities and angler satisfaction, as well as indirect economic benefits. Table 4.29 above shows that these annual gains would be approximately $2.26 million.

Rationale for Selection of Preferred Alternative

Both the ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. This alternative would reallocate quota from an inactive fishery to create opportunities for active, directed bluefin fisheries and have neutral

ecological impacts. Although additional quota would not be allocated to the Longline category (which does not target bluefin), Preferred Alternative A2c would optimize the allocation of the Longline quota (among Longline category permit holders) by implementing dynamic determination of IBQ shares. Alternative F4 is preferred at this time.

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

Under the regulations at § 635.27(a)(1), the General category quota is divided into five subquotas for the following five time periods: January through March (the "January" subquota period), June through August, September, October through November and December). (For the January through March period, the subquota category is currently named the "January" subquota period but specifies that the quota may be used from January 1 through March 31 or until the subquota is used, whichever occurs first. This DEIS hereafter refers to the "January through March" to refer to the "January' subquota period.). Based on the regulations, Table 4.30 shows the time period percentage of the General category quota, plus the current baseline subquota, and Figure 4.11 shows the percentage in a pie chart. Below in this introductory section, there are data on the General category fishery that are relevant to the consideration of Alternatives G1, G2, and G3. This information focuses on patterns of bluefin landings, and metrics intended to enable standardized comparison of fishing opportunity and catch among subquota periods. The relevant permit holders are those with either General or Charter/Headboat category permits, and the landings are all commercial landings, based on dealer reported information (SAFIS). Additional relevant information is provided in each subsection below. Lastly, Appendix B contains a summarized history of General category quota and subquota management.

Table 4.30 General category subquota time periods, base subquota allocation (%), with current baseline subquota (mt)

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

Subquota time period	Percent of General category baseline quota (%)	Current baseline subquota (mt)
Total	100	555.7

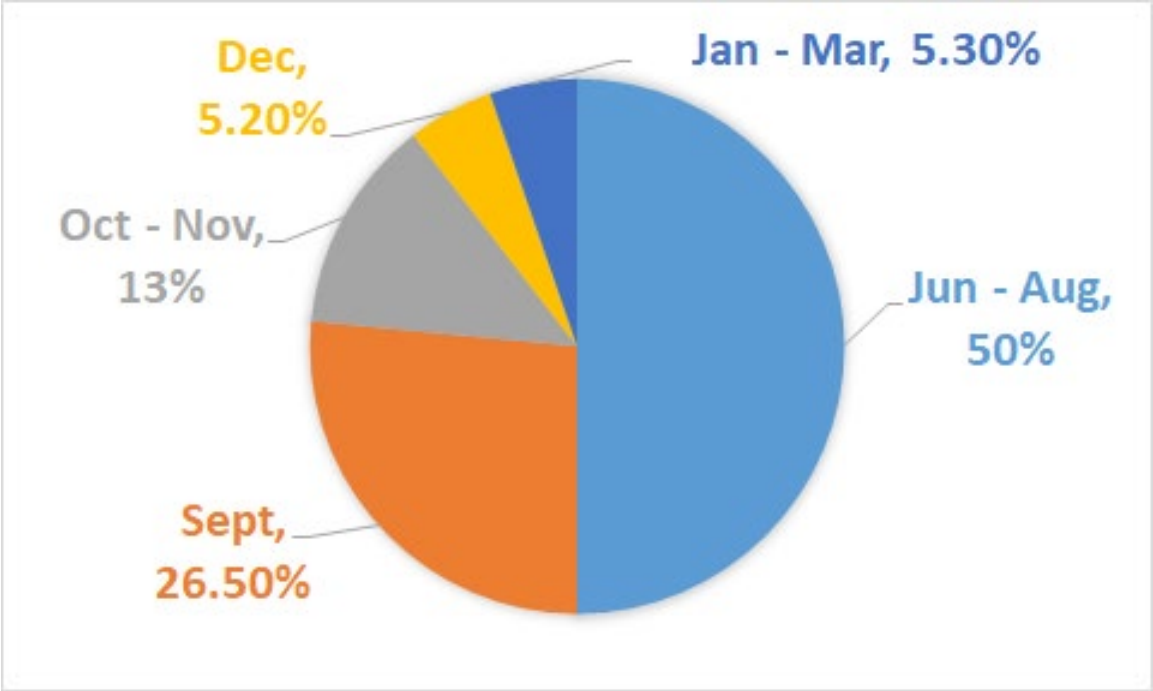


Figure 4.11 General category subquota time periods and base subquota allocation percentages

Any unused General category quota "rolls" forward within the fishing year, which coincides with the calendar year, from one time period to the next, and is available for use in subsequent time period (e.g., unused quota from June through August rolls to September; unused quota from September rolls to the October through November period). In addition, NOAA Fisheries may decide, through an inseason action, to transfer quota from one subquota period to another, whether earlier or later in the calendar year. *See* 50 CFR. § 635.27(a)(8) for inseason criteria. For example, NOAA Fisheries may transfer quota allocated for December of a particular year to January through March of that year, to further fishing opportunities early in the calendar year. Table 4.31 below show commercial bluefin landings information by General and Charter/Headboat category vessels from 2016 through 2019. Specifically it shows the number of unique vessels that landed at least one bluefin. The pattern is an increasing number of vessels landing bluefin over this time period. Also of note is the proportion of permit holders that are landing bluefin. For example, in 2019, there were 2,721 General category permits (Chapter 3, Table 3.4) and 3,868 Charter/Headboat permits (Chapter 3, Table 3.5) issued but only 1,022 vessels that landed bluefin.

Table 4.31 Number of unique vessels landing at least one bluefin (commercial*), 2016 to 2019

Year	Number of Vessels
2016	698
2017	878
2018	939
2019	1,022

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

Table 4.32 shows the number of unique vessels that landed bluefin by subquota period, which is one of several metrics used to compare the subquota periods and analyze the alternatives. The number of vessels that landed bluefin vary by year and subquota period, with the greatest number during the June through August, September, and October through November subquota periods.

Table 4.32 Number of unique vessels landing at least one bluefin (commercial*), by subquota period, 2016 to 2019

Subquota Period	2016	2017	2018	2019
Jan-Mar	50	90	58	84
Jun-Aug	361	493	545	539
Sept	346	461	533	557
Oct-Nov	403	302	358	460
Dec	0	72	52	75

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

Table 4.33 shows the number of days the fishery was open by subquota period, which is one of several metrics used to compare the subquota periods and analyze the alternatives. The number of days open varies by year and subquota period, with the largest number of open days the January through March and June through August subquota periods. The overall pattern is declining number of days open.

Table 4.33 Number of days the fishery was open

Subquota Period (and number of days in subquota period)	2016	2017	2018	2019
Jan-Mar (93 days in subquota period)	91	88	60	59
Jun-Aug (92 days in subquota period)	92	77	92	69
Sept (30 days in subquota period)	31	17	23	13
Oct-Nov (61 days in subquota period)	35	5	13	13
Dec (31 days in subquota period)	0	6	31	31

Table 4.34 shows the weight in metric tons of landed bluefin by subquota period, which is one of several metrics used to compare the subquota periods and analyze the alternatives. The metric tons of bluefin landed varies by year and by subquota period. The overall pattern is increasing landings in recent years.

Table 4.34 Commercial* bluefin (metric tons) landed by subquota period, 2016 to 2019

Subquota Period	2016	2017	2018	2019
Jan-Mar	51.3	108.1	59.3	108.9
Jun-Aug	232.2	332.3	328.6	277.5
Sept	191.7	164.1	238.5	226.2
Oct-Nov	275.2	73.7	143.6	178.8
Dec	0	18.1	14.6	22.9

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

Table 4.35 shows the weight in metric tons of landed bluefin per day the fishery was open, by subquota period, which is one of several metrics used to compare the subquota periods and analyze the alternatives. This metric is a means of standardizing among quota periods. Standardized metrics are used to compare among quota periods because the quota periods are allocated different amounts of bluefin, and are of different duration. The metric tons of bluefin landed per day open varies by year and by subquota period. The highest amount of bluefin (in weight) per day open was during the September and October through November subquota periods.

Table 4.35 Commercial* bluefin (metric tons) landed per day open by subquota period, 2016 to 2019

Subquota Period	2016	2017	2018	2019
Jan-Mar	0.6	1.2	1.0	1.8
Jun-Aug	2.5	4.3	3.6	4.0
Sept	6.2	9.7	10.4	17.4
Oct-Nov	7.9	14.7	11.0	13.8
Dec	0	3.0	0.5	0.7

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

Table 4.36 shows the weight in metric tons of landed bluefin per unique vessel (that landed bluefin) by subquota period, which is one of several metrics used to compare the subquota periods and analyze the alternatives. Standardized metrics are used here as well. The amount of bluefin landed per vessel varies annually, and among subquota periods. Consistently, the highest landings per vessel (that landed bluefin) were during the January through March subquota period.

Table 4.36 Commercial bluefin (metric tons) landed per unique vessel that landed bluefin, 2016 to 2019

Subquota Period	2016	2017	2018	2019
Jan-Mar	1.0	1.2	1.0	1.3
Jun-Aug	0.6	0.7	0.6	0.5
Sept	0.6	0.4	0.4	0.4
Oct-Nov	0.7	0.2	0.4	0.4
Dec	0	0.3	0.3	0.3

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels

Socioeconomic Impacts (on communities) of the 'G' Alternatives

The affected General and Charter/Headboat category permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC. Other communities not analyzed in Chapter 8, that may be impacted include small coastal communities between South Carolina and Massachusetts. Examples of communities included in the vulnerability analysis that may be more vulnerable are Portland, ME and Wanchese, NC.

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

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

Ecological Impacts

If no action is taken to modify the General category subquota allocations, ecological impacts would be neutral. This alternative would have a neutral ecological impact because it would not modify the ICCAT-recommended quota for bluefin, nor the U.S. portion of that quota. In 2020, ICCAT adopted Rec. 20-06, which rolled over the current TAC for 2020; provided for a 2021 stock assessment that would incorporate the most recent available data, including any new abundance indices; and specified TAC levels for 2022 and 2023 that would address overfishing based on the 2020 stock assessment update and management scenario 3 therein, unless ICCAT decides otherwise based on new SCRS advice.. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending overfishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Chapter 3 provides additional information on the relevant bluefin quotas.

Socioeconomic Impacts

If no action is taken to modify the General category subquota allocations, socioeconomic impacts would be neutral. The status quo subquotas assigned to the time periods generally reflect the historical catch patterns from the 1980s and 1990s as well as formalization of the winter fishery. Recent annual bluefin landings under the General category quota have approached or exceeded the base and adjusted General category quotas (i.e., they were 149 and 101 percent of base and adjusted quotas, respectively, for 2017; 168 and 96 percent of base and adjusted quotas for 2018; and 147 and 104 percent of base and adjusted quotas

for 2019). Exceedances of base quotas reflect inseason quota transfers from the Reserve and Harpoon categories. As implemented in Amendment 7, NOAA Fisheries may proactively transfer quota from one or more of the subquotas following the January subquota to the January or other subquotas, through inseason action. In other words, NOAA Fisheries has the authority to transfer quota from one subquota period to another, earlier in the calendar year. In recent years, NOAA Fisheries has proactively transferred quota from the December subquota period to the January subquota period in order to maximize the fishing opportunities on an annual basis ('front-loading' the quota).

To have more opportunity earlier in the season, some January through March fishery participants have expressed interest in a larger January subquota. Some October through November period and December period participants have expressed concerns regarding the uncertainty of whether General category quota will remain for the times when commercial-sized bluefin are available in their areas. Some General category participants would prefer to see more opportunities available when market prices are perceived as being generally higher, such as in the fall months (but this varies with market volume). In recent years, some of the subquotas have been reached and the General category has been closed while fishing opportunities remain and while other subquotas are not reached. Ex-vessel average prices (nominal values) from recorded sales of bluefin in all commercial categories for the last five-years are presented in Table 4.37. Although ex-vessel prices have been variable over the last several years, high landings relative to quota have led to a modest total increase in ex-vessel gross revenues in 2016 through 2019. Revenues for the General category were $9.7 million in 2016 and 2018, at the highest level since 2002. Of the status quo alternative (G1) and the ones that modify the time period subquotas (G2a, G3a, and G3b), this one (G1) would result in the lowest potential annual gross revenues, but the amount is less than 0.2 to 3.6 percent less than for the other alternatives.

Table 4.37 Ex-vessel average price (per pound, round weight) for bluefin by commercial fishing category, 2015-2019

Category	2015	2016	2017	2018	2019	2017-2019 Average
General	5.46	7.38	6.61	7.13	5.78	6.49
Harpoon	4.84	8.14	6.43	7.04	5.36	5.85
Longline	4.01	4.95	4.98	5.76	4.32	5.02
Purse Seine	3.21*	N/A	N/A	N/A	N/A	N/A

* Price likely reflects relatively small amount of purse seine-caught bluefin on market.
Source: dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System.

There were no Purse Seine category landings in 2016 through 2019. Table 4.38 shows bluefin landings (mt) by year and category from 2015 through 2019.

Table 4.38 Bluefin landings (mt) by year and category, 2015-2019

Category	2015	2016	2017	2018	2019	Average 2017-2019
General	614.7	750.5	695	784.3	814.1	764.5
Harpoon	43.7	26.4	43.1	26.5	102.4	57.3
Incidental	71.4	86.2	103.8	88	83.6	91.8
Purse Seine	33.7	N/A	N/A	N/A	N/A	0

Source: Dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System. Note; Sum of columns do not equal total column due to rounding.

Rationale for Selection of Preferred Alternative

Both the ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. This alternative would have neutral ecological impacts. Regarding the socioeconomic impacts, it would balance the objective of catching, but not exceeding, the General category quota with providing fishing opportunities throughout the fishing year and to broad geographic areas, in the context of the highly variable fishery and weather conditions. Inherent in allocation of bluefin quota among subquota periods is consideration of the risk that the full General category quota may not be reached, depending on fishing conditions and bluefin availability on the fishing grounds. Stated another way, the selection of the preferred alternative involves two important underlying questions regarding the General category subquota periods: 1) Does the system facilitate catch of the bluefin quota?; and 2) does the system provide equitable opportunities for participation and catch of bluefin?

NOAA Fisheries considered a variety of data in its selection of the preferred alternative, including: analysis of potential revenue; the trend in overall bluefin landings by General and Charter/Headboat category permit holders; the number and geographic distribution of General and Charter/Headboat category permit holders; the trend in the percentage of General category bluefin quota landed; the relative contribution of each subquota period landings to the total annual landings; the number of unique vessels landing bluefin; the number of days the subquota periods were open; the amount of landings per open day; and the amount of landings per vessel that landed bluefin. Given the differences in the attributes of subquota periods, NOAA Fisheries used metrics designed to standardize relevant information. Therefore evaluation of the preferred alternative included the use of metrics designed to compare fishing opportunity among subquota periods such as number of days open, and amount of bluefin landed per vessel that landed bluefin.

Bluefin availability varies geographically and seasonally, but is also highly variable from year to year. The No Action alternative method of dividing up the General category quota into subquota time periods reflects these attributes of bluefin availability, while providing

fishing opportunity throughout the year. Specifically, the No Action alternative provides a higher amount of quota to some subquota periods, which reflects the general seasonality, historical availability and relative sizes of the historical seasonal fisheries for bluefin. For example, the June through August subquota period has 50 percent of the subquota because historically the bluefin have been in high abundance during that period, and during that time period the fishery had a large numbers of participants. Data on the geographic distribution of permit holders during 2019 shows the large numbers of permit holders in the New England states and North Carolina (Table 3.4, Chapter 3). The states of Massachusetts, Maine, and New Hampshire comprise 66 percent of General category permit holders (in 2019). Bluefin tend to be present in large numbers in the waters off New England during the late spring and summer months. The states of North and South Carolina comprise 10 percent of General category permit holders (in 2019). A cost/earnings study conducted by HMS economists in 2018 included effort data (Figure 3.4), and showed that among survey respondents, two geographic areas (off New England and North Carolina) were the location of most of the fishing effort, with greater fishing effort occurring off New England. Fishing effort data for all handgear vessels is not required to be reported, so more comprehensive fishing effort data by either General category or Charter/Headboat vessels data is not available (but would be very useful for future analyses, if available).

An increasing percentage of the General category quota has been caught in recent years. The high-level structure of the fishery is equitable in that fishing permits are open access, and permit holders may fish in any geographic location they chose.

With respect to how the subquota is divided up among subquota periods, discussion of the two subquota periods with the smallest amount of allocation illustrate how the current subquota allocations are equitable, and reflect both fishing opportunity and fish availability. Although the January to March subquota period is allocated 5.3 percent of the General category quota, bluefin landings from the January to March subquota period represented 8 percent and 13 percent of the annual General category landings during 2018 and 2019, respectively (Table 4.34). The amount of bluefin landed per vessel that landed bluefin was highest during the January to March subquota period (Table 4.36). Based on this information, NOAA Fisheries concludes that the January to March subquota period is provided equitable fishing opportunity under the No Action Alternative. The December subquota period is allocated 5.2 percent of the General category quota, but during 2018 and 2019 caught two percent and three percent of the annual general category landings, respectively (based on the data in Table 4.34). That low catch likely reflects the likelihood that bluefin are migrating during December and are located in neither of the two geographic locations where most of the fishing effort occurs. The bluefin landings per day open (during the December subquota period) is relatively low, which may reflect the relatively low availability, or worsening seasonal weather conditions (Table 4.35). The bluefin landings per vessel (that landed bluefin) is only slightly lower than that metric for the other subquota periods, which supports the contention that the fishing opportunity is equitable.

Further, it is important to note that the sub-quotas work in concert with several regulatory mechanisms that provide flexibility in how the amount of quota is divided among the sub-quota periods. Unused quota gets 'rolled forward' in the year such that the quota allocated to subquota periods may increase. Unused quota may eventually all be rolled forward into the December subquota period. NOAA Fisheries may allocate quota from the December sub-quota period to the January sub-quota period; NOAA Fisheries may allocate additional quota from the reserve, and NOAA Fisheries may utilize changes in retention limits to modify the rate of catch to facilitate the attainment of subquotas and the annual quota. The data from recent years suggests that the flexibility in the quota system provided by these regulatory mechanisms is working. Landings (as a percentage of quota) have been increasing in recent years. Subquota periods that have lower percentage allocations associated with them have not necessarily been limited (in quota availability) by those allocation percentages. For example, as described above, during 2018 and 2019, the January through March subquota period caught 8 percent and 13 percent (respectively) of the total General category bluefin landings, despite having an initial allocation of 5.3 percent of the General category quota. Similarly, during 2018 and 2019, the October through November subquota period caught 18 percent and 22 percent of the total General category bluefin landings, despite having an initial allocation of 13 percent (Figure 3.3). In conclusion, Alternative G1 is preferred at this time.

4.7.2 Alternatives Suite G2: Modify General category subquota time periods

This alternative would modify the current General category time periods as defined at §635.27(a)(1). It is important to note that changes to the General category time periods would also result in changes to the subquota allocations (see G3). The current regulations regarding NOAA Fisheries authority to transfer quota inseason would remain.

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

This alternative would divide the General category quota into 12 monthly time periods, including April and May. This alternative was considered, but not selected, in the 2011 Environmental Assessment for a Rule to Adjust the Atlantic Bluefin Tuna General and Harpoon Category Regulations (76 FR 74003, November 20, 2011) as well as in Amendment 7. Table 4.39 shows the number of unique vessels landing commercial bluefin by month from 2016 to 2019 to show the seasonal pattern of landings.

Table 4.39 Number of Unique Vessels Landing Commercial* Bluefin by Month, 2016 through 2019

Month	2016	2017	2018	2019
January	4	35	13	45
February	24	51	56	79
March	43	51	22	-

Month	2016	2017	2018	2019
June	97	26	28	98
July	176	340	305	424
August	247	339	418	266
September	346	461	533	557
October	375	302	308	460
November	121	-	126	-
December	-	72	52	75

*SAFIS data; Commercial bluefin landings by General or Charter/Headboat category vessels.

Ecological Impacts

The ecological impacts of this alternative would be neutral, because it would not change the overall bluefin quota, and for reasons described under Alternative G1. Under this alternative, the current General category quota of 555.7 mt would be divided into monthly subquotas of 8.3 percent of the General category base quota, or 46.3 mt per month. NOAA Fisheries would continue to carry forward unharvested General category quota from one time period to the next time period and may need to close the fishery each month if the available subquota is caught. This alternative could result in a shift in annual bluefin landings, both temporally (to earlier and later in the season, which corresponds to the calendar year) and geographically to the South (i.e., off the mid- and south Atlantic states of North Carolina, South Carolina, Georgia, and the Florida East Coast).

For instance, the January through March subquota would increase from 5.3 percent to 24.9 percent (equivalent to 8.3 percent for each of the months January, February, and March; 46.3 mt for each month for a total of 138.9 mt). The amount available for the current June through August subperiod would decrease from 50 percent (277.9 mt) to 24.9 percent (138.9 mt). The September subquota would decrease from 147.3 mt to 46.3 mt. The October through November subquota would increase from 72.2 mt to 92.6 mt. Lastly, the December subquota would increase from 28.9 mt to 46.3 mt. These changes are summarized in Table 4.40.

Alternative G2a could result in increased catch in the earlier and later portions of the General category bluefin season, with a corresponding decrease in catch in the middle portions of the season. However, the number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment and overall the ecological impacts are expected to be neutral. This alternative would be expected to broaden the range of data available for scientific research, although the scope may be relatively small. Because there would be a dedicated quota for

each month of the year, Alternative G2a could provide commercial fisheries data for times (i.e., March through May) when the fishery has traditionally been closed.

Table 4.40 Comparison of General category quota amounts (mt) available by time period, under the No Action and the Other Alternatives

	Time Periods and Allocations											
Alternative	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Under No Action (Alternative G1)	29.5			0	0	277.9			147.3	72.2		28.9
12 equal monthly subquotas (Alternative G2a)	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3	46.3
For comparison purposes, Alternative G2a under current time periods	46.3×3 = 138.9			46.3	46.3	46.3×3 = 138.9			46.3	46.3×2=92.6		46.3
Extend the January through March subquota time period through April 30 (Alternative G2b)	29.5				0	277.9			147.3	72.2		28.9
Increase the January through March amount (Alternative G3a)	83.4			0	0	249.4			132.2	64.8		25.9
Increase the September and the October through November amounts (Alternative G3b)	29.5			0	0	138.9			239.5	118.9		28.9

Socioeconomic Impacts

Although this alternative would create the potential for more of a "year-round" fishery, it is not likely that patterns of fish availability, weather, or location of fishery participants will align with 12 equal monthly quotas. It is possible that NOAA Fisheries would close the fishery within a period when it is projected that the available subquota has been reached.

This could mean multiple closures and automatic re-openings on the first of the month throughout the year, and increased uncertainty for fishermen or dealers.

To calculate potential changes in revenues, the amount of potential landings and the value of those landings per current time period can be examined (assuming full catch). For example, for the current January period (which continues until the available subquota is taken, or March 31, whichever comes first), the base quota is 29.5 mt. Under a 12 equal months allocation method, 46.3 mt would be available per month, so the total base quota available for January through March is 138.9 mt. Table 4.41 and Table 4.42 show current and potential annual gross revenues per time period under the No Action alternative and Alternative G2a, respectively. Because 2019 prices were somewhat anomalous (due to a combination of factors including fish quality and dealer agreements to not purchase fish for market purposes, among others), NOAA Fisheries is using average 2017-2019 price data, by subquota time period, to calculate potential gross revenues. For early season (January-March) General category participants, an additional 109.4 mt would be available (i.e., 138.9-29.5 mt). At $6.93 per pound, this represents a potential revenue increase of approximately $1.6 million overall during this time period, nearly four times the current amount. Using $6.93 per pound as an estimate for the ex-vessel prices for the early season, potential revenues for each of those months would be $707,365 (i.e., 46.3 mt × $6.93 per pound). Potential revenues for the current June-August and September periods would decrease by approximately $1.9 million (50 percent) and $1.5 million (69 percent), given recent average price ($6.41 and $6.66, respectively). For October-November and for December, potential revenues would increase by approximately $309,000 (28 percent) and $404,000 (60 percent) at $6.89 per pound and $10.54 per pound, respectively. Relative to the No Action alternative (G1), there would generally be substantially increased revenues for January through May and October through December and substantially decreased revenues for June through September, and the net annual revenues would increase by approximately $303,000 (3.6 percent). When comparing to the no action alternative, the increase in total annual revenue estimate is the result of the price differences between the affected subquota periods (i.e., the subquota periods gaining quota generally have higher prices than those subquota periods losing quota).

Thus, impacts are expected to be moderate, and beneficial or adverse, depending on quota and fish availability in the various time periods, as well as the price of bluefin during each month. The changes in revenues in these General category subquota allocation alternatives is strongly subject to availability of fish and fishing conditions, and price of bluefin during these time periods. Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish (2018 HMS Cost/Earnings Study; Chapter 3). It is important to note that it is highly unlikely that the availability of bluefin will be evenly distributed seasonally among the 12 months of the year, and therefore the availability of bluefin is not likely to align with the distribution (availability) of bluefin quota under a system of 12 equal monthly quotas. Under this alternative there would likely be increased uncertainty regarding the availability of quota for each subquota period, and increased disruptions in the fishery due to the potential for more frequent closures associated with the higher number of subquota periods (i.e., 12 instead of 5 subquota periods). The net gains in annual revenue (3.6 percent) would be less

if the seasonal differences in price is less. Of the No Action alternative (G1, status quo) and the ones that modify the time period subquotas (G2a, G3a, and G3b), this one (G2a) would result in the highest potential annual gross revenues (in the highly unlikely event that bluefin tuna availability was evenly distributed among months), but the amount is less than 4 percent greater than for the Preferred No Action Alternative G1. Lastly, the alternative may increase the risk that the full General category quota would not be caught, because of the increase in the relative amount of quota that would be allocated to later months in the year. The objective of catching the full General category quota may be facilitated by allocating relatively more quota to the first three quarters of the year, so that if there is limited availability of bluefin, any unused quota 'rolls forward' into the subsequent quota period(s).

Table 4.41 Potential General Category Gross Revenues from Base Quotas under Current Subquota Allocation Percentages

Time Period	General Category Quota (%)	Current Annual Base Quota Equivalent (mt)	Current Annual Base Quota Equivalent (lb)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Jan-Mar	5.3	29.5	64,930	$6.93	$449,964
Apr-May	N/A	N/A	N/A	N/A	N/A
Jun-Aug	50.0	277.9	612,548	$6.41	$3,926,432
Sept	26.5	147.3	324,650	$6.66	$2,162,169
Oct-Nov	13.0	72.2	159,263	$6.89	$1,097,322
Dec	5.2	28.9	63,705	$10.54	$671,450
TOTAL	100.0	555.7			$8,307,337

Source: Dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System. Note; Sum of columns do not equal total column due to rounding

Table 4.42 Potential General Category Gross Revenues from Base Quotas under Alternative G2a (12 Equal Monthly Subquotas)

Time Period	General Category Quota (%)	Current Annual Base Quota Equivalent (mt)	Current Annual Base Quota Equivalent (lb)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Jan-Mar	25	138.9	306,274	$6.93	$2,122,478

Time Period	General Category Quota (%)	Current Annual Base Quota Equivalent (mt)	Current Annual Base Quota Equivalent (lb)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Apr-May	16.7	92.6	204,183	$6.67*	$1,361,900
Jun-Aug	25	138.9	306,274	$6.41	$1,963,216
Sept	8.3	46.3	102,091	$6.66	$679,926
Oct-Nov	16.7	92.6	204,183	$6.89	$1,406,820
Dec	8.3	46.3	102,091	$10.54	$1,076,039
TOTAL	100.0	555.7			$8,610,379

* Assumed, based on January and Jun-Aug average prices.

Source: Dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System. Note; Sum of columns do not equal total column due to rounding

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

This alternative would allow landings in the January through March time period to continue until the subquota is reached, or until April 30, whichever comes first. This alternative is similar to an alternative that was considered, but not selected, in the 2011 Environmental Assessment for a Rule to Adjust the Atlantic Bluefin Tuna General and Harpoon Category, i.e., to extend the "January" subquota time period through May 31 rather than through January 31st, which was the end date of that subperiod at the time. Table 4.43 shows the January through March subquotas, landings, and closure dates from 2015 through 2019. During three of those five years, the fishery closed prior to March 31, and the adjusted quota was higher than the base quotas (via inseason adjustments to increase the quota and provide additional fishing opportunity).

Table 4.43 General category January through March fishery subquotas, landings, and closure dates

Metric	2015	2016	2017	2018	2019
Base quota (mt)	24.7	24.7	24.7	24.7	29.5
Adjusted quota (mt)	42.4	49	81	49	100

Metric	2015	2016	2017	2018	2019
Landings (mt)	31.4	51.3	108.1	59.3	108.9
Closure date	March 31	March 31	March 29	March 2	February 28

Source: NMFS HMS

Ecological Impacts

The ecological impacts of this alternative would be neutral because it would not modify the ICCAT-recommended quota for bluefin quota, nor the U.S. portion of that quota. The impacts on other finfish species would be minimal (e.g., other tuna species). In 2020, ICCAT adopted Rec. 20-06, which rolled over the current TAC for 2020; provided for a 2021 stock assessment that would incorporate the most recent available data, including any new abundance indices; and specified TAC levels for 2022 and 2023 that would address overfishing based on the 2020 stock assessment update and management scenario 3 therein, unless ICCAT decides otherwise based on new SCRS advice. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending overfishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Chapter 3 provides additional information on the relevant bluefin quotas. Alternative G2b may result in a shift in annual bluefin landings, both temporally (into April) and geographically to the South (i.e., off the mid- and south Atlantic states of North Carolina, South Carolina, Georgia, and the Florida East Coast). However, the number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment. These temporal and spatial shifts in landings could result in a slight decrease or increase in discards, or the incidental catch of other finfish. However, given the limited amount of bycatch of other finfish in the fishery. NOAA Fisheries does not expect any adverse ecological impacts. In the past, when a similar management alternative was proposed, a member of the public expressed concerns about the impacts on pre-spawning bluefin aggregations, but no adverse impacts were noted in the impacts analysis (NMFS, December 2011).

See Table 11.6 in Appendix B, for General category January-March fishery quotas, landings, and closure dates. Although it would depend greatly on the adjusted subquota, weather conditions and bluefin availability, NOAA Fisheries estimates that the General category fishery would remain open less than two weeks beyond the current March 31, 2019, default closure date, based on recent and expected bluefin catch rates. For further

information/analyses regarding commercial handgear interactions with other finfish, see Section 3.5 of this EIS and Sections 3.8 and 3.9.9 of the Consolidated HMS FMP. Alternative G2b would be expected to broaden the range of data available for scientific research, although the scope by which data would broaden may be relatively small, depending on availability of large medium and giant bluefin beyond March 31 of each year.

Socioeconomic Impacts

Alternative G2b would increase the likelihood of winter General category participants and Charter/Headboat participants, when fishing commercially, being able to catch the full January subquota, particularly if the NOAA Fisheries increases the January-March subquota via an inseason transfer. Thus, impacts would be minor, and neutral or beneficial for General category participants fishing in the January through March period. To the extent that less unused quota might roll forward to later periods, impacts for General category participants fishing in the later time periods would be minor, and neutral to adverse.

Potential annual gross revenues would be $449,964 (Table 4.41), the same as for the No Action Alternative, but in the context of this alternative would be applicable for fishing that takes place from January 1 until April 30 or until the available quota for that period is met, whichever happens first.

A potential increase in the geographic and temporal distribution of landings may facilitate approaching optimum yield. However, increases in positive socioeconomic impacts would depend on the availability of bluefin to the fishery from the beginning of April until the available subquota (base or adjusted, as applicable) is reached. Price per pound is also influenced by the amount of bluefin on the market. Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish (2018 HMS Cost/Earnings Study; Chapter 3). NOAA Fisheries estimates the value of an unused metric tons of January-March subquota, using the January-March 2019 average price per pound of $6.93, at $15,277. To the extent that this alternative would increase the likelihood that the full January subquota will be caught, it would increase the likelihood of increased revenue for the January subquota period. As shown in Table 4.41 the value of the 2019 January-March base subquota is estimated at $449,964 assuming full catch.

The likelihood of the economic benefits described above being realized may not be high. Depending on how quickly the available January subquota is used (based on closure dates in the last few years: no closure in 2015 or 2016; closure on March 29, 2017, March 2, 2018, and February 28, 2019), there may not be General category fishing activity in part or all of March or in April due to catch of the subquota (Table 4.43). During the months of January through May, bluefin tend to be located off the mid- and south Atlantic states of North Carolina, South Carolina, Georgia, and the Florida East Coast.

4.7.3 Alternatives Suite G3: Modify General category subquota allocation percentages

This alternative would modify the current bluefin category quota allocations outlined at §635.27(a)(1). Sub-alternatives would increase the January through March and/or the fall subquotas (September, October through November) amounts and decrease the June through August amount. In addition to the data below under each sub-alternative, there is relevant data on the General category fishery presented in the introduction to Alternative G1. Appendix B also contains summarized historical data on the General category fishery.

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

This alternative would increase the January through March suballocation from 5.3 percent to up to 15 percent and decrease all the other suballocations for the remainder of the year proportionally (to achieve the corresponding increase for the January through March subquota period). For example, the proportional decreases would be as follows: the June through August suballocation from 50 to as low as 44.9 percent; the September suballocation from 26.5 to as low as 23.8 percent; the October through November suballocation from 13 to as low as 11.7 percent; and the December suballocation from 5.2 to as low as 4.7 percent. Table 4.44 shows potential annual gross revenues per time period under Alternative G3a.

Ecological Impacts

The ecological impacts of this alternative would be neutral because it would not modify the ICCAT-recommended quota for bluefin, nor the U.S. portion of that quota. In 2020, ICCAT adopted Rec. 20-06, which rolled over the current TAC for 2020; provided for a 2021 stock assessment that would incorporate the most recent available data, including any new abundance indices; and specified TAC levels for 2022 and 2023 that would address overfishing based on the 2020 stock assessment update and management scenario 3 analyzed therein, unless ICCAT decides otherwise based on new SCRS advice. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending overfishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Chapter 3 provides additional information on the relevant bluefin quotas. Alternative G3a may result in a shift in annual bluefin landings, both temporally (to the first quota subperiod) and geographically to the South (i.e., off the mid- and south Atlantic states of North Carolina, South Carolina, Georgia, and the Florida East Coast). However, the number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment. These temporal and spatial shifts

in landings could result in a slight decrease or increase in discards, and incidental catch of other finfish. However, given the limited nature of this alternative, which would effectively provide less quota to the January through March period than the amount of adjusted quota available (following inseason quota transfers from the Reserve category) for this time period over the last three years, NOAA Fisheries does not expect any adverse ecological impacts. Under this alternative, there would continue to be no General category activity during the months of April and May on an annual basis.

Socioeconomic Impacts

For the purpose of illustration, Table 4.44 shows data associated with the high ends of the possible ranges (i.e., 15 percent for a January quota allocation of "up to 15%," etc.) In 2015 and 2016, June through August subperiod landings were less than the base subquota. For the years 2017, 2018, and 2019, June through August subperiod landings exceeded the available base subquota quota (following accounting for all landings) and NOAA Fisheries did not transfer any additional quota from the Reserve category to the General category for use in that subperiod. If there is a future pattern of underutilization of the June through August subquota, and that quota is made available to January through March period (and bluefin are landed against the January through March subquota), it would potentially result in improved and fuller use of the General category quota. Also, because bluefin price per pound is often higher in the January period than during the summer, shifting quota to this earlier period may result in net minor beneficial impacts to General category participants. It is possible, however, that an increase of bluefin on the market in the January through March period could reduce the average price for that time of year. Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish (2018 HMS Cost/Earnings Study; Chapter 3). Some participants may have concerns about shifting subquota earlier in the year, given that historical participants in the General category bluefin fishing areas off New England fish during the summer months.

NOAA Fisheries notes though that any unused subquota from the adjusted January through March period would "roll" forward to the June through August period, and if any subquota is unused, it would roll forward thereafter. Overall, impacts would be expected to be neutral-to-minor, beneficial for January through March fishery participants and neutral to minor, adverse for participants in the June through December time periods. Based on the average ex-vessel prices in Table 4.44, the January-March subquota period would have an increased revenue of $ 823,520 (180% increase over current level of $ 449,964). However, the amount of net revenue generated on an annual level by such a shift would be only $18,702 (less than one percent; Table 4.41), because other subquota periods would have reductions in revenue. Each of the subquota periods with reduced quotas would have a reduction in revenue of ten percent. The likelihood of realizing potential net revenue is uncertain, and may result in increased uncertainty in the fishery. This alternative may further increase the amount of bluefin landed per vessel (landing bluefin) for the January to March subquota period, which is already the highest, and thus may be less equitable based on that metric.

Table 4.44 Potential General Category Gross Revenues from Base Quotas under Alternative G3a (Increase January through March amount and Reduce All Others)

Time Period	General Category Quota (%)	Current Annual Base Quota Equivalent (mt*)	Current Annual Base Quota Equivalent (lb*)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Jan-Mar	15	83.4	183,764	$6.93	$1,273,484
Apr-May	N/A	N/A	N/A	N/A	N/A
Jun-Aug	44.9	249.4	549,806	$6.41	$3,524,256
September	23.8	132.2	291,397	$6.66	$1,940,704
Oct-Nov	11.7	64.8	142,949	$6.89	$984,918
December	4.7	25.9	57,180	$10.54	$602,677
TOTAL	100.0	555.7			$8,326,039

Source: Dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System. Totals are subject to rounding error Note; Sum of columns do not equal total column due to rounding

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

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

Ecological Impacts

The ecological impacts of this alternative would be neutral, because it would not modify the ICCAT-recommended quota for bluefin, nor the U.S. portion of that quota.The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns

about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending ovefishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Alternative G3b may result in a shift in annual bluefin landings temporally (to later in the fishing year) but not as much geographically (i.e., summer and fall fishing activity typically take place off New England). The number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment. These temporal shifts in landings could result in a slight decrease or increase in protected resource interactions, discards, and incidental catch of other finfish. However, given the limited nature of this alternative, which would effectively provide less quota to the June through August period and more to the fall periods, NOAA Fisheries does not expect any adverse ecological impacts. Under this alternative, there would continue to be no General category activity during the months of April and May on an annual basis.

Socioeconomic Impacts

Table 4.45 shows potential annual gross revenues per time period under Alternative G3b. For the purpose of illustration, Table 4.45 shows data associated with the high ends of the possible ranges in reductions or increases, i.e., 43.1 percent for a September quota allocation of "up to 43.1%," etc. The June through August subquota period would have a 50-percent decrease in revenue; the September quota period would have a 63-percent increase in revenue and the October-November subquota period would have a 65-percent increase in revenue compared to the No Action Alternative. As shown in Table 11.6 in Appendix B, in 2015 through 2019, September subperiod landings have exceeded the available base or adjusted quotas.

To the extent that quota that is anticipated to be unused in the first part of the summer season is made available to General category participants for the September and October through November periods and bluefin are landed against those subquotas, it would potentially result in improved and fuller use of the General category quota. In the last three years however, the June through August base subquota has been exceeded (following inseason quota transfers from the Reserve), and the fishery for that time period was closed in 2017 and 2019 prior to August 31. Also, because bluefin price per pound is often higher in the September and October through November periods than during the June through August period, shifting quota to these later periods would result in beneficial impacts to fall General category participants. It is possible, however, that an increase of bluefin on the market in the fall periods could reduce the average price for that time of year. Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish (2018 HMS Cost/Earnings Study; Chapter 3). Participants in the summer fishery who may only have access to bluefin at that time may have concerns about shifting subquota into the fall. However, summer and fall participants are largely the same. Additionally, any unused quota from the June through August subperiod rolls forward to subsequent periods.

Overall, impacts would be expected to be neutral-to slightly beneficial for September through November fishery participants, and neutral to slightly adverse impacts for participants in the June through August time periods. The net increase in revenue compared to the No Action Alternative would be $ 100,237, which is only one percent ($8,407,574 - $8,307,337). Further, there is a risk in shifting quota allocation to later periods in the fishing year that the full General category quota may not be reached, depending on fishing conditions and bluefin availability on the fishing grounds.

Table 4.45 Potential General Category Gross Revenues from Base Quotas under Alternative G3b (Increase the September and the October through November amounts and Decrease June through August amount)

Time Period	General Category Quota (G3b) (%)	Current Annual Base Quota Equivalent (mt*)	Current Annual Base Quota Equivalent (lb*)	Average Ex-Vessel Price per Pound (2017-2019)	Potential Annual Gross Revenues
Jan-Mar	5.3	29.5	64,930	$6.93	$449,964
Apr-May	N/A	N/A	N/A	N/A	N/A
Jun-Aug	25	138.9	306,274	$6.41	$1,963,216
September	43.1	239.5	528,016	$6.66	$3,516,586
Oct-Nov	21.4	118.9	262,171	$6.89	$1,806,358
December	5.2	28.9	63,705	$10.54	$671,450
TOTAL	100	555.7			$8,407,574

Source: Dealer data from the Atlantic Coastal Cooperative Statistics Program's Standard Atlantic Fisheries Information System. Note; Sum of columns do not equal total column due to rounding

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

This alternative is directly associated with Alternatives F5 and F6 - Discontinue Purse Seine category fishery and reallocate quota. Any increases of General category quota resulting

from Alternatives F5 and F6 would be applied to the September, and the October through November subquota periods. Based on current relative size of the September and October through November percentages to each other, the quota from the Purse Seine category would be divided proportionally between the September, and the October through November subquota periods, which would result in the September subquota period receiving about twice as much as the October through November subquota period.

This alternative would narrow the scope of any increases applicable to the General category quota to the September and the October through November subquota period Both General category fall fishing activity typically and Purse Seine activity (through 2015) take place off New England.

If the amount reallocated from the Purse Seine category to the General category was 219.5 mt (see Table 4.28, Table 4.29), then a proportional division of the 219.5 mt between the September and the October through November subquota periods (based on current relative size of the September and October through November percentages to each other) would be 147.3 mt and 72.2 mt, respectively. However, if 75 percent of the Purse Seine category quota is reallocated (i.e., 164.6 mt), then the proportional division to the September and to the October through November subquota periods would be 110.4 mt and 54.2 mt, respectively.

Ecological Impacts

The ecological impacts of this alternative would be neutral because it would not modify the ICCAT-recommended quota for bluefin, nor the U.S. portion of that quota. In 2020, ICCAT adopted Rec. 20-06, which rolled over the current TAC for 2020; provided for a 2021 stock assessment that would incorporate the most recent available data, including any new abundance indices; and specified TAC levels for 2022 and 2023 that would address overfishing based on the 2020 stock assessment update and management scenario 3 analyzed therein, unless ICCAT decides otherwise based on new SCRS advice. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending overfishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Chapter 3 provides additional information on the relevant bluefin quotas. Alternative G3c may result in a shift in annual bluefin landings temporally (to later in the fishing year) but not geographically (fishing activity would remain off New England). The number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment since both are directed categories that use commercial quotas. Temporal shifts in landings could result in a slight decrease or increase in incidental catch of other finfish, but the impacts would be neutral. The handgear used within the General category and purse seine gear are both classified as Category III under

the Marine Mammal Protection Act, with "remote likelihood of serious injury or known incidental mortality to marine mammals." Therefore, the shift of bluefin quota from the Purse Seine category to the General category would have no change in effect on protected species. It is also important to note that since implementation of Amendment 7, most of the annual Purse Seine quota has been reallocated to the Reserve, where it was available for transfer to other categories. The General category has received the majority of this quota since 2015. Although pelagic longline gear is classified as Category I under the Marine Mammal Protection Act, the amount of bluefin quota increase under this alternative would be very small and not likely to result in any increase in fishing effort or any adverse impact on marine mammals.

Socioeconomic Impacts

Under Alternative G3c, impacts would be neutral-to-moderate, and beneficial. An additional 110.4 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 147.3 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category September period could result in additional potential annual gross revenues of over $1.6 million (110.4 mt x $6.66 per pound) or $2.2 million (147.3 mt x $6.66 per pound), respectively. An additional 54.2 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 72.2 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category October-November period could result in additional potential annual gross revenues of over $823,000 (54.2 mt x $6.89 per pound) or $1.1 million (72.2 mt x $6.89 per pound), respectively. Seasonal and temporal (annual) variations in the landings can have notable effects on the market price of commercially available fish (2018 HMS Cost/Earnings Study; Chapter 3).

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

4.8.1 Alternative H1: Maintain Angling Category trophy areas and allocations (percentages) - No Action

This alternative would maintain the current Angling category subquota areas and allocations. Currently defined suballocations (percentages) of the Angling category quota for school, large school/small medium, and trophy bluefin would remain (*see* Table 3.8), and there would continue to be equal subdivision of the Trophy category quota for the current North, South, and Gulf of Mexico areas.

Specifically, under the current regulations, no more than 2.3 percent (currently 5.3 mt) of the annual Angling category bluefin quota (currently 232.4 mt) may be large medium (73" - < 81" curved fork length) or giant (81" or greater) ("trophy") bluefin. The trophy subquota is divided equally (i.e., 1.8 mt each) among three geographic areas: North of 39°18′ N Lat. (off Great Egg Inlet, NJ); south of 39°18′ N Lat., and outside of the Gulf of Mexico; and the Gulf of Mexico.

From year to year, the proportion of northern trophy landings varies between New England and the northern mid-Atlantic states (New York and the northern portion of New Jersey). In the last four years (2016 through 2019), the northern area Trophy fishery has closed on August 6, August 11, July 26, and June 27, respectively. Prior to that, the last time the northern area closed was July 29, 2011. In 2018, approximately 58 percent of northern area trophy bluefin were landed in New Jersey or New York, with the remaining 42 percent landed in New England states, and in 2019, all of the northern area trophy bluefin landings occurred in New Jersey.

Ecological Impacts

The ecological impacts of the No Action Alternative would be neutral because it would not modify the annual ICCAT recommended bluefin quota, nor the U.S. portion of that quota. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending ovefishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Also, there would be no expected change in fishing behavior. The number of bluefin impacted by the trophy fishery is small. For example, the current northern trophy subquota (1.8 mt) represents approximately 11 average-weight large medium/giants, based on an average weight of a recreationally- caught large medium or giant bluefin in the northern area in 2019 of 350 pounds. Note, there is substantial variability of weight of this size fish depending on age and location and factors involving feeding and reproduction.

Socioeconomic Impacts

The socioeconomic impact of the No Action Alternative is expected to be neutral, or minor adverse, vary by geographic area, and be dependent on availability of trophy-sized bluefin on the fishing grounds. The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Communities in the Gulf of Mexico and the Atlantic would be impacted by this alternative. If the pattern of high activity off northern New Jersey and New York continues, fishermen in those states may have greater opportunities to land a bluefin and participants in New England states may have little-to-no opportunity to land a bluefin when the fish are in their area as the northern trophy fishery may already be closed for the year. For Angling and Charter/Headboat fishermen, based on the last two years, there would be direct, short-term, beneficial social impacts in the northern mid-Atlantic states and direct, short-term, adverse impacts for participants north of that area, including New England states. For charter vessels, which sell fishing trips to recreational fishermen, economic impacts are expected to be neutral to beneficial for those in the northern mid-Atlantic states and neutral to adverse for those north of that area, including New England states, as the opportunity to land a trophy bluefin may be diminished (if the fishery is closed when the

bluefin are off New England). Although the concern about reduced economic opportunity for Angling category participants is not relevant as there is no sale of tunas by Angling category participants, angler satisfaction could be reduced. There could be minor impacts on businesses associated with the recreational fishery (Angling category) if the number of trips taken by Angling category participants is reduced as a result of a lack of opportunity to catch trophy bluefin. Given that the current northern area trophy bluefin subquota of 1.8 mt represents approximately 11 individual fish, impacts are expected to be minor. For the Angling category overall, impacts of Alternative H1 would be minor, direct, short-term, and adverse.

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

This preferred alternative would modify the current Angling category Trophy North subquota areas and allocations specified at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° N. Lat. (off Chatham, MA); these newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively, as shown in Figure 2.6. The net result would be that the Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each of the four areas would receive the same amount of quota (i.e., the Angling category trophy quota would be divided equally four ways).

To create the new trophy suballocation for the Gulf of Maine trophy area, NOAA Fisheries would increase the portion of the Angling category quota allocated for trophy bluefin from its current level of 2.3 percent to 3.1 percent. Because the amount of school bluefin (27" - < 47") is limited in the codified regulations (and in compliance with the ICCAT bluefin recommendation), to no more than 10 percent of the annual U.S. bluefin tuna quota, any increase to the trophy subquota would need to be balanced with an equivalent reduction of the subquota for large school/small medium bluefin subquota (47" - < 73"), which is the remainder of the Angling category quota once the school bluefin subquota and trophy subquotas are subtracted. This shift in the relative amounts of trophy bluefin and large school/small medium bluefin would result in a minor decrease in the amount of allocation for large school/small medium bluefin (measuring 47 - < 73"). Recent Angling category quotas and retention limits are summarized in Table 3.10 and Table 3.11.

Specifically, under the *current* Angling category quota, the trophy quota would increase from 5.4 mt to 7.2 mt, and each area would be allocated 1.8 mt. This would allow annually up to 11 trophy bluefin to be landed in the new zone north of 42° N Lat. (the Gulf of Maine trophy area), using an average weight of approximately 360 pounds. At an average 2018 weight of approximately 132 pounds for large school/small medium bluefin, this represents a reduction of approximately 30 fish from the large school/small medium size class annually. NOAA Fisheries would not expect fishing behavior to change much as a result of this alternative, however there could be a slight increase in the number of trips to target trophy fish. There is already targeted recreational effort in that area for bluefin measuring less than 73".

Combining this alternative with other alternatives affecting IBQ allocations

Table 4.46 below, shows the allocations for each category, expressed as a percentage and metric tons, that would be implemented based on the combination of the preferred quota alternatives (F1b, F2b, F4, and H2): F1b (modification of the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category); F2b (discontinuation of the Purse Seine category and reallocation of the quota upon implementation of Amendment 13); F4 (reallocation of the Purse Seine category quota to directed categories only); and H2 (modification of the Angling category allocations).

Table 4.46 The new allocations (% and mt) for each category based on reallocation of the Purse Seine category quota for Alternatives F4 (reallocate to directed categories only) and underlying calculations

Category	Annual Baseline Quotas and Subquotas				
	Quotas		Subquotas		
	Allocation (%)	Quota (mt)	Time Period or Other Subdivision and Method	Subquota (mt)	
General	55.8	696.3			
			January-March (5.3% of General category quota)	36.9	
			June-August (50% of General category quota)	348.2	
			September (26.5% of General category quota)	184.5	
			October-November (13% of General category quota)	90.5	
			December (5.2% of General category quota)	36.2	
Harpoon	4.6	57.4			
Longline	13.1	163.5			
Trap	0.1	1.2			
Angling	23.3	290.8			
			School (10% percent of the annual U.S. bluefin tuna quota, including 25 mt for NED)	127.3	
			Reserve (18.5% of school subquota)		23.7
			North of 39°18' N. Lat. (47.2% of school subquota minus school reserve subquota)		48.9
			South of 39°18' N. Lat. (52.8% of school subquota minus school reserve subquota)		54.7
			Large School/Small Medium (Angling category quota minus Trophy and School subquotas)	154.5	
			North of 39°18' N. Lat. (47.2% of large school/small medium subquota)		72.9

Category	Annual Baseline Quotas and Subquotas				
	Quotas		Subquotas		
			South of 39°18' N. Lat. (52.8% of large school/small medium subquota)		81.6
			Trophy (3.1% of Angling category quota)	9.0	
			Gulf of Maine, i.e., north of 42° N. Lat. (25% of Trophy subquota)		2.3
			Southern New England, i.e., south of 42° N. Lat. and north of 39°18' N Lat. (25% of Trophy subquota)		2.3
			South, i.e., south of 39°18' N. Lat.,outside the Gulf of Mexico (25% of Trophy subquota)		2.3
			Gulf of Mexico (25% of Trophy subquota)		2.3
Reserve	3.0	37.4[1]			
U.S. Baseline Quota		1,247.86[2]			
Total U.S. Quota, including 25 mt for NED (Longline)		1,272.86[2]			

Note; Sum of columns do not equal total column due to rounding.
1 Baseline amount shown does not reflect the annual quota allocation process (for the Purse Seine and Reserve category quotas) adopted in Amendment 7 and codified in the regulations.
2 Totals subject to imprecision due to rounding

Ecological Impacts

Ecological impacts on bluefin would be expected to be neutral, as the effect of this measure would be to convert a small number of potential discards of large medium and giant bluefin to potential landings, and slightly fewer landings of large school/small medium bluefin. The conversion of this amount of large school/small medium bluefin quota to large medium/giant quota, and the removal of this number of adults is unlikely to have meaningful impact on the stock.

Socioeconomic Impacts

The affected Atlantic Tunas Longline permit holders and businesses related to the fishery are likely to be affiliated with various coastal communities. Communities in the Gulf of Mexico and the Atlantic would be impacted by this alternative. Under current regulations, the entire northern area trophy subquota could be filled by bluefin caught in the northern mid-Atlantic area, thus precluding any opportunities for the incidental catch and retention of trophy-sized bluefin in New England. This alternative would allow annually up to 11

trophy bluefin to be landed in the new zone north of 42° N Lat. (the Gulf of Maine trophy area), using an average weight of approximately 360 pounds.

There would be minor, beneficial social impacts (and economic impacts for charter vessels) for a few vessels in the new zone north of 42° N Lat. (the Gulf of Maine trophy area) resulting from the small amount of fish that would be allowed to be landed. HMS Charter/Headboat category owners and operators have commented over the years that the ability to attract customers with the opportunity to retain a trophy bluefin is important, even if few are ultimately landed. They indicate that the opportunity to catch trophy bluefin is especially important if the General category is closed due to a time period subquota being met. Their premise is that New England charters are more reliant on bluefin than those that operate further south (such as off the Middle and South Atlantic U.S. coast) where there are more numerous target species. NOAA Fisheries has also received comments about the importance of trophy opportunities for tournaments as well.

There would be neutral to minor, adverse social impacts (and economic impacts for charter vessels) for those fishing for large school/small medium bluefin due to the slight reduction in allocation for those size classes. However, this would depend on whether quota is reallocated from the Purse Seine quota (see F alternatives) and whether or not NOAA Fisheries modifies daily retention limits inseason for large school/small medium bluefin based on available quota. Changes to daily retention limits as a result of this action would be unlikely given the very small amount of quota that would be converted to trophy-sized bluefin and the fact that NOAA Fisheries typically adjusts daily retention limits for 27-<73" bluefin once annually in the spring with no further adjustments inseason. This alternative would make NMFS management of the trophy fishery slightly more complex, and likely add an additional inseason closure (i.e., closure of the Gulf of Maine trophy area). Overall, NOAA Fisheries anticipates minor, beneficial social and economic impacts from Alternative H2.

Rationale for Selecting the Preferred Alternative

The ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. In contrast to the current trophy fishery management system, whereby bluefin caught off either New England or the upper portion of the Mid-Atlantic count towards a single trophy subquota, this alternative would implement a trophy subquota exclusively for bluefin caught off New England (generally north of Cape Cod). Because this alternative would ensure opportunities for the incidental catch and retention of trophy-sized bluefin in New England and continued opportunities elsewhere, Alternative H2 is preferred at this time.

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

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

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

This preferred alternative would maintain the current authorized gears applicable to the Atlantic tunas permit categories (§635.19(b)). For example, vessels permitted in the HMS Charter/Headboat category would be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for authorized recreational catch of non-bluefin tunas, and vessels permitted in the General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. In 2008, NOAA Fisheries proposed authorization of harpoon gear for Atlantic tunas fishing by HMS Charter/Headboat category permitted vessels on all trips, but did not finalize it. This decision was based on the relative lack of public support, and the concerns raised by NOAA Fisheries and the public, which included bycatch, enforcement, safety, and bluefin stock status issues.

Ecological Impacts

Ecological impacts under Preferred Alternative I1a would be neutral. Harpoon use is currently authorized only for vessels permitted in the Atlantic Tunas General and Harpoon categories. Of the 2,612 fish landed by General category vessels in 2019, 125 (less than 5 percent) were reported as harpooned.

HMS Charter/Headboat category permitted vessels may currently fish under the Atlantic Tunas General category regulations and may fill the daily retention limit for either the Atlantic Tunas General or the HMS Angling category. The size category of the first bluefin retained determines the fishing category applicable to the vessel that day. For example, if a charter/headboat catches and retains a school, large school, or small medium bluefin (measuring 27 to less than 73" curved fork length), the vessel may not retain a commercial-sized bluefin (measuring 73" or greater) for sale. HMS Charter/Headboat category permitted vessels are allowed one trophy bluefin per year, which cannot be sold, and the vessel operators may sell commercial-sized bluefin only when fishing under the Atlantic Tunas General category regulations. Other than for the Harpoon category, dart harpoon use currently is authorized only as a secondary gear (i.e., as cockpit gear) to assist in subduing, or bringing onboard a vessel Atlantic HMS that have been first caught or captured using authorized primary gears.

Impacts of handgear used to fish for Atlantic tunas under the Atlantic Tunas General category and Harpoon categories are described in full in the 2006 Consolidated HMS FMP (NMFS 2006). Harpoon gear is selective gear that is used to capture only one large pelagic fish (primarily bluefin but also swordfish) at a time. Bycatch and bycatch mortality by commercial handgear is considered to be low, particularly for harpoons, which are thrown individually at a fish, determined by the fisherman to be greater than the minimum

commercial size. As discussed in Chapter 3, there is no information or evidence of interactions between harpoon users targeting Atlantic tunas and threatened or endangered sea turtles, marine mammals, or other protected resources. The harpoon fishery is a Category III fishery under the Marine Mammal Protection Act, i.e., one with remote likelihood of serious injury or mortality to marine mammals.

Socioeconomic Impacts

As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels (2019 SAFE, 2020). Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. The affected General and Charter/Headboat category permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

Preferred Alternative I1a would have neutral impacts on permitted HMS Charter/Headboat vessels, which could continue to fish under the Atlantic Tunas General and Angling category regulations using existing authorized gear, and neutral impacts on Atlantic Tunas General category permitted vessels. Total Atlantic Tunas General category revenues, which included sale of commercial-sized bluefin by HMS Charter/Headboat category permitted vessels, for the 2019 fishing year were approximately $3.7 million. Atlantic Tunas General category revenues for 2019 were approximately $8.3 million.

As shown in Chapter 3 and Table 11.3 in Appendix B, General category annual bluefin base quotas have been reached for the last five years. As a percentage of adjusted General category quota (adjusted for roll-over from previous year and reallocation from Purse Seine category), landings were 95.1 percent in 2015, 110.9 percent in 2016, 101 percent in 2017, and 95.7 percent in 2018, and 99.3 percent (preliminary) in 2019. As discussed above and under Alternative A1c, less than 5 percent of General category landings resulted from harpoon gear use.

Rationale for Selection of Preferred Alternative

The ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. This alternative would have neutral ecological impacts and maintain the current list of authorized gears for bluefin rather than expanding gear authorizations. The Preferred sub-alternative I1a would be less complex than Alternative I1b, which would involve more complex reporting required to monitoring harpoon-caught bluefin. Further, there has been a lack of public support for this concept due to concerns about safety of the use of harpoon gear in the context of a charter/headboat business and other concerns (see discussion under sub-alternative I1b). Lastly, in recent years the General category has fully caught its quota, which does not support the assertion that there

is a need to expand opportunities by authorizing an additional gear. For these reasons, Alternative I1a is preferred at this time.

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

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

Sub-Alternative I1b would authorize harpoon gear for the commercial catch of Atlantic tunas, including bluefin, for HMS Charter/Headboat permitted vessels. While fishing under the rules that apply when filling the Atlantic Tunas General category bluefin retention limit, HMS Charter/Headboat permitted vessels would be able to use harpoon gear to fish for and retain bluefin greater than 73" Curved Fork Length (CFL). These Charter/Headboat vessels may currently fish under the Atlantic Tunas General category regulations and may fill the daily retention limit for either the Atlantic Tunas General or the Angling category.

Since 2007, NOAA Fisheries has received comments from HMS AP members about potential rulemaking to authorize harpoon use for HMS Charter/Headboat permitted vessels. Comments supporting the authorization generally centered on maximizing fishing opportunities within current quotas. Maximizing fishing opportunities is important for harpoon gear because harpoon fishing is limited by the need for good weather conditions, and availability of bluefin in the surface waters. Providing fishermen the flexibility of gear choice would increase opportunities to fish in response to variable fish behavior and conditions on the water. Landings data and information from fishermen indicate that there are times when the feeding behavior of commercial sized bluefin makes hooking a fish difficult. Authorization of the use of harpoon gear by Charter/Headboat vessels would not significantly increase competition among HMS Charter/Headboat vessels or Harpoon category participants, because very few vessel owners would make the large capital investment to outfit their vessels to use harpoon gear while fishing under an HMS Charter/Headboat permit. Some commenters supported further limiting the number of bluefin that could be landed using harpoon gear and sold, or requiring removal of the pulpit for charter trips. Comments opposing the authorization generally centered around the need for a more precautionary approach in regard to the bluefin fishery. For example, some expressed concern contending that new measures promoting flexibility should not be adopted in the name of quota utilization, given that recent quota utilization has been relatively high; the concern the action could lead to greater effort and thus shorter seasons and lower retention limits for HMS Charter/Headboat vessels; and the concern that the action could lead to disruption by new harpooners of Harpoon category fishing activities, and/or dilution of the historical HMS Charter/Headboat business by historical harpooners (contradicting the rationale NOAA Fisheries used in establishing a separate HMS Charter/Headboat permit).

This alternative could be further split into sub-alternatives that would allow harpoon gear use on all types of charter/headboat trips or limit harpoon use to non-for-hire trips only. As defined at 50 CFR 635.2, "for-hire trip" means a recreational fishing trip taken by a vessel with an Atlantic HMS Charter/Headboat permit during which paying passenger(s) are aboard; or, for uninspected vessels, trips during which there are more than three persons aboard, including operator and crew; or, for vessels that have been issued a Certificate of Inspection by the U.S. Coast Guard to carry passengers for hire, trips during which there are more persons aboard than the number of crew specified on the vessel's Certificate of Inspection. In the 2008 rule on this subject, it was NOAA Fisheries' understanding that, due to safety and liability concerns, only vessel captain and crew would be involved in harpoon fishing, i.e., no other passengers would be offered the opportunity to use the gear. Harpoon gear is not authorized for recreational fishing (i.e., under the Angling category permit or applicable fishing regulations). Therefore, if the authorization were to be restricted to non-for-hire trips only, there should be no incentive to harpoon a recreational sized fish (27" - < 73") as such activity would be illegal and as paid charter passengers, who would seek recreational fishing opportunities, would not be present. With effort focused on commercial-sized bluefin, bycatch of undersized fish and associated fish mortality would be expected to be minimal, particularly as the size of bluefin targeted by for-hire charter/headboat vessels fall within the school and large school bluefin size classes (i.e., 27 - <59").

Ecological Impacts

Overall, ecological impacts are expected to be neutral. However, there continue to be concerns about potential increases in bycatch mortality due to selective discarding of legal sized fish, in anticipation of catching larger or higher quality fish ('high grading'); or if fish under the commercial size are harpooned and released due to size restrictions.

Available data from HMS dealer reports indicate that, for Atlantic tunas fishing, harpoon gear is used almost exclusively to target bluefin. Since 2015, only two BAYS tuna (bigeye, albacore, yellowfin, and skipjack tuna) have been reported and were yellowfin tuna captured on the same trip. This alternative would not change the number or size of bluefin allowed to be retained on a HMS Charter/Headboat permitted vessel, but would provide HMS Charter/Headboat fishermen the opportunity to use harpoon gear in filling the Atlantic Tunas General category daily retention limit.

General category bluefin landings would continue to be restricted through the existing quota and retention limits. This alternative would not be expected to result in an expanded geographic area of harpoon use for bluefin, which has historically been off New England, and primarily on the fishing grounds off Massachusetts, New Hampshire, and Maine. Therefore, authorization of harpoon gear in the HMS Charter/Headboat permitted vessels would not be expected to have ecological impacts beyond those previously analyzed in the Consolidated HMS FMP and in the 2018 bluefin quota rule EA.

Socioeconomic impacts

As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels (2019 SAFE, 2020). Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. The affected General and Charter/Headboat permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

Sub-Alternative I1b (allow use of harpoon gear on HMS Charter/Headboat permitted vessels) would have minor, beneficial social and economic impacts, specifically for those vessels that have success in harpooning bluefin that may be available at the water's surface. To the extent that a fisherman could harpoon bluefin at the surface when the fish are present at the water surface, Alternative I1b could increase the potential of filling the General category bluefin daily retention limit and of gaining more ex-vessel revenue per trip. However, NOAA Fisheries anticipates that the number of bluefin that would be caught with harpoon gear by HMS Charter/Headboat permitted vessels is very low. Use of harpoon gear typically involves installation of a pulpit to the bow of the vessel (and the associated investment of money to do so) and requires a certain degree of skill. Comments made to NOAA Fisheries since 2007 reinforce the notion that the ability to harpoon a bluefin will not necessarily lead to a substantial increase in incidences of a bluefin being caught with harpoon gear on HMS Charter/Headboat permitted vessels. Alternative I1b may have slightly negative social and economic impacts for existing HMS Charter/Headboat operators due to the potential for Atlantic Tunas General or Harpoon permit holders to change to the HMS Charter/Headboat permit, potentially increasing competition among HMS Charter/Headboat businesses.

Sub-Alternative I1b would be consistent with a NOAA Fisheries action taken in the 1999 FMP (NMFS 1999), which expanded the list of gear types authorized for HMS Charter/Headboat permitted vessels to include bandit gear (which was already authorized for use by Atlantic Tunas General category permitted vessels) as part of an effort to achieve consistency in HMS regulations. This alternative would provide consistency in the regulations regarding authorized handgear used historically for commercial catch of bluefin, and would increase opportunities for commercial handgear fishermen to attain the bluefin Atlantic Tunas General category quota.

It should be noted that the expanded flexibility for gear use under this alternative and the associated expanded fishing opportunities may be in conflict with recent fishery conditions. Specifically, because of various factors, NOAA Fisheries has needed to reduce or maintain a lower retention limit in recent years in order to extend fishing opportunities throughout the General category subquota time periods and season overall. Such contrasting elements

in the management system complicate management, and constitute a slightly adverse impact.

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

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

Ecological Impacts

Overall, ecological impacts are expected to be neutral. To the extent that there could be lower harpoon effort as a result of Sub-Alternative I1c, there may be reduced mortality particularly of small medium bluefin (measuring 59-<73”), although a substantive change is not likely, due to the selectivity of harpoon gear. Based on anecdotal information, experienced harpoon fishers are able to estimate fish size fairly effectively, so the mortality of bluefin less than legal size (73”) is minimal. Any impacts associated with reduced bycatch mortality would be minor and beneficial. However, this could be reduced by additional entrants into the Harpoon category and greater effort in the Harpoon category. General category bluefin landings would continue to be restricted through the existing quota and retention limits. This alternative would not be expected to result in a reduced geographic area of harpoon use for bluefin, i.e., off New England.

Socioeconomic impacts

As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels (2019 SAFE, 2020). Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. The affected General and Charter/Headboat category permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

Sub-Alternative I1c would result in minor, adverse impacts because it would reduce flexibility for harpoon fisherman and could reduce efficiency in catching the General category quota. Although NOAA Fisheries has received comments from General category (quota) participants that harpoon activity fills the available General category quota more quickly, thus reducing opportunities for rod and reel fishermen, an examination of 2019 General category landings data show that 125 fish (less than 5 percent of the 2,612 fish landed by General category vessels) were reported as harpooned. Table 4.47 shows annual landings under the General category quota and participation using harpoon gear for 2015 through 2019.

Table 4.47 Annual bluefin landings under the General category and participation using harpoon gear, 2015 through 2019

Year	General category harpoon landings (mt)	Number of General category vessels participating in fishery with harpoon
2015	33.4	34
2016	26.5	33
2017	37.3	28
2018	17.2	28
2019	16	30

Source: SAFIS

If harpoon gear use in the General category were prohibited and the fish that had been caught by vessels using harpoon gear were instead caught by rod and reel gear, there would be a shift in revenue to General category participants using rod and reel gear. Based on an average June through August ex-vessel General category price per pound of $5.12 and a 366-pounds average General category fish weight for rod-and-reel caught bluefin, the estimate of this potential increase in revenue is $234,240 for the General category (quota) participants using rod-and-reel gear (i.e., including Charter/Headboat permitted vessels with a commercial sale endorsement landing bluefin commercially). For General category quota participants using harpoon gear, with an average June through August ex-vessel price per pound of $5.84 and a 280-pounds average fish weight, the inability to land this amount of fish could represent a $164,979 loss in revenue. Some of the comments received on this issue point to the fact that harpooners have the ability to fish in the Harpoon category, with its own dedicated quota. To the extent that harpoon vessels instead obtain a Harpoon category permit, (which is allowable under current rules) and fish with harpoon gear in that category, some or all of the revenue loss may be recouped.

4.9.2 Alternatives Suite I2: Harpoon category daily retention limit

The current regulations at §635.23(d) allow persons aboard a vessel permitted in the Atlantic Tunas Harpoon category to retain, possess, or land an unlimited number of giant bluefin per day (measuring 81" curved fork length or greater). An incidental catch of two large medium bluefin per vessel per day may be retained, possessed, or landed (the 'default' limit), unless the retention limits are increased by NOAA Fisheries through an inseason adjustment to a maximum of four, large medium bluefin per vessel per day, based upon the criteria under §635.27(a)(8). Harpoon category landings are highly variable within and across years, and depend on access to commercial-sized bluefin and fishing conditions, among other factors.

As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels (2019 SAFE, 2020). Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. The affected General and Charter/Headboat category permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

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

This alternative would maintain the current Harpoon category retention limit regulations: an unlimited number of giant bluefin per day (measuring 81" curved fork length or greater), and two large medium bluefin per vessel per day (measuring 73 to less than 81" curved fork length), unless the large medium bluefin retention limit is increased by NOAA Fisheries through an inseason adjustment to a maximum of four per vessel per day, based upon the criteria under § 635.27(a)(8).

Ecological Impacts

Sub-Alternative I2a would result in neutral ecological impacts. If no action is taken to restrict the overall number of bluefin that can be retained, possessed, and landed per trip or day, Harpoon category participants would continue to have the ability to retain and land up to two large medium fish per vessel per day (and up to four if set through inseason action), as well as unlimited giants. This alternative would not change the amount of the Harpoon category quota. Table 4.48 shows Harpoon category data for 2018 and 2019, including information that illustrates the relative amount of large medium and giant bluefin landed and on how many trips large medium fish were landed.

Table 4.48 Harpoon category landings and trip information for 2018 and 2019

Metric	2018	2019
Permitted Harpoon category vessels	21	20
Bluefin landed (total)	157	737
Giant bluefin landed	130 (83%)	501 (68%)
Large medium bluefin landed	27 (17%)	236 (32%)
Successful trips (trips landing at least 1 bluefin)	84	251
Trips landing 0 large medium fish	63	56
Trips landing 1 large medium fish	15	73
Trips landing 2 large medium fish	6	111
Total landings	26.6 mt	102.4
Harpoon quota	46 mt	91 mt
Percentage of Harpoon quota landed	58%	113%

Harpoon category participants have commented over the years that it is common for schools to be composed of bluefin of different size classes, so fishing on schools of giant bluefin exclusively is difficult. Under Alternative I2a, NOAA Fisheries anticipates direct, short-term, neutral to minor, adverse biological impacts. The adverse impacts resulting from discarding large medium bluefin is likely very minimal, based on past data. For example, there were only 11 trips in 2019 on which more than two large medium (the default retention limit) were landed, which indicates it was not necessary for most vessels to release a bluefin of that size to stay within the daily retention limit of large mediums.

Socioeconomic Impacts

The economic impact of the No Action Alternative is expected to be neutral to minor adverse as participants would continue to be limited to the default of two large medium bluefin (and maximum of four if NOAA Fisheries were to make an inseason adjustment) if caught while targeting giant bluefin. In 2019, large medium bluefin comprised 45 percent of Harpoon category landings, with the remaining 55 percent giants. Of the Harpoon category trips on which at least one bluefin was landed, 42 percent landed only large mediums, 35 percent landed large mediums and giants, and 22 percent landed only giants. Twenty-nine percent of 2019 Harpoon category trips landed only 1 bluefin; 28 percent landed 2 fish; 14 percent landed 3 fish; 24 percent landed 4-8 fish; and 5 percent landed 9 or more fish. Harpoon category revenues for 2015-2019 are shown in Table 4.49.

Table 4.49 Annual Harpoon category ex-vessel revenues, 2015-2019

Year	Average Price per Pound Round Weight	Landings (mt)	Annual ex-vessel revenues
2015	$4.84	43.7	$466,527
2016	$8.14	26.4	$474,513
2017	$6.43	44.3	$628,835
2018	$7.05	26.1	$405,545
2019	$5.37	102.4	$1,210,904

Source: SAFIS

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

This alternative would set an overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip: a combined 10 fish limit of large medium (73” - < 81”) and giant (81” or greater). It would maintain the current regulations regarding

retention of large medium bluefin (73” - < 81”): a range of two (default) to four fish, adjustable through inseason action.

Ecological Impacts

If NOAA Fisheries changes the regulations to implement an overall daily limit (a “cap”) of 10 commercial- sized (> 73”) bluefin per day, and if under the default large medium limit, two fish were landed, then operationally the limit on giant bluefin would be eight fish. If no large medium were landed then the vessel could land up to 10 giant bluefin. The impact of this alternative would be neutral overall, because it would not change the Harpoon category subquota or the U.S. portion of the ICCAT recommended bluefin quota. The status of the stock after the 2020 stock assessment update remained “no overfishing occurring/rebuilding status unknown.” Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in biomass for 2021 than a TAC with a 50% chance of ending ovefishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has underharvested its overall quota over the past several years. Availability of large mediums, inseason retention limits, and adjustments to the subquota through inseason transfers are variables that can affect Harpoon category fishing. In 2019, only 2 percent of Harpoon category trips landed 10 or more bluefin. Few trips are likely to be impacted by the imposition of a 10 fish limit. The alternative may result in the removal of a lower number of bluefin than the status quo. To the extent that the implementation of a lower retention limit might decrease effort within the Harpoon category, there could be a slight reduction in the catch of small medium bluefin (measuring 59” - < 73”)., therefore NOAA Fisheries does not expect meaningful changes in fishing effort or behavior as a result of this Harpoon category alternative, or any meaningful impact on the size distribution of bluefin caught or the number of bluefin discarded.

Although few data are available, it is believed that the selective nature of harpoon gear has minimal impact on discards or interactions with non-target species. Harpooners are able to sight fish to recognize bluefin based on their behaviors, size, shape, and coloration, and distinguish them from non-bluefin species.

Socioeconomic Impacts

This alternative would have overall neutral impacts as a result of a few trips being constrained by a ten-fish limit (adverse), but also a potentially longer Harpoon category season (beneficial). On a per-trip basis, impacts would depend on several factors including bluefin fishing conditions and availability, the large medium retention limit (two if default but up to four through inseason action), and ex-vessel price, which is subject to numerous factors including fish handling and quality and market saturation. That said, NOAA Fisheries anticipates that some impacts would be direct, short-term, minor, and adverse. Based on the number of successful 2019 trips, NOAA Fisheries can estimate potential impacts of this change by determining the number of trips on which more than 10 bluefin

were landed and assuming that those fish would not be able to be landed under this alternative. Using 2019 successful trip data, if the daily limit was set at 10 bluefin, the revenue from up to 10 bluefin would be foregone for the season. Note, in this estimate 10 is the total number of bluefin landed from trips landing over 10 fish (not to be confused with the 10 fish limit). At an average 2019 weight of 306 pounds and an average price of $5.37 per pound for the Harpoon category, a loss of one to 10 fish would be approximately $1,640 to $16,402 for the Harpoon category as a whole for the year. Using average of 2017-2019 price data (an average of $6.28 for the Harpoon category), the range of potential revenue loss would be $1,922 to $19,220 for the year.

Because recent Harpoon category prices have been higher in June than July or August, potentially negative socioeconomic impacts are possible at the beginning of the season by capping landings, but limiting catch could also extend fishing opportunities to a greater number of participants and reduce the need for premature closure of the season. Since 2000 and until 2019, NOAA Fisheries has not needed to close the Harpoon category due to the subquota being met. However, a closure of the Harpoon category happened in 2019 and may happen again, depending on the subquota available (including through inseason transfers from the Reserve category) and the number of Harpoon category participants (65 FR 40538, June 30, 2000). NOAA Fisheries closed the 2019 Harpoon category fishery effective August 8, 2019, when the adjusted quota of 91 mt was met; Harpoon landings for 2019 totaled approximately 102 mt (84 FR 39208, August 9, 2019). Positive short-term impacts could result from the additional fishing opportunities associated with a longer season.

Rationale for Selection of Preferred Alternative

The ecological and socioeconomic impacts of this alternative are consistent with the objectives of this Amendment. Because the ecological impacts would be neutral and this alternative could result in extension of fishing opportunities to a greater number of Harpoon category participants and avoid premature fishery closure, as well as in consideration of the quota likely to be available to the Harpoon category fishery, Alternative I2b is preferred at this time.

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

This alternative would set an overall daily limit of 10 commercial-sized bluefin per day or trip: a combined 10-fish limit of large medium (73” - < 81”) and giant (81” or greater). It would maintain the *default* large medium bluefin limit at two fish but allow NOAA Fisheries, through inseason action, to change the daily retention limit over a range of zero to five fish per day or trip (instead of the current two to four fish range). For example, if NOAA Fisheries were to set the Harpoon category limit on large medium bluefin to five (via inseason action), then no more than five giant bluefin could be kept in that same day or trip, such that the total does not exceed 10 fish.

Ecological Impacts

The impacts of Sub-Alternative I2c would be very similar to those for I2b (neutral). Because more large medium bluefin could potentially be allowed (e.g., five versus four if adjusted inseason), there could be slightly more effort on fish of that size class and in turn there could be a slight increase in the number of undersized fish caught (measuring 59 to less than 73") if effort on small medium fish increases. NOAA Fisheries does not anticipate any meaningful impact on the size distribution of bluefin caught or the number of bluefin discarded.

Socioeconomic Impacts

The impacts of Sub-Alternative I2c would be very similar to those for I2b (neutral), except the large medium retention limit would be two (default) but up to five through inseason action (rather than four). Theoretically, it is possible that a higher limit of large mediums (five) would result in less potential for landing giants per day or trip (in the context of an overall limit of 10 fish), and ex-vessel revenues could be decreased relative to Alternative I2b due to less overall weight of fish sold (all other things equal, such as shape, meat quality, etc.). The likelihood of such a change in revenue is low, due to the low likelihood of a trip scenario where the retention of five large medium fish would limit the ability for the vessel to retain giant bluefin.

4.9.3 Alternatives Suite I3: Harpoon category season

Under §635.27(a)(5), the Harpoon category fishery annually commences on June 1 and closes November 15. As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels (2019 SAFE, 2020). Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. The affected Charter/Headboat category permit holders and businesses related to the fishery are likely to be affiliated with various coast communities. A vulnerability analysis of the principal communities associated with the handgear fishery is in Chapter 8. These communities are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

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

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

Ecological Impacts

If no action is taken to modify the Harpoon category season start dates, ecological impacts would be neutral. There would be no Harpoon category activity prior to June 1 on an annual basis.

Socioeconomic Impacts

This alternative may have both minor beneficial and adverse, social and economic impacts. The net effect would be minor beneficial impacts. The beneficial impacts could be attributed to the Harpoon category season remaining consistent with prior years, i.e., participants would continue to have the potential to catch the same percentage of the quota and earn the equivalent share of total ex-vessel revenues. The Harpoon and General category seasons starting together would facilitate enforcement and business planning, and provide greater certainty to participants regarding opportunities, participation/effort, and potential impact on market prices. To the extent that bluefin may be available to harpoon gear prior to June 1, there could be adverse impacts due to lost harvesting opportunities and the potential for better ex-vessel prices when there may be fewer fish on the market, particularly from the General category, which would not begin until June 1. To the extent that opportunities could extend deeper into the summer, more Harpoon category participants could benefit. It is possible that the No Action Alternative would have some adverse socioeconomic impacts on fishermen, dealers, and the support industries located in New England, where harpoon use has historically occurred, primarily on the fishing grounds off Massachusetts, New Hampshire, and Maine. Under the No Action alternative, Harpoon category participants have not filled their adjusted quotas in three of the last five years (see Table 11.3 in Appendix B), but, conversely in 2019, NOAA Fisheries closed the Harpoon category relatively early (August 8).

Rationale for Selection of Preferred Alternative

Based on its ecological and socioeconomic impacts, this alternative would best meet the objective of facilitating the ability for the HMS directed permit categories to catch their full bluefin quota allocation (and would be consistent with the other objectives of this Amendment). The ecological impacts would be neutral, and likely lower than for Alternative I3b. There would be a net slightly beneficial impact. Although either adverse or beneficial impacts are anticipated, depending upon bluefin availability, weather, and other variables affecting the Harpoon category fishery, maintaining the Harpoon category and General category both on June 1 may facilitate enforcement and business planning; and provide greater certainty to participants regarding the level of fishing opportunity and effort and their potential impacts on market prices. Lastly, the current length of the Harpoon category season corresponds to the relative size of the bluefin quota likely to be available to the Harpoon category fishery. For these reasons, Alternative I3a is preferred at this time.

4.9.3.2 Sub-Alternative I3b: Lengthen Harpoon category season

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

Ecological Impacts

This alternative would have neutral ecological impacts. Although it would add an additional month to the Harpoon category season, as a practical matter the, it may lengthen the period of Harpoon category activity by less than a few weeks, as Harpoon fishing activity is likely to be limited by weather conditions and availability of large medium and giant bluefin to the fishery (in surface waters) during the month of May.

Sub-Alternative I3b may result in a slight shift in bluefin landings, both temporally (to earlier in the season) and potentially geographically to the South (but still off New England). However, the number of bluefin caught from the large medium and giant size classes would remain consistent with the levels of bluefin mortality used in the stock assessment. If fishing effort were to increase in association with the increase in season length, there could be a slight increase in the number of undersized bluefin (or swordfish) killed. However, given the limited nature of this alternative, which would likely effectively extend the period of time that the Harpoon category would be active by less than a few weeks, NOAA Fisheries does not expect any adverse ecological impacts, the impacts would be neutral. Alternative I3b would be expected to broaden the range of data available for scientific research, although the scope by which data would broaden may be relatively small, depending on availability of large medium and giant bluefin during the month of May each year.

Socioeconomic Impacts

Sub-Alternative I3b would increase the likelihood of Harpoon category participants being able to catch the full Harpoon category quota and thus would have minor, beneficial and adverse impacts. An increase in optimum yield may result from a potential increase in the geographic and temporal distribution of landings. Increases in positive socioeconomic impacts would depend on the availability of bluefin to the fishery from the beginning of May until the Harpoon category quota (base or adjusted, as applicable) is reached. Recently, the price for Harpoon category bluefin has been higher in June than later in the season, so an earlier start date could be beneficial, although price per pound is also influenced by the amount of bluefin on the market. The value of an unused metric ton of Harpoon category landings is estimated at $11,838 using the 2019 average ex-vessel price of $5.37 per pound, and $13,845 using the average 2017-2019 price ($6.28). While there would be minor, beneficial impacts for the Harpoon category, there may be increased uncertainty in the bluefin market because of the Harpoon category beginning one month earlier than the General category fishery. This uncertainty would be the result of questions that are difficult to answer such as how the presence of harpoon-caught fish on the market

during May would impact prices or demand; and if a harpoon fishery during May would affect bluefin availability to the fishery after May.

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

NOAA Fisheries regulations stipulate that permit holders may only change the category of their open access permit within 45 days of permit issuance, and only if they have not landed a bluefin tuna. This requirement was put in place to keep permit holders from fishing in more than one Atlantic tunas permit category during the calendar year. NOAA Fisheries received approximately 50 requests from 2017-2019, or an average of 17 per year, for permit holders to change open access permit categories during the fishing (calendar) year. In most cases, these requests appeared to be the result of permit holders selecting the wrong permit during online permit application or renewal, and the majority of requests involve the General, Angling and Charter/Headboat categories. When a user requests a permit change, NOAA Fisheries personnel query landings and permit data to ensure that the two criteria are met before issuing a new permit.

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

This alternative would maintain the current requirement that gives permit holders 45 days to change their Atlantic tunas or HMS permit category as long as they have not landed a bluefin.

Ecological Impacts

The ecological impact of this alternative would be neutral, because it is administrative in nature and would not increase or decrease the amount of fishing effort in total outside of the handgear fisheries and does not affect the overall bluefin quota.

Socioeconomic Impacts

The socioeconomic impacts of this alternative are neutral because the number of permit holders impacted is so small, and any impacts of obtaining an annual permit in the wrong category are only for one fishing season. For a subset of these permit holders, the impact can be critically adverse, if an incorrect permit is obtained that prohibits a commercial fisherman from selling fish or a charter/headboat fisherman from taking paying passengers (e.g., a vessel owner mistakenly applying for Angling category permit instead of a General category permit). In these instances, the impact is adverse, but minimal on a fishery-wide basis.

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

This preferred alternative would extend the ability to change permit categories from 45 days to the full fishing year provided the vessel has not landed a bluefin.

Ecological Impacts

The ecological impacts of this alternative would be neutral for the same reasons provided under Sub-Alternative I4a.

Socioeconomic Impacts

The socioeconomic impacts of this alternative are neutral or slightly beneficial since the number of permit holders impacted is so small, and any impacts of obtaining an annual permit in the wrong category are only for one fishing season. For a subset of these permit holders, the impact of this alternative can be critically beneficial, if an incorrect permit is obtained that prohibits a commercial fisherman from selling fish or a charter/headboat fisherman from taking paying passengers (e.g., a vessel owner mistakenly applying for Angling category permit instead of a General category permit). In these instances, the impact is beneficial, but minimal on a fishery-wide basis.

Rationale for Selecting the Preferred Alternative

The alternative provides flexibility to vessel owners / permit holders to correct a mistakenly requested type of permit, and the ecological and sociological impacts are consistent with the objectives of this Amendment. Vessel owners who make an error by selecting a permit type that they subsequently realized they do not want, are not stuck with their error, but may obtain the desired permit type, with no ecological impact. Further, this alternative reduces the administrative burden to NOAA Fisheries.

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

These alternatives address the need to provide clarification on green-stick gear requirements for vessels authorized to fish with pelagic longline gear.

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

This alternative would make no changes to the current regulations concerning green-stick gear. Vessels authorized to fish with pelagic longline gear would not be permitted to retain bluefin caught with green-stick gear.

Ecological Impacts

The no action alternative would have neutral ecological impacts on bluefin, and other managed tuna species. Green-stick gear is not used by many permit holders, and the vast majority of catch by green-stick gear is yellowfin. A 2008 analysis of coastal and pelagic fishery logbooks, incorporated into the rulemaking that authorized green-stick gear, indicated that yellowfin and bluefin comprised 82 and 2 percent, respectively, of green-stick catch by number and weight. In comparison, analysis of more recent pelagic longline HMS logbook data collected since 2016 (Table 4.50) indicates that bluefin comprise 0.5 percent of the reported catch of Atlantic tunas catch (fish retained and discarded dead) from the use of green-stick gear. The low percentage for bluefin catch was the result of a single incident of a bluefin catch reported in 2017. Yellowfin comprised approximately 97 percent of the self-reported logbook. No albacore or bigeye were caught by pelagic longline vessels between 2016 and 2018. Skipjack comprised 2.51 percent of Atlantic tunas catch.

Table 4.50 Summary of Atlantic tunas landings (k) and discards (d) attributed to green-stick gear use by pelagic longline vessels, as reported in the HMS logbook (2016-2018)(numbers of fish)

Year	BET (k)	BET (d)	BFT (k)	BFT (d)	YFT (k)	YFT (d)	ALB (k)	ALB (d)	SKJ (k)	SKJ (d)
2015	0	0	0	0	0	0	0	0	0	0
2016	0	0	0	0	53	0	0	0	0	0
2017	0	0	1	0	59	38	0	0	2	15
2018	0	0	0	0	81	27	0	0	3	1
Total	0	0	1	0	193	65	0	0	5	16

Source: HMS Logbook Data; BET: Bigeye, BFT: Bluefin; YFT: Yellowfin; ALB: Albacore; SKJ: Skipjack.

Socioeconomic impacts

The socioeconomic impacts of the No Action Alternatives would be minor and adverse, as a result of maintaining the current regulations that preclude a pelagic longline vessel from retaining bluefin caught on green-stick gear. As shown above, very few bluefin tuna are captured on green-stick gear (Table 4.50). An analysis of self-reported logbook data from sets made with green-stick gear suggest that a small number of vessels use this gear (Table 4.51). The number of unique pelagic longline vessels that use green-stick gear has increased with time. There were no sets reported in 2015 that were attributed to the use of this gear type. In 2016, only a single pelagic longline vessel reported sets made with green-stick gear in the HMS logbook (Table 4.51). The majority of green-stick gear fishing effort occurred in the Gulf of Mexico by vessels that participate in the Deepwater Horizon OFRP since 2016. These vessels cannot use pelagic longline gear as a condition of the OFRP

program, and are prohibited from landing bluefin while participating in the project. Further, they must account for any dead discards with IBQ allocation. Given the rules of participation in the ORFP, the impact of this alternative on these vessels would likely be neutral.

Table 4.51 Data summary for pelagic longline vessels using green-stick gear: number of participants, landings data, and effort data (by year and across years)

Year	Total Number of Unique PLL Vessels that Reported Green-stick Set Data	Average Number of Green-Stick Atlantic Tunas* Kept per Vessel	Average Number of Green-Stick Sets Per Vessel
2016^	----	----	----
2017	8	8	35
2018	7	12	39
Summary (2016-2018)	12	17	47

Note: numbers rounded to the nearest whole number. *Yellowfin, bigeye, albacore, skipjack and bluefin. ^2016 data not shown to protect data confidentiality of fishery participants. Source: Logbooks.

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

Although green-stick gear is an authorized gear for incidental retention of bluefin, there are no retention limits specified, and the current regulations do not address whether permitted pelagic longline vessels must comply with requirements of the IBQ Program to incidentally retain and land bluefin caught with green-stick gear.* Therefore retention of bluefin cannot occur under normal pelagic longline fishing operations.
* *Regulations prior to 2015 authorizing green-stick gear use, specified adherence to target catch requirements applicable to Longline category incidental retention of bluefin. In 2015, Amendment 7 changed the regulations for Atlantic Tunas Longline category permit holders by removing the target catch requirements for bluefin retention, and instead specifying that incidentally-caught bluefin could only be retained in compliance with the IBQ Program requirements. Amendment 7 did not specify whether permitted pelagic longline vessels must comply with requirements of the IBQ Program to incidentally retain and land bluefin with green-stick gear.*

Because VMS set reporting, HMS logbook reporting requirements, and IBQ Program requirements, among other things, are required of vessels fishing under the Atlantic Tuna Longline permit, this alternative also clarifies that these requirements apply to use with green-stick gear. Vessels would be required to comply with HMS logbook requirements, and comply with the IBQ Program requirements regarding accounting for bluefin using IBQ

allocation, quarterly accountability, and other applicable regulations. Accordingly, under these circumstances, green-stick caught bluefin by vessels authorized to fish with pelagic longline gear would be accounted for against the Longline category quota. The electronic monitoring requirements would not apply to such trips because pelagic longline gear would not be onboard the vessel.

Under this alternative, NOAA Fisheries specifies that green-stick gear may only be used if pelagic longline gear is not onboard. Allowing retention of green-stick caught bluefin only if pelagic longline gear is not onboard may simplify enforcement and simplify reporting and monitoring.

Ecological Impacts

This alternative would have neutral ecological impacts, because it would not change the annual, science-based bluefin quota and any bluefin catch by green-stick gear would be accounted for with IBQ allocation. Furthermore, the amount of fishing effort with green-stick gear is expected to be extremely small due to the limited interest in using this gear type, and catch of any species is low compared to pelagic longline gear. Between 2016-2018, only one vessel has used both green-stick gear and pelagic longline gear in the same trip, and no bluefin were captured on that trip. Only one bluefin has been reported in the HMS logbook to be caught with green-stick gear by vessels also permitted to use longline. This bluefin was not caught by a vessel that used both types of gear on the same trip.

In general, indirect ecological impacts on target species or protected species are considered to be neutral because vessels that do use both types of gear typically do not deploy them on the same trip. The ecological effects of a requirement to only use one type of gear therefore largely mirrors current fishing behavior. Implementing this alternative is not anticipated to change the amount of effort exerted by the fishery, and therefore result in anticipated ecological impacts for these species that are different from the No Action Alternative.

Socioeconomic Impacts

This alternative is anticipated to have minor and adverse socioeconomic impacts to fishermen and neutral indirect socioeconomic impacts to supporting businesses. Only 12 pelagic longline vessels have fished with green-stick gear. An examination of pelagic longline logbook data suggests that since 2015, only one vessel deployed both green-stick gear and pelagic longline gear in a single trip (data not shown to protect confidentiality of business information), with yellowfin tuna constituting the primary landings from that trip. Most other fishermen fished either with pelagic longline gear or green-stick gear; therefore, restricting them to one option or another under this alternative would likely not change fishing practices for most vessels using green-stick gear. However this alternative would preclude the option to fish with green-stick while pelagic longline gear is on board, and thus not enhance flexibility in the fishery. The majority of green-stick gear fishing effort occurred in the Gulf of Mexico by vessels that participate in the OFRP. These vessels cannot use pelagic longline gear as a condition of the OFRP program. Recent data suggests little need for these vessels to have the ability to use both types of gear; however, once the OFRP

is over there might be future interest if these vessels go back to using pelagic longline gear. Vessels from the Atlantic (mostly from North Carolina) tended to also only use one type of gear at a time. Overall, across regions, there appears to be a very small number of fishermen wishing to use both gears. However, adding this restriction could limit the ability of those vessels to maximize their opportunity to catch yellowfin.

Because very few fishermen use both types of gear at the same time, restricting the fishery to only one type of gear is not anticipated to change the demand for additional pelagic longline gear or green-stick gear by permitted fishermen. Therefore, indirect socioeconomic impacts on supporting businesses that provide such gear are anticipated to be neutral.

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

This alternative clarifies retention and reporting requirements for bluefin caught with green-stick gear (by vessels with Longline category permits, regardless of whether pelagic longline gear is onboard), to allow the retention of one bluefin per trip (of 73" or greater CFL) and with additional regulations applying to such trips. Vessels would be required to submit a VMS set report for each green-stick retrieval *with interactions with bluefin*, and report information on the location of the set, and numbers and length of bluefin within 12 hours (in addition to the VMS reports for pelagic longline sets). Vessels must also comply with HMS logbook requirements, and comply with the IBQ Program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations.

NOAA Fisheries does not intend for this alternative to require purchase of new EM equipment, or reconfiguration of existing EM equipment. If pelagic longline gear is onboard, vessels must comply with EM requirements (to continue monitoring the retrieval of longline sets with the EM System) and other regulations that are triggered by the presence of pelagic longline gear. Bluefin caught with pelagic longline gear must be recorded with the EM System. Since green-stick gear is not connected to the hydraulics (which trigger EM equipment operation), fish captured with green-stick gear are not required to be recorded by EM equipment.

Ecological Impacts

This alternative would have neutral ecological impacts for the same reasons provided under Sub-Alternative I5b, Ecological Impacts paragraph 1. Clarifying the regulations ensures accountability and aligns reporting requirements for green-stick caught bluefin with the requirements for pelagic longline gear use, but is not expected to alter fishing effort of either green-stick or pelagic longline gear in a way that would impact bluefin.

Ecological impacts on other Atlantic HMS and on protected resources are anticipated to be neutral. Implementing this alternative is not anticipated to change the amount of effort exerted by vessels using green-stick or pelagic longline gear, and therefore result in

anticipated ecological impacts for these species that are different from the No Action Alternative.

Socioeconomic Impacts

In comparison to the No Action Alternative, this alternative would have minor, beneficial economic impacts because a vessel would be able to retain a legal-sized bluefin that may otherwise be discarded dead due to a *de facto* prohibition on bluefin retention. Retention of such fish would reduce waste, augment revenue, and reduce regulatory discards. Allowing the use of green-stick gear while pelagic longline gear is onboard is intended to provide vessel operators flexibility to employ fishing strategies with multiple gear types to optimize their business in a highly dynamic fishery.

Since very few fishermen use both types of gear at the same time, this alternative is not anticipated to change the demand for additional pelagic longline gear or green-stick gear by permitted fishermen. Therefore, indirect socioeconomic impacts on supporting businesses that provide such gear are anticipated to be neutral. The growth in the use of green-stick gear is constrained by capital investments involved in rigging a vessel. A green-stick rig with fiberglass pole and separate hydraulic haul-back capability was estimated to cost between $5,300 - $9,300 in 2008. Accounting for inflation and assuming no additional factors influencing price, these costs today could range from $6,266 to $10,995.

Rationale for Selecting the Preferred Alternative

Clarification of the regulations to allow the retention of a legal-sized bluefin caught using green-stick gear would reduce wasteful discards. Allowing such activity on a trip in which pelagic longline gear is also on the vessel would enhance flexibility for vessel operations in a high dynamic fishery. The neutral ecological and beneficial socioeconomic impacts are consistent with the objectives of this Amendment. This alternative would clarify reporting and monitoring requirements, but would not result in additional industry or agency resources to reconfigure EM systems. Clarifying the regulations to allow the retention of bluefin caught with green-stick gear is aligned with the original intent of the 2008 rule, which authorized its use to allow efficient catch of Atlantic tunas with gear that is low in bycatch and has low bycatch mortality. The 2008 rule required that such activity operate within existing quotas, size limits, or other established limitations. Dead discarding of bluefin (although expected to be a rare occurrence) may be reduced on pelagic longline trips where vessels elect to use green-stick gear to target yellowfin tuna compared to other alternatives which do not allow retention of incidentally caught bluefin from green-stick gear. Finally, the use of green-stick gear as an alternative gear may be facilitated, which is consistent with the 2008 rule that implemented green-stick gear use. Depending upon local fishery and market conditions, and vessel size and layout, there may be opportunities for efficiency by allowing the retention of a bluefin by green-stick gear while both gear types are on board a vessel.

4.10 Impacts on Bycatch

National Standard 9 states that conservation and management measures shall, to the extent practicable: (1) minimize bycatch; and (2) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch. The MSA defines bycatch as fish that are harvested in a fishery, but that are not sold or kept for personal use, and includes the discard of whole fish at sea or elsewhere, including economic discards and regulatory discards, and fishing mortality due to an encounter with fishing gear that does not result in capture of fish (i.e., unobserved fishing mortality). The priority under this standard is first to avoid catching bycatch species where practicable. Fish that are bycatch and cannot be avoided must, to the extent practicable, be returned to the sea alive. Any proposed conservation and management measure that does not give priority to avoiding the capture of bycatch species must be supported by appropriate analyses. This evaluation must consider the net benefits to the Nation, including various relevant factors. These factors include negative impacts on affected stocks, environmental consequences and impacts on other marine organisms; non-consumptive uses of bycatch species; income to participants in directed fisheries and incomes to participants in fisheries that target the bycatch species.

Bluefin tuna incidental catch and bycatch

For pelagic longline fishery, bluefin tuna are an incidental catch species that may be harvested and sold, consistent with regulatory restrictions. The preferred alternatives applicable to the pelagic longline fishery were designed to be consistent with Amendment 7 and the IBQ Program, both of which focused on reducing incidental catch and bycatch of bluefin. One of Amendment 7's primary objectives was to reduce dead discards of bluefin tuna. The first two objectives of the IBQ Program implemented by Amendment 7 were to "Limit the amount of bluefin landings and dead discards in the pelagic longline fishery" and "Provide strong incentives for the vessel owner and operator to avoid bluefin tuna interactions, and thus reduce bluefin dead discards." The preferred alternatives in this Amendment 13 DEIS are consistent with those objectives, and should continue the reduction in bluefin dead discards that began with Amendment 7.

Regarding the handgear fisheries that target bluefin tuna, the only bluefin bycatch associated with the handgear fisheries are regulatory discards of undersized fish. None of the Preferred alternatives include any aspects that would alter the bycatch associated with those fisheries.

Bycatch other than bluefin

The amount of non-bluefin bycatch impacts, such as undersized swordfish, prohibited sharks, or sea turtles, would not be impacted by any of the preferred alternatives in the pelagic longline fishery or the bluefin handgear fisheries. The preferred alternatives are not anticipated to affect ESA-listed species in any way not already analyzed under the existing Biological Opinions for HMS fisheries.

Chapter 3 (Affected Environment; Section 3.4) in this document contains a description of how the HMS fisheries address the statutory requirements to address bycatch and protected species; lists of specific methods used to reduce bycatch in the HMS commercial and recreational fisheries; and data on species caught as bycatch in the HMS fisheries.

4.11 Impacts on EFH

Section 303(a)(7) of the Magnuson-Stevens Act requires FMPs to address the effects of fishing on EFH and identify other actions to encourage the conservation and enhancement of EFH. In such HMS FMPs, NMFS must evaluate the potential adverse effects of fishing activities on EFH and must include in FMPs management measures that minimize adverse effects to the extent practicable. NMFS also must identify other activities that may adversely affect EFH and recommend actions to reduce or eliminate these effects.

Chapter 3 of this document (Affected Environment) contains Section 3.3, which describes EFH for HMS species. Because HMS fishing gear is fished in the water column and does not come in contact with the benthic environment (and does not alter the relevant habitat characteristics of the water column), the preferred alternatives are anticipated to have minimal to no impact on EFH for Atlantic HMS or for species managed under Council FMPs associated with the benthic environment. Thus, NMFS anticipates there are no adverse effects on EFH to address as a result of this action.

4.12 References

NMFS. 2011. Environmental Assessment, Regulatory Impact Review and Final Regulatory Flexibility Analysis for the Atlantic Bluefin Tuna General and Harpoon Category Regulations. NOAA, NMFS, Highly Migratory Species Management Division

NMFS. 2014. Final Amendment 7 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. NOAA, NMFS, Highly Migratory Species Management Division

NMFS. 2017. Catch Share Policy. NOAA, NMFS Policy 01-121. Silver Spring, Md.

NMFS. 2018. Environmental Assessment, Regulatory Impact Review and Final Regulatory Flexibility Analysis for the Atlantic Bluefin Tuna and Northern Albacore Quota Rule. NOAA, NMFS, Highly Migratory Species Management Division

NMFS. 2019. Three-Year Review of the Individual Bluefin Quota Program. NOAA, NMFS, Highly Migratory Species Management Division

NMFS. 2020. 2019 Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species. NOAA, NMFS, Highly Migratory Species Management Division

5 Cumulative Impacts

A cumulative effects assessment (CEA) is a required part of an EIS according to the Council on Environmental Quality (CEQ) regulations (40 CFR part 1508.7). Cumulative impacts are the impacts on the environment, which result from the incremental effects of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts include the total effect on a natural resource, ecosystem, or human community due to federal, non–federal, public, and private entities. Cumulative impacts may also include the effects of natural processes and events, depending on the specific resource.

The goal of this section is to describe the cumulative ecological, economic, and social impacts of past, present, and reasonably foreseeable future actions in association with the preferred alternatives presented in this document. CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action from every conceivable perspective but rather, the intent is to focus on those effects that are truly meaningful. This chapter serves to examine the potential direct and indirect effects of the alternatives in Amendment 13 together with past, present, and reasonably foreseeable future actions that affect the environment. It should also be noted that the predictions of potential synergistic effects from multiple actions, past, present and/or future will generally be qualitative in nature due to the difficulty in quantitatively analyzing the anticipated effects of such actions. In qualitatively describing impacts, the term 'valued ecosystem components' is used in NEPA analyses to categorize the types of impacts evaluated. As described in detail in the Affected Environment (Chapter 3), the valued ecosystem components considered in this cumulative impacts analysis are the following: bluefin tuna, other highly migratory species, Protected Species, Essential Fish Habitat, and the human community. The scope of the valued ecosystem components is a result of the geographic distribution of the HMS fishery and the gear types and fishing practices utilized in the fishery. The species caught by the fishery and the impacts of the fishery fall within the scope of the above ecosystem components. The temporal scope of the valued ecosystem components includes actions that have taken place since the adoption of the ICCAT rebuilding plan for bluefin tuna in 1998, but focuses on actions since 2006, when the Consolidated HMS FMP was implemented. The bluefin fishery is management pursuant to both ATCA and Magnuson-Stevens Act, and the context set by the rebuilding plan (1998) and FMP amendment (2006) provide a logical time period for the analysis.

5.1 Past, Present, and Reasonably Foreseeable Actions

Most of the past, present, and reasonably foreseeable actions contributing to the cumulative effects and considered in this chapter are fishery-related activities (e.g., Federal fishery management actions). These activities have fairly straightforward effects on environmental conditions, and were, are, or will be taken, in large part, to improve those

conditions. Important non fishery-related factors are also discussed below, as these factors combine with the fishery actions to affect the environment, including the human community.

Fishery-Related Actions

The geographic area potentially impacted by this action is the Federal Exclusive Economic Zone (EEZ) off the Atlantic and Gulf coasts of the United States. This broad area includes Atlantic HMS species and Council-managed species. Some examples of the Council-managed fisheries include: the Northeast scallop fishery; Northeast groundfish fishery; tilefish fishery; Gulf of Mexico reef fish fishery; Loligo and Illex squid trawl fisheries; shark bottom longline fishery; Atlantic dolphin/wahoo fishery; and various recreational fisheries. Many of these fisheries occur in the benthic or mid-water areas of the water column. The alternatives of this amendment address operations of the pelagic longline fishery and directed bluefin fisheries. Although these other fisheries operate in some of the same areas as the relevant HMS fisheries, minimal interactions occur between these Council-managed fisheries and the HMS fisheries. Some exceptions are coastal pelagic species such as dolphin and wahoo (South Atlantic Fishery Management Council). Pelagic longline gear and handgear targeting bluefin are fished high in the water column and are rarely used in the benthic to mid-water columns of the ocean, where the majority of the other fisheries' activities occur. Therefore, NOAA Fisheries has determined that the appropriate scope of the cumulative effects analysis is limited to fisheries and activities or actions that also affect the pelagic environment and habitats within the action area, primarily the directed tuna and swordfish fisheries and directed bluefin tuna fisheries that may also catch BAYS tunas or swordfish.

As discussed in Chapter 3, NOAA Fisheries has taken a number of actions in the past in order to, among other things, prevent overfishing and achieve, on a continuing basis, optimum yield and rebuild overfished fisheries. These actions have included Fishery Management Plans (FMPs), FMP amendments, and framework actions (https://www.fisheries.noaa.gov/atlantic-highly-migratory-species/atlantic-hms-fishery-management-plans-and-amendments). The goals and objectives of past rules are summarized in Chapter 3. As described in this document NOAA Fisheries currently is in the rulemaking process for the bluefin fisheries (Amendment 13), and can reasonably expect to implement regulations in the future to address the management and conservation of Atlantic tunas and swordfish in directed tuna or swordfish fisheries and in fisheries that catch tunas or swordfish. The purpose and need, and objectives of this amendment are described in earlier sections, particularly Chapter 1.0, and are not repeated here.

Recent major actions within HMS fisheries that may affect commercial and recreational HMS fishermen both directly and indirectly are listed below (Table 5.1). These fisheries are expected to be most affected by the proposed measures in Draft Amendment 13. A comprehensive list of all actions annually can be found in Chapter 1 of the 2019 SAFE Report (NMFS 2020).

Future actions that are anticipated include inseason actions such as those supporting management of the commercial bluefin fishery, similar to those listed in Table 5.1. The International Commission for the Conservation of Atlantic Tunas (ICCAT) is next scheduled to assess the western Atlantic bluefin stock in 2021. A new TAC could be expected in late 2021 as part of a new recommendation following consideration of SCRS advice on stock status, or changes to the TAC could be adopted pursuant to Rec. 20-06's endorsement of TACs for 2022 and 2023 that would address overfishing consistent with management scenario 3 in the 2020 stock assessment update if new scientific advice does not warrant different action. New measures or changes to the ICCAT conservation and management program for bluefin tuna may require future domestic rulemaking consistent with ATCA and the Magnuson-Stevens Act.

International Management

Atlantic tunas, including bluefin tuna, are managed federally under the dual authority of the Magnuson-Stevens Act and ATCA, which authorizes the Secretary to promulgate regulations as may be necessary and appropriate to implement recommendations of ICCAT. ICCAT is an inter-governmental fishery organization responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and its adjacent seas. ICCAT adopts management measures (called "recommendations") for tunas and tuna-like species based on scientific advice. Those recommendations are binding on parties, including the United States, and address aspects of fishery management such as quotas, minimum sizes, trade restrictions, statistical documents, vessel lists, etc. ICCAT also compiles fishery statistics from its members and from entities fishing for these species in the Atlantic Ocean and coordinates research, including stock assessments, on behalf of its members. Thus, ICCAT's management actions contribute to the cumulative effects considered here. The preferred alternatives listed in this document are consistent with the active ICCAT recommendations

Non Fishery Related Factors

Activities that have meaningful effects on the ecosystem components include the introduction of chemical pollutants, sewage, changes in water temperature, salinity, dissolved oxygen, and suspended sediment into the marine environment. Broad categories activities that cause such changes to the marine environment (i.e., habitat for HMS species) include, but are not limited to, dredging, filling, excavation, mining, impoundment, discharge, water diversions, thermal additions, actions that contribute to non-point source pollution and sedimentation, introduction of potentially hazardous materials, introduction of exotic species, and the conversion of aquatic habitat that may eliminate, diminish, or disrupt the functions of Essential Fish Habitat (NMFS, 2017). These activities pose a risk to all of the ecosystem components in the long term. Wherever these activities co-occur, they are likely to work additively or synergistically to decrease habitat quality and, as such, may indirectly constrain the sustainability of the managed resources, non-target species, and protected resources. Decreased habitat suitability would tend to reduce the tolerance of these ecosystem components to the impacts of fishing effort. A discussion of land-based and coastal and offshore activities that may affect HMS EFH is in section 5.2.1 of Amendment 10 (NMFS, 2017).

Climate Change

The warming of the climate system is unequivocal. In a recent report, the Intergovernmental Panel on Climate Change (IPCC) of the United Nations Environment Program noted many impacts to the marine environment due to climate change (IPCC, 2019. Special Report on the Ocean and Cryosphere in a Changing Climate), including increasing ocean temperature and hypoxia, declines in pH, increases in stratification, primary productivity and food web impacts, fish distributional changes, etc. The amount of information available on climate impacts to marine systems has increased substantially in recent years; however still, relatively little is known about impacts to Atlantic HMS, many of which have very broad thermal tolerances. It is difficult to predict climate-induced responses of marine fish populations, particularly those on a higher trophic level, due to exposure to a complex mix of changing abiotic (e.g., temperature, salinity, pH) and biotic (e.g., abundance and distribution of predators and prey) conditions (Hollowed et al. 2013) and inconsistent and incomplete data (Murawski 2013). Muhling et al. (2011) modeled a variety of climate change simulations in the Gulf of Mexico specifically to quantify potential effects of warming on the suitability of the Gulf of Mexico as a spawning ground for bluefin tuna. Model results showed that bluefin tuna were indeed likely to be vulnerable to climate change impacts with increasing water temperature, affecting spawning times and locations, as well as larval growth, feeding, and survival. NOAA Fisheries is taking several steps to address the potential impacts of climate change on managed resources, including the development of vulnerability assessments and a climate science strategy.

Deepwater-Horizon Oil Spill

On April 20, 2010, an explosion occurred on the Deepwater Horizon MC252 oil rig, resulting in the release of an estimated 4.9 million barrels of oil into the Gulf. The oil spill affected more than one-third of the Gulf area from western Louisiana east to the panhandle of Florida and south to the Campeche Bank in Mexico. The impacts of the Deepwater Horizon MC252 oil spill on the physical environment are expected to be significant and may be long-term. One concern is that the oil spill may have impacted spawning success of species that spawn in the summer months, either by reducing spawning activity or by reducing survival of the eggs and larvae. Effects on the physical environment, such as low oxygen, could lead to impacts on the ability of larvae and post-larvae to survive, even if they never encounter oil. In addition, effects of oil exposure may create sub-lethal effects on the eggs, larva, and early life stages. The stressors could potentially be additive, and each stressor may increase the susceptibility to the harmful effects of the other (Amendment 31, 2018; NOAA Fisheries).

As described in Chapter 3 of this document, during the time period of the spill, bluefin were migrating into the Gulf of Mexico to spawn. It was estimated that 2 to 5 trillion larval fish were killed. 20 billion to 100 billion large tunas were directly killed, with an estimated total injury of 1,000 to 4,000 mt. The Oceanic Fish Restoration Project (OFRP) was implemented to restore pelagic fish biomass through actions that were expected to reduce fish mortality from bycatch and regulatory discards in the portion of the U.S. Atlantic pelagic longline fishery operating in the Gulf of Mexico.

Table 5.1 Recent Actions within HMS Fisheries that May Affect HMS Fishermen Using Pelagic Longline Gear or Fishing For Bluefin Tuna

Federal Register Citation	Date	Rule or Notice
		2017
82 FR 3209	1/11/2017	Final rule; Atlantic HMS; technical amendment to regulations
82 FR 4856	1/17/2017	Notice of receipt of an application for Exempted Fishing Permit and availability of Draft Environmental Assessment for Pelagic Longline Research in East Florida Coast Closed Area
82 FR 10746	2/15/2017	Extension of comment period and announcement of public webinar for Exempted Fishing Permit application for pelagic longline research in East Florida Coast Closed Area
82 FR 12296	3/2/2017	Annual adjustment of Atlantic bluefin tuna Purse Seine and Reserve category quotas; inseason quota transfer of 45 mt from the Reserve category to the Longline category
82 FR 12747	3/7/2017	Inseason transfer of 40 mt of Atlantic bluefin tuna quota from the Reserve category to the General category and adjusted daily retention limit for March 5 – March 31
82 FR 14162	3/17/2017	Atlantic bluefin tuna Angling category southern Area trophy fishery closure March 20
82 FR 16136	4/3/2017	Atlantic bluefin tuna General category fishery closure March 29 – May 31
82 FR 16478	4/4/2017	Final Rule to Implement Amendment 5b to the 2006 Consolidated HMS Fishery Management Plan
82 FR 19615	4/28/2017	Atlantic bluefin tuna Angling category recreational daily retention limit adjustment April 30 – December 31
82 FR 22616	5/17/2017	Atlantic bluefin tuna General category fishery daily retention limit adjustment for June 1 - August 31
82 FR 26603	6/8/2017	Atlantic bluefin tuna Angling category Gulf of Mexico trophy fishery closure June 7
82 FR 36689	8/7/2017	Atlantic bluefin tuna General category fishery daily retention limit adjustment August 5 – December 31
82 FR 37566	8/11/2017	Issuance of exempted fishing permit and availability of final Environmental Assessment for pelagic longline research in East Florida Coast Closed Area
82 FR 37825	8/14/2017	Atlantic bluefin tuna Angling category northern area trophy fishery closure August 11
82 FR 38853	8/16/2017	Inseason transfer of 40 mt of Atlantic bluefin tuna quota from the Reserve category to the Harpoon category
82 FR 39047	8/17/2017	Atlantic bluefin tuna General category fishery closure August 16-31
82 FR 39735	8/22/2017	Proposed rule to establish quotas, opening dates, and retention limits for the 2018 Atlantic shark commercial fishing season
82 FR 41356	8/31/2017	Atlantic bluefin tuna General category fishery daily retention limit adjustment September 1 – December 31
82 FR 43500	9/18/2017	Adjustments to 2017 northern albacore quota, North and South Atlantic swordfish quotas, and Atlantic bluefin tuna Reserve category quota
82 FR 43711	9/19/2017	Atlantic bluefin tuna General category fishery closure September 17-30
82 FR 43710	9/19/2017	Notification that the Northeast Distant Gear Restricted Area (NED) quota is filled and Atlantic tunas Longline category individual bluefin quota accounting rules now apply in the NED
82 FR 46000	10/3/2017	Inseason transfer of 156.4 mt Atlantic bluefin tuna quota from the Reserve category to the General category
82 FR 46934	10/10/2017	Atlantic bluefin tuna General category fishery closure October 5 – November 30
82 FR 49303	10/25/2017	Proposed rule to modify individual bluefin tuna quota program regulations for accounting for bluefin tuna
82 FR 49773	10/27/2017	Proposed rule for an Atlantic HMS Charter/Headboat permit commercial sales provision
82 FR 55520	11/22/2017	Transfer of unused Atlantic bluefin tuna Harpoon category quota to the General category; General category fishery opens December 1 with 12.7 mt quota

Federal Register Citation	Date	Rule or Notice
82 FR 55512	11/22/2017	Final rule to establish quotas, opening dates, and retention limits for the 2018 Atlantic shark commercial fishing season
82 FR 57543	12/6/2017	Final rule for an Atlantic HMS Charter/Headboat permit commercial sales provision
82 FR 57885	12/8/2017	Atlantic bluefin tuna General category fishery closure December 6-31, 2017
82 FR 60680	12/22/2017	Inseason transfer of 14.3 mt from the General category December 2018 subquota period to the January 2018 subquota period
2018		
83 FR 8037	02/23/2018	Proposed rule to revise Atlantic shark fishery closure regulations
83 FR 8946	03/02/2018	Emergency interim final rule to address overfishing of Atlantic shortfin mako sharks
83 FR 8969	03/02/2018	Notice of intent for scoping of Atlantic bluefin tuna pelagic longline area-based and weak hook measures
83 FR 9232	03/05/2018	Transfer of 10 mt of Atlantic bluefin tuna quota from the Reserve category to the January 2018 subquota period and closure of the General category fishery for large medium and giant bluefin tuna until the General category reopens on June 1, 2018
83 FR 9255	03/05/02018	Notice of intent to prepare an environmental impact statement for shortfin mako shark management measures
83 FR 10802	03/13/2018	Blacktip shark, aggregated LCS, and hammerhead sharks western Gulf of Mexico sub-region closure
83 FR 12141	03/20/2018	Atlantic bluefin tuna Angling category southern area trophy fishery closure March 17 – December 31
83 FR 12332	03/21/2018	Re-scheduled scoping meeting
83 FR 17110	04/18/2018	Annual adjustment of bluefin tuna Purse Seine and Reserve category quotas; inseason quota transfer from the Reserve category to the Longline category for April 13 – December 31
83 FR 18230	04/26/2018	Atlantic bluefin tuna Angling category fishery daily retention limit adjustment April 26 – December 31
83 FR 21936	05/11/2018	Atlantic bluefin tuna General category fishery daily retention limit adjustment for June 1 – August 31
83 FR 22602	05/16/2018	Atlantic bluefin tuna Angling category Gulf of Mexico trophy fishery closure May 13 – December 31
83 FR 30884	7/2/2018	Swordfish general commercial permit retention limit adjustment July 1 – December 31, 2018
83 FR 31517	7/6/2018	Proposed rule for Atlantic bluefin tuna and northern albacore quotas; minor regulatory change to address shark-damaged tunas
83 FR 31677	7/9/2018	Final rule to revise Atlantic HMS shark fishery closure regulations
83 FR 33870	7/18/2018	Atlantic region commercial aggregated large coastal shark and hammerhead shark management groups retention limit adjustment July 18 – December 31
83 FR 35566	7/27/2018	Atlantic bluefin tuna Angling category northern area trophy fishery closure July 26
83 FR 35590	7/27/2018	Proposed rule for Amendment 11 to the 2006 Consolidated HMS Fishery Management Plan on Shortfin Mako Shark Management
83 FR 37446	8/1/2018	Adjustments to 2018 North and South Atlantic swordfish quotas
83 FR 38664	8/7/2018	Inseason transfer of 30 mt Atlantic bluefin tuna quota from the Reserve category to the Harpoon category
83 FR 42452	8/22/2018	Extension of emergency measures to address overfishing of Atlantic shortfin mako shark
83 FR 42607	8/23/2018	Atlantic bluefin tuna General category fishery daily retention limit adjustment August 23 – 31
83 FR 45866	9/11/2018	Proposed rule to establish quotas, opening dates, and retention limits for the 2019 Atlantic shark commercial fishing season
83 FR 47598	9/20/2018	Comment period extension for the proposed rule for Amendment 11 to the 2006 Consolidated HMS Fishery Management Plan on Shortfin Mako Shark Management
83 FR 47843	9/21/2018	Inseason transfer of 30 mt of Atlantic bluefin tuna quota from the Reserve category to the General category and closure of the General category fishery September 23 - 30

Federal Register Citation	Date	Rule or Notice
83 FR 50857	10/10/2018	Inseason transfer of 55 mt of Atlantic bluefin tuna quota from the Reserve category and Harpoon category to the General category and closure of the General category fishery October 5 – December 1
83 FR 51391	10/11/2018	Final rule for Atlantic bluefin tuna and northern albacore quotas; minor regulatory change to address predator-damaged tunas
83 FR 52169	10/16/2018	Atlantic bluefin tuna General category fishery reopening October 15 – 16
83 FR 55108	11/2/2018	Atlantic bluefin tuna General category fishery reopening October 31 – November 2
83 FR 57340	11/15/2018	Atlantic bluefin tuna General category fishery reopening November 12 – 16
83 FR 60777	11/27/2018	Final rule to establish quotas, opening dates, and retention limits for the 2019 Atlantic shark commercial fishing season
83 FR 62512	12/4/2018	inseason transfer of 129.2 mt of Atlantic bluefin tuna quota from the Reserve category to the General category, and 9.9 mt from the Harpoon category to the General category for the remainder of the 2018 fishing year
83 FR 63831	12/12/2018	Selection of all registered HMS tournaments for reporting
83 FR 67140	12/28/2018	Inseason transfer of 19.5 mt from the General category December 2019 subquota Period to the January 2019 subquota period
2019		
84 FR 3742	2/13/2019	General category fishery inseason transfer of 26 mt of Atlantic bluefin tuna quota from the Reserve category to the General category
84 FR 6701	2/28/2019	Annual adjustment of the Atlantic bluefin tuna Purse Seine and Reserve category quotas; General category fishery inseason transfer of 25 mt of Atlantic bluefin tuna quota from Reserve category
84 FR 7302	3/4/2019	Closure of General category January fishery for 2019
84 FR 9719	3/18/2019	Closure of Atlantic bluefin tuna Angling category southern area trophy fishery
84 FR 20296	5/09/2019	Atlantic bluefin tuna Angling category daily retention limit adjustment for May 11–December 31
84 FR 22731	5/20/2019	Atlantic bluefin tuna General category daily retention limit adjustment for June–August subquota time period
84 FR 25707	6/04/2019	Closure of Atlantic bluefin tuna Angling category Gulf of Mexico trophy fishery
84 FR 30954	6/28/2019	Closure of Atlantic bluefin tuna Angling category northern area trophy fishery
84 FR 33008	7/11/2019	Atlantic bluefin tuna General category daily retention limit adjustment for June–August subquota period
84 FR 33205	7/12/2019	Proposed rule to adjust Atlantic bluefin tuna pelagic longline area-based and weak hook measures
84 FR 35340	7/23/2019	Inseason transfer of 30 mt from the Atlantic bluefin tuna Reserve category to the Harpoon category
84 FR 38143	8/06/2019	Inseason transfer of 15 mt from the Atlantic bluefin tuna Reserve category to the Harpoon category
84 FR 39208	8/09/2019	Closure of Atlantic bluefin tuna Harpoon category fishery
84 FR 39978	8/09/2019	Closure of Atlantic bluefin tuna General category fishery for June–August subquota period
84 FR 47440	9/10/2019	Adjustment of 2019 northern albacore, north and south Atlantic swordfish, and Atlantic bluefin tuna Reserve category quotas
84 FR 48566	9/16/2019	Inseason transfer of 60 mt from the Atlantic bluefin tuna Reserve category and closure of the General category fishery for September subquota period
84 FR 52806	10/03/2019	General category fishery inseason transfer of 100 mt of Atlantic bluefin tuna October–November 2019 subquota from the Reserve category
84 FR 55507	10/17/2019	Closure of Atlantic bluefin tuna General category fishery for October–November subquota period
84 FR 63812	11/19/2019	Inseason quota of 53.2 mt from the Atlantic bluefin tuna quota Reserve category to the General category
2020		

Federal Register Citation	Date	Rule or Notice
85 FR 17	1/2/2020	Inseason transfer of 19.5 mt from the General category December 2020 subquota period to the January 2020 subquota period
85 FR 6828	2/06/2020	Annual adjustment of the Atlantic bluefin tuna Purse Seine and Reserve category quotas; General category fishery inseason transfer of 51 mt of Atlantic bluefin tuna quota from Reserve category
85 FR 10341	2/24/2020	Closure of bluefin tuna angling category southern area trophy fishery for 2020
85 FR 10993	2/26/2020	Closure of General Category bluefin fishery for January subquota period for 2020
85 FR 18812	4/2/2020	Final Rule: Pelagic longline weak hook and area measures
85 FR 21789	4/20/2020	Closure of Angling category Gulf of Mexico Trophy Fishery (Incidental)
85 FR 26365	5/4/2020	Angling category daily retention limit adjustment
85 FR 31414	5/26/2020	Closure of Angling category northern trophy fishery
85 FR 43148	7/16/2020	Quota transfer from Reserve to Harpoon category
85 FR 48120	8/10/2020	Closure of bluefin harpoon category
85 FR 59445	9/22/2020	Quota transfer from Reserve to General category
85 FR 61638	9/30/2020	Closure of General category September subquota period
85 FR 64411	10/13/2020	Closure of General category October-November subquota period and transfer of quota from Reserve to General category
85 FR 68798	10/30/2020	Reopening of General category October-November subquota period and transfer of quota from Reserve to General category
85 FR 71270	11/9/2020	Second reopening of General category October-November subquota period

The preferred alternatives in this document would combine to modify commercial and recreational regulations to further evolve and optimize the management of bluefin fishery (although some of the preferred alternatives would preserve the status quo regulations). Commercial and recreational fishermen that target and incidentally catch bluefin would benefit from changes to requirements for modified category allocations, adjustments to the Individual Bluefin Quota (IBQ) Program; elimination of the Purse Seine category; modifications to the General category subquota allocations; modifications to the Angling category trophy fishery, and other handgear fishery regulatory modifications.

The preferred alternatives are designed to manage the Atlantic HMS resources, focusing on bluefin, in a manner that maximizes resource sustainability and fishing opportunity, while minimizing, to the greatest extent possible, the socioeconomic impacts on affected fisheries. The preferred alternatives would meet conservation and management objectives while also reducing regulatory burden and providing additional opportunity to catch target species. The preferred alternatives specifically address the objectives of this amendment, which include: optimize allocations to provide fishing vessels with a reasonable opportunity to catch the U.S. quota; facilitate the ability for active HMS directed permit categories to catch their full bluefin quota allocations; maintain flexibility in the regulations; maintain consistency with conservation and management objectives; and modify the management of the pelagic longline fishery in response to the Three-Year Review as well as to important relevant, prevailing trends. In doing so, the preferred alternatives have fewer negative socioeconomic impacts than other measures while supporting the conservation objectives for all species.

The preferred alternatives represent a decrease in the regulatory burden for fishermen and seafood dealers. The overall cumulative impacts of the preferred alternatives could have minor beneficial cumulative ecological impacts and neutral to minor beneficial cumulative socioeconomic impacts. The following past and ongoing actions had or would have varying degrees of synergistic impacts on the human environment when considered in conjunction with the action in the alternatives:

- On January 1, 2015, NOAA Fisheries implemented Amendment 7 (79 FR 71510; December 2, 2014). The rule dramatically changed bluefin management, particularly within the pelagic longline fishery. Amendment 7 changed the allocations of U.S. bluefin quota among domestic fishing categories. It also implemented measures applicable to the pelagic longline fishery, including: the IBQ Program; the Spring Gulf of Mexico Gear Restricted Area; the Cape Hatteras Gear Restricted Area; closure of the pelagic longline fishery when annual bluefin quota is reached; elimination of target catch requirements associated with retention of incidental bluefin in the pelagic longline fishery; mandatory retention of legal-sized bluefin caught as bycatch; expanded monitoring requirements, including Electronic Monitoring (EM) via cameras and bluefin catch reporting via VMS; and transiting provisions for pelagic longline and bottom longline vessels. The rule also had impacts on the recreational fishery by changing the quota allocation of the Angling category Trophy South subquota to create a Trophy Gulf of Mexico (incidental only) area and allocation. This rule proposes to modify many of the management measures implemented under Amendment 7. The alternatives would affect the commercial and recreational HMS fisheries and the alternatives are broadly organized according to the type of vessels primarily affected (e.g., pelagic longline vessels - IBQ Program, Purse Seine category participants, General category, Angling category, etc.) for ease of understanding. The majority of the measures seek to provide increased flexibility in the bluefin fishery both directed and incidental categories. When this action is considered in conjunction with the Amendment 7, it is anticipated this action may have minor beneficial to neutral cumulative ecological and socioeconomic impacts.
- On October 11, 2018, NOAA Fisheries published a final rule (83 FR 51391) to adjust and recalculate the baseline annual U.S. quota and subquotas for Atlantic bluefin and the baseline annual U.S. Northern Atlantic albacore tuna quota to reflect quotas adopted by the International Commission for the Conservation of Atlantic Tunas (ICCAT). Additionally, this final rule updated regulatory language on school bluefin, made a minor change to the Atlantic tunas size limit regulations to address retention, possession, and landing of bigeye and yellowfin tuna damaged through predation by sharks and other marine species. Cumulative ecological impacts of the preferred alternatives in the final rule were expected to be neutral to minor beneficial, while the socioeconomic impacts were expected to be minor and beneficial. The modification of language to address damaged tunas through predation by sharks and other marine species, was primarily economic and administrative, and no environmental effects were anticipated because the change only allows for retention of a very limited number of fish that would otherwise be caught but need to be discarded. When this action is considered in conjunction with the Amendment 7, it is anticipated this action may have minor beneficial to neutral cumulative ecological and socioeconomic impacts.

- On March 3, 2019, NOAA Fisheries implemented Amendment 11 to the 2006 Consolidated Highly Migratory Species (HMS) FMP (84 FR 5358; February 21, 2019)(Amendment 11). This rule implemented management measures to address overfishing and rebuild the overfished North Atlantic shortfin mako shark stock. These measures are based on the ICCAT stock assessment that determined that shortfin mako sharks are overfished and experiencing overfishing. Management measures also reflect ICCAT Recommendation 17-08. Commercial measures would allow retention of shortfin mako sharks by HMS permit holders when caught with longline or gillnet gear and only if the shark is dead at haulback. Retention of dead shortfin mako sharks with pelagic longline gear is allowed only if there is a functional EM system on board the vessel. Recreational measures would increase the minimum size limit for retention of shortfin mako sharks from 54" fork length (straight line) to 71" fork length for males and 83" fork length for females and require the use of circle hooks for recreational shark fishing in all areas. Overall, Amendment 11 was expected to have beneficial ecological impacts in the short- and long-term and minor adverse or neutral cumulative socioeconomic impacts on participants in the recreational and commercial fisheries. When this action is considered in conjunction with Amendment 11, it is not anticipated to create any additional adverse impacts to commercial or recreational bluefin fishermen or to the stocks in question.
- The Deepwater Horizon Offshore Fishing Restoration Project (OFRP) is currently active in the Gulf of Mexico region and selects pelagic longline vessels on an annual basis to participate in the program. These vessels are compensated to refrain from fishing pelagic longline gear when bluefin are present and spawning in the Gulf of Mexico, and are encouraged to fish with alternative gears (e.g., green-stick and buoy gear) for swordfish and yellowfin tuna. While the pelagic longline vessels are not actively fishing longline gear the IBQ allocations to those vessels are locked and cannot be used. This program will be active for another 3 to 6 years (depending on the number of applicants; the program is funded to cover 60 "vessel years"). As a result of vessels participating in this project, the number of vessels actively fishing pelagic longline in the winter and spring in the Gulf of Mexico may decrease. When this action is considered in conjunction with the OFRP, it could have minor beneficial cumulative ecological impacts to bluefin in the Gulf of Mexico.
- On September 15, 2017, the first marine national monument in the Atlantic Ocean, the Northeast Canyons and Seamounts Marine National Monument was created. The total area of the monument is 4,913 square miles of ocean. Commercial fishing and other resource extraction activities have been prohibited within the monument boundaries on a year-round basis. Recreational fishing is allowed to occur in the monument boundaries. On June 5, 2020, the prohibition on commercial fishing was lifted under the Presidential "Proclamation on Modifying the Northeast Canyons and Seamounts Marine National Monument." The National Monument does not intersect with any areas considered in this action. No additional cumulative impacts are anticipated stemming from the National Monument, because the National Monument is already part of the management and regulatory environment during the time frame of analyzed data in this DEIS.
- On April 2, 2020, NOAA Fisheries published a final rule (85 FR 18812) that modified certain pelagic longline bluefin area-based and weak hook management measures. This

rule eliminated the Cape Hatteras Gear Restricted Area from the regulations. The rule also modified the current year-round weak hook requirement to a seasonal requirement (January-June) when bluefin are abundant in the Gulf of Mexico. The rule also converted a closed area in the Atlantic (Northeastern United States Closed Area) and a gear restricted area (Spring Gulf of Mexico Gear Restricted Area) to monitoring areas. These areas, which were previously closed to reduce bluefin bycatch on pelagic longline gear, are now open to pelagic longline fishing under a stringent monitoring process. Bluefin mortality that occurs in the monitoring areas while they are in effect (April - May for the Spring Gulf of Mexico Monitoring Area and June for the Northeastern United States Monitoring Area) will be deducted from a threshold specific to that area. If the threshold is reached the area will close and remain closed unless NOAA Fisheries takes additional action. Overall this rule was expected to have minor adverse (mainly billfish) to minor beneficial ecological impacts and neutral to minor beneficial socioeconomic impacts. When this action is considered in conjunction with the final rule for pelagic longline bluefin area-based and weak hook management measures, it is anticipated this action may have minor beneficial to neutral cumulative ecological and socioeconomic impacts.

5.2 Combined Ecological Impacts

Combined, the ecological impacts of all of the preferred alternatives ranges from neutral to minor and beneficial, as explained in the summary below. Each alternative is described in Chapter 2.0 and a detailed discussion of ecological impacts for each alternative can be found in Chapter 4.0.

Preferred Sub-Alternative A2c would determine e IBQ share percentages annually based upon each individual permitted vessel's designated species landings instead of hooks or sets. Specifically, the measure of fishing effort would be the total amount by weight of each individual vessel's designated species landings relative to the total amount of designated species landings by pelagic longline fleet, as the measure of fishing effort. Most, but not all landings would count, with the relevant species termed 'Designated Species'. Designated Species would be defined as yellowfin, bigeye, albacore, and skipjack tunas; swordfish, dolphin, and wahoo. The direct short- and long-term ecological impacts of Sub- Alternative A2a on bluefin are expected to be neutral. The short- and long-term indirect ecological impacts on other HMS species (as well as protected species) would also be neutral, because fishing strategies for target species are likely to remain unaffected by redistribution of bluefin quota to active vessels.

Preferred Alternative B3 would be implemented in conjunction with the dynamic allocation alternatives. Regional designations of IBQ shares and allocation(GOM and ATL) would be determined on an annual basis as part of the annual dynamic allocation process, the accounting rules for the regional IBQ allocations would also remain the same, and a maximum amount of bluefin catch from the Gulf of Mexico and GOM designated IBQ allocation would be set. Specifically, regional designations would be based on the location of the relevant pelagic longline fishing activity used in the annual allocation (under the 'A'

alternatives). There would be a cap on the amount of GOM IBQ allocation that could be used. The initial cap would be 35 percent of the Longline category quota, the same as set under Amendment 7. Although the initial cap would be set at 35 percent, the amount of GOM designated shares (based on the relative amount of fishing effort in the Gulf of Mexico) may be lower. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Alternative B4 would maintain the inclusion of any data associated with fishing in the Northeast Distant Area (NED) as part of formulas that determine IBQ shares, and maintain the current IBQ catch accounting rules for fishing in the NED. Vessels do not have to use IBQ allocation to account for bluefin catch from the NED until after the ICCAT-designated 25 mt of bluefin have been caught. This alternative would not affect the overall level of bluefin catch. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Alternative C1 would continue the current regulations under which no sale of IBQ shares are allowed. Amendment 7 (2015) implemented the current rules, which prohibit sale of IBQ shares, yet allow temporary (annual) leasing of IBQ allocation among Atlantic Tunas Longline category permit holders. IBQ shares are linked to, and non-severable from Atlantic Tunas Longline category permits and may not be sold (Atlantic Tunas Longline category permits may be sold however). Sale of shares is a separate and distinct type of transaction from temporary leasing of IBQ allocation. Atlantic Tunas Longline category permit holders may lease IBQ allocation at any time during a calendar year to another permit holder, but the leased IBQ allocation does not carry over from one year to the next. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative D1c would cap the percentage of IBQ shares that an entity could hold, or acquire as shareholder at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with the owned IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). This alternative would not modify the annual science-based ICCAT recommended bluefin quota, nor the fishing mortality associated with that quota. The total amount of IBQ allocation resulting from the available IBQ shares would remain equal to the Longline category quota. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative D2a would maintain the Amendment 7 limit on the amount of IBQ allocation an individual vessel (longline or purse seine) can lease annually as the combined Longline and Purse Seine category allocations on an annual basis. The short-term and long-term direct and indirect ecological impacts of this alternative are expected to be neutral because determining the level of a cap on the amount of IBQ allocation a single entity could lease or use during a year, or not implementing a cap, does not affect the amount of overall Longline category quota that may be caught.

Preferred Sub-Alternative E1b would modify two aspects of the dealer reporting requirements for the IBQ Program. First, this alternative would eliminate the current requirement that vessel operators or owners confirm that the landing report information entered into the IBQ system by the dealer is accurate, by entering the Personal Identification Number (PIN) associated with the vessel account. Instead, a new email notification by NOAA Fisheries via the IBQ system (or a message within the IBQ system) would inform the vessel owner when a dealer conducts a transaction with that vessel's IBQ account to provide a means of vessel operator oversight of dealer transactions with their IBQ vessel account. The requirement that the dealer enter the data on bluefin landings into the online IBQ system via the dealer account would continue.

Secondly, Sub-Alternative E1b would continue the current VMS reporting requirements for bluefin dead discards, but remove the requirement that any pelagic longline vessel owner or operator who discarded dead bluefin, also enter dead discard information from the trip by coordinating with the dealer and entering that trip's dead discard information into the Catch Shares Online System via the dealer account. The source of real-time dead discard data would be the VMS data regarding dead discards, entered by the vessel operator via the bluefin set report, from sea. This alternative would not change the fishing practices of the fleet. Therefore, the overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative E2b would require that the vessel operator mail EM system hard drives within 48 hours at the completion of every other trip (every second trip), instead of after *each* pelagic longline fishing trip. An exception to this requirement would be if the hard drive is at capacity (full) after one trip, as indicated by the EM System, the vessel operator must mail the hard drive at the end of that trip. This alternative would not change the fishing practices of the fleet. Therefore, the overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative E3b would expand the regulations regarding EM cameras to include installation of permanent or semi-permanent hardware, if necessary, in order to mount and install video cameras at locations on vessels as necessary to obtain optimal views, and allow NOAA Fisheries, working in conjunction with the vessel owner/operator, to make relatively minor modifications to the vessel structure to mount cameras in locations that provide required views of the vessel and adjacent areas. For example, NOAA Fisheries may require the installation of the rail camera on vessel structure, or installation of new permanent or semi-permanent hardware such as booms on a structure near the vessel's rail for the purpose of obtaining a different camera angle to provide an optimal view. The ecological impacts of Sub-Alternative E3b, the preferred alternative, will be indirect, and beneficial due to improved accuracy of the discard data derived from the EM Program.

Preferred Sub-Alternative E4b would require more specific fish handling procedures and the installation/placement of a measuring grid on deck, in view of one of the cameras. Specifically, the vessel crew would be required to place retained fish on a mat with grid lines or a grid painted on deck in view of the processing camera, so the video recording

included images of the fish on the mat. The mat would be a standardized size with lines of standard intervals. The impacts of this alternative are expected to be minor and beneficial due to better size and identification estimates for landed tunas.

Preferred Sub-Alternative E6b would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by permit holders for a particular year is warranted. Annually, NOAA Fisheries would estimate its incremental costs associated with the IBQ Program (including costs associated with the cost recovery program) and the total ex-vessel value of bluefin sold from the pelagic longline fishery; and notify the permit holders whether a cost recovery fee will be charged for the year. This alternative would have short- or long-term direct and indirect neutral ecological impacts, because it would only result in a report on the catch share program's cost recovery and the potential collection of some cost recovery fees and not affect fishing activities of the fleet.

Preferred Sub-Alternative F1b would simplify the annual quota allocation process. Specifically, this alternative would make a change to the mathematical method used in the annual quota allocation process in order to achieve a similar result through simpler means. Instead of a two-step process of subtracting the 68 mt and then applying the category allocation percentages, there would be a one- step process applying slightly revised category allocation percentages. The short- and long-term direct and indirect ecological impacts are expected to be neutral compared to the No Action (Alternative F1a) alternative, because the overall quota and each category's subquota would not change from status quo.

Preferred Sub-Alternative F2b would discontinue the Purse Seine category through redistribution of Purse Seine category quota effective upon implementation of the A13 final rule. NOAA Fisheries would remove purse seine from the list of authorized gear and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants. This alternative would result in no impact to the bluefin stock since the quota would be reallocated under another alternative. Therefore, the overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Alternative F4 would reallocated the Purse Seine category proportionally to the direct bluefin quota categories (General, Angling, Harpoon, and Reserve categories) based on the percentages associated with each quota category, and result in revised allocations and quotas. Purse Seine category quota would not be reallocated to the Longline or Trap categories that catch bluefin incidentally. This alternative would result in additional quota for the directed categories (General, Angling, Harpoon, and Reserve categories) and status quo amounts for the Longline and Trap categories. The short- and long-term direct and indirect ecological impacts are expected to be neutral compared to the No Action (Alternative F2a) alternative, because the overall quota would not change from the status quo, although directed category quotas would increase.

Preferred Alternative G1 would make no changes to the regulations regarding suballocation of the General category bluefin quota into time period subquotas. Since, this alternative would maintain the current time periods, there would be no General category bluefin activity during the months of April and May of each year. Depending on how quickly the available January-March subquota is used, it is likely based on the closure date in the last few years (e.g., no closure in 2015 or 2016; closure on March 29, 2017, March 2, 2018, February 28, 2019, and February 24, 2020) that there may not be General category fishing activity in part or all of March as well. Therefore, the overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Alternative H2 would modify the current Angling category Trophy subquota areas and allocations outlined at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° North Latitude (N. Lat.) (off Chatham, MA); these newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively.

These newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area. The net result would be that the Angling Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each area would receive the same amount of quota. To create the new trophy suballocation for the Gulf of Maine trophy area, NOAA Fisheries would increase the allocation for trophy bluefin. Because the amount of school bluefin (27" - < 47") that can be caught each year is limited in the codified regulations, and in compliance with the ICCAT bluefin recommendation, to no more than 10 percent of the annual U.S. bluefin tuna quota, any increase to the trophy subquota would be best balanced with an equivalent reduction of the subquota for large school/small medium bluefin subquota (47" - < 73"), which is the remainder of the Angling category quota once the school bluefin subquota and trophy subquotas are subtracted. NOAA Fisheries would not expect fishing behavior to change as a result of this alternative, because there is already targeted recreational effort in that area for bluefin. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative I1a would maintain the current authorized gears applicable to the Atlantic tunas permit categories (§635.19(b)). For example, vessels permitted in the HMS Charter/Headboat category would be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for authorized recreational catch of non-bluefin tunas, and the vessels permitted in General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. It would not authorize the use of harpoon gear on HMS Charter/Headboat category vessels. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral.

Preferred Sub-Alternative I2b would set an overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip (i.e., the combined limit of large medium (73" - < 81") and giant (81" or greater) would be 10 fish), and would maintain the current regulations regarding retention of large medium bluefin (73" - < 81") (i.e., the range of two (default) to four fish, adjustable through inseason action). The overall short- and long-term

direct and indirect impacts of this alternative are expected to be neutral since this alternative would not change the Harpoon category subquota.

Preferred Sub-Alternative I3a would maintain the June 1 start date and November 15 closure date for the Harpoon category season. The overall short- and long-term direct and indirect impacts of this alternative are expected to be neutral since this alternative would not change the Harpoon category start date.

Preferred Sub-Alternative I4b would extend the ability for permit holders with an Atlantic tunas permit in the General, Harpoon, or Trap category, or Atlantic HMS permit in the Angling or Charter/Headboat category, to change permit category, to change permit categories from 45 days to the full fishing year provided the vessel has not landed a bluefin. There are no ecological impacts (direct, indirect, long or short term) for this alternative since it affects a minimum number of permit holders and would not increase or decrease the amount of fishing effort for handgears used.

Preferred Sub-Alternative I5c clarifies retention and reporting requirements for bluefin caught with green-stick gear (by vessels with Atlantic tunas Longline category permits), allows the retention of one bluefin per trip (of 73" or greater CFL), taken incidentally while fishing for other target species, and with additional regulations applying to such trips. Vessels would be required to submit a Vessel Monitoring System (VMS) set report for each greenstick retrieval with interactions with bluefin, and report information on the location of the set, and numbers and length of bluefin within 12 hours (in addition to the VMS reports for pelagic longline sets). This VMS requirement differs from the VMS requirement associated with the use of pelagic longline gear, which requires submission of a report after each pelagic longline set (also within 12 hours). Regardless of whether sets are made with green-stick gear or pelagic longline gear, vessels would be required to comply with HMS logbook requirements, and comply with the IBQ Program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations. If pelagic longline gear is onboard, vessels would be required to comply with EM requirements (to continue monitoring the retrieval of longline sets with the EM System on the same trip) and other regulations that are triggered by the presence of pelagic longline gear.

This alternative would result in direct, short- and long-term neutral ecological impacts because any bluefin catch by greenstick gear would be accounted for with IBQ allocation, and would be within the annual science-based ICCAT recommended bluefin quota.

5.3 Combined Social and Economic Impacts

Combined, the preferred alternatives are expected to have minor beneficial or neutral socioeconomic impacts, as explained in the below summary. However, some adverse socioeconomic impacts may occur with Alternatives E3b, E4b, E6b, F3, I2b, and I3a (minor) and F2b (moderate). Each alternative is described in Chapter 2.0 and a detailed discussion of socioeconomic impacts for each alternative can be found in Chapter 4.0.

Under preferred Sub-Alternative A2c, NOAA Fisheries would define IBQ shareholders annually based upon the total amount by weight, of each individual permitted vessel's designated species landings relative to the total amount of designated species landings by pelagic longline fleet, as the measure of fishing effort. The socioeconomic impacts of this alternative would be minor and beneficial overall because some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative.

Preferred Alternative B3 would be implemented in conjunction with the dynamic allocation alternatives. Regional designations (GOM and ATL) would be determined on an annual basis as part of the annual dynamic allocation process, the accounting rules for the regional IBQ allocations would also remain the same, and a maximum amount of bluefin catch from the Gulf of Mexico and GOM designated IBQ allocation would be set. Specifically, regional designations of IBQ shares and allocations would be based on the location of the relevant pelagic longline fishing activity used in the annual allocation. There would be a cap on the amount of GOM designated IBQ shares (and allocation that could be allocated). The initial cap would be 35 percent of the Longline category quota, the same as set under Amendment 7. Although the initial cap would be set at 35 percent, the amount of GOM designated shares (based on the relative amount of fishing effort in the Gulf of Mexico) may be lower. The overall socioeconomic impacts are expected to be minor and beneficial, as a result of the increased flexibility for vessels currently without GOM designated IBQ allocation. NOAA Fisheries would be authorized to modify the cap on the amount of GOM IBQ designated shares based on specific criteria.

Preferred Alternative B4 would maintain the current method of inclusion of data from the NED, in any of the alternatives that define IBQ shares and continue the current IBQ catch accounting rules for fishing in the NED. Vessels do not have to use IBQ allocation to account for bluefin catch from the NED until after the ICCAT-designated 25 mt of bluefin have been caught. This alternative would not affect the overall level of bluefin catch. The overall socioeconomic impacts of the No Action Alternative with respect to the NED rules would also be neutral.

Preferred Alternative C1 would continue the current regulations under which no permanent sale of IBQ shares are allowed. Amendment 7 implemented the current rules, which prohibit permanent sale of IBQ shares, yet allow temporary (annual) leasing of IBQ allocation among Atlantic Tunas Longline category permit holders. IBQ shares are linked to, and non-severable from Atlantic Tunas Longline category permits and may not be sold (Atlantic Tunas Longline category permits may be sold however). Permanent sale of shares is a separate and distinct type of transaction from temporary leasing of IBQ allocation. Atlantic Tunas Longline category permit holders may lease IBQ allocation at any time during a calendar year to another permit holder, but the leased IBQ allocation does not carry over from one year to the next. This alternative would have neutral socioeconomic impacts.

Preferred Sub-Alternative D1c would cap the percentage of IBQ shares that an entity could hold, acquire or use at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with the owned IBQ shares. The maximum share amount would apply whether the shares were accrued through the ownership of multiple Atlantic Tunas Longline category permits or accrued through direct sale of IBQ shares (if allowed through this amendment). NOAA Fisheries would enforce this restriction based on the best available information such as data submitted in support of permit and IBQ Program requirements. This cap level would allow flexibility in entities' business planning to acquire more shares, by acquiring additional Atlantic Tunas Longline category permits or under Alternative C2. In addition, it is not likely that an entity would reach a 25-percent cap through the annual IBQ shares they would receive under the A alternatives. Therefore, this alternative is expected to have neutral socioeconomic impacts.

Preferred Sub-Alternative D2a would maintain the Amendment 7 limit on the amount of quota allocation an individual vessel (longline or purse seine) can lease annually as the combined Longline and Purse Seine category allocations on an annual basis. The short-term direct socioeconomic impacts of this alternative are expected to be neutral because the IBQ Program was designed to provide ample flexibility for vessel owners to lease IBQ allocation in the amounts that they need to account for bluefin catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin.

Preferred Sub-Alternative E1b would modify two aspects of the dealer reporting requirements for the IBQ Program. First, this alternative would remove the requirement that any pelagic longline vessel owner or operator who discarded dead bluefin is required to also enter dead discard information from the trip, by coordinating with the dealer and entering that trip's dead discard information into Catch Shares Online System via the dealer account. This alternative would not affect the current VMS reporting requirements for bluefin dead discards. The source of real-time dead discard data would be the VMS data regarding dead discards, entered by the vessel operator via the bluefin set report, from sea. The requirement that the dealer enter the data on bluefin landings into the on-line IBQ system via the dealer account would continue.

Secondly, Sub-Alternative E1b would eliminate the current requirement that vessel operators or owners confirm that the landing report information entered into the IBQ system by the dealer is accurate, by entering the PIN associated with the vessel account (pursuant to §635.15(b)(4)(iii). This option would be combined with a new email notification by NOAA Fisheries via the Catch Shares Online System (or a message within the Catch Shares Online System) that would inform the vessel owner when a dealer conducts a transaction with that vessel's IBQ account to provide a means of vessel operator oversight of dealer transactions with their IBQ vessel account. This alternative has indirect, minor, beneficial, long and short-term impacts for dealers since they are relieved of a reporting requirement (dead discards) and are no longer required to collaborate with fishermen for landings data entry.

Preferred Sub-Alternative E2b would require that the vessel operator mail the EM hard drives at the completion of every two trips, instead of after each pelagic longline fishing trip. This alternative would not change the fishing practices of the fleet. This alternative would have a minor, direct, short- and long-term beneficial socioeconomic impact by reducing the costs and time associated with mailing electronic monitoring hard drives.

Preferred Sub-Alternative E3b would provide the authority to NOAA Fisheries to require installation of permanent or semi-permanent hardware in order to mount and install EM video cameras at locations on vessels as necessary to obtain optimal views, and allow NOAA Fisheries, working in conjunction with the vessel owner/operator, to make relatively minor modifications to the vessel structure to mount cameras in locations that provide required views of the vessel and adjacent areas. This alternative would result in more substantial mounting systems for rail cameras that may include new permanent or semi-permanent structures and/or current vessel structures such as booms or stabilizers as mounts for cameras. The socioeconomic impacts in the short- and long-term of modifying the camera installation and placement are direct, minor adverse.

Preferred Sub-Alternative E4b would require more specific fish handling procedures and the installation/placement of a measuring grid on deck, in view of one of the EM cameras. Specifically, the vessel crew would be required to place retained fish on a mat with grid lines or a grid painted on deck in view of the processing camera, so the video recording included images of the fish on the mat. The mat would be a standardized size with lines of standard intervals. The socioeconomic impacts in the short term would be short term, direct, neutral to minor adverse as the crew would need to modify their fish handling procedures to place all fish on the grid.

Preferred Sub-Alternative E5b would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by federally permitted Atlantic Tunas dealers purchasing bluefin from pelagic longline vessels for a particular year is warranted. Annually, NOAA Fisheries will estimate its incremental costs associated with the IBQ Program (including costs associated with the cost recovery program) and the total ex-vessel value of bluefin sold from the pelagic longline fishery; and notify the public whether a cost recovery fee will be charged for the year. A cost recovery fee, if implemented, would have minor, adverse economic impacts on bluefin dealers that purchase bluefin.

Preferred Sub-Alternative F1b would simplify the quota regulations by making a slight change to the mathematical method used in the annual quota allocation process of providing 68 mt to the Longline category. In order to achieve a similar result through simpler means, this alternative would no longer subtract a set amount from each quota category annually, but would instead modify the currently codified allocation percentages in order to result in an amount similar to the 68-mt amount. This alternative would have neutral short term direct and indirect socioeconomic impacts because the overall quota and amount of quota (in metric tons) distributed to each category would not change from the status quo under the current ICCAT quota.

Preferred Sub-Alternative F2b would discontinue the Purse Seine category through redistribution of Purse Seine category quota effective upon implementation of the A13 final rule. The ability of vessels to obtain an Atlantic Tunas Purse Seine category permit would also end. NOAA Fisheries would remove purse seine from the list of authorized gear and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants. This alternative would have moderate adverse direct short and long-term socioeconomic impacts to Purse seine category participants.

Preferred Alternative F4 would reallocate Purse Seine category quota proportionally to the directed categories (General, Harpoon, Angling, and Reserve), and result in additional quota for those categories. The short- and long-term direct socioeconomic impacts for Alternative F4 would be moderately beneficial for directed category participants and infrastructure associated with the directed categories receiving quota.

Preferred Alternative G1 would make no changes to the regulations regarding suballocation of the General category bluefin quota. Because this alternative would maintain the January period (which remains open until the January subquota is used or until March 31, whichever comes first), there would be no General category activity during the months of April and May on an annual basis. Depending on how quickly the available January subquota is used, it is likely that there may not be General category fishing activity in part or all of March as well. This conclusion is based on the closure date during the last few years (e.g., no closure in 2015 or 2016; closure on March 29, 2017, March 2, 2018, and February 28, 2019). This alternative would result in short- and long-term direct neutral socioeconomic impacts.

Preferred Alternative H2 would modify the current Angling category Trophy North subquota areas and allocations specified at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° N. Lat. (off Chatham, MA); these newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively. The net result would be that the Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each area would receive the same amount of quota (i.e., the Angling category trophy quota would be divided equally four ways). To create the new trophy suballocation for the Gulf of Maine trophy area, NOAA Fisheries would increase the allocation for trophy bluefin (e.g., from 2.3 to 3.1 percent of the Angling category quota under current regulations to equate to a trophy quota of 7.2 mt and allow each of the four areas to have 1.8 mt) and decrease the allocation for large school/small medium bluefin (measuring 47 to less than 73”) by the equivalent amount.

Under this alternative, there would be direct, short-term, minor, beneficial social impacts (and economic impacts for charter vessels) to a small number of vessels in the new zone north of 42° N Lat. (the Gulf of Maine trophy area) given the small amount of fish that would be allowed to be landed, and the perception of greater fairness among northern area participants may result in indirect, longer-term, beneficial, social impacts.

Preferred Sub-Alternative I1a would maintain the current authorized gears applicable to the Atlantic tunas permit categories (§635.19(b)). For example, vessels permitted in the HMS Charter/Headboat category would be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for authorized recreational catch of non-bluefin tunas, and vessels permitted in the General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. It would not authorize the use of harpoon gear on HMS Charter/Headboat category vessels. This alternative would have neutral socioeconomic impacts on permitted HMS Charter/Headboat vessels, which could continue to fish under the Atlantic Tunas General and Angling category regulations using existing authorized gear.

Preferred Sub-Alternative I2b would set an overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip (i.e., the combined limit of large medium (73" - < 81") and giant (81" or greater) would be 10 fish), and would maintain the current regulations regarding retention of large medium bluefin (73" - < 81") (i.e., the range of two (default) to four fish, adjustable through inseason action). Overall, there are direct, short-term, minor, and neutral impacts as a result of a few trips being constrained by a ten-fish limit (adverse), but also a potentially longer Harpoon category season (beneficial).

Preferred Sub-Alternative I3a would maintain the June 1 start date and November 15 closure date for the Harpoon category season. This alternative may have both minor beneficial and adverse, direct, short-term social and economic impacts (See Chapter 4 for description).

Preferred Sub-Alternative I4b would extend the ability to change permit categories from 45 days to the full fishing year as long as the vessel has not landed a bluefin. The socioeconomic impacts (long term, direct and indirect) of this alternative are neutral, or slightly beneficial since the number of permit holders impacted is so small, and any impacts of obtaining an annual permit in the wrong category are only for one fishing season.

Preferred Sub-Alternative I5c clarifies retention and reporting requirements for bluefin caught with green-stick gear (by vessels with Longline category permits), to allow the retention of one bluefin per trip (of 73" or greater CFL), regardless of whether pelagic longline gear is onboard, and with additional regulations applying to such trips. Vessels would be required to submit a VMS set report for each greenstick retrieval with interactions with bluefin, and report information on the location of the set, and numbers and length of bluefin within 12 hours (in addition to the VMS reports for pelagic longline sets). Vessels must comply with HMS logbook requirements, and comply with the IBQ program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations. If pelagic longline gear is onboard, vessels must comply with electronic monitoring requirements (to continue monitoring the retrieval of longline sets with the electronic monitoring system) and other regulations that are triggered by the presence of pelagic longline gear. This alternative would have direct minor, long-term beneficial economic impacts because a vessel would be able to retain a legal-sized bluefin that may otherwise be discarded dead.

5.4 Cumulative Impacts

The goal of this section is to summarize the cumulative ecological, economic, and social impacts of past, present, and reasonably foreseeable future actions with regard to the management measures presented in this document. Table 5.2 below shows summary information on the impacts of the alternatives analyzed.

Table 5.2 Comparison of Impacts Analyzed

Alternative	Bluefin Tuna	Other Atlantic HMS and Protected Species	Socioeconomic
Modifications to IBQ Share Eligibility, Distribution and Allocation Methods			
A1: No Action	Neutral	Neutral	Neutral/minor adverse
A2a: Dynamic determination of IBQ shares based on hooks as the measure of fishing effort	Neutral	Neutral	Minor beneficial
A2b: Dynamic determination of IBQ shares based on pelagic longline sets as the measure of fishing effort	Neutral	Neutral	Minor beneficial
A2c: Dynamic determination of IBQ shares based upon designated species landings as the measure of fishing effort (Preferred)	Neutral	Neutral	Minor beneficial
A2d: Dynamic determination of IBQ shares and distribution of IBQ allocation in equal amounts to active vessels.	Neutral	Neutral	Minor beneficial
A3: Amendment 7 allocation formula, using 2016-2018 data.	Neutral	Neutral	Minor beneficial
Modifications to Rules Closely Linked to IBQ Allocations			
B1: Regional Designations - No Action	Neutral	Neutral	Neutral
B2: Eliminate the Regional IBQ Designations and Cap Bluefin Catch from the GOM.	Neutral	Neutral	Minor Beneficial and Adverse
B3: Modify Regional GOM and ATL Designations for a Dynamic Allocation System and Cap Bluefin Catch from the Gulf of Mexico (Preferred)	Neutral	Neutral	Minor Beneficial
B4: NED Rules - No Action (Preferred)	Neutral	Neutral	Neutral
B5: Do not include NED fishing activity as part of the data used in calculating IBQ Allocations.	Neutral	Neutral	Minor Adverse
Permanent Sale of IBQ Shares			
C1: No Action (Preferred)	Neutral	Neutral	Neutral
C2: Allow Permanent Sale of IBQ Shares	Neutral	Neutral	Neutral/minor adverse
Cap on IBQ Shareholder Percentage or IBQ Allocation use.			
D1a: No Action (No cap on amount of IBQ shares owned)	Neutral	Neutral	Neutral
D1b: Cap amount of IBQ shares owned at seven percent	Neutral	Neutral	Minor Adverse
D1c: Cap amount of IBQ shares owned at 25 percent. (Preferred	Neutral	Neutral	Neutral
D1d: Cap amount of IBQ shares owned at 50 percent.	Neutral	Neutral	Neutral
D2a: No Action (No Cap on Amount of IBQ Allocation Leased or Used)(Preferred).	Neutral	Neutral	Neutral
D2b: Establish a Cap on the amount of IBQ Allocation an Entity may lease or use.	Neutral	Neutral	Neutral
Adjustments to other aspects of the IBQ Program.			
E1a: Maintain Current Dealer Reporting Requirement for IBQ Program - No Action.	Neutral	Neutral	Minor Adverse

Alternative	Bluefin Tuna	Other Atlantic HMS and Protected Species	Socioeconomic
E1b: Modify Dealer Reporting Requirements for IBQ Program (Preferred).	Neutral	Neutral	Minor Beneficial
E2a: Maintain Current Requirement for Mailing Electronic Monitoring Hard Drives - No Action	Neutral	Neutral	Neutral
E2b: Modify Requirement for Mailing Electronic Monitoring Hard Drives (Preferred)	Neutral	Neutral	Minor Beneficial
E3a: Electronic Monitoring - Camera Installation - No Action	Minor Adverse	Neutral	Neutral
E3b: Clarify and expand NOAA Fisheries authority for installation of cameras (Preferred).	Minor Beneficial	Neutral	Minor Adverse
E4a: Specify Additional Fish Handling Protocols for Electronic Monitoring - No Action.	Minor Adverse	Neutral	Neutral
E4b: Specify Additional Fish Handling Protocols for Electronic Monitoring (Preferred).	Minor Beneficial	Neutral	Minor Adverse
E5a: Do Not Implement a Cost Recovery Program - No Action	Neutral	Neutral	Neutral
E5b: Implement a Cost Recovery Program (Preferred)	Neutral	Neutral	Minor Adverse
Modifications to the Purse Seine Category Management Measures and Other Category Quota Allocations			
F1a: No Change to codified quota allocation percentages to reflect the annual 68-mt allocation to the Longline category - No Action	Neutral	Neutral	Neutral
F1b: Modify codified quota allocation percentages to reflect the annual 68-mt allocation to the Longline category (Preferred)	Neutral	Neutral	Neutral
F2a: No Change to Purse Seine category and quota allocation- No Action	Neutral	Neutral	Neutral
F2b: Discontinue Purse Seine category and reallocate quota upon implementation of Amendment 13 (Preferred)	Neutral	Neutral	Moderate Adverse
F2c1: Discontinue Purse Seine category and reallocate quota at a future date (i.e., “sunset” date).	Neutral	Neutral	Moderate Adverse
F2c2: Partially reallocate Purse Seine category quota and allow current Purse Seine category participants to lease quota and fish until sunset date	Neutral	Neutral	Moderate Adverse
F3a: Reallocate Purse Seine category quota proportionally to all other quota categories, and apply Longline category increase to all areas	Neutral	Neutral	Moderate Beneficial
F3b: Reallocate Purse Seine category quota proportionally to all other quota categories, but do not allow an increase in Longline category quota that could be used in the Gulf of Mexico.	Neutral	Neutral	Moderate Beneficial
F4: Reallocate Purse Seine category quota proportionally but only to directed bluefin categories, including Reserve (not Longline or Trap) (Preferred).	Neutral	Neutral	Moderate Beneficial
Modifications to General category subquota periods and/or allocations			
G1: No Modifications to General category subquota periods and/or allocations - No Action (preferred)	Neutral	Neutral	Neutral
G2a: Modify General category subquota time periods: 12 equal months	Neutral	Neutral	Moderate Beneficial to Adverse

Alternative	Bluefin Tuna	Other Atlantic HMS and Protected Species	Socioeconomic
G2b: Modify General category time periods: Extend the January through March subquota time period through April 30	Neutral	Neutral	Neutral to Minor Beneficial
G3a: Modify General category subquota allocation percentages: Increase the January through March amount	Neutral	Neutral	Minor Adverse to Minor Beneficial
G3b: Modify General category subquota allocation percentages: Increase the September and the October through November amounts and decrease June through August amount.	Neutral	Neutral	Minor Adverse to Minor Beneficial
G3c: Modify General category subquota allocation percentages: If reallocate Purse Seine quota proportionally to all other quota categories, place all quota that is reallocated to the General category to the fall time periods.	Neutral	Neutral	Neutral to Moderate Beneficial
Modifications to the Angling category trophy fishery			
H1: No Modifications to the Angling category trophy fishery - No Action	Neutral	Neutral	Neutral to Minor Adverse
H2: Modify Angling category trophy areas and allocations (percentages) (Preferred)	Neutral	Neutral	Minor Beneficial
Modifications to other handgear fishery regulations			
I1a: No Modifications to other handgear fishery regulations - No Action (Preferred)	Neutral	Neutral	Neutral
I1b: Allow use of harpoon gear on charter/headboat vessels	Neutral	Neutral	Minor Beneficial
I1c: Remove harpoon gear as an authorized gear for General category permitted vessels.	Neutral	Neutral	Minor Adverse
I2a: Harpoon Category Daily Retention Limit - No Action	Neutral	Neutral	Neutral to Minor Adverse
I2b: Set a Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and maintain current retention limit (range) on large medium bluefin (Preferred)	Neutral	Neutral	Minor Beneficial to Minor Adverse
I2c: Set a Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and adjust daily retention limit for large medium bluefin over a range of zero to five fish (adjusted inseason).	Neutral	Neutral	Neutral
I3a: Maintain Current Harpoon Category Strat and End dates - No Action (Preferred).	Neutral	Neutral	Minor Beneficial
I3b: Adjust Harpoon category season	Neutral	Neutral	Minor Beneficial and Adverse
Open Access Permitting Regulations and Green-stick gear regulations			
I4a: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed bluefin - No Action	Neutral	Neutral	Neutral
I4b: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed a bluefin (Preferred)	Neutral	Neutral	Minor Beneficial

Alternative	Bluefin Tuna	Other Atlantic HMS and Protected Species	Socioeconomic
I5a: Clarify Regulations for Retention of Bluefin Caught with Green-stick Gear by Permitted Vessels Authorized to Fish with Pelagic Longline Gear - No Action	Neutral	Neutral	Minor Adverse
I5b: Allow Atlantic tunas Longline category permitted vessels to retain bluefin caught on green-stick gear, provided that pelagic longline gear is not onboard	Neutral	Neutral	Minor Adverse
I5c: Allow Atlantic tunas Longline category permitted vessels to retain bluefin caught on green-stick gear, regardless of whether pelagic longline gear is onboard (Preferred	Neutral	Neutral	Minor Beneficial

Cumulative Impacts Expected from Past, Present, and Future Actions

Based on the summary information in the above table, supported by the analyses in Chapter 4, the cumulative effects of the proposed action in combination with the effects of the past, present, and future actions, are expected to result in neutral to minor beneficial ecological impacts and minor to moderate beneficial socioeconomic impacts.

5.5 Mitigation

Mitigation is an important mechanism that Federal agencies can use to minimize, prevent, or eliminate damage to the human and natural environment associated with their actions.

As described in the Council on Environmental Quality regulations, agencies can use mitigation to reduce environmental impact in several ways. Mitigation may include one or more of the following: avoiding the impact by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments. The mitigation measures discussed in an Environmental Impact Statement (EIS) must cover the range of impacts of the proposal and must be considered even for impacts that by themselves would not be considered "significant." If a proposed action is considered as a whole to have significant effects, all of its specific effects on the environment must be considered, and mitigation measures must be developed where it is feasible to do so. NOAA Fisheries may consider mitigation provided that the mitigation efforts do not circumvent the goals and objectives of the rulemaking or requirements under the Magnuson-Stevens Fishery Conservation and Management Act and other applicable law.

5.6 Mitigation Measures

5.6.1 Modifications to IBQ Share Eligibility, Distribution and Allocation Methods

Preferred Sub-Alternative A2c would determine IBQ share percentages annually based on each individual permitted vessel's designated species landings as a measure of fishing effort. Specifically, the measure of fishing effort would be the total amount by weight, of each individual vessel's designated species landings relative to the total amount of designated species landings by the pelagic longline fleet. This would result in neutral ecological impacts. This alternative would have minor beneficial socioeconomic impacts. Vessel owners that would experience a decrease in IBQ share percentage as a result of the preferred alternative may lease IBQ allocation in order to address the need for IBQ allocation to account for bluefin or fulfill the minimum share requirements under quarterly accountability. Further, if a vessel increased its amount of landings (relative to the total fleet landings), its IBQ share percentage would also increase. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

5.6.2 Modifications to Rules Closely Linked to IBQ Allocations

Preferred Alternative B3 would be implemented in conjunction with the dynamic allocation alternatives. Regional designations (GOM and ATL) would be determined on an annual basis as part of the annual dynamic allocation process, the accounting rules for the regional IBQ allocations would also remain the same, and a maximum amount of bluefin catch from the Gulf of Mexico and GOM designated IBQ allocation would be set. Specifically, regional designations would be based on the location of the relevant pelagic longline fishing activity used in the annual allocation. There would be a cap on the amount of GOM IBQ that could be used. The initial cap would be 35 percent of the longline allocation, the same as set under Amendment 7. Although the initial cap would be set at 35 percent, the amount of GOM designated shares (based on the relative amount of fishing effort in the Gulf of Mexico) may be lower. The overall socioeconomic impacts are expected to be minor and beneficial. Ecological impacts are expected to be neutral.

Preferred Alternative B4 would maintain the current method of inclusion of data from the geographic area comprising the NED, in any of the alternatives that define IBQ shares and continue the current IBQ catch accounting rules for fishing in the NED. This alternative would not affect the overall level of bluefin catch. The overall ecological and socioeconomic impacts of the No Action Alternative with respect to the NED rules would be neutral. , No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

5.6.3 Sale of IBQ Shares

Preferred Alternative C1 would continue the current regulations under which no sale of IBQ shares are allowed. Amendment 7 (2015) implemented the current rules, which

prohibit sale of IBQ shares, yet allow temporary (annual) leasing of IBQ allocation among Atlantic Tunas Longline category permit holders. IBQ shares are linked to, and non-severable from Atlantic Tunas Longline category permits and may not be sold (Atlantic Tunas Longline category permits may be sold however). Sale of shares is a separate and distinct type of transaction from temporary leasing of IBQ allocation. Atlantic Tunas Longline category permit holders may lease IBQ allocation at any time during a calendar year to another permit holder, but the leased IBQ allocation does not carry over from one year to the next. The overall ecological and socioeconomic impacts of the No Action Alternative would be neutral and minor beneficial, respectively. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

5.6.4 Cap on IBQ Shareholder Percentage or IBQ Allocation use

Preferred Sub-Alternative D1c would cap the percentage of IBQ shares that an entity could own at 25 percent of the total IBQ shares and the corresponding amount of IBQ allocation associated with the owned IBQ shares. The overall ecological and socioeconomic impacts of this alternative are expected to be neutral. Preferred Sub-Alternative D2a would maintain the Amendment 7 limit on the amount of quota allocation an individual vessel (longline or purse seine) can lease annually as the combined Longline and Purse Seine category allocations on an annual basis. The overall ecological and socioeconomic impacts of this alternative are expected to be neutral.

No mitigation measures are necessary for these alternatives, because impacts were mitigated through the selection of the preferred alternative.

5.6.5 Adjustments to other aspects of the IBQ Program

Preferred Sub-Alternative E1b would modify two aspects of the dealer reporting requirements for the IBQ Program. First, this alternative would eliminate the current requirement that vessel operators or owners confirm that the landing report information entered into the IBQ system by the dealer is accurate, by entering the PIN associated with the vessel account. Secondly, this alternative would remove the requirement that any pelagic longline vessel owner or operator who discarded dead bluefin is required to also enter dead discard information from the trip by coordinating with the dealer and entering that trip's dead discard information into the on-line IBQ system via the dealer account. This alternative would not affect the current VMS reporting requirements for bluefin dead discards. The overall ecological and socioeconomic impacts of this alternative are expected to be neutral, and minor beneficial, respectively. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative E2b would require that the vessel operator mail the hard drives at the completion of every two trips, instead of after each pelagic longline fishing trip. The overall ecological and socioeconomic impacts of this alternative are expected to be neutral,

and minor beneficial, respectively. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative E3b would provide the authority to NOAA Fisheries to require installation of permanent or semi-permanent hardware in order to mount and install video cameras at locations on vessels as necessary to obtain optimal views, and allow NOAA Fisheries, working in conjunction with the vessel owner/operator, to make relatively minor modifications to the vessel structure to mount cameras in locations that provide required views of the vessel and adjacent areas. The ecological impacts of Alternative E3b, the preferred alternative, are minor beneficial due to improved accuracy of the discard data derived from the Electronic Monitoring Program. This alternative would result in minor adverse socioeconomic impacts. Vessel crew may have to deploy the relevant hardware and experience a slight increase in the time required to maintain and operate the electronic monitoring system and increased the complexity associated with the fishing operations. Since NOAA Fisheries would cover the cost of installations of the boom, and remounting camera, there would no economic burden on the fleet. Ecological benefits from other alternatives in this action would outweigh the cost of this camera installation. No mitigation measures are necessary for these alternatives, because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative E4b would require more specific fish handling procedures and the installation/placement of a measuring grid on deck, in view of one of the cameras. Specifically, the vessel crew would be required to place retained fish on a mat with grid lines or a grid painted on deck in view of the processing camera, so the video recording included images of the fish on the mat. This alternative would result in minor beneficial ecological impacts, due to the increased potential for higher data quality. This alternative would result in minor adverse socioeconomic impacts. The crew would need to modify their fish handling procedures to place all fish on the grid. Since NOAA Fisheries would cover the cost of the mat and/or paint. No mitigation measures are necessary for this sub-alternative, because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative E5b would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by permit holders for a particular year is warranted. If cost recovery fees were charged in a particular year, the cost incurred by vessel operators that landed bluefin would be relatively minor, so the socioeconomic impacts are minor and adverse. However, as noted above, this alternative would apply an annual approach, which could help eliminate fees in years when there would be little or no net gain to NOAA Fisheries.

5.6.6 Modifications to the Purse Seine Category Management Measures and Other Category Quota Allocations

Preferred Sub-Alternative F1b would simplify the quota regulations by making a slight change to the mathematical method used in the annual quota allocation process of

providing 68 mt to the Longline category. In order to achieve a similar result through simpler means, this alternative would no longer subtract a set amount from each quota category annually, but would instead modify the currently codified allocation percentages in order to result in an amount similar to the 68-mt. The ecological and socioeconomic impacts are expected to be neutral. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative F2b would discontinue the Purse Seine category through redistribution of Purse Seine category quota effective upon implementation of the A13 final rule. The ability of vessels to obtain an Atlantic Tunas Purse Seine category permit would also end. NOAA Fisheries would remove purse seine from the list of authorized gear and remove other references in the regulations to the purse seine fishery, purse seine gear, purse seine nets, purse seine sets, purse seine vessels, and Purse Seine category, including references to Purse Seine category quota, permits, and participants. This alternative would result in neutral ecological impacts. This alternative would result moderate adverse socioeconomic impacts on potential purse seine fishery participants. No fishing by past fishery participants has occurred since 2015, which will lessen the impacts of discontinuing this fishery. Past participants in the fishery are currently not economically dependent on this fishery. Reallocation of the purse seine quota would result in greater net benefits. No mitigation measures are necessary because, impacts were mitigated through the selection of the preferred alternative.

Preferred Alternative F4 would result in additional quota for the directed categories in slightly greater amounts than the F3 alternatives (where the quota is redistributed to directed and non-directed categories) for status quo amounts for the Longline and Trap categories. ecological and socioeconomic impacts are expected to be neutral and moderately beneficial, respectively. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

5.6.7 Modifications to General category subquota periods and/or allocations

Preferred Alternative G1 would make no changes to the regulations regarding suballocation of the General category bluefin quota. Because this alternative would maintain the January-March subquota period (or associated allocation), there would be no General category activity during the months of April and May. The ecological and socioeconomic impacts are expected to be neutral. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

5.6.8 Modifications to the Angling category trophy fishery

Preferred Alternative H2 would modify the current Angling category Trophy subquota areas and allocations outlined at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° N. Lat. (off Chatham, MA); these newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively. The net result would be that the Trophy quota would be divided among four

geographic areas (in the Atlantic and Gulf of Mexico) and each area would receive the same amount of quota (i.e., the Angling category trophy quota would be divided equally four ways).

The ecological are expected to be neutral. Under this alternative, there would be minor, beneficial social impacts to recreational anglers (and economic impacts for charter vessels) to a small number of vessels in the new zone north of 42° N Lat. (the Gulf of Maine trophy area). Given the small amount of fish that would be allowed to be landed, and the perception of greater fairness among northern area participants this alternative may result in indirect, longer-term, beneficial, social impacts. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

5.6.9 Modifications to other handgear fishery regulations

Preferred Sub-Alternative I1a would maintain the current authorized gears applicable to the Atlantic tunas permit categories (§635.19(b)). For example, vessels permitted in the HMS Charter/Headboat category would continue to be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for recreational catch of non-bluefin tunas. Vessels permitted in the General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. It would not authorize the use of harpoon gear on HMS Charter/Headboat category vessels. The ecological and socioeconomic impacts are expected to be neutral. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative I2b would set an overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip (i.e., the combined limit of large medium (73” - < 81”) and giant (81” or greater) would be 10 fish), and would maintain the current regulations regarding retention of large medium bluefin (73” - < 81”) (i.e., the range of two (default) to four fish, adjustable through inseason action). This alternative would have neutral impacts because few trips would be constrained by a ten-fish limit (adverse), but also due to a potentially longer Harpoon category season (beneficial). On a per-trip basis, impacts would depend on several factors including bluefin fishing conditions and availability, the large medium retention limit (two if default but up to four through inseason action), and ex-vessel price, which is subject to numerous factors including fish handling and quality and market saturation. Overall, this measure is expected to result in neutral or minor adverse socioeconomic impacts. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative I3a would maintain the June 1 start date and November 15 closure date for the Harpoon category season. This alternative is expected to result in neutral ecological impacts. This alternative may have either beneficial or adverse, social and economic impacts (See Chapter 4 for description). This alternative would maintain the traditional start date and effectively have neutral socioeconomic impacts on the fishery as a whole. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative I4b would extend the ability to change permit categories from 45 days to the full fishing year as long as the vessel has not landed a bluefin. The ecological impacts would be neutral. The socioeconomic impacts are expected to be neutral or minor beneficial. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

Preferred Sub-Alternative I5c clarifies retention and reporting requirements for bluefin caught with green-stick gear (by vessels with Longline category permits), to allow the retention of one bluefin per trip (of 73" or greater CFL), regardless of whether pelagic longline gear is onboard, and with additional regulations applying to such trips. The ecological and socioeconomic impacts are expected to be neutral and minor beneficial, respectively. No mitigation measures are necessary, because impacts were mitigated through the selection of the preferred alternative.

5.7 Unavoidable Adverse Impacts

There are no unavoidable adverse ecological impacts expected that would result from the preferred alternatives and corresponding management measures associated with bluefin fisheries. NOAA Fisheries would continue to monitor the impact of the management measures in the preferred alternatives and would propose additional management measures, as necessary, to avoid any unanticipated adverse impacts. However, as explained in Chapter 4.0 and this chapter, there are unavoidable minor adverse socioeconomic impacts that would result from the preferred alternatives associated with bluefin fisheries. As noted, the unavoidable impacts were mitigated through the selection of the preferred alternatives, and non-selection of other analyzed alternatives.

5.8 Irreversible and Irretrievable Commitment of Resources

The management measures in the preferred alternatives would not result in any irreversible and irretrievable commitment of resources. Fishery management regulations can be revisited if/when new information comes to light and/or changing circumstances. Overall, there are expected to be neutral ecological impacts from the preferred alternatives.

5.9 Monitoring

The fishery will continue to be monitored through the diverse requirements already established through previous management actions, to ensure that fishery management plan objectives are achieved. Reporting and monitoring requirements are generally specific to the different HMS permit categories, and are fully described in the annual HMS SAFE Reports, available online. No monitoring of mitigations measures is required.

5.10 References

IPCC. 2019. Summary for Policymakers. In: IPCC Special Report on the Ocean and Cryosphere in a Changing Climate [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)]. In press.

Hallowed et. al. 2013. Projected impacts of climate change on marine fisheries. ICES J. Mar Sci. 70:1023-1037.

Muhling et. al. 2011. Past, ongoing, and future research on climate change impacts on tuna and billfishes in the western Atlantic. SCRS/2014/174. International Commission for the Conservation of Atlantic Tunas. 15 p.

Murwaski, S. 2013. Summing up Sendai: progress integrating climate change science and fisheries. ICES J. Mar Sci. 68: 1368-1372. Doi:10.1093/icesjms/fsr086.

NMFS. 2017. Final Amendment 10 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. Essential Fish Habitat. USDOC, NOAA, NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.

NMFS. 2020. 2019 Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species. NOAA, NMFS, Highly Migratory Species Management Division.

South Atlantic Fishery Management Council. 2018. Amendment 31 to the Fishery Management Plan for Coastal Migratory Pelagic Resources in the Gulf of Mexico and Atlantic Region.

6 Regulatory Impact Review

NOAA Fisheries requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest, and is conducted to comply with Executive Order 12866 (E.O. 12866). The RIR provides analyses of the economic benefits and costs of each alternative to the nation and the fishery as a whole. The information contained in Chapter 6, taken together with the data and analysis incorporated by reference, comprise the complete RIR.

The requirements for all regulatory actions 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 shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in*

choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

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

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

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.

6.1 Description of the Management Objectives

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

6.2 Description of the Fishery

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

6.3 Statement of the Problem

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

The purpose of the proposed measures is to manage Atlantic HMS resources, focusing on improvement of bluefin management, consistent with existing overfishing, rebuilding and other measures, to maximize fishing opportunities, provide flexibility in management, and minimize adverse socioeconomic impacts on affected fisheries. An amendment to the 2006 Consolidated HMS FMP is needed to address bluefin management due to the recent trends

and characteristics of the bluefin fishery, and the need to continue to comply with both domestic and international management objectives and obligations.

6.4 Description of Each Alternative

Please see Chapter 2 for a summary of each alternative and Chapter 4 for a complete description of each alternative and its expected ecological, social, and economic impacts. Chapters 3 and 6 provide additional information related to the economic impacts of the alternatives.

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

Table 6.1 summarizes the net economic benefits and costs of each of the alternatives analyzed in this Environmental Impact Statement (EIS). Additional details and more complete analyses are provided in Chapter 4.

Table 6.1 Net Economic Benefits and Costs of Each Alternative

Alternatives	Economic Benefits	Economic Costs
Modify IBQ Share Eligibility, Distribution and Allocation Methods		
Alternative A1: No Change to IBQ Share Eligibility, Distribution, and Allocation Method - No Action	No change in economic benefits.	The individual quota constraints and cost associated with the amount of IBQ allocations under Amendment 7 would continue. There would continue to be inefficiency associated with annual IBQ allocations that are neither used to account for bluefin catch nor leased to other shareholders. The total cost of leasing IBQ allocation is estimated to be $306,000 per year under the No Action Alternative. There would also be costs associated with time spent by leasing market participants communicating with other participants when they are trying to find potential lessors or lessees and the time spent by lessors executing the transactions.
Alternative A2: Dynamic Determination of IBQ Shares: Eliminate existing designations of IBQ shareholders and distribute IBQ shares only to currently active vessels		
Sub-Alternative A2a: Dynamic determination of IBQ shares based on hooks as the measure of fishing effort	Some shareholders (and permit holders without shares currently) would have an increase in the IBQ share percentage compared to the No Action alternative, while others would have a	NOAA Fisheries estimates that 31 vessels would have IBQ allocations smaller when compared to the No Action Alternative, and would be in worse economic position with

Alternatives	Economic Benefits	Economic Costs
	decrease. The number of shareholders with an increase would be greater than the number with a decrease. It is estimated that 66 vessels would have larger IBQ allocations compared to the No Action Alternative. The total lease value of IBQ shares/allocation gained is estimated to be $264,997 per year.	respect to the amount of IBQ allocation they have. Costs to vessels would be short-term, as shares would be revised each year based on the most recent available fishing effort data. The total lease value lost under this alternative is estimated to be $98,383 per year. In addition, using hooks as a measure of fishing effort might incentivize the use of additional gear in the long-term and could potentially increase bycatch.
Sub-Alternative A2b: Dynamic determination of IBQ shares based on pelagic longline sets as the measure of fishing effort	Some shareholders (and permit holders without shares currently) would have an increase in IBQ share percentage compared to the No Action Alternative, while others would have a decrease. NOAA Fisheries estimates 66 vessels would have larger IBQ allocations compared to the No Action Alternative. The total lease value of IBQ allocation gained would be $265,843 per year.	NOAA Fisheries estimates that 31 vessels would have smaller IBQ allocations compared to the No Action Alternative, and would be in worse economic position with respect to the amount of IBQ allocation they have. Costs to vessels would be short-term, as shares would be revised each year based on the most recent available fishing effort data.The total lease value of IBQ allocation lost would be approximately $99,280 per year. Using the number of sets per year as a measure of fishing activity could incentivize more fishing activity (potentially inefficient activity) in order for vessels to increase their IBQ allocations in future years. This could result in increased operating costs and reduced profitability in the short-term.
Sub-Alternative A2c Dynamic determination of IBQ shares based upon designated species landings as the measure of fishing effort - Preferred Alternative	Some shareholders (and permit holders without shares currently) would have an increase in IBQ share percentage compared to the No Action Alternative, while others would have a decrease. NOAA Fisheries estimates 57 vessels would have larger IBQ allocations compared to the No Action Alternative. The total lease value of IBQ allocation gained would be $278,384 per year. Basing IBQ allocation on designated species landings aligns the individual vessel incentives associated with this measurement with management objectives.	NOAA Fisheries estimates that 42 vessels would have smaller IBQ allocations compared to the No Action Alternative, and would be in worse economic position with respect to the amount of IBQ allocation they have. Costs to vessels would be short-term, as shares would be revised each year based on the most recent available fishing effort data. The total lease value of IBQ allocation lost would be approximately $119,124 per year.
Sub-Alternative A2d: Dynamic determination of IBQ shares and distribution of IBQ allocation in equal amounts to active vessels.	Some shareholders (and permit holders without shares currently) would have an increase in IBQ share percentage compared to the No Action Alternative, while others would have a	NOAA Fisheries estimates that 37 vessels would have smaller IBQ allocations compared to the No Action Alternative, and would be in worse economic position with respect to the

Alternatives	Economic Benefits	Economic Costs
	decrease. NOAA Fisheries estimates 61 vessels would have larger IBQ allocations compared to the No Action Alternative. The total lease value of IBQ allocation gained would be $201,576 per year.	amount of IBQ allocation they have. The total lease value of IBQ allocation lost would be approximately $40,067 per year.
Modifications to Rules Closely Linked to IBQ Allocations		
Alternative B1: Regional Designations - No Action	No change in economic benefits.	No change in economic costs.
Alternative B2: Eliminate the Regional IBQ Designations and Cap Bluefin Catch from the GOM	There may be a short-term benefit to vessels that have only ATL designated IBQ allocation, and currently must lease GOM designated IBQ allocation in order to fish in the Gulf of Mexico. Such vessels would be able to fish in the Gulf of Mexico without the need to lease, which may reduce or eliminate the need for leasing IBQ allocation by such vessels. Facilitation of fishing opportunities in the Gulf of Mexico may result in increased revenue for such vessels.	For vessels that already fish exclusively in the Gulf of Mexico with all or most of their IBQ allocation designated as GOM, this alternative may have indirect cost associated with increased competition for fishing grounds or markets due to any increased fishing effort in the Gulf of Mexico.
Alternative B3: Modify Regional Designations for a Dynamic Allocation System and Cap Bluefin Catch from the Gulf of Mexico (Preferred Alternative)	This alternative would provide increased flexibility for vessels that currently have ATL designated IBQ shares, because the dynamic annual definition of shares and regional designations would enable a vessel to receive annual shares with a GOM regional designation as a result of fishing with pelagic longline gear in the Gulf of Mexico during the previous year. This would decrease the need to lease GOM designated IBQ allocation annually.	If the number of vessels fishing in the Gulf of Mexico increased, there may be minor short-term costs due to increased competition in the area, but the potential is very low.
Alternative B4: NED Rules - No Action (Preferred)	No change in economic benefits.	No change in economic costs.
Alternative B5: Do not include NED fishing activity as part of the data used in calculating IBQ allocations	No change in economic benefits.	Vessels fishing in the NED would face economic costs because their fishing effort in the NED would not be reflected in their IBQ share percentage. Depending upon the specific amount of fishing effort, a vessel may receive a lower IBQ share percentage. If vessel owners operating in the NED receive a lower IBQ share percentage relative to their total fishing effort than other vessels, this may put them at a competitive disadvantage. Disadvantaging vessels that fish in the NED may alter the costs

Alternatives	Economic Benefits	Economic Costs
		and incentives for vessels to fish in the NED, and have adverse long-term impact on the fishery as a whole due to underutilization of swordfish.
Sale of IBQ Shares		
Alternative C1: No Sale Allowed - No Action (Preferred Alternative)	Continued prohibition on sale of IBQ shares would reduce uncertainty in the IBQ allocation leasing market, which would be beneficial to the IBQ Program overall.	Might limit some participants from accumulating additional IBQ shares to scale up their business.
Alternative C2: Allow Sale of IBQ Shares	Sale of IBQ shares provides participants an alternative means of participating in the IBQ leasing market that enables management of their IBQ allocation and business planning on a longer time scale than a single year. Permit holders may be able to save money through a single IBQ share transaction instead of via annual IBQ allocation lease transactions.	Allowing sale of IBQ shares would introduce uncertainty in the IBQ leasing market, which is otherwise robust. This alternative would also be inconsistent with a dynamic allocation alternative, which redefines shareholders on an annual basis.
Cap on IBQ Shareholder Percentage or IBQ Allocation use		
Alternative D1: Cap Accumulated Sum of IBQ Shares Owned by a Single Entity		
Sub-Alternative D1a: No Action (No cap on amount of IBQ shares owned)	No change in economic benefits.	No change in economic costs in the short-term. In the long-term, if one entity was to buy sufficient Atlantic Tunas Longline category permits with IBQ shares, or buy IBQ shares if allowed under Alternative C2, to control an excessive portion of the market, there could be economic costs resulting from any market inefficiencies that would develop.
Sub-Alternative D1b: Cap amount of IBQ shares owned at seven percent	Implementing a low cap to prevent acquisition of excessive IBQ shares would prevent a single entity from controlling an excessive portion of the market. Otherwise, no change in economic benefits is expected.	There is the possibility that entities could have business plans to acquire additional shares that would be above the seven-percent cap, in which case there could be economic cost associated that cap. If under the preferred 'A' alternatives, the number of active vessels decreases and therefore the IBQ share percentage to each vessel increases, the cap could be reached and limit an entity's ability to IBQ shares above the cap. At the 7 percent cap, an entity could have to forgo a portion of the IBQ shares they would otherwise receive to stay at or below the cap. This could in turn limit

Alternatives	Economic Benefits	Economic Costs
		the amount of fishing activity and target species landings of vessels or businesses, potentially preventing that business from increasing activity.
Sub-Alternative D1c: Cap amount of IBQ shares owned at 25 percent (Preferred Alternative)	No change in economic benefits would be expected. It is not likely that an entity would reach a 25 percent cap through the annual IBQ shares they would receive under the A alternatives. Implementing a cap to prevent acquisition of excessive IBQ shares (through purchase of Atlantic Tunas Longline category permits or IBQ shares if allowed under Alternative C2) would prevent a single entity from controlling an excessive portion of the market, which could be a long-term benefit.	There is the possibility that entities could have business plans to acquire additional shares that would be above a 25 percent cap. In that case, there could be economic costs associated with that cap.
Sub-Alternative D1d: Cap amount of IBQ shares owned at 50 percent	No change in economic benefits would be expected. It is not likely that an entity would reach a 50 percent cap through the annual IBQ shares they would receive under the A alternatives. Implementing a cap to prevent acquisition of excessive IBQ shares (through purchase of Atlantic Tunas Longline category permits or IBQ shares if allowed under Alternative C2) would prevent a single entity from controlling an excessive portion of the market, which could be a long-term benefit.	This alternative could have minor economic cost, if the high cap level of 50 percent is insufficient to prevent acquisition of excessive IBQ shares. On the other hand, there is the possibility that entities could have business plans to acquire additional shares that would be above a 50 percent cap. In that case, there could be economic costs, although this is not likely with the high 50 percent cap level.
Alternative D2: Establish a Cap on the Amount of IBQ Allocation an Entity May Lease or Use		
Sub-Alternative D2a: No Action (No Cap on Amount of IBQ Allocation Leased or Used) (Preferred Alternative)	No change in economic benefits.	No change in economic costs.
Sub-Alternative D2b: Establish a Cap on the amount of IBQ Allocation an Entity may lease or use	No change in economic benefits.	In the long term, there is the possibility that entities could have business plans to acquire IBQ allocations (through IBQ shares or leasing of IBQ allocations) that would be above a 25-percent cap. In that case, there could be economic costs associated with this cap.
Adjustments to other aspects of the IBQ Program		

Alternatives	Economic Benefits	Economic Costs
Alternative E1: Dealer Reporting Requirements		
Sub-Alternative E1a: Maintain Current Dealer Reporting Requirement for IBQ Program - No Action	No change in economic benefits.	There are continuing minor costs associated with requiring vessel operators and dealers to collaborate in submitting information that is also supplied independently by vessel operators by way of VMS. The requirement for fishermen to submit a PIN when dealers entered landings data was also frustrating for fishermen and dealers alike since fishermen were frequently either not available when dealers entered the data, or did not have access to their PIN.
Sub-Alternative E1b: Modify Dealer Reporting Requirements for IBQ Program (Preferred Alternative)	This alternative would continue the current VMS reporting requirements for bluefin dead discards. It would remove the requirement that a pelagic longline vessel owner or operator must coordinate with a dealer to enter a trip's dead discard information into the on-line IBQ system via the dealer account. This alternative would also eliminate the current requirement that vessel operators or owners enter a PIN associated with the vessel account. These changes would reduce labor cost associated with this reporting.	Reduced labor costs, as explained on left.
Alternative E2: Requirements for Mailing Electronic Monitoring Hard Drives		
Sub-Alternative E2a: Maintain Current Requirement for Mailing Electronic Monitoring Hard Drives - No Action	No change in economic benefits.	No change in economic costs. Costs associated with the requirement for shipping hard drives to NOAA Fisheries after each fishing trip would continue.
Sub-Alternative E2b: Modify Requirement for Mailing Electronic Monitoring Hard Drives (Preferred Alternative)	This alternative would reduce the cost and time associated with mailing electronic monitoring hard drives by reducing the frequency of hard drive shipments. This reduction in shipping frequency would save operators an average of $120 per year and time and labor, as they would only have to pull, package and ship hard drives after every other trip.	Reduced costs, as explained on left. The reduction in shipping frequency would not have a negative impact on the review of the data.
Alternative E3: Electronic Monitoring - Camera Installation		
Sub-Alternative E3a: Maintain Current Regulations for Camera Installation - No Action	No change in economic benefits.	No change in economic costs.

Alternatives	Economic Benefits	Economic Costs
Sub-Alternative E3b: Clarify and Expand NOAA Fisheries authority for Installation of Cameras (Preferred Alternative)	Installation of permanent or semi-permanent hardware in order to mount and install video cameras at locations on vessels necessary to obtain optimal views, may improve accuracy of the discard data derived from the Electronic Monitoring Program. This would result in improved management of the fishery in the long-term.	There are economic costs associated with modifying the camera installation and placement. Vessel crew would be required to extend, lower, or raise the boom mounted camera during fishing activities if needed. Additional logistics required may represent an increased time burden. Crew may also be required to access the camera during the trip in order to clean the lens. The process of cleaning the lens may be more difficult if the camera is mounted on a boom. The cost associated with the installation of booms would be paid by NOAA Fisheries. NOAA Fisheries estimates that to add a boom and mount a camera could cost up to $1,000 per vessel. With an active fleet of 86 vessels, the total cost to the agency is estimated to be $86,000. Since NOAA Fisheries would cover the cost of installations of the booms, and re-mounting cameras, there would be no economic burden on the fleet.
Alternative E4: Specify Additional Fish Handling Protocols for Electronic Monitoring		
Sub-Alternative E4a: Maintain Current Fish Handling Protocols for Electronic Monitoring - No Action	No change in economic benefits.	No change in economic costs.
Sub-Alternative E4b: Specify Additional Fish Handling Protocols for Electronic Monitoring (Preferred Alternative)	There would be some minor economic benefits associated with improvements to bluefin data quality. More accurate fish identification and sizing would decrease reporting and monitoring uncertainty.	This alternative may increase costs in terms of the time required to process fish, or costs associated with a measurement tool such as a processing mat or painted grid on the deck. Nonskid deck paint costs between about $35 and $85 a gallon. A 4 foot by 8 foot all weather mat, custom printed with a grid may cost approximately $225 a mat. NOAA Fisheries would cover the associated costs
Alternative E5: Cost Recovery Program		
Sub-Alternative E5a: No Cost Recovery Program - No Action	No change in economic benefits.	No change in economic costs.
Sub-Alternative E5b: Implement a Cost Recovery Program (Preferred Alternative)	No change in economic benefits.	There would be direct cost to pelagic longline vessel owners that land bluefin associated with a cost recovery program. They would incur a

Alternatives	Economic Benefits	Economic Costs
		fee based on their bluefin landings. The industry-wide fees could total about $25,178 per year in total based on average bluefin landings from 2016-2018. NOAA Fisheries would incur costs annually as a result of the time required to determine whether a cost recovery fee will be charged, and as a result of the process of charging a cost recovery fee, if NOAA Fisheries makes a determination that a fee for a particular year is warranted.
Modifications to the Purse Seine Category and Other Category Quota Allocations		
Alternative F1: Modify codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category.		
Sub-Alternative F1a: Current Method of Deriving 68 mt for Allocation to Longline Category — No Action	No change in economic benefits.	The minor administrative costs associated with this alternative would continue (i.e., more complex mathematical calculation and challenge communicating information to the public).
Sub-Alternative F1b: Modify codified Longline quota allocation (%) to reflect the annual 68-mt allocation to the Longline category (Preferred Alternative)	No change in economic benefits in the short-term. If the ICCAT quota increased in the future, this alternative would have benefits for the Longline category participants because the category would be allocated slightly more quota than under the No Action Alternative.	No change in economic costs in the short-term. If the ICCAT quota decreased in the future, this alternative would have costs for the Longline category participants because the category would be allocated slightly less quota than under the No Action Alternative.
Alternative F2: Purse Seine category and quota allocation		
Sub-Alternative F2a: Maintain Purse Seine Category - No Action	No change in economic benefits	The current economic costs associated with this alternative would continue. There would be opportunity costs associated with unused Purse Seine category quota that is not reallocated or leased.
Sub-Alternative F2b: Discontinue Purse Seine category and reallocate quota upon implementation of Amendment 13 (Preferred Alternative)	No change in economic benefits.	This alternative would have moderate long-term economic costs to the purse seine category participants. Purse seine category participants would no longer be distributed bluefin quota, so neither fishing for bluefin or leasing in the IBQ system would be allowed.The revenue losses from leasing are estimated at $38,391 category-wide or $7,678 per vessel, based on average rates of leasing in the past. The other source of

Alternatives	Economic Benefits	Economic Costs
		potential lost revenue is fishing. Purse seine category participants last landed fish during 2013-2015. The most likely estimation of Purse Seine category fishing activity over the next five years is for 0 mt landings since the category has not fished since 2015. The estimated maximum amount the Purse Seine category could catch on an annual basis, taking into consideration dead discards, is estimated to be $1.61 million.
Alternative F2c: Discontinue Purse Seine category and reallocate quota at a future date (i.e., "sunset" date)		
Sub-Alternative F2c1: Allow current Purse Seine category participants to lease and fish until sunset date	No change in economic benefits.	The costs are the same as Alternative F2b, but delayed by two years since both fishing and leasing activity would be allowed under this alternative until the end of Year 2. The revenue losses from leasing are estimated at $38,391 category-wide or $7,678 per vessel, based on average rates of leasing in the past. .
Sub-Alternative F2c2: Allow current Purse Seine category participants to lease but not fish until sunset date	No change in economic benefits.	The costs are the same as Alternative F2c1, but only leasing activity would be allowed under this alternative until the end of Year 2. The revenue losses from leasing as of year 2 are estimated at $38,391 category-wide or $7,678 per vessel, based on average rates of leasing in the past.
Alternative F3: Reallocate Purse Seine category quota proportionally to all other quota categories		
Sub-Alternative F3a: Reallocate Purse Seine category quota proportionally to all other quota categories, and apply Longline category increase to all areas	The economic benefits of this alternative would include estimated increases in revenue for the commercial quota categories that would receive the redistributed quota after the Purse Seine category is phased out. When combined with Alternative F2b, the estimated annual increase in revenue for these categories totals $2.30 million. Net impacts (i.e., economic impacts to all categories combined) are also beneficial, since the estimated annual revenue loss to the Purse Seine category for leasing is $38,391 annually, which equals a net increase in revenue of approximately $2.26 million annually,.	No change in economic costs. (*See* F2 alternatives for costs associated with discontinuation of the Purse Seine category).
Sub-Alternative F3b: Reallocate	The economic benefits would include estimated	No change in economic costs. (*See* F2

Alternatives	Economic Benefits	Economic Costs
Purse Seine category quota proportionally to all other quota categories, but do not allow an increase in the Gulf of Mexico for Longline category	increases in revenue for the commercial quota categories that received the redistributed quota after the Purse seine category was terminated, excluding any increase because of use of the redistributed quota in the Gulf of Mexico by the Longline category. When combined with Alternative F2b, the estimated annual increase in revenue for these categories totals $2.30 million. Net impacts are also beneficial, since the estimated annual revenue loss to the Purse Seine category for leasing is $38,391, which equals a net increase in revenue of approximately $2.2 million annually.	alternatives for costs associated with discontinuation of the Purse Seine category).
Alternative F4: Reallocate Purse Seine category quota proportionally but only to directed bluefin categories, including Reserve (not Longline or Trap) (Preferred Alternative)	The economic benefits would include estimated increases in revenue for the commercial quota categories that received the redistributed quota after the Purse Seine category was terminated. When combined with Alternative F2b, the estimated annual increase in revenue for these categories totals $2.26 million. Net impacts are also beneficial, because the estimated annual revenue loss for the Purse Seine category from loss of leasing is $38,391, which equals a net increase in revenue of approximately $2.2 million annually. Revenue for leasing rather than fishing was used to calculate net value because it is the most likely scenario, since Purse Seine category participants have not fished since 2015, but have been actively leasing quota through 2019. When combined with Alternative F2c (1 and 2), which would reallocate the Purse Seine category quota after a 2-year sunset period, the annual net gains would also be approximately $2.22 million.	No change in economic costs. (*See* F2 alternatives for costs associated with discontinuation of the Purse Seine category).
Modifications to General category subquota periods and/or allocations		
Alternative G1: Maintain Current General Category Sub-Quota Periods - No Action (Preferred)	No change in economic benefits.	No change in economic costs.

Alternatives	Economic Benefits	Economic Costs
Alternative G2: Modify General category subquota time periods		
Sub-Alternative G2a: Modify General category subquota time periods: 12 equal months	There would generally be increased revenues for January through May and October through December. For early season (January-March) General category participants, there would be a potential revenue increase of approximately $1.6 million during this time period. For October-November and for December, potential revenues would increase by approximately $309,000 (28 percent) and $404,000 (60 percent) at $6.89 per pound and $10.54 per pound, respectively. The June to August and September sub-quota periods would have potential revenue decreases of $1.9 million and $1.5 million, respectively. Net annual revenues would increase by approximately $303,000 (3.6 percent). The changes in revenues in these General category subquota allocation alternatives is strongly subject to availability of fish and fishing conditions during these time periods.	There would generally be decreased revenues for June through September. Potential revenue for the June-August and September periods would decrease by approximately $1.9 million and $1.5 million under this alternative.
Sub-Alternative G2b: Modify General subquota category time periods: Extend the January through March subquota time period through April 30	This alternative would increase the likelihood of winter General category participants and Charter/Headboat participants, when fishing commercially, being able to catch the full January subquota, particularly if the NOAA Fisheries increases the January-March subquota via an inseason transfer. Increases in economic benefits would depend on the availability of bluefin to the fishery from the beginning of April until the available subquota (base or adjusted, as applicable) is reached. Price per pound is also influenced by the amount of bluefin on the market. NOAA Fisheries estimates the value of an unused mt of January-March subquota, using the January-March 2019 average price per pound of $6.93, at $15,277.	To the extent that less unused quota might roll forward to later periods, impacts for General category participants fishing in the later time periods would be negative and potentially cost some businesses reduced revenue.
Alternative G3: Modify General category subquota allocation percentages		
Sub-Alternative G3a: Modify General category subquota allocation percentages: Increase	If quota that is anticipated to be unused in the first part of the summer season is made available to January through March period	This alternative could result in some economic cost overall to participants in the June through December time periods.

Alternatives	Economic Benefits	Economic Costs
the January through March amount	General category participants and bluefin are landed against the January through March subquota, it would potentially result in improved and fuller use of the General category quota. Also, because bluefin price per pound is often higher in the January period than during the summer, shifting quota to this earlier period would result in beneficial impacts to early season General category participants. It is possible, however, that an increase of bluefin on the market in the January through March period could reduce the average price for that time of year. This could reduce overall revenues and/or profitability during that period. Overall, economic benefits would be expected for the January through March fishery participants.	
Sub-Alternative G3b: Modify General category subquota allocation percentages: Increase the September and the October through November amounts and decrease June through August amount	To the extent that quota that is anticipated to be unused in the first part of the summer season is made available to General category participants for the September and October through November periods and bluefin are landed against those subquotas, it would potentially result in improved and fuller use of the General category quota. In the last three years however, the June through August base subquota has been exceeded, and the fishery for that time period was closed in 2017 and 2019 prior to August 31. Also, because bluefin price per pound is often higher in the September and October through November periods than during the June through August period, shifting quota to these later periods would result in beneficial impacts to fall General category participants. It is possible, however, that an increase of bluefin on the market in the fall periods could reduce the average price for that time of year. Additionally, any unused quota from the June through August subperiod rolls forward to subsequent periods. Overall, economic benefits are expected to be neutral to positive, and would be beneficial for September through November fishery participants.	This alternative could result in some economic cost overall to participants in the June through August time periods if the decreases in quota impact revenues from fishing. There is a risk in shifting quota allocation to later periods in the fishing year that the full General category quota may not be reached, depending on fishing conditions and bluefin availability on the fishing grounds.
Sub-Alternative G3c: Modify	An additional 110.4 mt (based on reallocation of	General category participants that fish outside

Alternatives	Economic Benefits	Economic Costs
General category subquota allocation percentages: If reallocate Purse Seine quota proportionally to all other quota categories, place all quota that is reallocated to the General category to the fall time periods	75 percent of the current Purse Seine category quota) or 147.3 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category September period could result in additional potential annual gross revenues of over $1.6 million or $2.2 million, respectively. An additional 54.2 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 72.2 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category October- November period could result in additional potential annual gross revenues of over $823,000 or $1.1 million, respectively.	of the fall time periods might experience fewer benefits from any reallocation of the Purse Seine quota.
Modifications to the Angling category trophy fishery		
Alternative H1: Maintain Current Angling Category Trophy Areas and Allocations - No Action	No change in economic benefits.	There may be some economic costs to Angling category and for-hire Charter/Headboat category fishermen in New England states as they may have little to no opportunity to land bluefin when the fish are in their area as the northern trophy fishery may already be closed for the year if recent bluefin availability patterns continue.
Alternative H2: Modify Angling category trophy areas and allocations (percentages) (Preferred)	There would be economic benefits to a small number of vessels in the new Gulf of Maine trophy area given the small amount of fish that would be allowed to be landed.	There could be some decrease in angler satisfaction for those fishing for large school/small medium bluefin due to the slight reduction in allocation for those size classes.
Modifications to other handgear fishery regulations		
Alternative I1: Use of harpoon gear on vessels other than Harpoon category-permitted vessels		
Sub-Alternative I1a: Maintain the Current Authorized Gears - No Action (Preferred Alternative)	No change in economic benefits.	No change in economic costs.
Sub-Alternative I1b: Allow use of harpoon gear on charter/headboat vessels	There would be economic benefits specifically for those vessels that have success in harpooning bluefin that may be available at the water's surface. There are times when the feeding behavior of commercial sized bluefin makes hooking a fish difficult, so harpooning	There could be economic costs for existing HMS Charter/Headboat operators due to the potential for Atlantic Tunas General or Harpoon category permit holder to change to the HMS Charter/Headboat category, potentially increasing competition for charter business.

Alternatives	Economic Benefits	Economic Costs
	could lower costs in those cases. This alternative would increase opportunities for commercial handgear fishermen to attain the bluefin Atlantic Tunas General category quota.	There could be costs associated regarding the potential for increases in bycatch mortality due to high-grading, or if fish under the commercial size are harpooned and released due to size restrictions.
Sub-Alternative I1c: Remove harpoon gear as an authorized gear for General category permitted vessels	There could be some benefits to rod and reel fishermen in the General category from reduced pressure from landings by General category participants that used harpoon, which could fill the available General category quota quickly according to comments. NOAA Fisheries estimates a potential increase of $234,240 to General category (quota) participants using rod-and-reel if harpoon is prohibited based on data that shows that 125 fish were reported as harpooned by General category permitted vessels in 2019.	There would be increased costs since this alternative would reduce flexibility and efficiency in catching the General category quota. There could be an estimated $164,979 reduction in bluefin caught per year by General category participants that used harpoon gear in the past.
Alternative I2: Harpoon category daily retention limit		
Sub-Alternative I2a: Maintain Current Harpoon Category Retention Limits - No Action	No change in economic benefits.	In the short-term the economic costs are likely to be neutral. However, in the long-term economic costs could be negative, as participants would continue to be limited to the default of two large medium bluefin if caught while targeting giant bluefin.
Sub-Alternative I2b: Set a Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and maintain current retention limit (range) on large medium bluefin (Preferred)	No change in economic benefits.	There would be minor costs resulting from a few trips being constrained by a ten fish limit. NOAA Fisheries estimates a loss of one to 10 fish for the Harpoon category would be approximately $1,640 to $16,402 for the Harpoon category as a whole for the year (or $1,922 to $19,220 for the year, using average of 2017-2019 price data).
Sub-Alternative I2c: Set a Harpoon category limit on the total number of bluefin at 10 fish (combined large medium and giant bluefin) and adjust daily retention limit for large medium bluefin over a range of 0-5 fish range (adjusted inseason)	No change in economic benefits.	The impacts of this alternative would be very similar to those for I2b, but the large medium retention limit could be adjusted via inseason action up to 5 fish (with a default of 2). Because a higher limit of large mediums would result in less potential for landing giants per day or trip, ex-vessel revenues could be decreased relative to Alternative I2b due to less overall weight of fish sold.

Alternatives	Economic Benefits	Economic Costs
Alternative I3: Harpoon category season		
Sub-Alternative I3a: Maintain Current Harpoon Category Start and End Dates - No Action (Preferred)	No substantial change in economic benefits. The benefits would be attributed to the Harpoon category season remaining consistent with prior years. To the extent that opportunities could extend deeper into the summer, more Harpoon category participants could benefit. The Harpoon and General category seasons starting together also would facilitate enforcement and business planning, and provide greater certainty to participants regarding opportunities, participation/effort, and potential impact on market prices.	To the extent that bluefin may be available to harpoon gear operators prior to June 1, opportunities to harpoon fish may be lost, both from the catch of the fish and the potential for better ex-vessel prices when there may be fewer fish on the market, particularly from the General category, which would not begin until June 1.
Sub-Alternative I3b: Adjust Harpoon category season	This alternative would increase the likelihood of Harpoon category participants being able to catch the full Harpoon category quota and thus benefit from landings revenue. An increase in yield may result from a potential increase in the geographic and temporal distribution of landings. The value of an unused metric ton of Harpoon category landings is estimated at $11,838 and $13,845 using the average 2017-2019 price.	No substantial change in economic costs are expected, but uncertainty in the harpoon and General category fisheries would increase.
Alternative I4: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed bluefin		
Sub-Alternative I4a: Maintain Current 45-day Permit-Change Restriction - No Action	No change in economic benefits.	There are a small number of permit holders that obtain an annual permit in the wrong category that results in prohibiting commercial fishermen from selling fish or a charter/headboat fishermen from taking paying passengers for a year.
Sub-Alternative I4b: Allow vessels with an open access Atlantic tunas or HMS permit to change permit categories within a fishing year provided they have not landed a bluefin. (Preferred)	There are slight benefits associated with allowing permit holders that obtain annual permits in the wrong category to change permit categories within a fishing year. This would allow those commercial fishermen to sell fish or charter/headboat fishermen to take paying passengers (e.g., Angling category permit incorrectly obtained).	No change in economic costs.
Alternative I5: Clarify Regulations for Retention of Bluefin Caught with Green-stick Gear by Longline category permitted vessels		

Alternatives	Economic Benefits	Economic Costs
Sub-Alternative I5a: No Action - Do not change the current green-stick gear regulations	No change in economic benefits.	This would maintain the current regulations that preclude a pelagic longline vessel from retaining and selling bluefin caught on greenstick gear. Vessels would be required to discard a legal-sized bluefin if caught.
Sub-Alternative I5b: Allow Longline category permitted vessels to use green-stick gear provided that pelagic longline gear is not onboard and vessels comply with VMS set report, HMS logbook, and IBQ Program requirements	This alternative would have minor economic benefits because a vessel would be able to retain a legal-sized bluefin that may otherwise be discarded dead due to a de facto prohibition on bluefin retention. Retention of such fish would reduce waste and augment revenue.	Adding this restriction could limit the ability of those vessels to maximize their opportunity to catch yellowfin. However, very few fishermen use both types of gear at the same time.
Sub-Alternative I5c: Regardless of whether pelagic longline gear is onboard, apply an incidental greenstick gear retention limit of one bluefin for Longline category permitted vessels, provided that vessels comply with VMS set report, HMS logbook, and IBQ Program requirements (Preferred)	This alternative would have minor economic benefits because a vessel would be able to retain a legal-sized bluefin that may otherwise be discarded dead due to a de facto prohibition on bluefin retention. Retention of such fish would reduce waste and augment revenue. Allowing the use of green-stick gear while pelagic longline gear is onboard is intended to provide vessel operators flexibility to employ fishing strategies with multiple gear types to optimize their business in a highly dynamic fishery.	No change in economic costs.

7 Initial Regulatory Flexibility Analysis

The Initial Regulatory Flexibility Analysis (IRFA) is conducted to comply with the Regulatory Flexibility Act (5 U.S.C. §§ 601 et seq.) (RFA). The goal of the RFA is to minimize the economic burden of federal regulations on small entities. To that end, the RFA directs federal agencies to assess whether a proposed regulation is likely to result in significant economic impacts to a substantial number of small entities, and identify and analyze any significant alternatives to the proposed rule that accomplishes the objectives of applicable statutes and minimize any significant effects on small entities. Certain data and analyses required in 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 Statement of the Need for and Objectives of this Final Rule

Please see Chapter 1 for a description of the reasons why action is being considered for the proposed action.

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

Section 603(b)(2) of the RFA requires Agencies to state the objective of, and legal basis for the proposed action. Please see Chapter 1 for a full description of the objectives of this action.

The objectives of this action are listed in Chapter 1. NOAA Fisheries developed the draft management objectives based upon the data and recommendations of the Three-Year Review, comments received during the Amendment 13 scoping process, and the detailed suggestions and concerns expressed by the HMS Advisory Panel, fishery participants, and the public regarding management of bluefin over the last several years. These specific objectives are within the context of the current 2006 Consolidated HMS FMP and its amendments, including the overarching objectives of ending overfishing, and meeting other legal obligations and conservation and management goals and requirements.

7.3 Description and Estimate of the Number of Small Entities to Which the Proposed Rule Would Apply

Section 603(b)(3) of the Regulatory Flexibility Act requires Agencies to provide an estimate of the number of small entities to which the rule would apply. The Small Business Administration (SBA) authorizes an agency to develop its own industry-specific size standards after consultation with SBA Office of Advocacy and an opportunity for public

comment (see 13 CFR 121.903(c)). Pursuant to this process, NOAA Fisheries issued a final rule that established a small business size standard of $11 million in annual gross receipts for all businesses in the commercial fishing industry (NAICS 11411) for RFA compliance purposes. 80 FR 81194, December 29, 2015 (effective on July 1, 2016). SBA has established size standards for all other major industry sectors in the U.S., including the scenic and sightseeing transportation (water) sector (North American Industry Classification System (NAICS) code 487210, for-hire), which includes charter/party boat entities. SBA has defined a small charter/party boat entity as one with average annual receipts (revenue) of less than $8.0 million.

NOAA Fisheries considers all HMS permit holders to be small entities because they had average annual receipts of less than $11 million for commercial fishing. Regarding those entities that would be directly affected by the preferred alternatives, the average annual revenue per active pelagic longline vessel is estimated to be $187,000 based on the 170 active vessels between 2006 and 2012 that produced an estimated $31.8 million in revenue annually. The maximum annual revenue for any pelagic longline vessel between 2006 and 2016 was less than $1.9 million, well below the NOAA Fisheries small business size standard for commercial fishing businesses of $11 million. In 2016, there were 280 Pelagic Longline category permits, and 85 vessels were actively fishing based on logbook records.

Other non-longline HMS commercial fishing vessels typically earn less revenue than pelagic longline vessels and, thus, would also be considered to be small entities. The other (non-pelagic longline) preferred commercial alternatives would apply to 2,721 General category permit holders, 3,769 Charter/Headboat permit holders, 20 Harpoon category permit holders, and 34 seafood dealers that purchase bluefin (based on 2019 data). There are no Purse Seine category permits issued currently, however there are five historical participants in the purse seine fishery that are allocated bluefin quota that may participate in the IBQ leasing program.

NOAA Fisheries has determined that the preferred alternatives 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.

More information regarding the description of the fisheries affected, can be found in Chapter 3.

7.4 Description of the Projected Reporting, Record-Keeping, and Other Compliance Requirements of the Proposed Rule, Including an Estimate of the Classes of Small Entities Which Would be Subject to the 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. Some preferred alternatives in Draft

Amendment 13 would result in reporting, record-keeping, and compliance requirements that require a new or modified Paperwork Reduction Act filing.

Under Preferred Alternative F2b, NOAA Fisheries would remove the requirements for vessels fishing with purse seine gear to report bluefin information through VMS, because this alternative would eliminate the provisions that allow fishing with purse seine gear.

Under Preferred Sub-Alternative I5c, vessels authorized to fish with pelagic longline gear would be allowed to retain one bluefin per trip (73" or greater CFL) caught with greenstick gear. New reporting requirements would be implemented to collect data from sets made with greenstick gear. Vessels would be required to submit a Vessel Monitoring System (VMS) set report for each green-stick retrieval with interactions with bluefin, and report information on the location of the set, and numbers and length of bluefin within 12 hours (in addition to the VMS reports for pelagic longline sets). Vessels would be required to comply with the IBQ Program requirements regarding accounting for bluefin using IBQ allocation, quarterly accountability, and other applicable regulations. NOAA Fisheries estimates that the number of small entities that would be subject to these requirements would include participants in the Longline category. As of March 2020, a total of 280 Atlantic Tunas Longline category limited access permits have been issued. However, only three vessels are expected to use green-stick gear, based on historical information.

Under Preferred Sub-Alternative E1b, NOAA Fisheries would remove two aspects of the dealer reporting requirements for the IBQ Program. First, this alternative would eliminate the current requirement that vessel operators or owners confirm that the landing report information entered into the IBQ system by the dealer is accurate, by entering the Personal Identification Number (PIN) associated with the vessel account (pursuant to §635.15(b)(4)(iii)). Secondly, this alternative would remove the requirement that any pelagic longline vessel owner or operator who discarded dead bluefin is required to also enter dead discard information from the trip by coordinating with the dealer and entering that trip's dead discard information into the online IBQ system via the dealer account. These changes would reduce reporting requirements for the same 280 Longline category permittees, described above. It is likely that the number of vessels that would actually be affected by this requirement, would not be larger than 60 vessels. Since 2017, no more than 58 different pelagic longline vessels have landed bluefin tuna.

Preferred Sub-Alternative E5 would implement a flexible cost recovery program, under which NOAA Fisheries would make an annual determination whether a cost recovery fee paid by permit holders for a particular year is warranted. Annually, NOAA Fisheries would estimate its incremental costs associated with the IBQ Program (including costs associated with the cost recovery program) and the total ex-vessel value of bluefin sold from the pelagic longline fishery, and provide notice on whether a cost recovery fee will be charged for the year. If NOAA Fisheries determines the annual cost recovery fee is warranted, NOAA Fisheries would send bills electronically or via paper mail bills to Atlantic Tunas Longline permit holders that landed bluefin (based on dealer landings data). Permit holders would be billed based on the ex-vessel value of the bluefin purchased. Permit holders would pay the cost recovery fee through the online IBQ Program website and the associated pay.gov

link. NOAA Fisheries estimates that the number of small entities that could be subject to new cost recovery requirements would include Atlantic tuna longline permit holders. It is likely that the number of vessels that would actually be affected by this requirement, would not be larger than 60 vessels. Since 2017, no more than 58 different pelagic longline vessels have landed bluefin tuna.

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, the Atlantic Tunas Convention Act, the High Seas Fishing Compliance Act, the Marine Mammal Protection Act, the Endangered Species Act, the National Environmental Policy Act, 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 the 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.

5 U.S.C. § 603 (c)(1)-(4).

Regarding the first 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. All of the businesses impacted by this action are considered small entities, and thus the requirements are already designed for small entities. Moreover, the objectives for this action (*see* Section 1.4) center around

management of quota among and within quota categories. NOAA Fisheries thus analyzed a broad range of alternatives for quota allocations and administration of quota (e.g., seasons or periods, retention limits, etc.): Alternatives A-E (Longline category), F (Purse Seine category), G (General category), H (Angling category), and I (handgear)). *See* Chapters 2, 4, 5 and 6. Consistent compliance and reporting requirements are important for effective management of the overall quota and subquotas. Thus, no differing requirements or exemptions would be appropriate.

Regarding the second category, NOAA Fisheries analyzed alternatives that would simplify compliance or reporting requirements: Alternatives E1 (EM hard drives), E2 (dealer reporting and PIN), and I4 (permit changes). NOAA Fisheries also analyzed alternatives that would clarify existing requirements regarding green-stick gear (Alternative I5).

Regarding the third category, the IBQ alternatives ('A' alternatives) include several dynamic allocation approaches, which incorporate performance standards.

7.6.1 Alternative A: Modifications to IBQ Share Eligibility, Distribution and Allocation Methods

Alternative A1, the No Action Alternative, would make no changes to the current method of determining IBQ share eligibility, and the distribution of IBQ allocations, including regional designations. This alternative would not result in any changes in the economic impacts to small entities associated with the IBQ Program under Amendment 7. However, the costs and inefficiencies associated with the current method of share allocation would continue, and therefore could be considered as minor adverse economic impacts (which could be avoided by selection of the preferred alternative). The percentage share allocations associated with the high, medium and low tiers are 1.2 percent, 0.6 percent, and 0.37 percent. Applying these percentages to the 2019 pelagic longline quota of 360,656 pounds, the IBQ allocations associated with high, medium, and low shareholders are 4,317 pounds, 2,157 pounds, and 1,330 pounds per vessel, respectively. There are a total of 43 high tier, 62 medium tier, and 31 low tier shareholders, for a total of 136 shareholders, as defined by Amendment 7.

Under the No Action Alternative there would continue to be the inefficiency associated with annual IBQ allocations that are neither used to account for bluefin catch, nor leased to other shareholders. During 2015, 2016, 2017, and 2018, only 77, 63, 63, and 56 percent of shareholders were active fishing, respectively. To estimate the costs associated with a hypothetical future leasing market under the No Action Alternative, we chose both an estimated cost per pound for leased quota and an estimated number of pounds leased. Based on the weighted average price per pound of leased IBQ allocation from 2017, 2018, and 2019, the overall average cost of leasing IBQ allocation is $1.70 per pound. In 2019 there was a total of 180,756 pounds of IBQ allocation leased (including leased allocation from Purse Seine participants). If the amount leased in the future were 180,000 pounds, the total cost of leasing IBQ allocation would be $306,000. The costs associated with leasing IBQ allocation would also include time spent by leasing market participants communicating

with other participants when they are trying to find potential lessors or lessees, and the time spent by lessors online executing the transactions.

Alternative A2 is composed of four sub-alternatives that consider various annual dynamic determination methods for allocating IBQ shares. Under these alternatives, IBQ shareholders would be determined annually, based on the application of eligibility criteria intended to define a pool of recently active vessels. Therefore, elements of each of these alternatives include a definition/criteria for determining the pool of vessels that have recently fished (i.e., defining what an "active" vessel is). Under all of the sub-alternatives, there would be 97 defined shareholders based on the total number of vessels that submitted VMS bluefin reports from 2016 through 2018.

Sub-Alternative A2a would define IBQ shareholders annually based on hooks as the measure of fishing effort. For most active IBQ shareholders, who are small business entities, the economic impact of this alternative would be positive, and the overall economic impacts would be minor beneficial. Shareholders are directly impacted by changes to their share percentages, and such changes are short term because the definition of shareholders would occur on an annual basis. Some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. One adverse impact for shareholders may be a slightly reduced ability for business planning due to the potential annual variability in share percentages. It should be noted however that shareholders would be aware that a substantive change in their amount of fishing effort may result in slight changes in their share percentage in the following year. Adverse impacts on a shareholder could be partially mitigated through leasing IBQ allocation. Such adverse impacts would only be partially mitigated because of the cost of leasing IBQ allocation. Some shareholders (and permit holders without shares currently) would have an increase in their IBQ share percentage compared to the No Action (Amendment 7) method of distributing IBQ shares, while others would have a decrease. The number of shareholders with an increase would be greater than the number of shareholders with a decrease. Overall, there would be a net increase in IBQ allocation value.

Based on the analysis provided in Chapter 4 of this Draft Environmental Impact Statement (DEIS), 66 vessels would have IBQ allocations larger than compared to the No Action Alternative, and be in a better economic position with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). The average pounds of IBQ allocation gained would be 2,362 with a range of between 118 and 6,077 pounds. Using a weighted average cost per pound of leased IBQ from 2017 through 2019 of $1.70 per pound, the average lease value of IBQ allocation gained would be approximately $4,015 per shareholder with a range of $201 to $10,331. 31 vessels would have IBQ allocations smaller when compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they have. The average pounds of IBQ allocation lost would be 1,867 with a range of between 720 and 3,707 pounds. Using the same weighted average cost per pound of leased IBQ allocation of $1.70 per pound, the average lease value of IBQ allocation lost would be approximately $3,174 per shareholder with a range of $1,224 to $6,302. It should

be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The most notable trend is that under dynamic allocation based on hooks, vessels are generally distributed more IBQ allocation than under the No Action Alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 97, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel).

Sub-Alternative A2b would define IBQ shareholders annually based on pelagic longline sets as the measure of fishing effort. For most active IBQ shareholders, who are small business entities, the economic impact of this alternative would be positive, and the overall economic impacts would be minor beneficial. Shareholders are directly impacted by changes to their share percentages, and such changes are short term because the definition of shareholders would occur on an annual basis. Some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. One adverse impact for shareholders may be a slightly reduced ability for business planning due to the potential annual variability in share percentages. It should be noted however that shareholders would be aware that a substantive change in their amount of fishing effort may result in slight changes in their share percentage in the following year. Adverse impacts on a shareholder could be partially mitigated through leasing IBQ allocation. Such adverse impacts would only be partially mitigated because of the cost of leasing IBQ allocation. Overall, there would be a net increase in IBQ allocation value.

Based on the analysis provided in Chapter 4 of this DEIS, 66 vessels would have IBQ allocations larger than compared to the No Action Alternative, and be in a better economic position with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). The average pounds of IBQ allocation gained would be 2,369 with a range of between 563 and 6,665 pounds. Using a weighted average cost per pound of leased IBQ allocation from 2017 through 2019 of $1.70 per pound, the average lease value of IBQ allocation gained would be approximately $4,028 per shareholder with a range of $957 to $11,331. 31 vessels would have IBQ allocations smaller when compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they have. The average pounds of IBQ allocation lost would be 1,884 with a range of between 721 and 3,708 pounds. Using the same weighted average cost per pound of leased IBQ allocation of $1.70 per pound, the average lease value of IBQ allocation lost would be approximately $3,203 per shareholder with a range of $1,226 to $6,304. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, the economic costs associated with reduced allocations would only be

realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The most notable trend is that under dynamic allocation based on sets vessels are generally distributed more IBQ allocation than under the No Action Alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 97, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel).

Preferred Sub-Alternative A2c would define IBQ shareholders annually based upon the total amount by weight, of each individual permitted vessel's designated species landings relative to the total amount of designated species landings by pelagic longline fleet, as the measure of fishing effort. For most active IBQ shareholders, who are small business entities, the economic impact of this alternative would be positive, and the overall economic impacts would be minor beneficial. Allocation of shares based on designated species landings may align more closely with the potential catch of bluefin and need to account for bluefin using IBQ allocation, than the non-preferred alternatives, and therefore may reduce inefficiency in the distribution of IBQ shares and reduce leasing costs for fishery participants. Shareholders are directly impacted by changes to their share percentages, and such changes are short term because the definition of shareholders would occur on an annual basis. Some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. One adverse impact for shareholders may be a slightly reduced ability for business planning due to the potential annual variability in share percentages. It should be noted however that shareholders would be aware that a substantive change in their amount of fishing effort may result in slight changes in their share percentage in the following year. Adverse impacts on a shareholder could be partially mitigated through leasing IBQ allocation. Such adverse impacts would only be partially mitigated because of the cost of leasing IBQ allocation. The number of shareholders with an increase would be greater than the number of shareholders with a decrease. Overall, there would be a net increase in IBQ allocation value. Participants in the Deepwater Horizon OFRP would have their fishing effort represented by the use of a proxy amount of landings used in the calculation of their IBQ shares, in order to ensure that there are no negative impacts associated with their voluntary participation in that project.

Based on the analysis provided in Chapter 4 of this DEIS, 57 vessels would have IBQ allocations larger than compared to the No Action Alternative, and be in a better economic position with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). The average pounds of IBQ allocation gained would be 2,873 with a range of between 146 and 7,555 pounds. Using a weighted average lease value of IBQ allocation gained would be approximately $4,884 per shareholder with a range of $248 to $12,844. 42 vessels would have IBQ allocations smaller when compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they have. The average pounds of IBQ allocation lost would be 1,668 with a range of between 80 and 3,894 pounds. Using the

same weighted average cost per pound of leased IBQ of $1.70 per pound, the average lease value of IBQ allocation lost would be approximately $2,836 per shareholder with a range of $136 to $6,620. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The exclusion of dolphin and wahoo from the list of designated species affected the IBQ share percentages of eight vessels. Compared to the IBQ share percentages that they would have received if the dolphin and wahoo were included, four vessels increased in share percentage and four vessels decreased. The difference is percentage shares was relatively minor, with vessel shares moving from one quartile to an adjacent quartile. The most notable trend is that under dynamic allocation based on designated species landings, vessels are generally distributed more IBQ allocation than under the No Action Alternative (with the exception of shareholders in the first quartile). The number of IBQ shareholders would be reduced from 136 to 99, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel).

Sub-Alternative A2d would define IBQ shareholders annually, and distribute IBQ allocation in equal amounts to eligible permitted vessels. An eligible vessel would be any vessel that landed designed species during recent years (i.e., at least one of the three most recent years of available data). For most active IBQ shareholders, who are small business entities, the economic impact of this alternative would be positive, and the overall economic impacts would be minor beneficial. Shareholders are directly impacted by changes to their share percentages, and such changes are short term because the definition of shareholders would occur on an annual basis. Some shareholders would have larger share percentages and some would have smaller share percentages compared to the No Action Alternative, but with more shareholders benefitting from this alternative. One adverse impact for shareholders may be a slightly reduced ability for business planning due to the potential annual variability in share percentages. It should be noted however that shareholders may be frustrated that allocation may not align with the need for IBQ allocation, given that the distribution of IBQ shares would not be based on any metric of fishing effort. Adverse impacts on a shareholder could be partially mitigated through leasing IBQ allocation. Such adverse impacts would only be partially mitigated because of the cost of leasing IBQ allocation. There would be 98 defined shareholders based on current data for eligible vessels.

Based on the analysis provided in Chapter 4 of this DEIS, 61 vessels would have IBQ allocations larger than compared to the No Action Alternative, and be in a better economic position with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). The average pounds of IBQ allocation gained would be 1,944 with a range of between 1,523 and 3,680 pounds. Using a weighted average lease value of IBQ allocation gained would be approximately $3,305 per shareholder with a range of $2,589 to $6,256. 37 vessels would have IBQ allocations

smaller when compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they have. The average pounds of IBQ allocation lost would be 637. Using the same weighted average cost per pound of leased IBQ allocation of $1.70 per pound, the average lease value of IBQ allocation lost would be approximately $1,083 per shareholder. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The most notable trend is that under dynamic allocation based equal allocation, vessels currently in the medium and low tiers (93 vessels combined)(i.e., under the No Action Alternative, that have 2,157 pounds and 1,330 pounds, respectively) would have a larger IBQ share percentage and be distributed more IBQ allocation under this alternative based on equal allocation (3,680 pounds), while vessels currently in the high tier (43 vessels) (with 4,317 pounds) would have a lower IBQ share percentage and be distributed less IBQ allocation (3,680 pounds) under this alternative. The number of IBQ shareholders would be reduced from 136 to 98, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel).

Alternative A3 would distribute IBQ allocation using the same formula used in Amendment 7, but instead of using data during the period from 2006 through 2012, the alternative would define eligible vessels as those that reported making at least one set using pelagic longline gear (based on logbook data, as in Amendment 7) from 2016 through 2018, and the relevant catch data used to designate IBQ shareholders to one of three tiers would also be based on 2016 through 2018. The number of tiers (three) would remain the same (high, medium, and low), but the IBQ share percentages would be higher for all tiers. For example, the low tier share percentage under the Revised Amendment 7 formula alternative would be 0.5 percent instead of 0.37 percent and result in a large annual IBQ allocation. Although the defined IBQ share percentages would all be larger, because the alternative entails recalculation of the complex Amendment 7 formula based on more recent data (i.e., 2016 to 2018), for all vessels, some permit holders change tiers, going either 'up' or 'down'. The net result under this alternative would be some permit holders would have a larger IBQ share percentage and other permit holders would have a smaller IBQ share percentage when compared to the No Action Alternative. Overall, the socioeconomic impacts would be minor beneficial, compared to the no action alternative because the bluefin quota would be allocated more efficiently due to the reduced number of shareholders (a reduction from 136 shareholders under the No Action Alternative down to 99 shareholders under this alternative).

Based on the analysis provided in Chapter 4 of this DEIS, 71 vessels would have IBQ allocations larger than compared to the No Action Alternative, and be in a better economic position with respect to the amount of IBQ allocation they have (expressed in terms of potential leases costs avoided, or leasing benefits accrued). The average pounds of IBQ allocation gained would be 1,871 with a range of between 473 and 5,933 pounds. Using a

weighted average lease value of IBQ allocation gained would be approximately $3,181 per shareholder with a range of $805 to $10,086. 28 vessels would have IBQ allocations smaller when compared to the No Action Alternative, and would be in a worse economic position with respect to the amount of IBQ allocation they have. The average pounds of IBQ allocation lost would be 637 with a range of between 354 and 2,514. Using the same weighted average cost per pound of leased IBQ allocation of $1.70 per pound, the average lease value of IBQ allocation lost would be approximately $1,404 per shareholder with a range of between $601 and $4,273. It should be noted that all active vessels would receive IBQ allocation, and the leasing market is likely to continue to function well, with a price similar to or lower than recent prices, because most vessel allocations would increase. Furthermore, the economic costs associated with reduced allocations would only be realized if shareholders need to lease IBQ allocation to account for bluefin catch in excess of their allocations. The distribution of allocation among vessels is similar for the two alternatives, but for the revised Amendment 7 alternative, there are a higher number of vessels that receive larger distributions. For example, under the No Action Alternative, 56 vessels would be allocated between 6 and 10 bluefin, whereas under the revised Amendment 7 alternative, 42 vessels would be allocated between 11 and 15 bluefin. The number of IBQ shareholders would be reduced from 136 to 99, and reduce dissatisfaction among fishery participants that results from the current regulations under which a relatively large number of permit holders who are not active, receive an annual IBQ allocation because they are IBQ shareholders (with a permitted vessel).

7.6.2 Alternative B: Modifications to Rules Closely Linked to IBQ Allocations

The economic impacts of Alternative B1, the No Action Alternative, would be neutral, and mean continuation of the current IBQ shareholders, associated share percentages, and regional designations. Vessels that currently do not have Gulf of Mexico (GOM) designated IBQ allocation but would like to fish in the Gulf of Mexico would need to lease GOM IBQ allocation. The costs associated with vessels leasing GOM designated IBQ allocation would continue.

Alternative B2, the elimination of the regional designations in conjunction with maintaining a maximum amount of bluefin catch from the Gulf of Mexico (set at 35 percent of the Longline category quota) may have short-term beneficial and adverse economic impacts. There may be a short-term beneficial impact on vessels that under the current regulations (No Action Alternative) have only Atlantic (ATL) designated IBQ allocation, and currently must lease GOM designated IBQ allocation in order to fish in the Gulf of Mexico. Such vessels would be able to fish in the Gulf of Mexico without the need to lease, which may reduce or eliminate the need for leasing IBQ allocation by such vessels. Facilitation of fishing opportunities in the Gulf of Mexico may result in increased revenue for such vessels. If the elimination of regional designations increases the number of vessels that fish in the Gulf of Mexico, and there are increased landings of target species, there would be short-term beneficial economic benefits to dealers in the Gulf of Mexico. For vessels that already fish exclusively in the Gulf of Mexico, with all or most of their IBQ allocation designated as GOM, this alternative may have adverse economic impacts. Such vessels that currently have

GOM designated IBQ allocation may face increased competition for fishing grounds or markets due to any increased fishing effort in the Gulf of Mexico, or face a smaller market for leasing their GOM allocation to other vessels.

Preferred Alternative B3 would modify regional GOM and ATL designations for a dynamic allocation system and cap bluefin catch from the Gulf of Mexico. Overall, the economic impacts are expected to be minor and beneficial, due to the increased flexibility for vessels currently without GOM designated IBQ allocation. More specifically, there could be several types of impacts on small entities as a result of this alternative: Those associated on vessel owners that have ATL designated IBQ shares (likely with home ports in the Atlantic); impacts on vessel owners with GOM designated IBQ shares (likely with home ports in the Gulf of Mexico), and those impacts that may result from a reduced percentage of total IBQ shares that are designated as GOM (if the amount of GOM designated shares, based on location of fishing effort (landings) exceeds the level of the cap). This alternative would provide increased flexibility for vessels that currently have ATL designated IBQ shares because the dynamic annual definition of shares and regional designations would enable a vessel to receive annual shares with a GOM regional designation as a result of fishing with pelagic longline gear in the Gulf of Mexico during the previous year (instead of needing to lease GOM designated IBQ allocation annually). Historical fishery participants in the Gulf of Mexico would continue to receive GOM designated IBQ shares based on their level of activity (in the Gulf of Mexico). If the number of vessels fishing in the Gulf of Mexico increased, there may be minor short-term adverse economic impacts to those entities due to increased competition. However, based on the few vessels with home ports in the Atlantic that have fished in the Gulf of Mexico during the past few years, the potential for any adverse economic impact on vessels with home ports in the Gulf of Mexico, is very low. Regarding the potential for NOAA Fisheries to decrease the maximum percentage of GOM designated IBQ shares, if the amount of maximum amount of GOM designated IBQ were reduced compared to the No Action level (e.g., down to between 27 percent or 33 percent of the total IBQ shares), there would likely be no practical impact because the recent levels of catch of bluefin from the Gulf of Mexico have been very low.

Preferred Alternative B4 is the No Action Alternative with respect to the Northeast Distant Area (NED) rules. The economic impacts of the preferred alternative with respect to the NED rules would be neutral. Data associated with vessels fishing in the NED is included as part of the formula defining IBQ shares, and vessels fishing in the NED do not have to use IBQ allocation to account for bluefin catch until after the 25 mt NED quota is utilized. Vessels that fish in the NED would continue to be able to fish there with no impact on the associated IBQ shares.

Alternative B5 would not include NED fishing activity as part of the data used in calculating IBQ Allocations. This alternative would have minor adverse economic impacts on vessels that fish in the NED because their fishing effort in the NED would not be reflected in their IBQ share percentage. Depending upon the specific amount of fishing effort, a vessel may receive a lower IBQ share percentage (if the reduction in numbers of hooks changed the assignment of quartile based on the vessel's percentage of total hooks). Nine vessels fished in the NED during 2016 to 2018. For example, under Alternative A2a, dynamic allocation

based on hooks, although the number of hooks used to determine IBQ shares would be substantially reduced, because the shares are determined based on quartiles, only one vessel would have a lower percentage share by not including the NED effort in the calculation. It should be noted that if the share percentages were determined based upon each vessel's specific percentage of number of hooks (instead of being assigned to quartiles) the average decrease in the number of hooks for vessels that fished in the NED would be 37 percent (compared to inclusion of this effort in the share percentage). The range of decrease in numbers of hooks was between six percent and one hundred percent. The NED fishery is unique and highly variable, and therefore only a few vessels fish there intermittently. If a vessel fished in the NED during a particular year, their share percentage may be reduced during subsequent years as a result, whether or not any bluefin were caught during that year, and whether or not the vessel choses to fish in the NED during subsequent years. If NED fishers receive *a lower IBQ share percentage relative to their total fishing effort* than other vessels, this may put them at a competitive disadvantage. Disadvantaging vessels that fish in the NED may alter the costs and incentives for vessels to fish in the NED, and have an adverse long-term impact on the fishery as a whole due to the underutilization of swordfish.

7.6.3 Alternative C: Sale of IBQ Shares

Preferred Alternative C1 would continue the current regulations under which no sale of IBQ shares are allowed. This alternative is expected to have minor beneficial economic impacts. There is little need for Atlantic Tunas Longline category permit holders to accumulate additional IBQ shares, because for most permit holders, annual allocations combined with a minimal amount of leasing is likely to be sufficient for permit holders to account for bluefin catch. Continued prohibition on sale of IBQ shares would reduce uncertainty in the IBQ allocation leasing market in both the short term and long term, which would be beneficial to the IBQ Program overall.

Alternative C2 would allow sale of IBQ shares. This alternative is expected to have minor adverse economic impacts overall. Some impacts may be beneficial and some adverse, with the net socioeconomic impacts being minor adverse. Sale of IBQ shares provides Atlantic Tunas Longline category permit holders an alternative means of participating in the IBQ leasing market that enables management of their IBQ allocation and business planning on a longer time scale than a single year. Permit holders may be able to save money through a single IBQ share transaction instead of via annual IBQ allocation lease transactions, a beneficial impact. On the other hand, allowing sale of IBQ shares would introduce uncertainty in the IBQ allocation leasing market, which is otherwise robust as described in the Three-Year Review, and that uncertainty could have an adverse impact on the IBQ Program overall. An example of increased uncertainty in the fishery may be a result of the IBQ leasing market. There may be a concern about an individual entity purchasing an amount of IBQ shares that result in a negative impact on other shareholders or fishery participant's ability to lease IBQ. There is no demonstrated need for Atlantic Tunas Longline category permit holders to accumulate additional IBQ shares over multiple years, because for most permit holders, annual allocations combined with a minimal amount of

leasing is likely to be sufficient for permit holders to account for bluefin catch. Furthermore, sale of IBQ shares would not be consistent with the dynamic allocation alternatives.

7.6.4 Alternative D: Cap on IBQ Shareholder Percentage or IBQ Allocation use

Sub-Alternative D1a, the No Action Alternative, would not place a cap on the amount of IBQ shares owned. This alternative is expected to have neutral economic impacts on small entities. The IBQ Program has been functioning under these regulations since 2015, and there have been no reported or observed issues relating to excessive accumulation of IBQ shares. In 2015-2019, the highest level of IBQ share ownership by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Overall, IBQ share ownership has been fairly stable over time. In addition, the preferred alternatives under the IBQ allocation alternatives (A alternatives) are designed to update and more closely align the distribution of IBQ shares with the current fishing activity and need for IBQ allocation of the pelagic longline fleet, which could reduce the likelihood that entities would seek to buy additional Atlantic Tunas Longline category permits with IBQ shares, or buy additional IBQ shares if allowed under this Amendment.

Sub-Alternative D1b, cap accumulated sum of IBQ shares owned by a single entity at Seven percent, is expected to have minor adverse economic impacts on small entities. In 2015-2019, the highest level of IBQ share ownership by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would own on an annual basis would be between six and seven percent of total shares. If this trend continues where the maximum percent ownership remains stable over time, implementing a cap at seven percent would not impact the fleet. However, there is the possibility that entities could have business plans to acquire additional shares (if allowed under Alternative C2) or purchase additional permits to increase their IBQ shares in the short-term that would be above a seven-percent cap, in which case there could be short-term minor adverse economic impacts. If an entity owned many vessels and caught a large percentage of designated species landings (under the dynamic allocation alternatives), it is possible that a seven percent share cap would result in a disproportionately low percentage share of bluefin could affect their ability to fish for their target species, and prevent increases in lawful fishing activity. If is also possible that if the overall fishing effort declines the relative share holdings of an entity would increase, even if they made no changes to the level of their ownership of permits, or in their level of fishing effort.

In the long term, if an entity has business plans to acquire additional Atlantic Tunas Longline category permits, they would need to calculate their total IBQ share ownership and add to that the IBQ shares associated with the permits to determine what permit of what share level they could buy. The entity would be limited to either buying a permit that does not cause them to reach the seven percent cap, or to buying a permit with no IBQ shares. Since seven percent is a low cap, it is more likely that an entity would be faced with

that limitation in the long term. Another impact could occur if, under the preferred 'A' alternatives, the number of active vessels decreases and therefore the IBQ share percentage to each vessel increases. At a seven-percent cap, an entity could have to forgo a portion of the IBQ shares they would otherwise receive to stay at or below the cap. By limiting the number of Atlantic Tunas Longline category permits an entity could own (outside of the limit discussed above at § 635.4(l)(2)(iii)), or limiting the amount of annual IBQ shares an entity could receive (or buy, under Alternative C2), the seven-percent cap could in turn limit the amount of fishing activity and target species landings of vessel or business, potentially preventing that business from increasing activity. For these reasons, Sub-Alternative D1b could have long-term adverse economic impacts. On the other hand, implementing a low cap to prevent acquisition of excessive IBQ shares would prevent a single entity from controlling an excessive portion of the market, potentially more so than would a higher cap.

Preferred Sub-Alternative D1c, cap amount of IBQ shares owned at 25 percent, is expected to have neutral economic impacts. In 2015-2019, the highest level of IBQ share ownership by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would own on an annual basis would be between six and seven percent of total shares. If this trend continues where the maximum percent ownership remains stable over time, implementing a cap at 25 percent would not impact the fleet. However, there is the possibility that entities could have business plans to acquire additional shares that, in the long-term, would be above a 25-percent cap, in which case there could be long-term minor adverse economic impacts. That said, the likelihood of this adverse economic is low, given the data on recent levels of entity holdings of shares. This cap level would allow flexibility in entities' business planning to acquire more shares, by acquiring additional Atlantic Tunas Longline category permits or under Alternative C2 (via purchase of shares). Implementing a cap to prevent acquisition of excessive IBQ shares would prevent a single entity from controlling an excessive portion of the market, would address potential concerns among vessel owners, and accumulation of shares by a single entity and reduce any associated uncertainty, which would be a minor, beneficial socioeconomic impact. Overall, however, given the above minor conflicting potential impacts, a share cap percentage is anticipated to have a neutral socioeconomic impact on vessel owners. In addition, this share cap is anticipated to have a neutral socioeconomic impact on dealers or supporting shoreside businesses because this alternative mainly affects the business practices of fishery participants.

Sub-Alternative D1d, cap amount of IBQ shares owned at 50 percent, is expected to have neutral economic impacts. In 2015-2019, the highest level of IBQ share ownership by one entity was between five and six percent of total IBQ shares, and this percentage remained the same throughout that time period. Under the allocation method described in the preferred 'A' alternatives, the maximum amount of IBQ shares that a single entity would own on an annual basis would be between six and seven percent of total shares. If this trend continues where the maximum percent ownership remains stable over time, implementing a cap at 50 percent would not impact the fleet. This cap level would allow

flexibility in entities' business planning to acquire more shares, by acquiring additional Atlantic Tunas Longline category permits or under Alternative C2. In addition, it is not likely that an entity would reach a 50-percent cap through the annual IBQ shares they would receive under the A alternatives. Therefore, impacts would be neutral. In the long term, Sub-Alternative D1a could have direct minor adverse economic impacts, if the high cap level of 50 percent is insufficient to prevent acquisition of excessive IBQ shares, allowing a single entity to control an excessive portion of the market. On the other hand, there is the possibility that entities could have business plans to acquire additional shares that, in the long-term, would be above a 50-percent cap, which could also be a long-term minor adverse economic impact, although this is not likely with the high 50 percent cap level.

Preferred Sub-Alternative D2a (No Action) that would not cap the amount of IBQ leased or used, is expected to have neutral economic impacts on small entities. The IBQ Program has been functioning under these regulations since 2015, and there have been no reported or observed issues relating to excessive accumulation of IBQ allocation. The highest amount of IBQ allocation that a single entity held in a given year, including leased allocation, was 6.5 percent, 12.3 percent, and 8.8 percent of the total annual allocation (i.e., the Longline category bluefin quota) in 2015, 2017, and 2019, respectively. The IBQ Program was designed to provide ample flexibility for vessel owners to lease IBQ allocation in the amounts that they need to account for bluefin catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin. Setting a cap on IBQ share ownership under preferred Sub-Alternative D1c would prevent an excessive accumulation of IBQ allocation over time, resulting from IBQ shares. Leasing of IBQ allocation occurs on an annual basis and expires at the end of each calendar year, therefore there is no long-term concern about excessive accumulation of allocation. In addition, the preferred alternatives under the IBQ allocation alternatives (A alternatives) are designed to update and more closely align the distribution of IBQ shares and resulting allocation with the current fishing activity and need for IBQ allocation of the pelagic longline fleet, which could reduce the likelihood that entities would seek to lease additional allocation.

Sub-Alternative D2b, establishes a cap on the amount of IBQ allocation an entity may lease or use at 25 percent, is expected to have neutral economic impacts on small entities. The highest amount of IBQ allocation that a single entity held in a given year, including leased allocation, was 6.5 percent, 12.3 percent, and 8.8 percent of the total annual allocation (i.e., the Longline category bluefin quota) in 2015, 2017, and 2019, respectively. If this level of IBQ allocation leasing continues, implementing a cap at 25 percent would not impact the fleet. In addition, it is not likely that an entity would reach a 25-percent cap through the annual IBQ allocation they would receive under the A alternatives. In addition, the preferred alternatives under the IBQ allocation alternatives (A alternatives) are designed to update and more closely align the distribution of IBQ shares and resulting allocation with the current fishing activity and need for IBQ allocation of the pelagic longline fleet, which could reduce the likelihood that entities would seek to lease additional allocation. This cap level would likely allow flexibility in entities' short-term business planning to

lease IBQ allocation to account for bluefin catch, maintain an IBQ allocation balance that satisfies the minimum IBQ allocation requirements, and maintain an IBQ allocation balance that addresses the potential risk/need to account for future catch of bluefin. Given the levels of leasing in the past, it is not likely that a limit on use of IBQ would have any impacts. If fishery conditions change or reallocation results in vessels using a relatively higher percentage of IBQ, a usage cap could impact the ability of vessels to lease and account for bluefin. In addition, the IBQ Program was designed to be maximally flexible with regard to leasing IBQ allocation, which would be limited by this alternative. This takes into account that in each year that the IBQ Program has been in place, allocation usage has been well below the Longline category bluefin quota (as described in the Three-Year Review), meaning that IBQ allocation is available to lease and account for additional bluefin while remaining within that quota. The perception that there is a limit on how much IBQ allocation an entity can lease could cause some permit holders to become needlessly risk averse and decrease their fishing activity and, consequently, target species landings.

7.6.5 Alternative E: Adjustments to other aspects of the IBQ Program

Sub-Alternative E1a, No Action on modifying dealer reporting requirements that were implemented by Amendment 7, has direct, minor adverse economic impacts because it requires vessel operators and dealers to collaborate in submitting information that is also supplied independently by the vessel operators by way of VMS. The requirement to verify information by submitting it in two different reporting systems can be frustrating for fishermen. During the time-period collecting two data streams, NOAA Fisheries was able to verify information that was collected, and determine that VMS was the best approach for submitting a single stream of dead discard data. The requirement for fishermen to submit a PIN when dealers entered landings data was also frustrating and time consuming for fishermen and dealers alike since fishermen were frequently either not available when dealers entered the data, or did not have access to their PIN. Fishermen chose to provide their PIN to dealers which allowed the data to be entered, but did not provide the data verification that was the objective of the original requirement.

Preferred Sub-Alternative E1b that modifies dealer reporting requirements for IBQ Program, has minor, beneficial economic impacts for dealers since they are relieved of a reporting requirement (dead discards) and are no longer required to collaborate with fishermen for landings data entry. The removal of the PIN collaboration will reduce frustration for both fishermen and dealers and thus reduce labor costs with this task. Instead of being required to coordinate with the dealer to provide a PIN in conjunction with a bluefin landing, a pelagic longline fisherman will be informed via an automated email from the Catch Shares Online System when dealers enter a landing transaction into the computer system and a landing is accounted for in their vessel's account.

Sub-Alternative E2a, the No Action Alternative, would continue the current requirement that electronic monitoring (EM) hard drives be submitted after each trip using pelagic longline gear. This alternative would have minor adverse economic impacts when compared to the preferred alternative. This alternative would maintain the current

requirements for shipping hard drives. Currently vessel owners or operators must mail hard drives to NOAA Fisheries after each fishing trip. When compared to the preferred alternative, this would maintain a higher cost burden by requiring transactions after each trip. This would also maintain a higher burden in terms of time. Operators would have to spend time pulling, packaging and shipping hard drives after each trip, instead of after every other trip.

Preferred Sub-Alternative E2b would require that the vessel operator mail the hard drives at the completion of every two trips, instead of after each pelagic longline fishing trip. This alternative would have a minor beneficial economic impact by reducing the costs and time associated with mailing EM hard drives. Sub-Alternative E2a would reduce the frequency of hard drive shipments allowing vessels to send hard drives in after each trip. This would reduce the number of transactions by half. Considering the high transaction average of 34 shipments per year, this would reduce the high average to 17 shipments. Each active vessel would still ship at least 1 hard drive per year, as NOAA Fisheries would require any data recorded in a given year be submitted to NOAA Fisheries prior to the next fishing year. Assuming a shipping cost of $20 per transaction, this reduction in shipping frequency would save operators an average of $120 per year. Reducing shipping frequency also saves vessel operators additional time and logistics, by only having to pull, package and ship hard drives after every other trip. The time savings provided by this alternative are difficult to quantify, as vessel operators shipping methods will influence the amount of time saved, however this would provide a minor beneficial impact by providing time-savings to the vessel operators.

Sub-Alternative E3a, the No Action Alternative, would retain the current procedures regarding EM camera installation. The economic impacts of Sub-Alternative E3a would be neutral compared to the preferred alternative. The No Action Alternative maintains the current camera array requirements and therefore would not provide NOAA Fisheries the authority to require vessels to install or mount structures that would optimize the placement of the cameras. There would not be any vessel downtime for vessels required for installation of new hardware. This alternative would not cause any behavioral changes for the fleet. Vessel operators would not be required to install a boom and therefore would not have to deploy the boom during fishing activity. Vessel operators would continue to operate as they have since implementation of the EM program during Amendment 7.

Preferred Sub-Alternative E3b would provide the authority to NOAA Fisheries to require installation of permanent or semi-permanent hardware in order to mount and install EM video cameras at locations on vessels as necessary to obtain optimal views, and allow NOAA Fisheries, working in conjunction with the vessel owner/operator, to make relatively minor modifications to the vessel structure to mount cameras in locations that provide required views of the vessel and adjacent areas. The economic impacts of modifying the camera installation and placement would be minor adverse for these small entities. Vessel crew would be required to extend, lower, or raise the boom mounted camera during fishing activities if needed. Additional logistics required may represent an increased time burden and a slight increase in the complexity of their fishing operation. Overall however, this time burden would only be a couple of minutes to extend, lower or raise at the start and end of

each fishing trip. Crew may also be required to access the camera during the trip in order to clean the lens. The process of cleaning the lens may be more difficult if the camera is mounted on a boom. The cost associated with the installation of booms would be paid by NOAA Fisheries, thus minimizing impacts on small entities. Since NOAA Fisheries would cover the cost of installations of the boom, and re-mounting the camera, there would be no economic burden on the fleet.

Sub-Alternative E4a, the No Action Alternative regarding specifying additional fish handling protocols for electronic monitoring, would have neutral economic impacts. No additional handling requirements or measurement tools would be required and therefore there would be no additional labor or equipment costs to vessel operators.

Preferred Sub-Alternative E4b would require more specific fish handling procedures and the installation/placement of a measuring grid on deck, in view of one of the cameras. This alternative would have minor adverse impacts as it would slightly increase costs in terms of the time required to process fish, or costs associated with a measurement tool such as a processing mat or painted grid on the deck. Non-skid deck paint costs between about $35 and $85 a gallon. A 4 foot by 8 foot all weather mat, custom printed with a grid may cost approximately $225 a mat. The crew would need to modify their fish handling procedures to place all fish on the grid. Although the requirement would be in place for the short and long-term, it is anticipated that the impacts would reduce over time as crew practiced the new handling procedure and therefore would have very minimal adverse long-term impacts on operations.

Sub-Alternative E5a would make no changes to the current regulations, under which there is not a cost recovery program in place and would therefore have a neutral economic impact. Currently, there is no cost recovery program in place for the IBQ Program. Sub-Alternative E6a, the No Action Alternative, would not result in any change. Therefore, there would not be any economic costs on small entities associated with the No Action Alternative.

Sub-Alternative E6b, the preferred alternative, would implement a cost recovery program. A cost recovery fee, if implemented, would have minor, adverse economic impacts on Atlantic Tunas Longline category permit holders that land bluefin tuna. They would incur up to a three percent fee on any purchase of bluefin from pelagic longline vessels. It is likely that the number of vessels that would be affected by this requirement, would not be larger than 60 vessels. Since 2017, no more than 58 unique pelagic longline vessels have landed bluefin tuna. The long-term impacts are uncertain given that the fee would not be charged in years where the collection program costs exceed estimated recovered costs.

7.6.6 Alternative F: Modifications to the Purse Seine Category Management Measures and Other Category Quota Allocations

These alternatives continue the process that began with Amendment 7 to address quota allocations in a changing fishery. The alternatives in this section propose ending the Purse

seine category, and redistributing the Purse seine category quota to other fishing categories. These alternatives include ending the fishery immediately, or at a sunset date two years after the implementation of Amendment 13.

The section for each alternative describes the gross economic impacts for that alternative or associated sub-alternatives. Sub-Alternative F1b is a preferred alternative with neutral economic impacts which are integrated into the analyses for Alternatives F3-4. Sub-Alternatives F2b-c address the timing of terminating the Purse seine category, which would result in redistribution of quota allocation to the other categories. The analyses for Sub-Alternatives F2b-c focus on the impacts to the Purse seine category.

The redistribution of Purse seine category quota is analyzed in Alternatives F3-4. These alternatives are all expected to have a direct beneficial impact to the categories receiving quota, since these alternatives would provide more certainty about how the Purse seine category quota would be redistributed than the status quo. Beneficial impacts for the Angling category (recreational) are likely to be less than the commercial categories since the Angling category has not landed its full quota for the last five years (Table 11.3), and does not appear to be quota limited. Since the Angling category does not generate revenue directly for bluefin landings, this qualitative description serves as the impact analysis for the Angling category. The quantitative analyses that follow assume that increases in quota result in proportional increases in revenue for each commercial category receiving quota. It is important to note that there may be other unquantified factors that could negatively affect this assumption, such as product quality, and the amount of product on the market at any given time. Alternatives F3-4 also compare the economic impacts for F alternative combinations, in order to describe the net impacts of these alternatives.

Alternative F1 would modify the codified quota allocation percentages to reflect the annual 68 mt allocation to the Longline category. Sub-Alternative F1a is the "No Action" alternative, and the economic impacts would be neutral because quota and quota allocation methodologies would not change from the current methods and amounts. Sub-Alternative F1b is the preferred alternative, and would modify codified quota allocation percentages to simplify the quota allocation process, while reflecting the annual 68-mt allocation to the Longline category. Specifically, this alternative would simplify the quota regulations by making a slight change to the mathematical method used in the annual quota allocation process of providing 68 mt to the Longline category. In order to achieve a similar result through simpler means, this alternative would no longer subtract a set amount from each quota category, but would instead modify the currently codified allocation percentages in order to result in an amount similar to the 68-mt. Instead of a two-step process of subtraction and then application of the individual quota category percentages, there would be a one-step process. The current process was put in place by Amendment 7 as an initial means of resolving the change in ICCAT recommendation that no longer provided an allowance of 68 mt to the United States for pelagic longline fishery dead discards.

Sub-Alternative F1b would have neutral economic impacts to each category because the overall quota and amount of quota (in metric tons) distributed to each category would not change from the status quo under the current ICCAT quota. If the ICCAT quota increased in

the future, this alternative would have minor positive economic impacts for Longline category participants and minor negative economic impacts for other categories when compared to the status quo because the Longline category would be allocated slightly more quota than under the No Action Alternative. Conversely, in the event of an ICCAT quota decrease, the impacts for the Longline category would be minor negative, with minor positive impacts to the other categories compared to the status quo.

Alternative F2 would eliminate the Purse Seine category and redistribute that category's quota to other quota categories under a variety of options. Sub-Alternative 2a is the No Action Alternative, and would maintain all aspects of the current quota allocation (with the exception of other quota allocation alternatives considered in Sections G, H, and I, regarding the General and Harpoon categories) and Purse Seine category regulations. The Purse Seine category would continue to receive quota based on activity level, and could either fish or trade that quota via the IBQ system. There would likely continue to be a large annual shift of Purse Seine category quota to the Reserve category (required under the regulations), that could be redistributed via inseason action. The economic impacts of this alternative would be neutral.

Sub-Alternative F2b, a preferred alternative, would discontinue the Purse Seine category and reallocate quota upon implementation of Amendment 13. This alternative could be implemented in conjunction with one of the methods of reallocation described under Alternatives F3 (a and b) and F4. This alternative and its Sub-Alternatives F2c1 and F2c2 are intended only to address the timing of the discontinuation of the Purse Seine category. The impacts associated with quota reallocation will be discussed under the reallocation alternatives. The impacts from the set of alternatives for discontinuance and reallocation (e.g., F2b and F3a) are considered additive.

Sub-Alternative F2b would have moderate adverse direct economic impacts to Purse seine category participants compared to the status quo. Under this alternative, quota allocations would no longer be distributed to Purse Seine category participants, so neither fishing for bluefin nor leasing via the IBQ system would be allowed after the effective date of Amendment 13. The economic impacts are estimated based on the loss of potential revenue from these two activities. This is expected to be the least desirable alternative for the Purse Seine category participants because the economic impacts would occur in Year 1 after implementation of Amendment 13.

The potential annual value of purse seine-related leases can be estimated using leasing data from the last five years (2015-2019). The weighted average price per pound for purse seine-related leases shows a declining trend over the last five years, so the most recent cost of $1.25 per pound was used to estimate likely potential loss. The greatest amount of purse-seine related quota leased was 47.7 percent in 2019. Using the average amount of quota leased each year over the time series (30,713 pounds) multiplied by $1.25 per pound, there would be an estimated loss of $38,391 per year category-wide or $7,678 per participant. The average amount of quota leased was used as a basis for this estimate because the time series for the amount of purse seine-related IBQ quota leased showed no discernible trend. The maximum potential annual value of purse seine-related leases using

this leasing data can also be estimated. The weighted price per pound for purse seine-related leases shows a declining trend over the last five years, so the most recent cost of $1.25 per pound was used to estimate a maximum annual loss of $151,568 (121,254 pounds x $1.25 per pound) category-wide (i.e., 55 mt) or $30,314 per participant, assuming all allocated Purse seine category quota would be leased.

The other potential negative impact of this alternative is the loss of potential fishing revenue. Purse Seine category participants last landed fish during 2013-2015. It is unlikely that Purse Seine category participants would choose to fish again because of such limited activity over the last 15 years. Purse seine category participants are not currently economically dependent upon bluefin landings. If they did choose to fish in the future, the value of landings can be estimated using historical data and applying the quota adjustments based on previous year's catches. It would also be appropriate to estimate dead discards using the observer data collected during the 2013-2015 season. The average annual dead discard estimate is 28.4 percent of catch, or conversely, Landings = Catch x 71.6 %. At the current adjusted quota of 55 mt, the Purse Seine category could land up to 39.4 mt and discard up to 15.6 mt, depending upon the number of participants fishing. Catch of 55 mt equates to 11 mt per vessel, which is 25 percent of the 43.9 mt annual allocation, and would result in the 50 percent quota level for each vessel in the following year.

The average price for Purse Seine category landings for the three most recent years of activity (2013-2015) was $4.66 per pound round weight. Although these data are from several years ago, the value of bluefin per pound round weight in recent years has ranged between approximately $4.00 and $6.00 per pound round weight for categories with landings, and the values for 2013-2015 for all categories are in line with recent prices.

The most likely estimate of Purse Seine category future fishing activity is for 0 mt landings since the category has not fished since 2015. However, the maximum amount the Purse Seine category could catch annually (based on the highest level of quota possible and five participants), and as a result, the maximum revenue lost for this alternative, taking into consideration dead discards, is estimated to be $1.61million category-wide, and $.0.32 million per participant.

Sub-Alternative F2c would discontinue the Purse Seine category and reallocate quota at a future (sunset) date i.e., the end of Year 2 after Amendment 13 is implemented. Sub-Alternative F2c1 would allow leasing and fishing until the sunset date, while Sub-Alternative F2c2 would only allow leasing until the sunset date. Economic impacts for -Sub-Alternative F2c1 would be moderate and adverse, the same as Sub-Alternative F2b (discontinue Purse Seine category upon implementation of Amendment 13), but delayed by two years since both fishing and leasing activity would be allowed under this alternative until the end of Year 2.

Annual losses for Purse Seine category leasing are estimated to be $38,391 category-wide and $7,678 per participant, based on the average amount of quota leased since 2015.

Sub-Alternative F2c2 would discontinue the Purse Seine category at a sunset date (end of Year 2) and only allow leasing until the sunset date. Economic impacts for Sub-Alternative F2c2 would be moderate and adverse, the same as Sub-Alternative F2c1, but since only leasing activity would be allowed under this alternative until the end of Year 2, revenue losses for subsequent fishing from would apply. Like Sub-Alternative F2c1, annual losses for Purse Seine category leasing are estimated to be $38,391 category-wide and $7,678 per participant, based on the average amount of quota leased since 2015. Potential loss of fishing revenue is similar to that estimated for Sub-Alternative F2b, since fishing would not be allowed under this alternative. The most likely estimate of Purse Seine category future fishing activity is for 0 mt landings since the category has not fished since 2015. However, the maximum amount the Purse Seine category could catch (based on the highest level of quota possible and five participants), and as a result, the maximum revenue lost for this alternative, taking into consideration dead discards, is estimated to be $1.61 million category-wide, and $0.32 million per participant.

Alternative F3 would reallocate the Purse Seine category quota proportionally to all other quota categories. Sub-Alternative F3a would apply Longline category increase to *all* areas, while Sub-Alternative F3b would only allow the Longline category increase to be fished in the Atlantic (not the Gulf of Mexico).

Economic impacts for Sub-Alternative F3a would be moderate and beneficial, and include estimated increases in revenue for the commercial quota categories that would receive the redistributed quota after the Purse Seine category was terminated. Annual revenue increases are estimated as follows: $1,689,758 for the General category, $386,516 for Longline, $131,548 for Harpoon, and $93,204 for Reserve, resulting in a combined total of $2,301,026. Total revenue that could accrue due to bluefin quota associated with the Reserve category was also estimated because quota from the Reserve could be used to augment one of the commercial categories via inseason action, at some point during the fishing year.

When combined with Sub-Alternative F2b (immediate disbursement), there would be moderately beneficial economic impacts for Sub-Alternative F3a. There would be beneficial impacts on fishery participants due to increased bluefin quota and associated revenue. Net impacts (i.e., economic impacts to all categories combined) are also beneficial, since the estimated annual revenue loss to the Purse Seine category for leasing is $0.15 million annually, which equals a net increase in revenue of approximately $2.15 million annually Revenue for purse seine leasing rather than fishing was used to calculate net value because it is the most likely scenario that would occur, since Purse Seine category participants have not fished since 2015, but have been actively leasing quota through 2019.

When combined with Sub-Alternative F2c (reallocate in the future), which would reallocate the Purse Seine category quota after a 2-year sunset period, this alternative's short term economic impacts would be neutral, since there would be no change in quota allocation to non-purse seine categories from the status quo.

Economic impacts for Sub-Alternative F3b would be moderate and beneficial, and include estimated increases in revenue for the commercial quota categories that received the redistributed quota after the Purse seine category was terminated, excluding any increase because of use of the redistributed quota in the Gulf of Mexico by the Longline category.

The average price per pound of Longline category fish purchased during 2017-2019 in the Gulf of Mexico ($5.11) was slightly higher than Atlantic fish ($5.02 per pound); however only a total of 14.5 mt out of 365.8 mt (3.9 percent) was landed in the Gulf during this time period. The reduction in annual revenue if all bluefin were landed in the Atlantic at the lower price is approximately $274 per year for the Longline category.

When combined with Sub-Alternative F2b (immediate disbursement), economic impacts for Sub-Alternative F3a would be moderately beneficial for participants with the categories receiving quota, except for pelagic longline vessels that fish in the Gulf of Mexico. The estimated annual increase in revenue for these categories totals $2.30 million. Net impacts are also beneficial, since the estimated annual revenue loss to the Purse Seine category for leasing is $0.15 million annually, which equals a net increase in revenue of approximately $2.15 million annually. Purse Seine category revenue for leasing rather than fishing was used to calculate net value because it is the most likely scenario, since Purse Seine category participants have not fished since 2015, but have been actively leasing quota through 2019.

When combined with Sub-Alternative F2c, which would reallocate the Purse Seine category quota after a 2-year sunset period, this alternative's short term economic impacts would be neutral.

Alternative F4 (Preferred) would redistribute Purse Seine category quota to the directed categories only. Economic impacts for Alternative F4 would be moderate and beneficial, and include estimated increases in revenue for the commercial quota categories that received the redistributed quota after the Purse Seine category was terminated. Annual revenue increases for each directed category are as follows: General category - $2,011,770; Harpoon category - $147,046; Reserve - $109,894 for a total of $2,268,710. When combined with Alternative F2b (immediate disbursement)(Preferred), economic impacts for Alternative F4 would be moderately beneficial for directed category participants receiving quota. The estimated annual increase in revenue for these categories totals $2.26 million. Net impacts are also beneficial, since the estimated annual revenue loss for the Purse Seine category from loss of leasing is $0.15 million annually, which equals a net increase in revenue of approximately $2.11 million annually. Revenue for leasing rather than fishing was used to calculate net value because it is the most likely scenario, since Purse Seine category participants have not fished since 2015, but have been actively leasing quota through 2019.

When combined with Sub-Alternative F2c (1 and 2), which would reallocate the Purse Seine category quota after a 2-year sunset period, this alternative's short term economic impacts would be neutral. The long-term impacts would be moderate and beneficial. There would be economic gains for the categories receiving quota when the sunset of the Purse Seine category occurs after two years, and losses for the Purse Seine category at that time.

These annual gains would be approximately $2.26 million. The estimated annual revenue loss to the Purse Seine category for leasing would be $0.15 million annually. The future loss of revenue from the Purse Seine category is based on leasing rather than fishing, because it is the most likely scenario. Purse Seine category participants have not fished since 2015, but have been actively leasing quota through 2019.

Alternative G: Modifications to General category subquota periods and/or allocations

Alternative G1, the preferred No Action Alternative, would not make any modifications to the General category subquota periods and/or allocations. If no action is taken to modify the General category subquota allocations, economic impacts would be neutral. The status quo subquotas assigned to the time periods generally reflect the historical catch patterns from the 1980s and 1990s as well as formalization of the winter fishery. Recent annual bluefin landings under the General category quota have approached or exceeded the base and adjusted General category quotas (i.e., they were 149 and 101 percent of base and adjusted quotas, respectively, for 2017; 168 and 96 percent of base and adjusted quotas for 2018; and 147 and 104 percent base and adjusted quotas for 2019).

Exceedances of base quotas reflect inseason quota transfers from the Reserve and Harpoon categories. As implemented in Amendment 7, NOAA Fisheries may proactively transfer quota from one or more of the subquotas following the January subquota to the January or other subquotas, through inseason action. In other words, NOAA Fisheries has the authority to transfer quota from one subquota period to another, earlier in the calendar year. In recent years, NOAA Fisheries has proactively transferred quota from the December subquota period to the January subquota period in order to maximize the fishing opportunities on an annual basis ('front-loading' the quota). Some General category participants would prefer to see more opportunities available when market prices are perceived as being generally higher, such as in the fall months (but this varies with market volume). In recent years, some of the subquotas have been reached and the General category has been closed while fishing opportunities remain and while other subquotas are not reached. Although ex-vessel prices have been variable over the last several years, high landings relative to quota have led to a modest total increase in ex-vessel gross revenues in 2016 through 2019. Revenues for the General category were $9.7 million in 2016 and 2018, at the highest level since 2002. Of the status quo alternative (G1) and the ones that modify the time period subquotas (G2a, G3a, and G3b), this one (G1) would result in the lowest potential annual gross revenues, but the amount is less than 0.2 to 3.6 percent less than for the other alternatives. The changes in revenues in these General category subquota allocation alternatives is strongly subject to availability of fish and fishing conditions during these time periods. Further, the potential gross revenue estimates for Alternatives G2a, G3a, and G3b and based on price assumptions and market dynamics that are uncertain.

Sub-Alternative G2a would modify the General category time periods to 12 equal months. To calculate potential changes in revenues, the amount of potential landings and the value of those landings per current time period can be examined (assuming full harvest). For example, for the current January period (which continues until the available subquota is

taken, or March 31, whichever comes first), the base quota is 29.5 mt. Under this alternative, 46.3 mt would be available per month, so the total base quota available for January through March is 138.9 mt. Because 2019 prices were somewhat anomalous (due to a combination of factors including fish quality and dealer agreements to not purchase fish for market purposes, among others), NOAA Fisheries is using average 2017-2019 price data, by subquota time period, to calculate potential gross revenues. For early season (January-March) General category participants, an additional 109.4 mt would be available (i.e., 138.9-29.5 mt). At $6.93 per pound, this represents a potential revenue increase of approximately $1.6 million overall during this time period, nearly five times the current amount. Using $6.93 per pound as an estimate for the ex-vessel prices for the early season, potential revenues for each of those months would be $707,365 (i.e., 46.3 mt × $6.93 per pound). Potential revenues for the current June-August and September periods would decrease by approximately $1.9 million (50 percent) and $1.5 million (69 percent), given recent average price ($6.41 and $6.66, respectively). For October-November and for December, potential revenues would increase by approximately $309,000 (28 percent) and $404,000 (60 percent) at $6.89 per pound and $10.54 per pound, respectively. Relative to the No Action Alternative (G1), there would generally be substantially increased revenues for January through May and October through December and substantially decreased revenues for June through September, and total annual revenues would increase by approximately $303,000 (3.6 percent). Thus, impacts are expected to be moderate, and beneficial or adverse, depending on quota and fish availability in the various time periods. The changes in revenues in these General category subquota allocation alternatives is strongly subject to availability of fish and fishing conditions during these time periods. Further, the potential gross revenue estimates are based on price assumptions and market dynamics that are uncertain. Of the status quo alternative (G1) and the ones that modify the time period subquotas (G2a, G3a, and G3b), this one (G2a) would result in the highest potential annual gross revenues, but the amount is less than 4 percent greater than for Alternative G1. NOAA Fisheries also takes into consideration the risk of shifting quota allocation to later periods in the fishing year that the full General category quota may not be reached, depending on fishing conditions and bluefin availability on the fishing grounds.

Sub-Alternative G2b, modify General category time periods to extend the January through March subquota time period through April 30, would increase the likelihood of winter General category participants and Charter/Headboat participants, when fishing commercially, being able to catch the full January subquota, particularly if the NOAA Fisheries increases the January-March subquota via an inseason transfer. Thus, impacts would be minor, and neutral or beneficial, depending upon when fishery participants fish. For General category participants fishing in the January through March period the affects would be beneficial. The likelihood of these economic benefits being realized may not be high. For those fishing later in the year the impacts are likely to be neutral. To the extent that less unused quota might roll forward to later periods, impacts for General category participants fishing in the later time periods could be slightly adverse, however the January subquota period has been catching most of its quota under the current, shorter time frame. An increase in optimum yield may result from a potential increase in the geographic and temporal distribution of landings. Increases in positive economic impacts would depend on the availability of bluefin to the fishery from the beginning of April until the available

subquota (base or adjusted, as applicable) is reached. Price/pound is also influenced by the amount of bluefin on the market. NOAA Fisheries estimates the value of an unused mt of January-March subquota, using the January-March 2019 average price per pound of $6.93, at $15,277. The value of the 2019 January-March base subquota is estimated at $2,122,478 assuming full harvest.

Sub-Alternative G3a modifies the General category allocation percentage to increase the January through March amount. In 2015 and 2016, June through August subperiod landings were less than the base quota. For the last three years, June through August subperiod landings have exceeded the available base quota and NOAA Fisheries has not transferred additional quota to the General category for use in that subperiod. If quota that is anticipated to be unused in the first part of the summer season is made available to January through March period General category participants and bluefin are landed against the January through March subquota, it would potentially result in improved and fuller use of the General category quota. Also, because bluefin price per pound is often higher in the January period than during the summer, shifting quota to this earlier period would result in beneficial impacts to early season General category participants. It is possible, however, that an increase of bluefin on the market in the January through March period could reduce the average price for that time of year. Participants in the summer fishery may perceive such quota transfer to be a shift away from historical participants in the traditional General category bluefin fishing areas off New England and thus adverse. However, because unused quota rolls forward within a calendar year from one period to the next, any unused quota from the adjusted January through March period would return to the June through August period and onward if not used completely during that period. Overall, impacts would be expected to be, neutral or minor and beneficial for January through March fishery participants and neutral or minor and adverse impacts for participants in the June through December time periods.

Sub-Alternative G3b modifies General category allocation percentages and increases the September and the October through November amounts and decreases the June through August amount. To the extent that quota that is anticipated to be unused in the first part of the summer season is made available to General category participants for the September and October through November periods and bluefin are landed against those subquotas, it would potentially result in improved and fuller use of the General category quota. In the last three years, however, the June through August base subquota has been exceeded, and the fishery for that time period was closed in 2017 and 2019 prior to August 31. Also, because bluefin price per pound is often higher in the September and October through November periods than during the June through August period, shifting quota to these later periods would result in beneficial impacts to fall General category participants. It is possible, however, that an increase of bluefin on the market in the fall periods could reduce the average price for that time of year. Participants in the summer fishery who may only have access to bluefin at that time may perceive such quota transfer to be adverse. However, summer and fall participants are largely the same. Additionally, any unused quota from the June through August subperiod rolls forward to subsequent periods. Overall, impacts would be expected to be Neutral or minor, and would be beneficial for September through November fishery participants and neutral or minor, adverse impacts

for participants in the June through August time periods. However, there is a risk in shifting quota allocation to later periods in the fishing year that the full General category quota may not be reached, depending on fishing conditions and bluefin availability on the fishing grounds.

Sub-Alternative G3c would modify the General category allocation percentages. This alternative is directly associated with Alternatives F5 and F6 (discontinue Purse Seine category fishery and reallocate quota). Any increases of General category quota resulting from Alternatives F5 and F6 would be applied to the September and the October through November subquota periods. Under Sub-Alternative G3c, impacts would be Neutral or moderate, and beneficial. An additional 110.4 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 147.3 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category September period could result in additional potential annual gross revenues of over $1.6 million (110.4 mt x $6.66 per pound) or $2.2 million (147.3 mt x $6.66 per pound), respectively. An additional 54.2 mt (based on reallocation of 75 percent of the current Purse Seine category quota) or 72.2 mt (based on reallocation of 100 percent of the current Purse Seine category quota) of quota for the General category October-November period could result in additional potential annual gross revenues of over $823,000 (54.2 mt x $6.89 per pound) or $1.1 million (72.2 mt x $6.89 per pound), respectively.

7.6.7 Alternative H: Modifications to the Angling category trophy fishery

Alternative H1, the No Action Alternative, is expected to be neutral, or minor adverse, vary by geographic area, and be dependent on availability of trophy-sized bluefin on the fishing grounds. The issue of economic costs for Angling category participants is not relevant as there is no sale of tunas by Angling category participants and anglers are not considered to be small entities under the RFA. For charter vessels, which sell fishing trips to recreational fishermen, economic impacts are expected to be neutral to beneficial for those in the northern mid-Atlantic states and neutral to adverse for those north of that area, including New England states, as the perceived opportunity to land a trophy bluefin may be diminished. Given that the current northern area trophy bluefin subquota of 1.8 mt represents approximately 11 individual fish, impacts are expected to be minor. For the Angling category overall, impacts of Alternative H1 would be neutral of slightly adverse.

Preferred Alternative H2 would modify the current Angling category Trophy North subquota areas and allocations specified at § 635.27(a)(1), by dividing the northern area into two zones: north and south of 42° N. Lat. (off Chatham, MA); these newly-formed areas would be named the Gulf of Maine trophy area and the Southern New England trophy area, respectively, as shown in Figure 2.3. The net result would be that the Trophy quota would be divided among four geographic areas (in the Atlantic and Gulf of Mexico) and each area would receive the same amount of quota (i.e., the Angling category trophy quota would be divided equally four ways). To create the new trophy suballocation for the Gulf of Maine trophy area, NOAA Fisheries would increase the allocation for trophy bluefin. Because the amount of school bluefin (27” - < 47”) is limited in the codified regulations, and in

compliance with the ICCAT bluefin recommendation, to no more than 10 percent of the annual U.S. bluefin tuna quota, any increase to the trophy subquota would need to be balanced with an equivalent reduction of the subquota for large school/small medium bluefin subquota (47" - < 73"), which is the remainder of the Angling category quota once the school bluefin subquota and trophy subquotas are subtracted. For example, referring to the current Angling category quota regulations (as summarized in Table 3.10), NOAA Fisheries would increase the portion of the Angling category quota allocated for trophy bluefin from 2.3 to 3.1 percent). This would result in a minor decrease in the amount of allocation for large school/small medium bluefin (measuring 47 - < 73").

Specifically, under the current Angling category quota, the trophy quota would increase from 5.4 mt to 7.2 mt, and each area would be allocated 1.8 mt. This would allow annually up to 11 trophy bluefin to be landed in the new zone north of 42° N Lat. (the Gulf of Maine trophy area), using an average weight of approximately 360 pounds. At an average 2018 weight of approximately 132 pounds for large school/small medium bluefin, this represents a reduction of 30 approximately fish from the large school/small medium size class annually. NOAA Fisheries would not expect fishing behavior to change as a result of this alternative, because there is already targeted recreational effort in that area for bluefin measuring less than 73".

There would be minor, beneficial social impacts (and economic impacts for charter vessels) to a small number of vessels in the new zone north of 42° N Lat. (the Gulf of Maine trophy area) resulting from the small amount of fish that would be allowed to be landed. The perception of greater fairness among northern area participants also represents indirect, longer-term, beneficial, social impacts. HMS Charter/Headboat category owners and operators have commented over the years that the ability to attract customers with the opportunity to retain a trophy bluefin is important, even if few are ultimately landed. They indicate that the opportunity to catch trophy bluefin is especially important if the General category is closed due to a time period subquota being met. Their premise is that New England charters are more reliant on bluefin than those that operate further south (such as off the Middle and South Atlantic U.S. coast) where there are more numerous target species. NOAA Fisheries has also received comments about the importance of trophy opportunities for tournaments as well.

There could be minor, adverse social impacts (and economic impacts for charter vessels) for those fishing for large school/small medium bluefin due to the slight reduction in allocation for those size classes. However, this would depend on whether quota is reallocated from the Purse Seine quota (see F alternatives) and whether or not NOAA Fisheries modifies daily retention limits inseason for large school/small medium bluefin based on available quota. Changes to daily retention limits as a result of this action would be unlikely given the very small amount of quota that would be converted to trophy-sized bluefin and the fact that NOAA Fisheries typically adjusts daily retention limits for 27-<73" bluefin once annually in the spring with no further adjustments inseason. Overall, NOAA Fisheries anticipates, minor, beneficial social and economic impacts from Alternative H2.

7.6.8 Alternative I: Modifications to other handgear fishery regulations

Preferred Sub-Alternative I1a would maintain the current authorized gears applicable to the Atlantic tunas permit categories. For example, the HMS Charter/Headboat category would be authorized to use rod and reel, handline, bandit gear, and green-stick, as well as speargun for authorized recreational catch of non-bluefin tunas, and the General category would be authorized to use harpoon, rod and reel, handline, bandit gear, and green-stick. As of November 2019, there were 3,769 HMS Charter/Headboat permitted vessels. Focusing on the area where NOAA Fisheries anticipates that harpoon gear would be used on HMS Charter/Headboat permitted vessels to capture a bluefin, there were 138 HMS Charter/Headboat permitted vessels in Maine, 92 in New Hampshire, 699 in Massachusetts, and 128 in Rhode Island. This alternative would have neutral economic impacts on permitted HMS Charter/Headboat vessels, which could continue to fish under the Atlantic Tunas General and Angling category regulations using existing authorized gear, and neutral impacts on Atlantic Tunas General category permitted vessels. Total Atlantic Tunas General category revenues, which included sale of commercial-sized bluefin by HMS Charter/Headboat category permitted vessels, for the 2019 fishing year were approximately $8.3 million. General category fishing year bluefin base quotas have been reached annually for the last five years. As a percentage of adjusted General category quota, landings were 95.1 percent in 2015, 110.9 percent in 2016, 101 percent in 2017, and 95.7 percent in 2018 (2019 not yet available). Less than 5 percent of General category landings resulted from harpoon gear use.

Sub-Alternative I1b would add harpoon gear as an authorized gear for the HMS Charter/Headboat category vessels. The addition of this gear would only apply to vessels with the ability to carry six or fewer passengers for hire. Harpoon gear could be used on commercial trips by Charter/Headboat permitted vessels with the commercial sale endorsement. This alternative would have minor, beneficial economic impacts for those vessels that have success in harpooning bluefin that may be available at the water's surface. Landings data and information from fishermen indicate that there are times when the feeding behavior of commercial sized bluefin makes hooking a fish difficult. To the extent that a fisherman could harpoon bluefin at the surface when the fish are present at the water surface, Alternative I1b could increase the potential of filling the General category bluefin daily retention limit and of gaining more ex-vessel revenue per trip. NOAA Fisheries anticipates that the number of bluefin that would be caught with harpoon gear by HMS Charter/Headboat category permitted vessels is very low. Use of harpoon gear typically involves installation of a pulpit to the bow of the vessel (and the associated investment of money to do so) and requires a certain degree of skill. Comments made to NOAA Fisheries since 2007 reinforce the notion that the ability to harpoon a bluefin will not necessarily lead to a substantial increase in incidences of a bluefin being caught with harpoon gear on HMS Charter/Headboat permitted vessels. Alternative I1b may have slightly negative economic impacts for existing HMS Charter/Headboat operators due to the potential for Atlantic Tunas General or Harpoon category permit holders to change to the HMS Charter/Headboat category, potentially increasing HMS Charter/Headboat competition for clients. This alternative would provide consistency in the regulations regarding authorized handgear used historically for commercial catch of bluefin, and would increase

opportunities for commercial handgear fishermen to attain the bluefin Atlantic Tunas General category quota.

Sub-Alternative I1c would eliminate harpoon as gear authorized for use by General category permitted vessels. This alternative would result in, minor, adverse impacts because it would reduce opportunity for vessels with General category permits that fish with harpoon gear and reduce flexibility and efficiency in catching the General category quota. Although NOAA Fisheries has received comments from General category (quota) participants that harpoon activity fills the available General category quota more quickly, thus reducing opportunities for rod and reel fishermen, an examination of 2019 General category landings data show that 125 fish (less than 5 percent of the 2,612 fish landed by General category vessels) were reported as harpooned. At an average June through August ex-vessel General category price per pound of $5.12 and a 366-pounds average General category fish weight for rod-and-reel caught bluefin, this amount of fish could be estimated to represent a potential increase of $234,240 to General category (quota) participants using rod-and-reel gear (i.e., including HMS Charter/Headboat permitted vessels with a commercial sale endorsement landing bluefin commercially) if harpoon use was prohibited. For General category quota participants using harpoon gear, with an average June through August ex-vessel price per pound of $5.84 and a 280-pounds average fish weight, the inability to land this amount of fish could represent $164,979. Some of the comments received on this issue point to the fact that harpooners have the ability to fish in the Harpoon category, with its own dedicated quota.

Sub-Alternative I2a would maintain the current Harpoon category retention limit regulations: an unlimited number of giant bluefin per day (measuring 81" curved fork length or greater), and two large medium bluefin per vessel per day unless the large medium bluefin retention limit is increased by NOAA Fisheries through an inseason adjustment to a maximum of four per vessel per day. The economic impact of the No Action Alternative is expected to be neutral, or slightly adverse, because participants would continue to be limited to the default of two large medium bluefin (and maximum of four if NOAA Fisheries were to make an inseason adjustment) if caught while targeting giant bluefin. In 2019, large medium bluefin comprised 45 percent of Harpoon category landings, with the remaining 55 percent giants. Of the Harpoon category trips on which at least one bluefin was landed, 42 percent landed only large mediums, 35 percent landed large mediums and giants, and 22 percent landed only giants. Twenty-nine percent of 2019 Harpoon category trips landed only 1 bluefin; 28 percent landed 2 fish; 14 percent landed 3 fish; 24 percent landed 4-8 fish; and 5 percent landed 9 or more fish.

Preferred Sub-Alternative I2b would set an overall Harpoon category daily retention limit of 10 commercial-sized bluefin per day or trip (i.e., the combined limit of large medium (73" - < 81") and giant (81" or greater) would be 10 fish), and would maintain the current regulations regarding retention of large medium bluefin (73" - < 81") (i.e., the range of two (default) to four fish, adjustable through inseason action). This alternative would have neutral impacts as a result of a few trips being constrained by a ten-fish limit (adverse), but also a potentially longer Harpoon category season (slightly beneficial). On a per-trip basis, impacts would depend on several factors including bluefin fishing conditions and

availability, the large medium retention limit (two if default but up to four through inseason action), and ex-vessel price, which is subject to numerous factors including fish handling and quality and market saturation. That said, NOAA Fisheries anticipates that impacts could also be slightly adverse. Looking at successful 2019 trips, NOAA Fisheries can estimate potential impacts of this change by determining the number of trips on which more than 10 bluefin were landed and assuming that those fish may not be able to be landed under this alternative. Using 2019 successful trip data, if the daily limit was set at 10 bluefin, the revenue from up to 10 bluefin would be foregone for the season. At an average 2019 weight of 306 pounds and an average price of $5.37 per pound for the Harpoon category, a loss of one to 10 fish would be approximately $1,640 to $16,402 for the Harpoon category as a whole for the year. Using average of 2017-2019 price data (an average of $6.28 for the Harpoon category), the range of potential revenue loss would be $1,922 to $19,220 for the year.

Preferred Sub-Alternative I2c would set an overall daily limit of 10 commercial-sized bluefin per day or trip (i.e., the combination of large medium (73" - < 81") and giant (81" or greater) would be 10 fish). Secondly, this alternative would allow NOAA Fisheries to set the daily retention limit of large medium bluefin (73" - <81") over a range of zero to five fish (adjustable through inseason action) instead of the current range of between two and four large medium fish per day or trip. NOAA Fisheries would maintain the default large medium bluefin limit at two fish. For example, if NOAA Fisheries were to set the Harpoon category limit on large medium bluefin to five (via inseason action), then no more than five giant bluefin could be kept in that same day or trip, such that the total does not exceed 10 fish. Because a higher limit of large mediums would result in less potential for landing giants per day or trip, ex-vessel revenues could be decreased relative to Sub-Alternative I2b due to less overall weight of fish sold (all other things equal, such as shape, meat quality, etc.). Overall however, the impacts are expected to be neutral, because the likelihood of such a change in revenue is low, due to the low likelihood of a trip scenario where the retention of five large medium fish would limit the ability for the vessel to retain giant bluefin.

Preferred Sub-Alternative I3a would maintain the June 1 start date and November 15 closure date for the Harpoon category season. This alternative may have both minor beneficial and adverse, socioeconomic impacts, but overall the impacts would be beneficial. The beneficial impacts could be attributed to the Harpoon category season remaining consistent with prior years. A June 1 start date for the Harpoon category means that the Harpoon and General category seasons start at the same time. The Harpoon and General category seasons starting together would facilitate enforcement and business planning, and provide greater certainty to participants regarding opportunities, participation/effort, and potential impact on market prices. Participants would continue to have the potential to catch the same percentage of the quota and earn the equivalent share of total ex-vessel revenues. The adverse impacts may result from lost opportunities. To the extent that bluefin may be available to harpoon gear prior to June 1, opportunities to harpoon fish may be lost, both from the catch of the fish and the potential for better ex-vessel prices when there may be fewer fish on the market, particularly from the General category, which would not begin until June 1. To the extent that opportunities could extend deeper into the

summer, more Harpoon category participants could benefit. It is possible that the No Action Alternative would have some adverse socioeconomic impacts on fishermen, dealers, and the support industries located in New England, where harpoon use has historically occurred, primarily on the fishing grounds off Massachusetts, New Hampshire, and Maine. Under the No Action Alternative, Harpoon category participants have not filled their adjusted quotas in three of the last five years (see Table 11.3 Appendix B), but, conversely in 2019, NOAA Fisheries closed the Harpoon category relatively early (August 8).

Sub-Alternative I3b would lengthen the season for the Harpoon category by implementing an earlier start date of May 1 for the fishery instead of the current start date of June 1. The November 15 closure date would remain the same. The overall impacts would be both minor adverse and beneficial. The relative magnitudes of the adverse and beneficial impacts are unknown. Starting the Harpoon category season in advance of the General category season (which would remain at June 1) would represent an adverse impact. The adverse impacts would result from increased uncertainty for enforcement and business planning, and reduced certainty to participants regarding opportunities, participation/effort, and potential impact on market prices. A beneficial impact would accrue to Harpoon category vessels. This alternative would increase the likelihood of Harpoon category participants being able to catch the full Harpoon category quota and thus would be minor, and beneficial. An increase in optimum yield may result from a potential increase in the geographic and temporal distribution of landings. Increases in positive economic impacts would depend on the availability of bluefin to the fishery from the beginning of May until the Harpoon category quota (base or adjusted, as applicable) is reached. Recently, the price for Harpoon category bluefin has been higher in June than later in the season, so an earlier start date could be beneficial, although price per pound is also influenced by the amount of bluefin on the market. The value of an unused metric ton of Harpoon category landings is estimated at $11,838 using the 2019 average ex-vessel price of $5.37 per pound, and $13,845 using the average 2017-2019 price ($6.28).

Sub-Alternative I4a would maintain the current requirement that gives permit holders 45 days to change their Atlantic tunas or HMS permit category as long as they have not landed a bluefin. The economic impacts of this alternative are neutral since the number of permit holders impacted is so small, and any impacts of obtaining an annual permit in the wrong category are only for one fishing season. For a subset of these permit holders, the impact can be very adverse, if an incorrect permit is obtained that prohibits a commercial fisherman from selling fish or a charter/headboat fisherman from taking paying passengers (e.g., Angling category permit). In these instances, the impact is adverse, but minimal on a fishery-wide basis.

Preferred Sub-Alternative I4b would extend the ability to change permit categories from 45 days to the full fishing year as long as the vessel has not landed a bluefin. The economic impacts of this alternative are neutral, or slightly beneficial since the number of permit holders impacted is so small, and any impacts of obtaining an annual permit in the wrong category are only for one fishing season. For a subset of these permit holders, the impact of this alternative can be very beneficial, if an incorrect permit is obtained that prohibits a commercial fisherman from selling fish or a charter/headboat fisherman from taking

paying passengers (e.g., Angling category permit). In these instances, the impact is beneficial, but minimal on a fishery-wide basis.

Sub-Alternative I5a would make no changes to the current regulations concerning green-stick gear. Vessels authorized to fish with pelagic longline gear would not be permitted to retain bluefin caught with green-stick gear. The economic impacts of the No Action Alternatives would be minor and adverse, as a result of maintaining the current regulations that preclude a pelagic longline vessel from retaining bluefin caught on green-stick gear. An analysis of self-reported logbook data from sets made with green-stick gear suggest that a small number of vessels use this gear. The number of unique pelagic longline vessels that use green-stick gear has increased with time. There were no sets reported in 2015 that were attributed to the use of this gear type. In 2016 only a single pelagic longline vessel reported sets made with green-stick gear in the HMS logbook, and the low rate of bluefin catch. Vessels participating in the Gulf of Mexico Oceanic Fish Restoration Project have used green-stick gear in the Gulf of Mexico, which accounts for most of the gear use in the Gulf of Mexico. These vessels are prohibited from landing bluefin while participating in the project, but must account for any dead discards with IBQ allocation.

Sub-Alternative I5b would clarify retention and reporting requirements for bluefin caught with green-stick gear by vessels with Atlantic Tunas Longline category permits, to allow the retention of one bluefin per trip (73" or greater CFL), provided that pelagic longline gear is not onboard, and that vessels comply with additional regulations (i.e., VMS set reports, HMS logbook requirements, IBQ program requirements) applying to such trips. This alternative is anticipated to have minor and adverse economic impacts to fishermen. The restriction that greenstick gear cannot be used if pelagic longline gear is onboard may limit the flexibility for fishermen to adapt fishing strategies to the conditions on a particular trip, and reduce the ability of those vessels to maximize their opportunity to catch yellowfin. Only 12 pelagic longline vessels have fished with green-stick gear. Most other fishermen fished either with pelagic longline gear or green-stick gear; therefore, restricting them to one option or another under this alternative would likely not change fishing practices for most vessels using green-stick gear. Overall, across regions, there appears to be a very small number of fishermen wishing to use both gears. Due to the minimal use of green-stick and pelagic longline gear in tandem, there is little information regarding the costs and benefits of having different types of gear onboard. Relevant factors for selecting one gear type may include target species, market factors, available deck space, cost of the gear, and trip length. Green-stick gear selection by fishermen targeting yellowfin could maximize economic returns and efficiency, or reflect adherence to specific requirements if fishing under the Deepwater Horizon OFRP in the Gulf of Mexico.

Preferred Sub-Alternative I5c clarifies retention and reporting requirements for bluefin caught with green-stick gear (by vessels with Longline category permits), to allow the retention of one bluefin per trip (of 73" or greater CFL) and with additional regulations (i.e., VMS set reports, HMS logbook requirements, IBQ program requirements) applying to such trips. This alternative would allow both green-stick and pelagic longline gear on the vessel at the same time. In comparison to the No Action Alternative, this alternative would have minor, beneficial economic impacts because a vessel would be able to retain a legal-

sized bluefin that may otherwise be discarded dead due to a *de facto* prohibition on bluefin retention. Retention of such fish would reduce waste, augment revenue, and reduce the frustration associated with regulatory discarding. Allowing the use of green-stick gear while pelagic longline gear is onboard is intended to provide vessel operators flexibility to employ fishing strategies with multiple gear types to optimize their business in a highly dynamic fishery. Green-stick gear selection by fishermen targeting yellowfin could maximize economic returns and efficiency, or reflect adherence to specific requirements if fishing under the Deepwater Horizon OFRP in the Gulf of Mexico.

8 Community Profiles

8.1 Introduction

The Magnuson-Stevens Act requires, among other things, that all Fishery Management Plans (FMPs) include a fishery impact statement intended to assess, specify, and describe the likely effects of the measures on fishermen and fishing communities (§ 303(a)(9)). To address the requirements of § 303(a)(9), NOAA Fisheries notes that:

- Cumulative conservation, economic and social impacts of the preferred alternatives are described in Chapter 5.0, detailed explanation of impacts is described in Chapter 4.0, and net costs and benefits are described in Section 6.5.
- Mitigation measures are described in Section 5.6.
- Safety of human life at sea is addressed in Section 9.1.1 under National Standard 10.

In Section 8.2 below, NOAA Fisheries provides information on specific communities that might be affected by this action and those communities' reliance and engagement with commercial and recreational fishing, as well as qualitative measures of social vulnerability. As explained in Section 5.3, cumulatively, the preferred alternatives generally are expected to have minor beneficial or neutral socioeconomic impacts. However, some adverse socioeconomic impacts may occur with Preferred Alternatives E3b, E4b, E5b, F2b, I2b, and I3a (minor). Although some of the adverse impacts of the Preferred Alternatives would affect communities listed as socially vulnerable, the selection of the Preferred Alternatives mitigated adverse impacts, and none of the Preferred alternatives with adverse impacts would have a disproportionate impact one of the communities with high social vulnerability. Alternatives E3b, and E4b, the electronic monitoring alternatives, and alternative E5b (cost recovery), would have very minor adverse impacts that impact all active vessels in the fishery. The communities with relatively high social vulnerability that would experience the minor adverse impacts are likely to be in Dulac, LA, Fort Pierce, FL, and Wanchese, NC. Preferred Alternative F2b (purse seine category reallocation) would have a moderate adverse impact, but the purse seine fishery has not been active since 2015. Therefore, even if the adverse impacts of Alternative F2b affect a vulnerable community, because the commercial reliance of the affected entities is low, the impact on any vulnerable community would be mitigated.

The National Environmental Policy Act (NEPA) requires federal agencies to consider the interactions of natural and human environments by using a "systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making" (§102(2)(A)). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects, which may be direct, indirect, or cumulative. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. The consequences of management

actions need to be examined to better ascertain and, to the fullest extent possible, mitigate regulatory impacts on affected constituents.

Social impacts are generally the consequences to human populations resulting from some type of public or private action. Those consequences may include alterations to the ways in which people live, work or play, relate to one another, and organize to meet their needs. In addition, cultural impacts, which may involve changes in values and beliefs that affect people's way of identifying themselves within their occupation, communities, and society in general are included under this interpretation. Social impact analyses help determine the consequences of policy action in advance by comparing the status quo with the projected impacts. Community profiles are an initial step in the social impact assessment process.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) outlines a set of National Standards that apply to all fishery management plans and the implementation of regulations. Specifically, National Standard 8 notes that:

"Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities by utilizing economic and social data that meets the requirements of paragraph (2) [National Standard 2], in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities." (§301(a)(8)). See also 50 C.F.R. § 600.345 (National Standard 8 Guidelines).

"Sustained participation" is defined to mean continued access to the fishery within the constraints of the condition of the resource (50 CFR § 600.345(b)(4)). The Magnuson-Stevens Act defines a "fishing community" as:

"a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew, and United States fish processors that are based in such communities." (§ 3(17)).

Specific to development and amendment of Highly Migratory Species (HMS) FMPs, the Magnuson-Stevens Act, paragraphs 304(g)(1)(C) and (G)(ii)-(iii) require the Secretary to:

- Evaluate the likely effects, if any, of conservation and management measures on participants in the affected fisheries and minimize, to the extent practicable, any disadvantage to U.S. fishermen in relation to foreign competitors
- Ensure that conservation and management measures –
    - Take into consideration traditional fishing patterns of fishing vessels of the United States and the operating requirements of the fisheries; and
    - Are fair and equitable in allocating fishing privileges among United States fishermen and do not have economic allocation as the sole purpose.

NOAA Fisheries guidelines for social impact assessments (NMFSI-01-111-02, 2007) specify that the following elements are utilized in the development of FMPs and FMP amendments:

1. The size and demographic characteristics of the fishery-related work force residing in the area; these determine demographic, income, and employment effects in relation to the workforce as a whole, by community and region.

2. The cultural issues of attitudes, beliefs, and values of fishermen, fishery-related workers, other stakeholders, and their communities.

3. The effects of final actions on social structure and organization; that is, on the ability to provide necessary social support and services to families and communities.

4. The non-economic social aspects of the final action or policy; these include life-style issues, health and safety issues, and the non-consumptive and recreational use of living marine resources and their habitats.

5. The historical dependence on and participation in the fishery by fishermen and communities, reflected in the structure of fishing practices, income distribution and rights.

8.2 Method—Previous Community Profiles and Assessments

Background and summary information on the community studies conducted to choose the communities profiled in this document is not repeated here and can be found in other documents, such as Amendment 7 (2014), and previous HMS Stock Assessment and Fishery Evaluation (SAFE) Reports).

Table 8.1 and Table 8.2 below present social indicators of vulnerability and resilience developed by Jepson and Colburn (2013) for the 10 ports for pelagic longline fishery commercial bluefin landings, (Table 8.1) and the top ten ports for handgear fishery commercial bluefin landings (Table 8.2). Jepson and Colburn (2013) developed a series of indices using social indicator variables that could assess a coastal community's vulnerability or resilience to potential economic disruptions such as those resulting from drastic changes in fisheries quotas and seasons, or natural and anthropogenic disasters. Indices and index scores were developed using factor analyses of data from the United States Census, permit sales, landings reports, and recreational fishing effort estimates from the Marine Recreational Information Program (MRIP) survey (Jepson and Colburn, 2013). The nine social indices developed by Jepson and Colburn (2013) can be divided into two categories: 1) fishing engagement and reliance, and 2) social vulnerability. For each index, the community is ranked as scoring high (one standard deviation or more above the mean score), medium high (0.5 to 0.99 standard deviations above the mean score), medium (0 to 0.49 standard deviations above the mean score), or low (below the mean score) on the index scale.

Fishing Reliance and Engagement Indices

Jepson and Colburn (2013) developed two indices each to measure community reliance and engagement with commercial and recreational fishing, respectively. Commercial fishing engagement was assessed based on pounds of landings, value of landings, number of commercial fishing permits sold, and number of dealers with landings. Commercial fishing reliance was assessed based on value of landings per capita; number of commercial permits per capita; dealers with landings per capita; and data on percentage of people employed in agriculture, forestry, and fishing from the Bureau of Labor Statistics. The recreational fishing engagement index was measured using MRIP estimates of the number of charter, private boat, and shore recreational fishing trips originating in each community. The recreational fishing reliance index was generated using the same fishing trip estimates adjusted to a per capita basis. MRIP data is not available for the state of Texas, so the recreational indexes for Texas were instead calculated based on recreational permit data from NOAA Fisheries, and boat ramp data from the state of Texas. As such, recreational index scores for Texas communities are only comparable to other communities within the state.

In Table 8.1, fishing reliance and engagement index scores are presented for 10 HMS pelagic longline communities. Eight of the ten HMS communities scored either high or medium high on commercial or recreational engagement, three of ten scored either high or medium high on commercial reliance, and five of ten scored either high or medium high on recreational reliance. Two communities that scored high on all four indices are Dulac, LA and Barnegat Light, NJ, indicating that these communities have greater than normal dependence on the recreational and commercial fishing sectors for jobs and economic support. Wanchese, NC, New Bedford, MA, Ocean City, MD, Fort Pierce, FL, Fairhaven, MA, Beaufort, NC, and Islip, NY scored high or medium high on both fishing engagement indices, while scoring medium high, medium or low on both fishing reliance indices indicating that while Wanchese, NC, New Bedford, MA, Ocean City, MD, Fort Pierce, FL, Fairhaven, MA, Beaufort, NC, and Islip, NY have a significant fishing community, it is not a massive component of the city's overall population.

In Table 8.2, fishing reliance and engagement index scores are presented for 10 HMS handgear communities. Eight of the ten HMS communities scored either high or medium high on commercial or recreational engagement, two of ten scored either high or medium high on commercial reliance, and three of ten scored either high or medium high on recreational reliance. Two communities that scored high on all four indices included Wanchese, NC and Chatham, MA, indicating that these communities have greater than normal dependence on the recreational and commercial fishing sectors for jobs and economic support. Gloucester, Newburyport, Provincetown, MA, Rye and Seabrooke, NH scored high or medium high on both fishing engagement indices, while scoring medium high, medium or low on both fishing reliance indices indicating that while these areas have a significant fishing community, it is not a massive component of the city's overall population.

Social Vulnerability Indices

Five indices of social vulnerability developed by Jepson and Colburn (2013) are presented in this section (Table 8.1, and Table 8.2). The personal disruption index includes the following community variables representing disruptive forces in family lives: percent unemployment, crime index, percent with no diploma, percent in poverty, and percent separated females. The population composition index shows the presence of populations who are traditionally considered more vulnerable due to circumstances associated with low incomes and fewer resources. The poverty index includes several variables measuring poverty levels within different community social groups including: percent receiving government assistance, percent of families below the poverty line, percent over age of 65 in poverty, and percent under age of 18 in poverty. The labor force index characterizes the strength and stability of the labor force and employment opportunities that may exist. A higher ranking indicates fewer employment opportunities and a more vulnerable labor force. Finally, the housing characteristics index is a measure of infrastructure vulnerability and includes factors that indicate housing that made be vulnerable to coastal hazards such as severe storms or coastal flooding. Fort Pierce, FL was the only HMS community to score high or medium high on all five indices of social vulnerability with Dulac, LA scored high on four of the five indices of social vulnerability. Three other HMS communities scored high or medium high on two or three social vulnerability indices: Wanchese, NC, New Bedford, MA, and Ocean City, MD. These scores suggest these communities would likely experience greater difficulty recovering from economic hardships caused by job losses in the recreational and commercial fishing sectors.

Table 8.1 Social Vulnerability Indices for 10 HMS PLL Communities for 2016-2019

Community	Population	Fishing Engagement and Reliance				Social Vulnerability				
		Commercial Engagement	Commercial Reliance	Recreational Engagement	Recreational Reliance	Personal Disruption	Population Composition	Poverty	Labor Force	Housing
Wanchese, NC	1,642*	HIGH	MED HIGH	MED HIGH	HIGH	LOW	LOW	MED HIGH	LOW	MED HIGH
New Bedford, MA	95,072*	HIGH	MEDIUM	MED HIGH	LOW	HIGH	MED HIGH	HIGH	MEDIUM	MEDIUM
Ocean City, MD†	7,102*	HIGH	MEDIUM	HIGH	HIGH	LOW	LOW	LOW	HIGH	MED HIGH
Fort Pierce, FL	41,590*	MED HIGH	LOW	HIGH	MEDIUM	HIGH	HIGH	HIGH	MED HIGH	MED HIGH
Barnegat Light, NJ	574*	HIGH	HIGH	HIGH	HIGH	LOW	LOW	LOW	HIGH	LOW
Fairhaven, MA	15,873*	HIGH	LOW	MED HIGH	LOW	LOW	LOW	LOW	LOW	MEDIUM
Port Royal, SC‡	10,678*	LOW	LOW	MEDIUM	LOW	LOW	LOW	LOW	LOW	MED HIGH
Beaufort, NC	47,759*	HIGH	MEDIUM	HIGH	MED HIGH	MED HIGH	LOW	LOW	LOW	MED HIGH
Islip, NY	335,543*	MEDIUM	MED HIGH	LOW	LOW	LOW	LOW	LOW	LOW	LOW
Dulac, LA	1,463*	HIGH	HIGH	HIGH	HIGH	HIGH	MEDIUM	HIGH	HIGH	HIGH

* Population estimates (2010 census) from https://factfinder.census.gov.
† https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/map.
‡Jepson and Colburn (2013) and https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/map web page does not provide social vulnerability index analyses on a county level.
Source: Jepson and Colburn 2013 and https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/index.

Table 8.2 Social Vulnerability Indices for 10 HMS handgear Communities for 2016-2019

Community	Population	Fishing Engagement and Reliance				Social Vulnerability				
		Commercial Engagement	Commercial Reliance	Recreational Engagement	Recreational Reliance	Personal Disruption	Population Composition	Poverty	Labor Force	Housing
Wanchese, NC	1,642*	HIGH	MED HIGH	MED HIGH	HIGH	LOW	LOW	MED HIGH	LOW	MED HIGH
Gloucester, MA	28,789*	HIGH	MEDIUM	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Portland, ME	66,194*	LOW	MEDIUM	HIGH	LOW	LOW	LOW	MEDIUM	LOW	MEDIUM
Chatham, MA	6,125*	HIGH	HIGH	HIGH	HIGH	LOW	LOW	LOW	HIGH	LOW
Harwich Port, MA	1,644*	MEDIUM	MEDIUM	HIGH	HIGH	LOW	LOW	LOW	HIGH	LOW
Marshfield, MA	25132*	HIGH	LOW	HIGH	LOW	LOW	LOW	LOW	LOW	LOW
Rye, NH	5,298*	MED HIGH	MEDIUM	MED HIGH	MEDIUM	LOW	LOW	LOW	LOW	LOW
Newburyport, MA	17,416*	MED HIGH	LOW	HIGH	MEDIUM	LOW	LOW	LOW	LOW	LOW
Seabrook, NH	8,693*	MED HIGH	LOW	HIGH	MEDIUM	LOW	LOW	LOW	LOW	MED HIGH
Provincetown, MA	2,942*	MED HIGH	MEDIUM	MED HIGH	MEDIUM	LOW	LOW	LOW	LOW	MEDIUM

* Population estimates (2010 census) from https://factfinder.census.gov.
† https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/map.
‡Jepson and Colburn (2013) and https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/map web page does not provide social vulnerability index analyses on a county level.
Source: Jepson and Colburn 2013 and https://www.st.nmfs.noaa.gov/humandimensions/social-indicators/index.

8.3 References

Impact Assessment, Inc. 2004. Identifying Communities Associated with the Fishing Industry in Louisiana. La Jolla, California. (NOAA-NMFS-Contract WC133F-02-SE-0297).

Jepson, Michael and Lisa L. Colburn 2013. Development of Social Indicators of Fishing Community Vulnerability and Resilience in the U.S. Southeast and Northeast Regions. U.S. Dept. of Commerce, NOAA Technical Memorandum NMFS-F/SPO-129, 64 p.

Kirkley, J.E. 2005. The communities of the Atlantic Highly Migratory Species (HMS) Fishery: An overview of change associated with the HMS Fishery Management Plan. Department of Coastal and Ocean Policy, School of Marine Science, Virginia Institute of Marine Science, College of William and Mary, Gloucester Point, Virginia (NOAA-NMFS-HMS contract report).

MRAG, Americas, Inc., and M. Jepson. 2008. Updated Profiles for HMS Dependent Fishing Communities: Social Impact Assessment Services for HMS Fishing Communities. Solicitation Number: DG133F06RQ0381, 84 pp.

NMFS. 2007. Guidance for Social Impact Analysis. NMFSI-01-111-02. U.S. Department of Commerce, National Marine Fisheries Service.

NMFS. 2008. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2008. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 446 pp.

NMFS. 2011. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2011. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 294 pp.

NMFS. 2012. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2012. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 203 pp.

NMFS. 2014. Final Amendment 7 to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. USDOC, NOAA, NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.

NMFS. 2015. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2011. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 185 pp. Marine Fisheries Service. 203 pp.

U.S. Census Bureau; American Community Survey, 2010 American Community Survey 1-Year Estimates, Table 8.1; generated by Nicolas Alvarado; using American Fact Finder; <http://factfinder.census.gov>; (13 March 2019).

Wilson, D., B.J. McCay, D. Estler, M. Perez-Lugo, J. LaMargue, S. Seminski, and A. Tomczuk. 1998. Social and Cultural Impact Assessment of the Highly Migratory Species Fishery Management Plan and the Amendment to the Atlantic Billfish Fisheries Management Plan. The Ecopolicy Center for Agriculture, Environmental, and Resource Issues, New Jersey Agricultural Experiment Station, Cook College, Rutgers, the State University of New Jersey (NOAA-NMFS-HMS contract report).

9 Applicable Laws

9.1 Magnuson-Stevens Fishery Conservation and Management Act

Fishery management measures must be consistent with ten national standards contained in the Magnuson-Stevens Act (sec. 301). This section describes how the preferred alternatives in this action are consistent with the National Standards and guidelines set forth in 50 Code of Federal Regulations (CFR) part 600. More information on the Magnuson-Stevens Act can be found in earlier chapters.

9.1.1 Consistency with the National Standards

National Standard 1 states that conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery.

For quota-managed stocks, including western Atlantic bluefin, the 2006 Consolidated HMS FMP and its amendments and implementing regulations include conservation and management measures that address overfishing and optimum yield requirements of National Standard 1 and its guidelines (50 C.F.R. § 600.310). For bluefin, quotas are adopted internationally through the International Commission for the Conservation of Atlantic Tunas (ICCAT) and implemented domestically under the Atlantic Tunas Convention Act (ATCA) and MSA.

Due to the unprecedented situation in 2020, ICCAT canceled its annual meeting and conducted discussions via correspondence. Recognizing the significant challenges of complex decision making by correspondence, rollovers of expiring measures was ICCAT's default approach. For bluefin, ICCAT's Standing Committee on Research and Statistics (SCRS) had conducted a stock assessment update in 2020, which reflected concerns with overfishing at the current total allowable catch (TAC) level for western Atlantic BFT. However, this strict update format did not provide the SCRS with enough flexibility to address potential issues with the data and their treatment. Given all of the above, ICCAT adopted Rec. 20-06, which rolled over the current TAC for 2020; provided for a 2021 stock assessment that would incorporate the most recent available data, including any new abundance indices; and specified TAC levels for 2022 and 2023 that would address overfishing based on the 2020 stock assessment update projections consistent with management scenario 3 analyzed therein unless ICCAT decides otherwise based on new SCRS advice. The status of the stock after the 2020 stock assessment update remained "no overfishing occurring/rebuilding status unknown." Although the SCRS and ICCAT expressed concerns about the current the TAC level resulting in overfishing in 2021, the projected change in biomass at this TAC level is on par with the other management scenarios analyzed by SCRS as it is expected to result in only about a 1% greater decline in

biomass for 2021 than a TAC with a 50% chance of ending overfishing. Furthermore, in the course of managing U.S. fisheries to achieve, but not exceed, the overall ICCAT-recommended U.S. quota, the United States has under-harvested its overall quota over the past several years. The preferred alternatives in this action do not affect the ICCAT-adopted western Atlantic BFT quota implemented domestically pursuant to ATCA and MSA.

The preferred alternatives in this action, do not affect the ICCAT-adopted western Atlantic BFT quota, but consistent with that quota, help to achieve, on a continuing basis, the optimum yield for HMS fisheries. Objectives of this amendment listed in Chapter 1, section 1.4, include: 1) evaluate and optimize the allocation of U.S. bluefin quota among all bluefin quota categories, considering historical allocations and recent fishery characteristics and trends, to provide U.S. fishing vessels with a reasonable opportunity to catch the U.S. quota established by ICCAT, facilitate the ability for active HMS directed permit categories to catch their full bluefin quota allocations, and facilitate directed fishing for species other than bluefin in the pelagic longline fishery while accounting for incidental bluefin catch; 2) maintain flexibility of the regulations to account for the highly variable nature of the bluefin fisheries, and maintain fairness among permit/quota categories; 3) continue to manage the Atlantic pelagic longline fishery consistent with the IBQ Program objectives in Amendment 7, and consistent with the conservation and management objectives of the 2006 Consolidated Atlantic HMS FMP and, its amendments, and consistent with all applicable laws; and 4) modify the management of the pelagic longline fishery in response to the Three-Year Review of the IBQ Program, and in response to important relevant prevailing trends (e.g., declining fishing effort and revenue for target species).

The preferred alternatives would help to achieve optimum yield for target species, such as swordfish and yellowfin tuna, and bluefin in directed bluefin fisheries, by optimizing allocation of U.S. bluefin quota among all quota categories and providing reasonable fishing opportunities to catch science-based quotas where established. The bluefin fishery is a quota-managed fishery with a limit on the maximum fishing mortality associated with the fishery that is set by the level of the total bluefin quota. Specific management measures constrain the methods, locations and timing of catch. Amendment 13's preferred alternatives would modify fishing behavior and specific rules such as trip limits, reporting, or quota distribution among quota categories but would not affect the total bluefin quota. Reallocation of U.S. bluefin quota among all quota categories, and within the Longline category under the IBQ Program, could affect fishing effort for other target species. However, such fishing would still be constrained within the ICCAT-adopted quotas. Other previously implemented management measures, such as NOAA Fisheries' authority to close the fishery when the quota is caught, and the ability to transfer quota inseason from one category to another, further help ensure that overall, bluefin fisheries remain within the U.S. quota. Preferred alternatives are also intended to be consistent with conservation and management requirements for other species, including bycatch species, in these fisheries.

The preferred Longline category and IBQ Program alternatives, if finalized, would result in changes to bluefin quota allocation and usage. However, they would not affect the pelagic longline fishery's ability to appropriately limit incidental catch of bluefin, within the

Longline category quota, as described further in Chapter 4. Furthermore, they may increase opportunities for pelagic longline vessels to catch target species. These alternatives are:

A2c. Distribute IBQ shares annually only to active vessels based on designated species landings as the measure of fishing effort (*dynamic allocation*);
B3. Modify the Gulf of Mexico and Atlantic regional IBQ share designations for dynamic allocation and cap bluefin catch from the Gulf of Mexico;
D1c. Cap accumulated IBQ shares owned by a single entity at 25 percent; and
I5c. Clarify the regulations for the retention of bluefin caught on green-stick gear by Longline category permitted vessels.

Preferred Alternative B3 would maintain current limits on the amount of bluefin that could be incidentally caught in the Gulf of Mexico, where spawning bluefin are found, but provide flexibility to reduce the limit if warranted. For example, considering changes in the fishery or best available scientific information or advice, or ICCAT recommendations, in order to maintain an effective cap on the amount of bluefin caught in the Gulf of Mexico. The limit would be adjusted based on specific determination criteria.

The preferred alternatives for the directed bluefin categories that would result in changes to bluefin quota allocation and usage, if finalized, would maintain category quotas and associated fishing opportunities within the overall U.S. bluefin quota, as described further in Chapter 4. These are:

F1b. Modify codified quota allocation percentage to reflect the annual 68-mt allocation to the Longline category
F2b. Discontinue the Purse Seine category upon implementation of Amendment 13;
F4. Reallocate the quota historically associated with the Purse Seine category, proportionally to the General category, the Harpoon category, the Angling category, and the Reserve category;
H2. Modify Angling category trophy areas and allocations by dividing the northern area into two zones and creating a new suballocation;
I2b. Set a limit on the total number of bluefin at 10 fish (combined large medium and giants); and maintain the current Harpoon category retention limit range (on large medium bluefin); and
I4b. Amend open access Atlantic tunas or HMS permit category regulations (administrative in nature).

National Standard 2 states that conservation and management measures shall be based on the best scientific information available.

The preferred alternatives in this document are consistent with National Standard 2 and its guidelines (50 C.F.R. § 600.315). The preferred alternatives are based on the best scientific information available, including the latest stock assessments, scientific research, the analyses in the Three-Year Review, and up-to-date data sources. The data sources cited throughout the Draft Environmental Impact Statement (DEIS) represent the best scientific information available. Different data sources may have different date ranges used, because the time at which different data sources have finalized data available differ, as explained in Chapter 4.

National Standard 3 states that, to the extent practicable, an individual stock of fish shall be managed as a unit throughout its range and interrelated stocks of fish be managed as a unit or in close coordination.

The preferred alternatives in this document are consistent with National Standard 3 and its guidelines (50 C.F.R. § 600.320). Amendment 13 would not alter the established management unit for Atlantic HMS (*see* 2006 Consolidated HMS FMP at Chapter 3), which are managed as a unit throughout their range in U.S. federal waters. In addition, as a condition of their federal permits, vessels fishing for Atlantic HMS must comply with federal requirements when fishing in state waters, unless the states have more restrictive regulations. Given their highly migratory nature, some Atlantic HMS are subject to international management at ICCAT to ensure conservation and management throughout their range. Conservation and management measures in the 2006 Consolidated HMS FMP and its amendments and regulations address both domestic and international requirements for Atlantic HMS.

National Standard 4 states that conservation and management measures shall not discriminate between residents of different states. Furthermore, if it becomes necessary to allocate or assign fishing privileges among various U.S. fishermen, such allocation should be fair and equitable to all fishermen; be reasonably calculated to promote conservation; and should be carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The preferred alternatives are consistent with National Standard 4 and its guidelines (50 C.F.R. § 600.325).

Residents of Different States

The preferred alternatives would not discriminate between residents of different states. The preferred alternatives would not differentiate among U.S. citizens, nationals, resident aliens, or corporations on the basis of their state of residence nor would they incorporate or rely on a state statute or regulation that discriminates against residents of another state. The preferred alternatives would be applied equally to all permit holders, regardless of homeport. Permit holders may fish for HMS managed species in any HMS jurisdictional waters where they are found, regardless of the state where they or their business reside or their vessel's principal or home port state.

While the preferred alternatives do not discriminate between residents of different states, some of the alternatives would have different socioeconomic impacts on different fishery participants, depending upon quota category, historical fishing behavior and catch, dependence upon the fishery, fishing location, and social attributes such as dependence upon fishing and social vulnerability, as described below. The preferred alternatives reflect the fact that the bluefin fisheries (and other HMS fisheries) are widely distributed and highly variable due to the diversity of participants (location, gear types, commercial, recreational), and because bluefin migrate over thousands of miles, with an annual

distribution that is highly variable. Vessels fishing in any geographic area in the Atlantic or Gulf of Mexico are likely to have only limited access to bluefin unless they travel long distances within the bluefin's migratory range. The ports and communities that provide the goods and services to support the bluefin fisheries may vary as well, as vessels travel over large distances to pursue their target species.

As discussed in Chapter 8, those pelagic longline fishery participants associated with communities with relatively higher dependence upon commercial fishing include Wanchese, NC; New Bedford, MA; Ocean City, MD; Barnegat Light, NJ; Fairhaven, MA; Beaufort, NC; Dulac, LA; Gloucester, MA; Chatham, MA; and Marshfield, MA. Several communities are characterized as having a relatively high social vulnerability to potential impacts, including Wanchese, NC, New Bedford, MA, Dulac, LA, and Fort Pierce, FL. The principal communities associated with the handgear fishery are Chatham, MA, Gloucester, MA, Harwich Port, MA, Marshfield, MA, Newburyport, MA, Portland, ME, Provincetown, MA, Rye, NH, Seabrook, NH, and Wanchese, NC.

The preferred alternatives were designed to mitigate distributive and other impacts. Multiple aspects of both the IBQ Program and the directed fishery quota allocation alternatives were designed to optimize flexibility and fishing opportunity. The overall bluefin quota system would be responsive to changes in the fishery and mitigate potential impacts as practicable. The complexity and flexibility of the preferred alternatives (in the context of the current regulations) reflect the objective of providing opportunity to a diverse set of participants in a highly variable and dynamic fishery.

Allocating or assigning fishing privileges

As discussed below, the preferred alternatives that allocate or assign fishing privileges are consistent with the National Standard 4 requirements to be fair and equitable to all such fishermen; reasonably calculated to promote conservation; and carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The preferred IBQ Program alternatives are fair and equitable to all fishermen. Specifically, fishing privileges that would be assigned among U.S. fishermen would take into consideration the Magnuson-Stevens Act requirements for Limited Access Privilege Programs (Magnuson-Stevens Act § 303A(5)(c)(5)), including for example, current and historical harvests; investments in and dependence upon the fishery; continued participation in the fishery by active vessels; entry into the fishery of new vessels; promotion of the sustained participation of fishing communities that depend on the fisheries; and, ensuring the limited access privilege holders do not acquire an excessive share of the total limited access privileges in the program.

The IBQ Program alternatives would be carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges, as described in preferred Alternative D1c. Alternative D1c would prevent excessive shares held or acquired through the purchase of permits (and associated shares), or based on the

share formula under Alternative A2c. Alternative D2a, would not limit IBQ leasing or use, because as explained further under preferred Alternative D2a, the duration of a quota lease would be limited to a single year. As there is no rollover provision, the impacts of not having limits on bluefin quota trades (leasing) would be limited in duration to a single year. Individual vessel owners may be able to lease quota during a fishing year for use, but at the end of the year the quota would not be usable for the subsequent year. Other factors such as the fact that the IBQ allocations are for an incidental catch species also obviate the need for a limit on IBQ allocation leasing or use. The incentive to acquire shares is constrained by the various elements of the IBQ Program, which are designed to disincentivize bluefin catch.

In designing the preferred allocation method, NOAA Fisheries considered other factors relevant to the Amendment's objectives, including the economic and social consequences of the scheme, dependence on the fishery by present participants and coastal communities, and opportunity for new participants to enter the fishery.

Preferred Alternative F1b simplifies the mathematical method used for the annual bluefin category quota process. This would not substantively change the approach that has in place since 2015. This reallocation is fair and equitable as analyzed in Amendment 7.

Preferred Alternatives F2b and F4 would discontinue the no longer active Purse Seine category and reallocate that category's bluefin quota to directed bluefin categories (General, Harpoon, Angling, and Reserve categories). This reallocation is fair and equitable because it would discontinue a category that has had de-minimus landings since 2005. From 2005 to 2012 there was no purse seine fishing activity. From 2013 to 2015, only one Purse Seine category participant fished, making only a few sets, and accounting for only a small percentage of total annual bluefin landings each year (six, five, and four percent in 2013, 2014, and 2015, respectively). Dependence upon a fishery (or lack thereof) is a social attribute relevant to the determination of socioeconomic impacts (Chapter 8). Reallocation of the purse seine quota to active, directed bluefin categories would maximize overall benefits for the fishery. *See* Sections 4, 6, 7 and 8 for analyses of socioeconomic impacts and benefits of the preferred alternatives. Under current regulations, the Purse Seine category may be allocated up to 18.6 percent of the U.S. Atlantic bluefin quota, a percentage that is not proportionate to the number of historical fishery participants (five historical participants). In contrast, the Angling category is currently allocated 19.7 percent of the total U.S. bluefin quota, and there were over 20,000 angling permits issued in 2018. In addition, the reallocation is fair and equitable because it would allocate Purse Seine category quota to the other categories in proportion to their respective percentages of the total U.S. bluefin quota. These percentages were designed to provide fishing opportunities throughout the fishing year and to broad geographic areas, in the context of the highly variable fishery and weather conditions, and with consideration of bluefin distribution.

The above alternatives are reasonably calculated to promote conservation. The Consolidated HMS FMP and its amendments and regulations include measures that address the conservation requirements of the Magnuson-Stevens Act, which include preventing overfishing and rebuilding overfished stocks. Amendment 13 does not affect those

measures, but contributes to and furthers the management of bluefin tuna consistent with the conservation requirements. Through vessel-level accountability, the IBQ Program alternatives would continue to promote conservation, by ensuring that the Longline category does not overharvest its quota and has incentives to limit bluefin dead discards and landings. The preferred Purse Seine category alternatives (F2b and F4) also promote conservation by optimizing yield through allocation of quota to active bluefin categories and by encouraging a rational, more easily managed use of the resource through discontinuation of a non-active category.

National Standard 5 states that conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

The preferred alternatives in this document are consistent with National Standard 5 and its guidelines (50 C.F.R. § 600.330). The preferred alternatives, where practicable, consider efficiency in the utilization of fishery resources. Dynamic annual determination of IBQ shares based on designated species landings, under preferred Alternative A2c, would ensure that Atlantic Tunas Longline category permit holders with recent fishing activity will receive IBQ shares each year, which will increase efficiency of IBQ distribution by assigning shares to active vessels instead of inactive vessels, as well as facilitate increased utilization of target species. Discontinuing the no longer active Purse Seine category (preferred Alternative F2b) and reallocating that quota to active, directed bluefin categories (preferred Alternative F4) will increase the efficiency of utilization of U.S. bluefin quota.

None of the preferred alternatives have economic allocation as their sole purpose. The specific objectives for Amendment 13 are within the context of the 2006 Consolidated HMS FMP and its amendments, including the overarching objectives of ending overfishing. *See* National Standard 1 discussion, above, listing objectives. As explained in the National Standard 1 and 4 discussions above, the Longline category and IBQ Program alternatives serve an important conservation purpose: ensuring that the Longline category does not overharvest its quota and has incentives to limit bluefin dead discards and landings. The preferred Purse Seine alternative (F2b) and associated reallocation of quota alternative (Alternative F4) help to achieve, on a continuing basis, optimum yield. Other purposes of the preferred alternatives include providing flexibility in light of changing conditions in the fishery (*see* National Standard 6 discussion, *infra*) and simplifying the process for calculating the annual bluefin quota (Alternative F1b).

National Standard 6 states that conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

The preferred alternatives in this document are consistent with National Standard 6 and its guidelines (50 C.F.R. § 600.335). The preferred alternatives in this action were designed to take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches. Given the high variability in the distribution and availability of

highly migratory species, and the diverse participation in the fishery (e.g., geographically, economically, methodology), flexibility is an important element of the management strategy. Preferred Alternatives A2c, D1c, and I5c for the Longline category, F6 for the directed bluefin quota categories, H2 for the Angling category, I2b for the Harpoon category, and I4b for open access permit categories, were designed to give HMS fishermen more flexibility when fishing, allowing for adjustments in fishing techniques and location to better adapt to changing fishing conditions. Providing this flexibility would give fishermen the ability to better adjust to variations among, and contingencies in, fisheries, fishery resources, and catches. Analyses of the alternatives are based on consideration of multiple years of data to ensure that decisions are not based on a single, possibly aberrant year of data. Furthermore, the analyses compare data from baseline periods (i.e., prior to implementation of respective measures) against data recently collected to demonstrate temporal variations in the data.

National Standard 7 states that conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The preferred alternatives in this document are consistent with National Standard 7 and its guidelines (50 C.F.R. § 600.340). The economic impacts section of the DEIS provides detailed analyses of the costs and cost savings associated with each alternative. The preferred alternatives were chosen, in part, to minimize costs on the fishery, while meeting required conservation and management objectives. Further, none of the preferred alternatives would result in excessive administrative or monetary costs to the Agency, relative to the associated benefits of the alternative. The management program is not novel, and therefore modifications of the current regulations do not increase uncertainty for the Agency. The preferred alternatives were also structured to avoid unnecessary duplication by taking into account the range of alternatives as well as existing requirements on the relevant fisheries and existing measures in place for the bluefin quota categories. For example, preferred Alternatives E1b on IBQ Program reporting requirements, E2b on mailing electronic monitoring hard drives, and I5c on green-stick gear regulations would streamline regulatory requirements and remove regulatory burden. This is consistent with National Standard 7 guidelines, which specify that management measures should not impose unnecessary burdens on the economy or individuals and that management measures should be designed to give fishermen the greatest possible freedom of action in conducting business and pursuing recreational opportunities that are consistent with ensuring wise use of the resources and reducing conflict in the fishery.

National Standard 8 states that conservation and management measures shall, consistent with the conservation requirements of the Magnuson-Stevens Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to provide for the sustained participation of such communities, and to the extent practicable, minimize adverse economic impacts on such communities.

The preferred alternatives in this document are consistent with National Standard 8 and its guidelines (50 C.F.R. § 600.345). The adverse economic impacts were minimized to the

extent practicable through the selection of the preferred alternatives. The impacts analyses in Chapter 4 include examples of communities that may be affected by each alternative, and Chapter 8 contains an analysis of characteristics of affected communities relevant to the evaluation of impacts of the alternatives. The preferred alternatives would modify bluefin quota category fishery regulations in a manner that increases fishermen's access to target species while minimizing impacts to incidentally caught species (including bluefin for the pelagic longline fishery). Other preferred alternatives include providing flexibility in light of changing conditions in the fishery (*see* National Standard 6 discussion, above). Because the preferred alternatives optimize quota allocation and increase flexibility for fishermen, beneficial social and economic impacts are likely for many communities including Barnegat Light, NJ, Dulac, LA, Wanchese, NC, Chatham, MA, New Bedford, MA, Gloucester, MA, Ocean City, MD, Fort Pierce, FL, Fairhaven, MA, Beaufort, NC, and Islip, NY.

National Standard 9 states that conservation and management measures shall, to the extent practicable, minimize bycatch, and to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch.

The Consolidated HMS FMP and its amendments and implementing regulations include conservation and management measures that, to the extent practicable, minimize bycatch and bycatch mortality, consistent with National Standard 9 and its guidelines (50 C.F.R. § 600.350). The preferred alternatives are also consistent with those requirements.

The preferred IBQ Program alternatives would address incidental catch of bluefin tuna by pelagic longline vessels through annual, vessel-level allocations and continuing existing regulations regarding accountability, reporting and monitoring of bluefin catch. Preferred Alternative B3 would maintain current limits on the amount of bluefin that could be incidentally caught in the Gulf of Mexico, but provide flexibility to reduce the limit if warranted due to changes in the fishery or relevant best available scientific information, in order to maintain an effective cap on the amount of bluefin caught in the Gulf of Mexico (the known primary spawning grounds for western Atlantic bluefin tuna). In addition to bluefin incidental catch, these alternatives, minimize, to the extent practicable, bycatch and bycatch mortality, as they provide for control of fishing activity consistent with science-based quotas through vessel-level accountability. The preferred Longline category alternatives are not expected to have impacts on other Atlantic HMS or protected species, as described in Chapter 4, and bycatch would continue to be minimized under existing regulations. The preferred alternatives for the General, Harpoon, and Angling categories are likewise not expected to impact protected species or bycatch of Atlantic HMS. As explained in Chapter 3, Harpoon gear is very selective, and the bycatch by other handgear used in the fishery such as rod and reel is minimized through various techniques (e.g., gear restrictions such as hook type, education, handling restrictions). In addition, discontinuing the Purse Seine category under preferred Alternative F3 would eliminate any bycatch associated with purse seine gear.

To put the Amendment 13 Preferred Alternatives in context, methods employed to reduce bycatch and bycatch mortality in the Atlantic HMS fisheries have been implemented continuously over time and are comprehensively described in the SAFE Report, published

annually by the HMS Management Division. As examples, Final Amendment 5b (NOAA Fisheries 2017) and Amendment 11 to the 2006 Consolidated Atlantic HMS FMP (NOAA Fisheries 2018) explicitly addressed methods to reduce bycatch and bycatch mortality of specific sharks that are caught in Atlantic HMS fisheries. Furthermore, NOAA fisheries continues to review data in order to continue reducing bycatch and bycatch mortality. For example, on May 16, 2019, NOAA Fisheries published a Notice of Intent that it would prepare a Draft Environmental Impact Statement and consider options to develop strategies to facilitate research and data collection in closed areas in order to improve management of HMS (84 FR 22112; Mary 16, 2019). Those areas were closed in order to reduce bycatch of various species.

The 2006 Consolidated Atlantic HMS FMP and subsequent amendments provide standardized bycatch reporting methodologies (SBRM), and NOAA Fisheries summarizes and reviews these SBRMs annually in its SAFE Report, specifying the required procedures that constitute the standardized reporting methodology for each Atlantic HMS fishery. On January 19, 2017, NOAA Fisheries published final guidance on the requirements and implementation of standardized bycatch reporting methodologies (SBRM) in all fisheries managed under the Magnuson-Stevens Act (82 FR 6317). The SBRM final rule requires that all FMPs must ensure consistency with the requirements related to establishing and reviewing SBRMs by February 21, 2022. (600.1610(b)). Thereafter, a review of SBRM should be conducted at least once every five years to verify continued compliance with the Magnuson-Stevens Act and SBRM regulations. For Atlantic HMS fisheries, NOAA Fisheries is undertaking this review through Amendment 12 to the 2006 Consolidated Atlantic HMS FMP. On August 25, 2020, NOAA Fisheries released Draft Amendment 12 (85 FR 52329), which, among other things, reviews and makes updates to Atlantic HMS fishery SBRM. For a description of gear-specific SBRM for Atlantic HMS fisheries, see Section 2.3 of Draft Amendment 12. When Amendment 12 is finalized, subsequent SAFE reports would reflect the updated SBRM descriptions by gear.

National Standard 10 states that conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The preferred alternatives in the document are consistent with National Standard 10 and its guidelines (50 C.F.R. § 600.355). No impact to safety of life at sea is anticipated to result from these preferred alternatives. The preferred alternatives would not require fishermen to travel greater distances, fish in bad weather, or otherwise fish in an unsafe manner.

9.1.2 Consideration of Section 304(g) Measures

Section 304(g) of the Magnuson-Stevens Act sets forth requirements specific to the preparation and implementation of an FMP or FMP amendment for HMS. See 16 U.S.C. 1854(g) for full text. The summary of the requirements of Section 304(g) and an explanation of how NOAA Fisheries is consistent with these requirements are below. The impacts of the preferred alternatives, and how they meet these requirements are described in more detail in Chapters 2 and 4 of this document.

Consult with and consider the views of affected Councils, Commissioners, and advisory groups

On May 21, 2019, NOAA Fisheries published a Notice of Intent to prepare an environmental impact analysis and Notice of Availability of an Issues and Options document (84 Federal Register (FR) 23020). NOAA Fisheries requested comments on the Notice of Intent and the management options described in the Issues and Options Paper and other potential regulatory provisions regarding the bluefin directed fisheries and incidental pelagic longline fishery. NOAA Fisheries held 11 public scoping meetings and consulted with the New England Fishery Management Council. The Gulf of Mexico Fishery Management Council, the South Atlantic Fishery Management Council, and the Mid-Atlantic Fishery Management Council were informed of the scoping process and provided with relevant information. The public comment period ended July 31, 2019. Written comments received on the issues and options paper and presentation during the scoping meetings and at HMS Advisory Panel meetings were considered when preparing the DEIS.

Establish an advisory panel for each FMP

As part of the 2006 Consolidated HMS FMP, NOAA Fisheries combined the Atlantic Billfish and HMS Advisory Panels into one panel. The combined HMS Advisory Panel provides representation from the commercial and recreational fishing industry, academia, non-governmental organizations, state representatives, representatives from the Regional Fishery Management Councils, and the Atlantic and Gulf States Marine Fisheries Commissions. NOAA Fisheries discussed the Issues and Options Paper for this amendment, as well as comments received during scoping, at the September 2018, May 2019, and September 2019 meetings.

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

Throughout this document, NOAA Fisheries has described the effects of the management measures and any impacts on U.S. fishermen. The preferred alternatives in this document are intended to manage Atlantic HMS resources, focusing on bluefin, in a manner that maximizes resource sustainability and fishing opportunity, while minimizing, to the greatest extent possible, the socioeconomic impacts on affected fisheries, and are not expected to disadvantage U.S. fishermen in relation to foreign competitors.

With respect to HMS for which the United States is authorized to harvest an allocation, quota, or fishing mortality level under a relevant international fishery agreement, provide fishing vessels with a reasonable opportunity to harvest such allocation, quota, or at such fishing mortality level

The United States is under an international agreement regarding the harvest of bluefin, the main species addressed in this amendment. The preferred alternatives address the

objectives regarding optimizing allocation of U.S. bluefin quota among bluefin quota categories. For the Longline category, the preferred alternatives would further enable vessels to fish for target species while maintaining incentives to avoid bluefin and accounting for incidental bluefin catch. The preferred reallocation alternatives provide a reasonable opportunity for the directed bluefin categories to harvest bluefin quota.

Review on a continuing basis, and revise as appropriate, the conservation and management measures included in the FMP

NOAA Fisheries continues to review the need for any revisions to the existing regulations for Atlantic HMS fisheries, including through the Three-Year Review and annual SAFE Report.

Diligently pursue, through international entities, comparable international fishery management measures with respect to HMS

NOAA Fisheries continues to work with ICCAT and other international entities as relevant. To the extent that some of the management measures in this amendment could enhance fishery management in other countries, NOAA Fisheries works to provide foreign nations with the techniques and scientific knowledge to implement similar management measures.

Ensure that conservation and management measures under this subsection:

1. ***Promote international conservation of the affected fishery;***
2. ***Take into consideration traditional fishing patterns of fishing vessels of the United States and the operating requirements of the fisheries;***
3. ***Are fair and equitable in allocating fishing privileges among United States fishermen and do not have economic allocation as the sole purpose; and***
4. ***Promote, to the extent practicable, implementation of scientific research programs that include the tagging and release of Atlantic HMS***

Amendment 13 would addresses these requirements as follows:

1. The preferred alternatives would promote the sustained international conservation of the bluefin fisheries as well as other HMS fisheries by providing for a more robust U.S. quota system with reduced management uncertainty.
2. The traditional patterns of fishing vessels have been taken into consideration through the design of the alternatives, which reflect the unique historical and regulatory circumstances and operating requirements affecting each permit category; and by examining the economic impacts on the different categories.
3. The preferred alternatives that would allocate fishing privileges among U.S. fishermen are fair and equitable, as explained above in this section (National Standard 4), and as explained and analyzed in previous chapters of this document.
4. NOAA Fisheries has a number of Atlantic HMS scientific research programs in place including tagging and release projects. The preferred alternatives would not directly implement or establish any new scientific programs, however, these actions would not impact existing programs either.

9.1.3 Essential Fish Habitat (EFH)

Section 303(a)(7) of the Magnuson-Stevens Act requires FMPs and their amendments to describe and identify EFH, minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat. The Magnuson-Stevens Act defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." The process of complying with the EFH provisions of the Magnuson-Stevens Act may include EFH consultations with NOAA Fisheries habitat experts. The area affected by this action has been identified as essential fish habitat (EFH) for species managed by the New England Fishery Management Council, Mid-Atlantic Fishery Management Council, South Atlantic Fishery Management Council, Gulf of Mexico Fishery Management Council, the Caribbean Fishery Management Council, and the HMS Management Division of NOAA Fisheries. In Amendment 10 to the 2006 Consolidated HMS FMP, NOAA Fisheries reviewed the various gear types with the potential to affect EFH and, based on the best available information, NOAA Fisheries determined that ecological impacts to EFH due to this action would likely be neutral. Amendment 10 to the 2006 Consolidated HMS FMP found that pelagic longline and rod and reel gear does not typically interact with the sea floor; therefore, this gear type is unlikely to adversely affect EFH. This action in the context of the fishery as a whole will not have an adverse impact on EFH; therefore, an EFH consultation is not required.

9.2 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act is to reduce the total amount of paperwork burden the federal government imposes on private businesses and citizens. The Paperwork Reduction Act imposes procedural requirements on agencies that wish to collect information from the public. Two of the preferred alternatives would have a new reporting requirements subject to the Paperwork Reduction Act. Vessels issued an Atlantic Tunas longline category permit fishing with greenstick gear would need to have a VMS unit and report bluefin interactions with such gear, via VMS. It is not likely that any vessels would need to install a VMS unit pursuant to this measure, but vessels would have a slight increase in reporting burden if they interact with bluefin. This reporting requirement is within the scope of an existing approved Paperwork Reduction Act (OMB Control No. 0648-0372). Secondly, pelagic longline vessels landing bluefin would be subject to a requirement to create an account with pay.gov in order to comply with cost recovery requirements. A new Paperwork Reduction Act submission and approval is pending.

9.3 Coastal Zone Management Act (CZMA)

NOAA Fisheries has determined that this action is consistent to the maximum extent practicable with the enforceable policies of the approved coastal management program of each state along the Atlantic coast, Gulf of Mexico, and the Caribbean Sea. This determination will be submitted for review by the responsible state agencies under section 307 of the CZMA.

9.4 Environmental Justice

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

Community profile information is available in the 2006 Consolidated HMS FMP (Chapter 9), a report by MRAG Americas, Inc., and Jepson (2008) titled "Updated Profiles for HMS Dependent Fishing Communities" (Appendix E of Amendment 2 to the 2006 Consolidated HMS FMP), and in the 2015 HMS SAFE Report (NMFS 2015). The MRAG report updated community profiles presented in the 2006 Consolidated Atlantic HMS FMP, and provided new social impacts assessments for HMS fishing communities along the Atlantic and Gulf of Mexico coasts. The 2011 and 2012 SAFE Reports (NMFS 2011 and NMFS 2012) include updated census data for all coastal Atlantic states, and some selected communities that are known centers of HMS fishing, processing or dealer activity. Demographic data indicate that coastal counties with fishing communities are variable in terms of social indicators like income, employment, and race and ethnic composition.

The preferred alternatives were selected to minimize ecological and economic impacts and provide for the sustained participation of fishing communities. The preferred alternatives would not have any effects on human health nor are they expected to have any disproportionate social or economic effects on minority and low-income communities.

9.5 Endangered Species Act

The Endangered Species Act (ESA) is designed to protect critically imperiled species from extinction. NOAA Fisheries has detailed procedures to comply with the ESA, which may include formal consultations with agency experts. NOAA Fisheries has preliminarily determined that fishing activities pursuant to the preferred alternatives will not affect endangered and threatened species or critical habitat. This action would adjust the methodology for allocating IBQ shares in the pelagic longline fishery, and terminate the Purse Seine category and redistribute its quota to handgear fisheries and the Reserve category. None of these measures are expected to result in any increase in interactions with endangered or threatened species or critical habitat in a manner not considered through existing consultations.

On May 15, 2020, NOAA Fisheries issued a Biological Opinion (BiOp) completing consultation under section 7 of the ESA on the effects of the operation of the pelagic longline fishery for Atlantic HMS, carried out under the 2006 Consolidated HMS FMP, as amended. This BiOp analyzed the best available data, the status of the species,

environmental baseline, effects of the proposed action, and cumulative effects. The BiOp concluded that the proposed action (the operation of the Pelagic Longline Fishery for Atlantic Highly Migratory Species (HMS), as managed under the FMP), was not likely to jeopardize the continued existence of the following ESA-listed species or distinct population segments (DPSs): sperm whales; the Northwest Atlantic DPS of loggerhead, Kemp's ridley, the North and South Atlantic DPSs of green, leatherback, hawksbill, or olive ridley sea turtles; giant manta ray; the Central and Southwest Atlantic DPS of scalloped hammerhead shark; and oceanic whitetip shark. Since no critical habitat will be adversely affected, the BiOp also concluded the action is not likely to destroy or adversely modify designated critical habitat.

Under Section 7(b)(4) and Section 7(o)(2) of the ESA, "take" that would otherwise be considered prohibited under Section 9 or Section 4(d) of the ESA, but which is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the reasonable and prudent measures (RPMs) and the terms and conditions of the incidental take statement (ITS) of the Opinion. The BiOp determined that RPMs were necessary or appropriate to minimize the impacts of future takes on sea turtles and other ESA-listed species and to monitor levels of incidental take. There were two RPMs in the BiOp and multiple terms and conditions associated with each. These RPMs are described in Section 3.4 of this document.

NOAA Fisheries also released a BiOp for all Atlantic HMS fisheries except pelagic longline, which stated that these fisheries (including handgear fisheries) are not likely to jeopardize the continued existence of listed species of sea turtles, sawfish, Atlantic sturgeon, scalloped hammerhead shark (Caribbean and Central Atlantic DPS), oceanic whitetip shark, and giant manta ray. NOAA Fisheries is implementing the Reasonable and Prudent Measures (RPMs) and Terms and Conditions of this e 2020 BiOp also (for Atlantic HMS fisheries Except Pelagic Longline).,

The consultation history under Section 7 is found in the 2020 SAFE Report and relevant Biological Opinions.

9.6 Marine Mammal Protection Act

The Marine Mammal Protection Act prohibits the taking and exploitation of any marine mammals without appropriate authorization. The Act mandates that all commercial fisheries be classified by the level of incidental marine mammal death and serious injury. The List of Fisheries (LOF) puts each fishery into one of three categories: 1. Frequent incidental death or serious injury of marine mammals; 2. Occasional incidental death or serious injury of marine mammals; and 3. Remote likelihood of/no known incidental death or serious injury of marine mammals. The classification of a fishery on the LOF determines whether participants in that fishery are subject to certain provisions of the MMPA, such as registration, observer coverage, and take reduction plan (TRP) requirements

The LOF for 2020 (85 FR 21079, April 16, 2020) lists the pelagic longline fishery as a Category I fishery, with the high likelihood of serious injury or mortality to marine mammals. NOAA Fisheries has implemented management measures imposing restrictions on fishing activities to minimize bycatch of marine mammals (e.g., limited access permits, time/area closures, circle hook requirements, bait restrictions, careful release protocols, VMS requirements, authorized gears, and attendance at Protected Species Safe Handling, Release, and Identification workshops). In addition, once adopted and implemented, any relevant measures would be subject to all requirements of the Pelagic Longline Take Reduction Plan (May 19, 2009, 74 FR 23349). The Take Reduction Plan management measures were established to reduce serious injury and mortality of long-finned and short-finned pilot whales, and Risso's dolphins in the U.S. East Coast Atlantic pelagic longline fishery, and include a requirement to post a marine mammal handling placard, restrict pelagic longline mainline length to 20 nm in the Mid-Atlantic Bight area, and develop observer and research participation requirements to operate in the Cape Hatteras Special Research Area.

Bycatch and bycatch mortality with commercial handgear is considered to be low, particularly for harpoons, which are thrown at individual fish determined by the fisherman to be greater than the minimum commercial size. Bycatch of other species in the harpoon fishery is expected to be virtually, if not totally, nonexistent. Hook-and-line and harpoon gear are classified as Category III fisheries under the MMPA. Strict control and operations of these fishing gears means these gear types are not likely to result in mortality or serious injury of marine mammals or sea turtles.

The DEIS analyzed all the alternatives and determined that the preferred alternatives for pelagic longline gear would not have additional, detrimental effect on marine mammals beyond the effects of actions previously analyzed in the 2006 Consolidated HMS FMP and its amendments and addressed through current action.

9.7 Executive Order 12866

Pursuant to the procedures established to implement section 6 of Executive Order 12866, the Office of Management and Budget has determined that this action is not significant.

9.8 Executive Order 13132

Executive Order 13132 requires consideration of conditions under which Federal rules may have implication on States (i.e., “Federalism Implications”). Amendment 7 would not have federalism implications sufficient to warrant preparation of a Federalism Assessment under E.O. 13132.

9.9 Information Quality Act

The Information Quality Act requires federal government agencies to employ sound science in making regulations and disseminating information. It also provides a mechanism for people to challenge government information they believe to be inaccurate. Pursuant to Section 515 of Public Law 106-554 (Information Quality Act), this information product has undergone a pre-dissemination review by the HMS Management Division of the Office of Sustainable Fisheries on March 23, 2021.

9.10 National Environmental Policy Act

The National Environmental Policy Act (NEPA) provides a mechanism for identifying and evaluating the full spectrum of environmental issues associated with federal actions, and for considering a reasonable range of alternatives to avoid or minimize adverse environmental impacts. This document is designed to meet the requirements of both the Magnuson-Stevens Act and NEPA. The Council on Environmental Quality (CEQ) has issued regulations specifying the requirements for NEPA documents (40 CFR 1500 – 1508) and National Oceanic and Atmospheric Administration's (NOAA's) policy and procedures for NEPA are found in NOAA Administrative Order 216-6A and its companion manual. The required elements of an Environmental Impact Statement Assessment (EIS) are specified in 40 CFR 1508.9(b) and NAO 216-6A Section 6. They are included in this document.

9.11 Administrative Procedure Act

Section 553 of the Administrative Procedure Act establishes procedural requirements applicable to informal rulemaking by Federal agencies. The purpose of these requirements is to ensure public access to the Federal rulemaking process, and to give the public adequate notice and opportunity for comment. Proposed and final rules for Amendment 13 will be issued consistent with the APA.

9.12 Regulatory Flexibility Act - Initial Regulatory Flexibility Analysis

The purpose of the Regulatory Flexibility Act (RFA) is to reduce the impacts of burdensome regulations and recordkeeping requirements on small businesses. To achieve this goal, the RFA requires Federal agencies to describe and analyze the effects of proposed regulations, and possible alternatives, on small business entities. To this end, this document contains an Initial Regulatory Flexibility Analysis (*see* Section 7), which includes an assessment of the effects that the preferred and other alternatives would likely have on small entities.

9.13 References

MRAG, Americas, Inc., and M. Jepson. 2008. Updated Profiles for HMS Dependent Fishing Communities: Social Impact Assessment Services for HMS Fishing Communities. Solicitation Number: DG133F06RQ0381, 84 pp.

NMFS. 2006. Final Consolidated Atlantic Highly Migratory Species Fishery Management Plan. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD. Public Document. pp. 1600.

NMFS. 2008. Final Amendment 2 to the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks, and Highly Migratory. NOAA, National Marine Fisheries Service, Highly Migratory Species Management Division, Silver Spring, MD. Public Document.

NMFS. 2011. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2011. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 294 pp.

NMFS. 2012. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2012. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 203 pp.

NMFS. 2015. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2015. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 185 pp.NMFS. 2017. Regulatory Amendment 5b to the 2006 HMS FMP: Atlantic Shark Management Measures, February 2017. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service.471 pp.

NMFS. 2018. Amendment 11 to the 2006 HMS FMP. December 2018. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 267 pp.

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

NMFS. 2020. 2019 Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 273 pp.

NOAA. 2016. Administrative Order 216-6A. NOAA Administrative Order Series. Compliance with the National Environmental Policy Act.

NOAA. 2017. Policy and Procedures for Complying with National Environmental Policy Act and Related Authorities. Companion Manual for NOAA Administrative Order 216-6A.

10 List of Preparers

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

- Nicolas Alvarado, Fishery Management Specialist
- Randy Blankinship, Division Chief
- Karyl Brewster-Geisz, Branch Chief
- Craig Cockrell, Fish Biologist
- Peter Cooper, Branch Chief
- Jennifer Cudney, Fish Biologist
- Joseph Desfosse, Fishery Management Specialist
- Benjamin Duffin, Statistician
- Steve Durkee, Fishery Management Specialist
- Brad McHale, Branch Chief
- Sarah McLaughlin, Fishery Management Specialist
- Ian Miller, Fishery Management Specialist
- Larry Redd, Jr., Fishery Management Specialist
- George Silva, Fishery Economist
- Noah Silverman, Acting Branch Chief
- Carrie Soltanoff, Fishery Management Specialist
- Dianne Stephan, Fishery Management Specialist
- Nicholas Velseboer, Data Analyst
- Thomas Warren, Fishery Management Specialist

10.1 List of Agencies, Organizations, and Persons Consulted; Recipients of DEIS

Under 304(g)(1)(A) of the Magnuson-Stevens Fishery Conservation and Management Act, NOAA Fisheries is required to consult and consider the comments and views of affected Fishery Management Councils, ICCAT Commissioners and advisory groups, and advisory panels established under 302(g) regarding amendments to an Atlantic HMS FMP. NOAA Fisheries provided documents for the Atlantic, Gulf, and Caribbean Fishery Management Councils, Gulf and Atlantic States Marine Fisheries Commissions, and the HMS Advisory Panel at various stages throughout the process. Hard copies were also provided to anyone who requested copies.

The development of this document also involved considerable input from other staff members and Offices throughout NOAA including, but not limited to:

- Other Divisions within the Office of Sustainable Fisheries (Jennifer Wallace, Anjanette Riley, Kris Gamble, and Rey Marquez);
- NOAA General Counsel (Caroline Park, Loren Remsberg, and Megan Walline)
- NOAA Fisheries NEPA (Steve Leathery and Cristi Reid).

Comments on the proposed rule and the draft environmental impact statement will be accepted for at least 60 days from the date of publication of the proposed rule in the Federal Register. An HMS Advisory Panel meeting and public hearings will be held along the Atlantic and Gulf of Mexico coasts, as well as at least one public webinar. HMS stakeholders that are unable to attend these meetings, or that wish additional opportunities to discuss the materials with staff, will be invited to attend at least one public webinar. Councils and commissions will be notified when the rulemaking materials are available and hard copies of those materials will be sent if requested.

The Federal Register notice and the DEIS, and any necessary addenda will also be made available to the public via the HMS webpage located at: https://www.fisheries.noaa.gov/topic/atlantic-highly-migratory-species.

List of Agencies, Organizations, and Persons to whom copies of this DEIS were sent:

Alabama Department of Conservation and Natural Resources
Connecticut Department of Energy and Environmental Protection (Land and Water Resources Division)
Delaware Department of Natural Resources and Environmental Control (Coastal Programs Department)
Florida Department of Environmental Protection (Office of Resilience and Coastal Protection)
Georgia Department of Natural Resources (Coastal Zone Management Program)
Highly Migratory Species Advisory Panel
Louisiana Department of Natural Resources (Office of Coastal Management)
Maine Department of Marine Resources (Maine Coastal Program)
Maryland Department of Natural Resources (Chesapeake and Coastal Service)
Massachusetts Executive Office of Environmental Affairs (Office of Coastal Zone Management)
Mississippi Department of Natural Resources (Mississippi Coastal Program)
New Hampshire Department of Environmental Services (New Hampshire Coastal Program)
New Jersey Department of Environmental Protection (Land use Management)
New York Department of State (Office of Planning, Development, and Community Infrastructure)
North Carolina Department of Environment and Natural Resources (Division of Coastal Management)
Puerto Rico Department of Environment and Natural Resources (Coastal Zone Management Program)

Rhode Island Coastal Resources Management Council
South Carolina Department of Health and Environmental Control (Office of Ocean and Coastal Resource Management)
Texas General Land Office (Coastal Resources Division)
US Virgin Islands, Department of Planning and Natural Resources
Virginia Department of Environmental Quality (Virginia Coastal Program)

Index

11Appendices

11.1 Appendix A: Summary of Comments from Scoping

On May 21, 2019, NOAA Fisheries published a Notice of Intent to prepare an environmental impact analysis and Notice of Availability of an Issues and Options document (84 (Federal Register (FR) 23020). The notice announced the start of a public process for determining the scope of significant issues related to the management of bluefin, and addressing issues identified by considering modification of bluefin regulations. NOAA Fisheries requested comments on the Issues and Options Paper regarding the bluefin directed fisheries and incidental pelagic longline fishery, and held 11 public scoping meetings. NOAA Fisheries received approximately 100 comments during the public scoping period, which ended July 31, 2009. The comments have been organized under the major alternatives listed in Chapter 2 of this document. Comments that are similar in nature have been combined into one bullet. All comments received during the scoping process may be viewed at the Federal e-Rulemaking Portal (search for "NOAA-NMFS-2019-0042).

Modifications to IBQ Share Eligibility, Distribution, and Allocation Methods

- NOAA Fisheries should not change the current Individual Bluefin Quota (IBQ) distributions or allocation methods.
- NOAA Fisheries should return to trip level IBQ accountability.
- Increasing the Longline category quota will lead to directing on bluefin and an increase in dead discards of undersized bluefin (i.e., <73"). Longliners may also begin directing on bluefin because they are worth more than swordfish.
- NOAA Fisheries should not change the Amendment 7 provisions. It is too soon to begin doing that but support IBQ allocation to active vessels.
- NOAA Fisheries should allow for flexibility in the IBQ program for new entrants to the fishery.
- NOAA Fisheries should allow for a way for vessels to leave the fishery and easily return.
- Support change the IBQ allocation method to improve the fishery.
- NOAA Fisheries should reallocate IBQ of inactive vessels to the General category.
- NOAA Fisheries should allocate to active vessels based on the number of sets as the metric and limit the number of sets allowed in the fishery to one per day.
- NOAA Fisheries should ensure that active vessels have IBQ allocation.
- NOAA Fisheries should allocate IBQ based on designated landings and not by hooks or number of sets as those could be falsified to try to "game the system." Another benefit associated with basing IBQ on landings is it would not benefit those that target bluefin.
- NOAA Fisheries should look at active vessels over the past three years.
- NOAA Fisheries should change the Amendment 7 allocation method as it was counterproductive to the economic viability of the fleet.

- Longline category vessels need 10 mt per vessel to increase pelagic longline fishing for target species.
- NOAA Fisheries should create a "Pelagic Longline Revitalization reserve" quota category (e.g., Allocate an amount equivalent to one fish for each inactive vessel. Vessels without allocation notify NMFS intent to fish). (commenter has other complex ideas associated)
- NOAA Fisheries should remove shortfin mako from this designated species list for pelagic longline catch calculations.

Modifications to Rules Closely Linked to IBQ Allocations

- NOAA Fisheries should provide more flexibility for Atlantic vessels to fish in the Gulf of Mexico in order to catch larger, higher value swordfish. There is also less bycatch when targeting swordfish in the Gulf of Mexico.
- NOAA Fisheries should not change the Gulf of Mexico rules. There should not be any increase in bluefin mortality in the Gulf of Mexico.
- More vessels fishing in the Gulf of Mexico would provide more product for dealers.
- NOAA Fisheries should remove the requirement for the minimum amount of IBQ to fish in the Gulf of Mexico after the bluefin spawning season.
- NOAA Fisheries should reevaluate the IBQ tiers; they seem to serve no purpose and can be confusing and punitive for some fishery participants.
- NOAA Fisheries should cap the amount of IBQ allocation to 20 percent of the Longline category quota per owner.

Northeast Distant gear restricted area (NED) Rules

- Some concern about the effect of NED landings disadvantaging some vessels.
- It's complicated; north of 26 degrees there are sometimes common, but random bluefin interactions.
- NOAA Fisheries should not exclude NED fishing effort/landings from an allocation formula based on effort. NED vessels can't take the NED IBQ with them when they fish elsewhere (vs GOM IBQ can be used in the ATL), so the logic is flawed. There would be a substantial impact in some years. It would cause relatively greater harm to the distant water fleet, but only incremental benefit to the rest of the fleet (if NED effort excluded). Creation of exceptions to effort would be problematic. The U.S. pelagic longline fleet that does not go to the NED is not disadvantaged by the 25-mt NED quota.

Sale of IBQ Shares

- NOAA Fisheries should not allow sale of IBQ shares, as this would make IBQ too much like a property right and could encourage a directed fishery.

Adjustments to Other Aspects of the IBQ Program

- NOAA Fisheries should remove the requirement for dealers reporting dead discards and the need for a vessel Personal Identification Number (PIN) to report landings.

- NOAA Fisheries should keep the vessel PIN requirement for reporting landings and continue to require dealers to enter dead discards.

Modifications to the Electronic Monitoring (EM) Program

- Support for status quo EM requirement for hard drive submission.
- Support for improving EM.
- NOAA Fisheries should focus on maintaining current systems and making them operate correctly vs. expanding.
- Better viewing of fish and fish measurement is needed.
- Support for boom and mat concepts.
- Oppose the boom and mat concepts.
- NOAA Fisheries should require hard drive submission after every two trips
- NOAA Fisheries should require hard drive submission when the hard drive is full.

Purse Seine Category Changes and Quota Allocation

- NOAA Fisheries should choose no action since the purse seiners have a right to fish.
- NOAA Fisheries should continue to allow the purse seine participants to lease quota to the pelagic longline fleet, which needs the quota to continue to fish.
- NOAA Fisheries should immediately discontinue the Purse Seine category fishery
- There is no demand or market for purse seine-caught bluefin.
- The gear type is obsolete and fish no longer school the way they used to.
- NOAA Fisheries should allow vessel owners to lease 25 percent of their base vessel quota for three years before phasing out the fishery.
- Support a nine-year phase out with two 25-percent reduction step-down periods during the nine years.
- NOAA Fisheries should not continue to allow the Purse Seine category to lease to the Longline category.

Reallocate Purse Seine Category Quota

- NOAA Fisheries should reallocate the Purse Seine category quota proportionally or to the Reserve category.
    - Don't reallocate to the Reserve category as it would increase uncertainty.
    - Create a research quota to fund bluefin research.
- To all or most categories:
    - Support reallocating proportionally among all the categories.
    - "Pay back" the quota taken from categories in the Amendment 7 measure that provided the 68 mt to Longline category.
    - Include Longline category in reallocation, but not to Gulf of Mexico vessels.
    - Reallocate to where it will be economically stimulating.
- Focus on the handgear fisheries
    - Split among the General, Harpoon, and Angling categories.
    - Reallocate to General and Harpoon categories only.

- Reallocate to General and Angling categories because they have used a higher proportion of their allocations.
- 100% should go to General category immediately.
- Reallocate mostly to the General category and a little to the Reserve category for inseason transfers to other categories. Reallocate gradually to General category.
- Reallocate to the General category because there is more effort in the General category now and the current quota is limiting opportunities.
- Because the Purse Seine quota was fished for in the Gulf of Maine, redistribution should be to the General category June through December time periods (when bluefin have traditionally been caught in the Gulf of Maine).
- Reallocate to the January-March period and the October through December periods which have less quota than the summer periods, for a more even distribution of quota.
- The HMS Charter/Headboat permit category needs its own quota (to insulate the General category from negative effects of Charter/Headboat landings)
-

Modifications to General Category Subquota Periods and/or Allocations

Support:

- Extend the January through March period until the end of April. There are safety concerns with a March 31 closure (fish-or lose quota dynamic). February and March weather is more temperamental; there are safer fishing conditions in April and fish still available for fishing.
- Increase January subquota to 14.8%; taking from summer months to do this would help alleviate the flooded summer market, when too much quota is available that time of year.
- Create a separate April subquota.
- Split up June-Aug subquota into three individual month quotas and have a two-week cap. The market cannot tolerate much early season (i.e., low quality) fish. Or implement two days off/week, triggered by a particular rate of catch.
- Quota should be returned to New England (which has suffered cuts to its historical quota), and not increase to 'new' fisheries now (i.e., mid-Atlantic).
- Restructure is needed: Reduce June through August subquota and reallocate to October through December periods mostly.
- Reduce the June through August subquota to 35-40% of the General category quota and provide the difference to the October through November period.
- Provide half of the current June through August subquota to the September through November time periods.
- Restart General category fishery on July 15 vs. June 1.

Opposition:

- General opposition to changing.
- Businesses are structured around the current system, and change would be detrimental.

- Don't make changes to subquota percentages until General category quota 'returns' to about 800 mt.
- Do not extend the January through March subquota period past March 31.
    - Concern about extending January period through May due to potential impact on spawners and prespawners March through May.
    - Southern fishery is not well enforced.
    - Increases to winter fishery not warranted because they (south) rely on multiple species, and represents a quota reduction to the summer fishery. Northern fishery has greater reliance on bluefin only fishery.
- Do not support 12 equal months.

Other:

- The December fishery and the January through March fishery are different (participation, areas fished).
- Need a detailed market analysis to maximize economic value of the fishery.
- Environmental conditions are shifting. Everything shifted by a month, and the fishery north of Cape Cod is suffering as a result.
- Fishery dynamics have changed; pulses of fish show up.
- Booming economy, proximity to fish, social media, and technology have contributed to the surge in landings.
- International dynamics effects price more than fishery limits.

Modifications to the Angling Category Trophy Fishery

- Create a new zone north of 42 degrees (Chatham) so the area can be open when the fish are there. There are not that many smaller bluefin north of Cape Cod, so recreational anglers need the >73" fish.
- Create a zone from south of Martha's Vineyard and Nantucket to Maine.
- Consider the negative economic impacts on tournaments, which are also important for bluefin data and sample collection.
- Increase the subquotas in the existing areas to avoid early closures.
- Do not increase the Gulf of Mexico subquota, recognizing the ICCAT prohibition on targeting there.
- Do not make any changes to the Trophy areas and allocations.
- Eliminate this fishery and reallocate to the General category. It is a waste to consume recreationally, and encourages illegal sale of the fish; should be catch and release only.

Modifications to Other Handgear Fishery Regulations

Use of Harpoon Gear on Vessels Other than Harpoon Category-permitted Vessels

- Allow use of harpoons in the HMS Charter/Headboat permit category. There are small numbers of capable vessels. It would allow the flexibility to get fish in the most productive and efficient manner.
- If NOAA Fisheries allows use of harpoons in the Charter/Headboat category, it should limit the number of bluefin that can be sold. Could require removal of pulpit for charter fishing.

- Don't allow use of harpoon gear by HMS Charter/Headboat permitted vessels; it would increase effort.
- Continue to allow use of harpoons in the General category; it does not impact the overall General category quota.
- Restrict the use of harpoon gear to the Harpoon category only. Harpoon landings represent a small percentage of General category landings.

Modifications to the Harpoon Category Daily Retention Limit and Season

- The Harpoon category should have the same bluefin retention limit as the General category.
- Implement a daily retention limit for giant bluefin (> 81").
- Change range of authorized retention limits for large mediums to 2-6 fish (from 2-4).
- Open the Harpoon category on May 15 vs. June 1.
- Support for the status quo start date of June 1.
- Change the November 15 Harpoon season end date to earlier so that NOAA Fisheries could transfer unused Harpoon category quota to the General category earlier.
- Implement an owner/operator requirement.
- Limit entry in Harpoon category (to truly commercial fishermen) and institute income requirements ("commercial fisheries" as primary income).
- Increase the Harpoon category to 8% so it would have approximately 100 mt under the current U.S. quota)

Allow Atlantic tunas or HMS Angling permit holders to change permit categories within a fishing year provided they have not landed bluefin.

- NOAA Fisheries should change the rules to allow more flexibility in changing categories.
- NOAA Fisheries should not change "grace period."

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

- Support for addressing retention of bluefin caught with green-stick gear.
- Do not allow green-stick gear use by pelagic longline vessels.
- Catch should apply to IBQ allocations to maintain non-directed nature of the Longline category and apply Vessel Monitoring System (VMS) and EM requirements.
- Catch should not count against IBQ allocations.

General Comments

- Support no action until more time elapses to study effects of Amendment 7.
- The amount of IBQ allocation and availability has a cumulative impact on the ability to target and catch swordfish. Swordfish and bluefin tend to school together and some fishermen avoid targeting swordfish when bluefin are present.
- The primary objective of this amendment should be to deal with the Purse Seine fishery (i.e., reallocation since no longer active).

- Regarding the HMS Charter/Headboat permit category:
    - Allow only 5 to 10 commercial bluefin a year (e.g., using tags).
    - Require a U.S. Coast Guard safety inspection sticker to obtain the permit; this could improve safety and help limit the number of vessels in this category.
    - Disallow use of spotter planes by harpooners.
    - Eliminate the flexibility that allows retention of either the commercial or recreational daily retention limit by splitting into two subcategories: < 73" recreational fishery and > 73"' commercial fishery.
- Regarding inseason bluefin fishery management, watch amount of lead time prior to a closure or quota change (notice should be one day instead of three).
- Create a separate bluefin quota for tournaments.
- Create a new category for green-stick gear landings of bluefin
- If a dealer reports and the vessel does not, do not issue a license to the vessel the subsequent year.

11.2 Appendix B: Bluefin Quota Management and Annual Quota Allocation

Table 11.1 Bluefin Base Quota Allocations and Annual Adjustments by Quota Category and example annual quota distribution for 2019

Category	Current Allocation (%)[1]	Current Quota (mt)[1]	Annual Adjustments, with Example Adjustments for 2019	Example Annual Quota Distribution: 2019
General	47.1	555.7		555.7
Harpoon	3.9	46		46
Purse Seine	18.6	219.5	+/- based on previous year's activity (-164.5)	55
Longline	8.1	95.6	+68; +25 NED	188.6
Trap	0.1	1.2		1.2
Angling	19.7	232.4		232.4
Reserve	2.5	29.5	+/- previous year's over/under harvest (127.3) +/- purse seine adjustment (+164.5)	321.3
TOTAL	100.0	1,179.9	68+25+127.3 = 220.3	1,400.2

[1] The allocations and quotas in this table reflect the allocation of the U.S. base quota minus 68 mt as described above in Chapter 2, Alternative F. Percentages have been calculated based on mt proportions. The Longline category row also does not reflect the annual 68-mt allocation.

The specific methodology for reallocation is as follows. Each Purse Seine fishery participant is given a fifth of the quota available to the category for the year (e.g., 219.5 mt divided by five participants equals 43.9 mt per participant). Next, NOAA Fisheries determines the annual quota available for use by each individual Purse Seine participant that year, based on the previous year's performance. Each participant has available either 25 percent, 50 percent, 75 percent, or 100 percent of its allocation share of the base Purse Seine quota, depending upon the level of their bluefin catch the previous year (see Table 11.2 and Figure 3.8). At a minimum, each participant has available 11.0 mt annually (25 percent), assuring them some level of fishing opportunity or IBQ trading each year. Using the 50, 75, and 100 percent thresholds provides an opportunity to increase the available Purse Seine quota allocation in the subsequent years and not lock-in low, or high, levels of allocation.

After individual allocations are made, NOAA Fisheries then determines how much category quota is available for reallocation to the Reserve category. If the cumulative catch for all of

the participants was high (i.e., greater than 70 percent of the baseline category quota), no Purse Seine category quota would be reallocated to the Reserve category. Conversely, if cumulative catch for all vessels was low (i.e., between 0 and 20 percent), a percentage of the category's cumulative baseline allocation would be available to reallocate to the Reserve category (Figure 3.8). Any quota not allocated to the Purse Seine category would be allocated to the Reserve category. For example, no Purse Seine category bluefin were landed in 2018, so allocations to Purse Seine category participants in 2019 were at the lowest level of 11 mt each, and 164.5 mt was transferred into the Reserve category (Table 3.3).

Table 11.2 Annual Reallocation of Bluefin Quota from Purse Seine Participants

Year A	Year A + 1		
Amount of Purse Seine Base Quota* *Caught* by Purse Seine Vessel	Amount of Purse Seine Base Quota *Allocated* to Purse Seine Vessel	Amount of Purse Seine Base Quota *Available for Reallocation* to other Categories per Vessel	Maximum Amount of Total Purse Seine Base Quota *Available for Reallocation* to other Categories
0 to 8.8 mt (0 to 20%)	11.0 mt 25% (minimum quota)	32.9 mt 75%	164.5 mt 75%
>8.8 to 19.8 mt (>20% to 45%)	22.0 mt 50%	21.9 mt 50%	109.5 mt 50%
>19.8 to 30.7 mt (>45% to 70%)	32.9 mt 75%	11 mt 25%	55 mt 25%
>30.7 to 43.9 mt (>70% to 100%)	43.9 mt 100%	0 mt 0%	0 mt 0%

* Using a Purse Seine Base quota of 159.1 mt as an example; five purse seine participants receive 31.8 mt each (baseline amount, with no reallocation).

Table 11.3 Bluefin tuna base quotas, landings, and percent base quota landed for 2015-2019

Category Quota or Subquota	2015-2017 Base Quota (mt)	2015 Landings (mt)	2015 Base Quota Landed (%)	2016 Landings (mt)	2016 Base Quota Landed (%)	2017 Landings (mt)	2017 Base Quota Landed (%)	2018-2019 Base Quota	2018 Landings (mt)	2018 Base Quota Landed (%)	2019 Landings (mt)	2019 Base Quota Landed (%)
GENERAL TOTAL	466.7	614.8	131.7	751.5	161	695.3	149	555.7	784.4	141.2	814	146.5
General January-March	24.7	31.4	127.1	51.3	207.7	108.1	437.7	29.5	59.3	201	108.9	369.2
General June-August	233.4	182.7	78.3	233.4	100	331.2	141.9	277.9	327.9	118	277.6	99.9
General September	123.7	179.2	144.9	191.6	154.9	164.1	132.7	147.3	238.2	161.7	226.2	153.6
General October-November	60.7	210.5	346.8	275.2	453.4	73.7	121.4	72.2	144.3	199.9	178.6	247.4
General December	24.3	11	45.3	0	0	18.1	74.5	28.9	14.6	50.5	22.8	78.9
HARPOON	38.6	43.8	113.5	26.3	68.1	44.3	114.8	46	26.6	57.8	102.4	222.6
PURSE SEINE	184.3	33.7	18.3	0	0	0	0	219.5	0	0	0	0
LONGLINE*	148.3	71.4	48.1	86.2	58.1	105.1	70.9	163.6	88	53.8	86.4	52.8
TRAP	1	0	0	0	0	0	0	1.2	0	0	0.3	25
ANGLING	195.2	113.1	57.9	142.8	73.2	141.8	72.6	232.4	112.6	48.5	181.8 ?	78.2

Percent base quota landed >100 percent indicates that quota was transferred via an inseason action from the reserve to the quota category or subcategory.

Table 11.4 Comparison of purse seine catch and dead discards with and without an EFP providing an additional 15 percent tolerance for retention of large medium size bluefin

Metric	2013	2014 (with Exempted Fishing Permit)	2015 (with Exempted Fishing Permit)
Observer Coverage (%)	60	100	100
Landings (mt)	28.8	37.6	34.0
73" - <81"	1.85	9.57	11.6
81"or greater	26.9	28.1	22.5
Dead Discards (mt, % of catch)	13.7, 32.2	4.2, 10	4.9, 12.6
Total Bluefin Catch	42.5	41.8	38.9

All bluefin tuna (BFT) weights are in metric tons, ww. * = Min. 5% required by ICCAT, as measured in number of sets or trips.
Sources: Northeast Fisheries Observer Program (NEFOP), SAFIS

General Category Quota Management

This section provides background and context for the options regarding management of the General category fishery, focusing on how the bluefin quota is divided among time periods. In September 2017, NOAA Fisheries presented a background paper for consideration by the Highly Migratory Species (HMS) Advisory Panel entitled, "Management of the Atlantic Bluefin Tuna General Category 'January' Fishery." To access this paper, see the link on Day 2 tab of the 1:30 to 2:30 agenda item called: "Ongoing Issues: Bluefin Tuna General Category 'January' Fishery". That background paper summarized the regulations and management history of the General category quota and presented potential management actions and issues to consider. As the Advisory Panel was divided on how to modify General category management, NOAA Fisheries has not since taken action that would change how the baseline General category quota is allocated. Summarized information is provided in this document as well as information updated since September 2017.

Table 11.5 summarizes the evolution of how the General category quota was allocated (by percentage) to the time period subquotas and the duration of those time periods, from 1995 to present.

Table 11.5 Evolution of General category time periods and subquotas (percentages), 1995 to 2020*

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1995						20%		40%	30%	10%		
1996						25%		35%	30%	10%		
1997-1998						60%			30%	10%		
1999						60%			30%	10% (through May of following year)		
2000-2002						60%			30%	10%		
2003-2005						60%			30%	10% (through Jan of following year)		
2006-2011	5.3%					50%			26.5%	13%		5.2%
2012-	5.3%					50%			26.5%	13%		5.2%

* As of April, 2020. From 1999 through 2006, the fishing year was June through May, but reverted back to a calendar year as of 2007.

NOAA Fisheries changed the fishing year to a June through May period in the 1999 FMP final rule to give both NOAA Fisheries and fishery participants adequate time to develop and consider conservation and management measures that would implement International Commission for the Conservation of Atlantic Tunas (ICCAT) recommendations (made at ICCAT meetings that are held in November of each year) effectively. The General category subquota allocations remained as they had been, but with the final period extended as follows: June through August: 60%; September: 30%; and October through May: 10%. In a 2000 final rule, NOAA Fisheries clarified that December 31 was the end date for the General category season. In 2007, NOAA Fisheries reverted management of the fishery to a calendar year basis to establish consistent management cycles for all HMS. Therefore, there was an abbreviated fishing year or "bridge period" from June 1, 2007 through December 31, 2007. As of 2008, the fishing year coincided with the calendar year, and the January time period and associated fishing activities now occur at the beginning rather than the end of the General category season.

During and prior to the development of the 1999 Fishery Management Plan (FMP), the majority of General category fishing activity took place in the summer and fall off the New England and New York coasts. The General category quota was available to all commercial handgear tuna fishermen from the opening of the fishing year on June 1 through the end of the season on December 31, as quota allowed. Due to high participation and limited quota, NOAA Fisheries used effort controls such as lower retention limits (Table 3.9 and Table

3.13), restricted fishing days (Table 3.9 and Table 3.13), and time period subquotas (Table 11.5) to slow down the catch rate and distribute landings both geographically and over time. Despite the implementation of effort controls in the General category, the quota and subquotas were regularly caught and the General category often closed in late summer to early fall while bluefin were still off northern New England states. During the seasonal General category closure, a southern recreational bluefin fishery on large mediums and giants emerged off the coast of North Carolina during February and March. In later years, fish began to arrive in the region during the late fall/early winter, and interest in a commercial fishery developed.

During the development of the 1999 FMP, the emergence of a General category bluefin fishery in the mid/southern Atlantic region was extensively discussed by the HMS Advisory Panel and the public (NMFS, 1999). The HMS Advisory Panel did not agree on how the 1999 FMP should address the scope of a southern area late season General category bluefin fishery. NOAA Fisheries changed the fishing year to a wrap-around format (June through May) in the 1999 FMP final rule to give both NOAA Fisheries and fishery participants adequate time to develop and consider conservation and management measures that would implement ICCAT recommendations (made at ICCAT meetings that are held in November of each year) effectively. The General category subquota allocations remained as they had been, but with the final period extended through May (Table 11.5). In a 2000 final rule, NOAA Fisheries clarified that December 31 was the end date for the General category season and final subquota period.

In the early 2000s, NOAA Fisheries performed a number of inseason quota transfers of bluefin, consistent with the transfer criteria established in the 1999 FMP, which allowed the General category bluefin fishery to extend into the winter months (i.e., late November into December). In 2002, NOAA Fisheries received a Petition for Rulemaking from the North Carolina Division of Marine Fisheries to formalize this winter fishery and extend fishing opportunities for the General category into January. In December 2003, NOAA Fisheries extended the General category end date from December 31 to January 31 to address some of the concerns raised in the Petition for Rulemaking, as well as to increase fishing opportunities and optimum yield for the fishery overall.

Via the 2006 Consolidated HMS FMP, NOAA Fisheries modified the General category time period subquotas to allow for a formalized winter fishery. These subquotas remain effective and are shown in Figure 3.4. The December and January time periods are currently allocated 5.2 percent and 5.3 percent of the General category base quota, respectively. NOAA Fisheries also reverted management of the fishery to a calendar year basis, versus the wrap-around model, to establish consistent management cycles for all HMS. Thus, as of 2008, the January time period and associated fishing activities now occur at the beginning rather than the end of the General category season.

2009 Advance Notice of Proposed Rulemaking (ANPR) and 2011 Regulatory Amendment

In the mid-2000s, in response to low catches of bluefin and swordfish, NOAA Fisheries published an Advance Notice of Proposed Rulemaking (ANPR), requesting specific comment on potential regulatory changes that would increase fishing opportunities (74 FR 26174, June 1, 2009). Following consideration of the wide range of comments received on the ANPR, both for and against relaxing regulations, NOAA Fisheries published a proposed rule in 2009, to increase fishing opportunities for bluefin within the existing U.S. quota (74 FR 57128, November 4, 2009).

In May 2010, the Center for Biological Diversity (CBD) petitioned NOAA Fisheries to list bluefin as threatened or endangered under ESA. NOAA Fisheries delayed issuing a final rule pending a new ICCAT bluefin stock assessment and subsequent ICCAT recommendation on bluefin conservation and management in the fall of 2010, as well as the decision on the CBD petition. In May 2011, NOAA Fisheries determined that listing bluefin as threatened or endangered under the ESA was not warranted, but listed bluefin as a species of concern.

NOAA Fisheries issued a final rule on the General and Harpoon category fishing opportunities on November 30, 2011 (76 FR 74003; NMFS, 2011). In the final action, NOAA Fisheries determined that the General category winter fishery were to remain open from January 1 until the subquota is reached or March 31, whichever comes first (thereby allowing the possibility of fishing past January 31, to catch the available January subquota). In addition to the ESA petition, CBD challenged the November 2011 final action in district court, alleging that it violated the Magnuson-Stevens Act, NEPA, and Administrative Procedure Act. The Defendants' (i.e., NOAA Fisheries') motion for summary judgment was granted in that case on March 28, 2013, and the case was dismissed.

Amendment 7 to the 2006 Consolidated HMS FMP (and the General category fishery)

Relevant to the management of the General category fishery, NOAA Fisheries considered three alternatives regarding modifying the subquota allocations in draft Amendment 7: (a) No action (allocations as shown in the table above), (b) establishing 12 equal monthly subquotas, and (c) providing additional flexibility for General category quota adjustment (preferred). NOAA Fisheries published the Amendment 7 Final Environmental Impact Statement in August 2014. During the review period on that document, the North Carolina Division of Marine Fisheries (NCDMF) reiterated support of the flexibility concept but suggested that the January fishery to remain open until May 31 or until the January time period subquota is landed, as bluefin could be available to the General category off the North Carolina in the months of April and May. The South Atlantic Fishery Management Council made a similar comment. In the Amendment 7 final rule, NOAA Fisheries finalized the preferred alternative as proposed (i.e., NOAA Fisheries could proactively transfer quota from one subquota period to another, earlier in the calendar year). For example, NOAA Fisheries could transfer quota allocated for December of a particular year, to January of that year, to further fishing opportunities early in the calendar year. Because, relative to the other two alternatives NOAA Fisheries considered, the preferred alternative would result

in improved and fuller use of the General category quota overall and could result in beneficial economic impacts to early season General category participants. Since that time, participants in the winter fishery have continued to express interest in NOAA Fisheries providing additional quota for the January subquota time period. The idea of providing more quota to the January winter fishery, in conjunction with the concept of lengthening the January subquota time period associated with the January subquota is similar to, in its essence, a reallocation of quota.

Additional Background on General Category Subquotas

The General category season issue was raised again by some HMS Advisory Panel members at the Fall 2015 through Fall 2016 meetings, with discussion for and against a year-round fishery (divided or not into subperiods), as well as for and against allowing the January fishery to continue until the available quota is met. Figure 11.1 below shows the amount of landings by quota subperiod, and the percentage of annual landings that each subquota period comprised. See Table 11.6 for a summary of General category daily retention limits, landings, subquota use, and inseason actions, by time period for 2015 through 2019 to date.

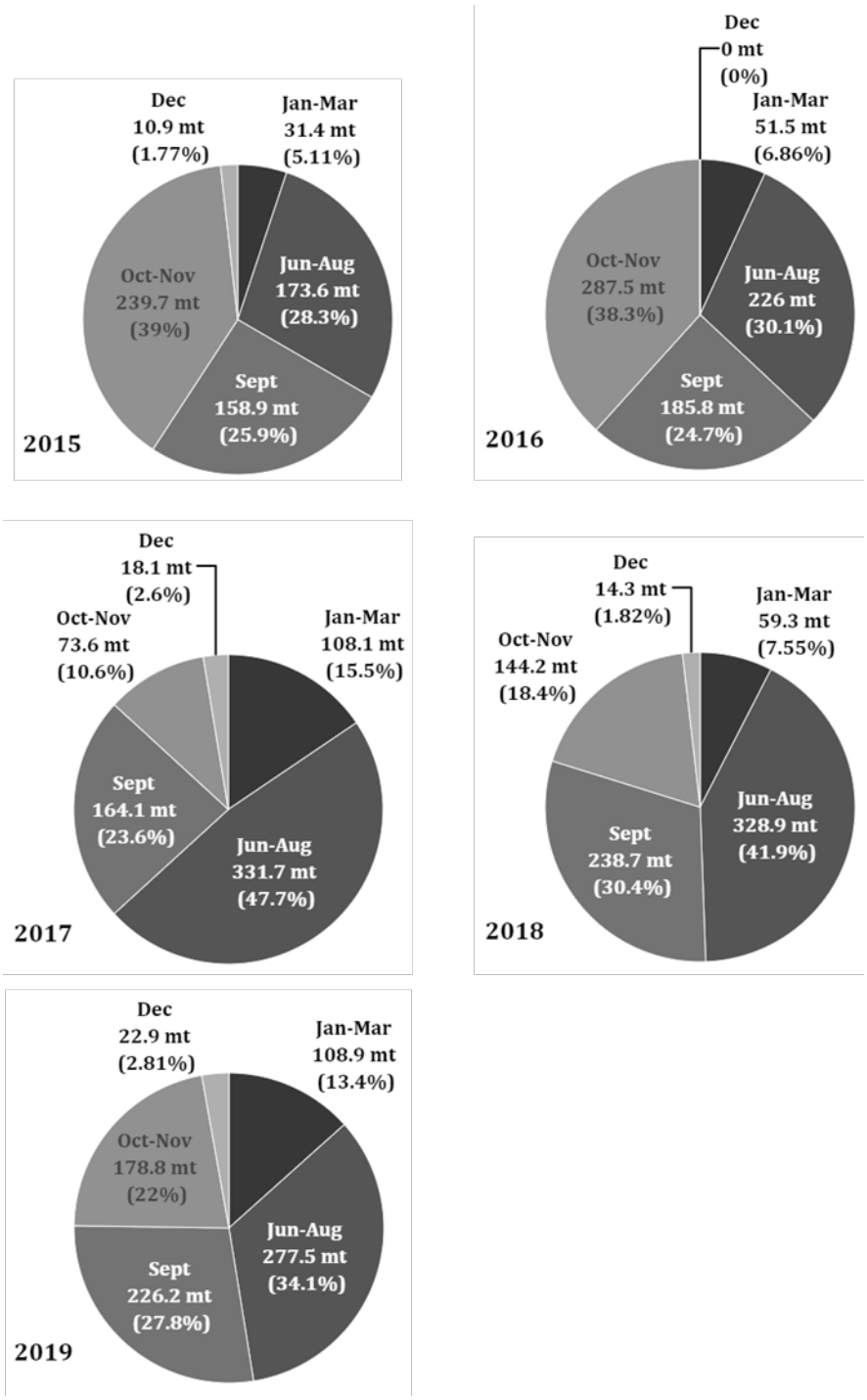


Figure 11.1 **Landings (mt and percent of General category quota) during each General category time period from 2015-2019**

In a December 12, 2016, letter to NOAA Fisheries commenting on management of the 2016 General category season (in which NOAA Fisheries needed to close the General category on November 4, 2016, after the adjusted General category quota was reached), the NCDMF requested that NOAA Fisheries manage the General category in the future through conservative retention limits during those periods of abundant landings to prevent

negative impacts on those fishing in following subquotas or months within a subquota. The General category quota was reached as a result of a combination of factors, including wide-scale abundance of bluefin, conducive weather for fishing, large amounts of fishing effort, and landing large numbers of fish. NCDMF stated that, due to the January and December quotas being at the beginning and end of the fishing year, respectively, under-harvest and transfers are often unavailable to these subquotas.

NOAA Fisheries took three inseason actions regarding the January 2017 subquota, as detailed in Table 11.6, resulting in an adjusted quota of 81 mt. NOAA Fisheries closed the January 2017 General category fishery on March 29, 2017, and landings were 108.1 mt.

At the May 2017 HMS Advisory Panel meeting, there was even further discussion surrounding the issue of potentially modifying the General category January fishery regulations. Those in support clarified that their request is for flexibility to use the January quota fully vs. a request for a subquota allocation increase. However, once again there were requests made from winter fishery participants and their elected officials to provide more quota to keep the fishery open. Thus raising concerns regarding a de facto suballocation change, and that political pressure associated with these sort of inseason actions (both for and against) was growing. In response to these concerns, some Advisory Panel members commented on the "fairness" and equity of inseason transfers in general. Inseason retention limits for 2015-2019 are shown in Table 3.3. Lastly, some Advisory Panel members cautioned against using terminology such as "traditional" participants when arguing for or against issues affecting quota allocation, stating that the fishery is a U.S. resource, managed by time versus geographical area, and that some vessels travel great distances from their principal fishing areas to participate at various times of year.

Table 11.6 2015-2019 Atlantic bluefin tuna (BFT) Retention Limits, Landings, and Quota Use, by General Category Subquota

	Daily Retention Limit (number of fish and date detail)	Landings (mt)	Subquota (mt) and use (%)	Notes
2015				
"January" (i.e., Jan. 1-Mar. 31)	3	31.4	Base: 21.4 (147) Adjusted: 42.4 (74)	Transferred full Dec. 2015 subquota to Jan. 2015 effective Jan. 1
June-August	4	173.6	Base: 201.5 (86)	
September	4	158.9	Base: 106.8 (149)	
October-November	4: Oct. 1-Nov. 27 3: Nov. 28-30	239.7	Base: 52.4 (457) See Total for adjustment*	Transferred 65 mt from Reserve and 35 mt from Harpoon effective Oct. 30; transferred 80 mt from Reserve effective Nov. 25
December	3	10.9	Base: 21 Adjusted: 0	
TOTAL		614.8**	Base: 466.7 (132) Adjusted: 646.7 (95)	
2016				
January	3	51.5	Base: 24.7 (209) Adjusted: 49 (105)	Transferred full Dec. 2016 subquota to Jan. 2016 effective Jan. 1
June-August	5	226	Base: 233.3 (97)	
September	5	185.8	Base: 123.7 (150)	

	Daily Retention Limit (number of fish and date detail)	Landings (mt)	Subquota (mt) and use (%)	Notes
October-November	5: Oct. 1-8 4: Oct. 9-16 2: Oct. 17-Nov. 4 CLOSED Nov. 5-30	287.5 (97.2 at 5 BFT; 78.2 at 4 BFT; 112.1 at 2 BFT)	Base: 60.7 (474) See Total for adjustment*	Transferred 125 mt from Reserve effective Oct. 6; transferred 67 mt from Reserve and 18 mt from Harpoon effective Oct.14
December	CLOSED	0	Base: 24.3 (0) Adjusted: 0	
TOTAL		750.5**	Base: 466.7 (161) Adjusted: 676.7 (111)	
2017				
January	3: Jan. 1-Mar. 5 1: Mar. 6-29 CLOSED Mar. 30-31	108.1 (69.1 at 3 BFT; 39 at 1 BFT)	Base: 24.7 (436) Adjusted: 81 (133)	Transferred 16.3 of Dec. 2017 subquota to Jan. 2017 effective Jan. 1; transferred 40 mt from Reserve effective March 2
June-August	4: Jun. 1-Aug. 4 2: Aug. 5-16 CLOSED Aug. 17-31	331.7 (243.6 at 4 BFT; 88.1 at 2 BFT)	Base: 233.3 (139)	
September	1: Sep. 1-17 CLOSED Sep. 18-30	164.1	Base: 123.7 (133) See Total for adjustment*	156.4 mt from the Reserve category to cover previous overharvest. *

	Daily Retention Limit (number of fish and date detail)	Landings (mt)	Subquota (mt) and use (%)	Notes
October-November	1: Oct. 1-5 CLOSED Oct. 6-Nov. 30	73.6	Base: 73.6 (121)	25.6 mt from the Harpoon category*
December	1: Dec. 1-6 CLOSED Dec. 7-31	18.1	Base: 24.3 (74) Adjusted: 8 (226)	
TOTAL		695.5	Base: 466.7 (149) Adjusted: 688.7 (101)	June through November time period subquotas were not adjusted; NOAA Fisheries covered overharvest through transfers.
2018				
January	1: Jan. 1- Mar. 2 CLOSED Mar. 3-31	59.3	Base: 29.5 (201) Adjusted: 49 (121) All 2018 subquotas reflect ICCAT-recommended increase.	Transferred 14.3 of Dec. 2018 subquota to Jan. 2018 effective Jan. 1; transferred 10 from Reserve effective March 2.
June-August	3: Jun. 1-Aug. 22 1: Aug. 23 -31	328.9 (253.7 at 3 BFT, 75.2 at 1 BFT)	Base: 277.9 (118)	
September	1: Sep. 1-23 CLOSED Sep. 24-30	238.7	Base: 147.3 (162) Adjusted: 207.3 (115)	Transferred 60 from Reserve
October-November	1: October 1-5 CLOSED Oct. 6-14	144.2	Base: 72.2 (200) Adjusted: 127.2 (113)	Transferred 55 (40 from Harpoon, and 15 from Reserve)

	Daily Retention Limit (number of fish and date detail)	Landings (mt)	Subquota (mt) and use (%)	Notes
	1: Oct. 15-16 CLOSED Oct. 17-30 1: Oct. 31-Nov. 2 CLOSED Nov. 3-11 1: Nov. 12-16. CLOSED Nov. 17-30			
December	1: Dec. 1-31	14.3	Base: 28.9 (49) Adjusted: 50 (29)	Transferred 139.1 (129.2 from Reserve, and 9.9 from Harpoon)*
TOTAL		785.4	Base: 466.7 (168) Adjusted to date: 819.9 (96)	
2019				
January	1: Jan. 1- Feb. 28 CLOSED Mar. 1-31	108.9	Base: 29.5 (369) Adjusted: 100 (109)	Transferred 19.5 of Dec. 2019 subquota to Jan. 2019 effective Jan. 1; transferred 26 mt from Reserve effective Feb. 8; transferred 25 mt from Reserve effective February 25.
June - August	1: Jun. 1 - Aug. 8 CLOSED Aug. 9 - 31	277.5	Base: 277.9 (100)	
September	1: Sep. 1-13 CLOSED Sept 14-30	226.2	Base: 147.3 (154) Adjusted: 207.3	Transferred 60 from Reserve effective Sep. 11

	Daily Retention Limit (number of fish and date detail)	Landings (mt)	Subquota (mt) and use (%)	Notes
October - November	1: Oct. 1-13 CLOSED: Oct. 14-Nov. 30	178.8	Base: 72.2 (248) Adjusted: 172.2	Transferred 100 mt from Reserve effective Oct. 1
December	1: Dec. 1-31	22.9	Base: 28.9 (79) Adjusted: 28.9	Transferred 19.5 from Reserve to make December “whole” effective Dec. 1

11.3 Appendix C: IBQ Program Metrics

Table 11.7 Bluefin Catch and Other Metrics of the IBQ Program (2015–2018)

Metric	2015	2016	2017	2018
Permits eligible for IBQ shares	136	136	136	136
Number of vessels that fished with pelagic	104	85	89	76
Number of vessels Landing Bluefin	59	55	58	50
Total weight bluefin landed (lb, ww)	157,388	196,142	229,396	193,969
Total weight bluefin landed (mt, ww)	71.3	89.0	104.1	88
Landed in Gulf of Mexico (mt, ww)	3.7	3.5	5.7	3.3
Landed in Atlantic (mt, ww)	67.6	85.5	98.1	81.0
Number of Bluefin landed	323	447	501	467
Number of landed in Gulf of Mexico	15	13	21	12
Number of landed in Atlantic	308	424	480	455
mt of NED* quota caught (max 25)	24.9	17.3	25	4
Total bluefin dead discards (mt, ww)	17.1	22.6	11.4	14.6
Discarded in Gulf of Mexico (mt, ww)	5.6	7.1	6.5	3.6
Discarded in Atlantic (mt, ww)	11.5	14.8	3.7	11
Discarded in NED* (mt, ww)	0	0.7	1.2	0
Number of trips with pelagic longline gear	1.124	1.025	1.078	921
Number of pelagic longline sets	7,769	6,885	7,305	5,635
Number of hooks	5,549,451	5,217,547	5,327,587	4,030,875
Number of Trips (per VMS** prelanding	1,030	990	793	936
Number of Sets based on VMS bluefin reports	5,472	5,921	6,507	5,479

Metric	2015	2016	2017	2018
Number of Vessels with installed EM Systems	111	113	112	112
Number of Hard drives received	785 (Jun-	975	1,020	925
Number of Vessels submitting hard drives	91 (Jun-Dec)	85	86	77

*NED = northeast distant area (See Figure 3.30). **VMS = Vessel Monitoring System
Sources: Dead discard data: POP and UDP; Landings, effort, and IBQ leasing data: UDP and IBQ Systems; VMS data; EM data: Saltwater, Inc. (NOAA Fisheries contractor for installation and maintenance of EM Systems) and ERT Corp. (NOAA Fisheries contractor for review and storage of EM data).

11.4 Appendix D: Pelagic Longline Fishery Data

Measures of effort used to describe the activity of fishing fleets include the magnitude of gear deployed and the number of fishing sets undertaken by vessels. In the pelagic longline fishery, vessels report the number of hauls deployed and the number of hooks set for each haul in the Pelagic Fisheries Logbook after a trip is completed. This reporting is required by all vessels participating in the fishery. This section provides a summary of effort data from the pelagic longline fleet as represented by the number of hooks deployed for the entire period since the implementation of the 2006 Consolidated HMS FMP through 2018, and provides a spatial reference for the difference in set locations through the seasons of the year.

Effort for the reported time period has been the greatest in the Gulf of Mexico, with a cumulative total in excess of 27.5 million hooks deployed. Generally, areas containing the waters nearest the contiguous United States received much higher effort levels from the pelagic longline fleet than those that are further from shore. Figure 11.2 shows total effort for each region and has an inset reference depiction of the HMS fishing areas. The figures that follow show the trend of effort through time for HMS areas CAR (Caribbean), FEC (Florida East Coast), GOM (Gulf of Mexico), and SAB (South Atlantic Bight) (Figure 11.3); NCA (North Central Area), SAR (South Atlantic Region), TUN, TUS (Figure 11.4); and MAB, NEC (Northeast Central), and NED (Figure 11.5).

Effort peaked in 2006 in the two areas accounting for more than half of the total effort during the time period (GOM and MAB). Most areas have seen a decrease in effort from 2006 to the late 2000's, with a notable increase in the early 2010's and a general decrease in effort in the most recent years of data. While still relatively high compared to most areas, fishing effort in the Gulf of Mexico in 2010 dropped to a third of the effort the region experienced in the previous year, with more than 60% of the hooks being deployed prior to the explosion of the Deepwater Horizon drilling platform.

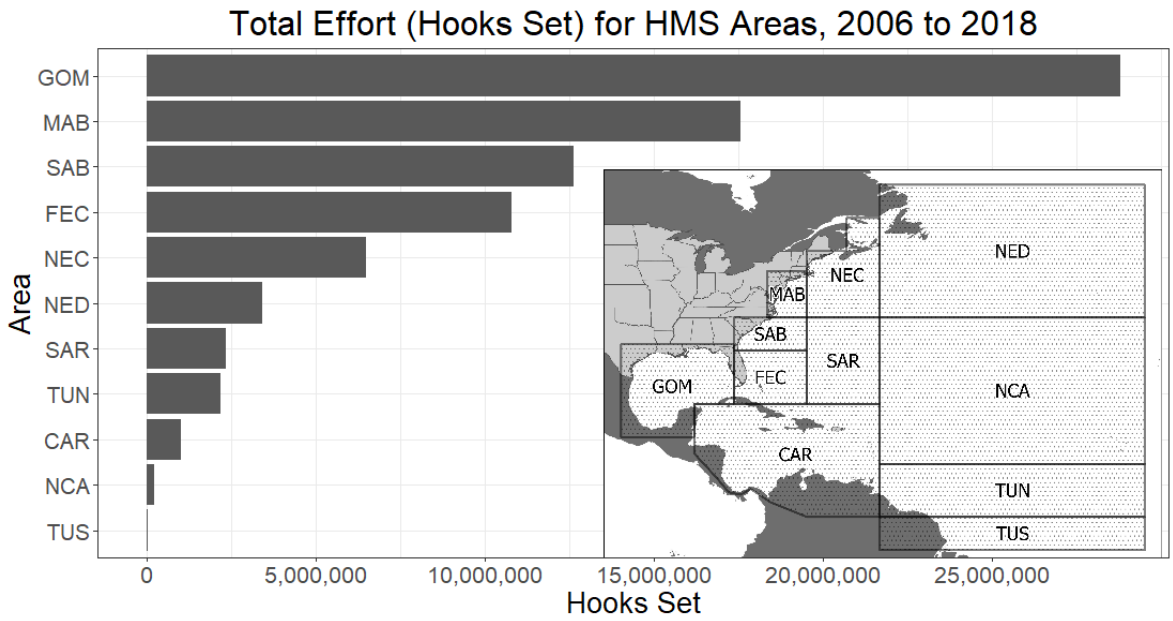


Figure 11.2 **Total hooks set for all HMS areas from 2006 to 2018. Inset map shows delineated areas represented in the plot**
Source: Pelagic Logbooks

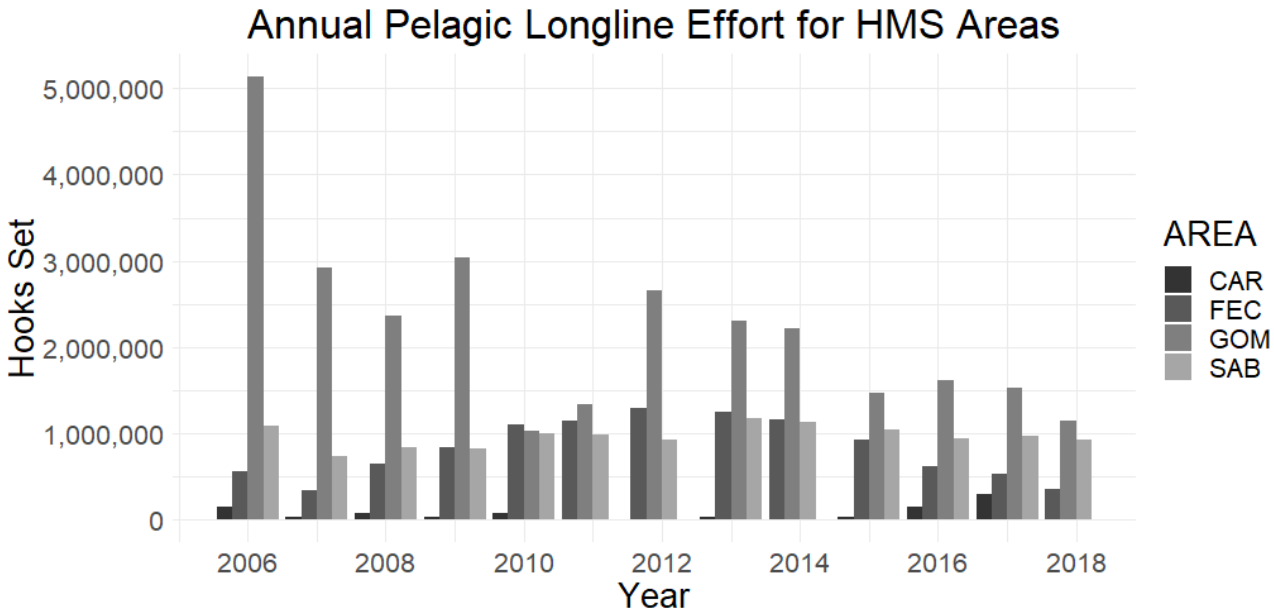


Figure 11.3 **Total number of hooks set by the pelagic longline fleet in HMS areas CAR, FEC, GOM, and SAB, 2006 to 2018**
Source: Pelagic Logbooks

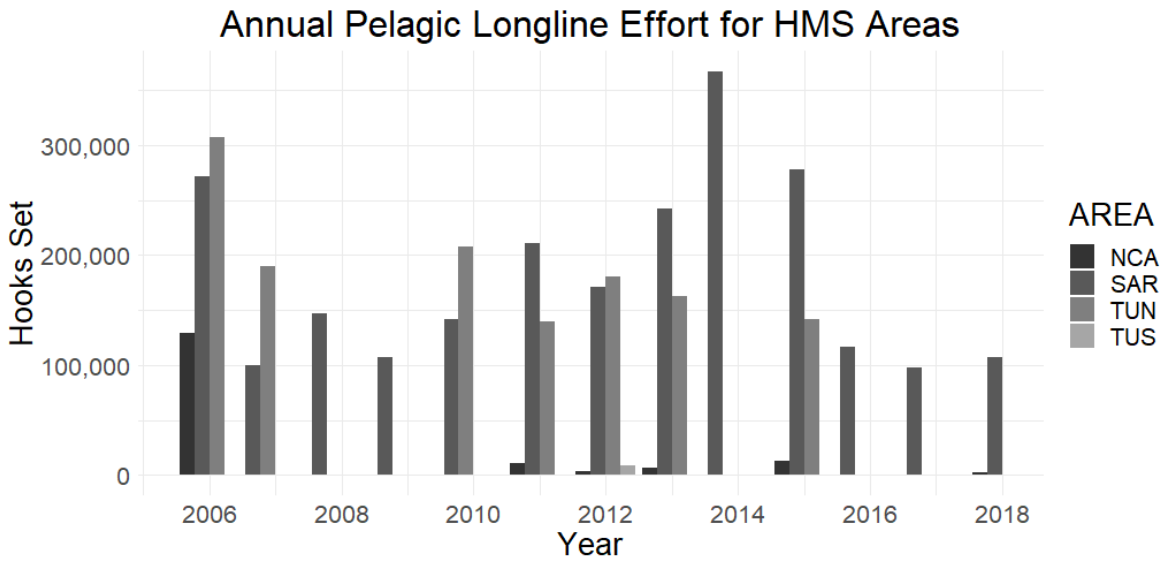


Figure 11.4 **Total number of hooks set by the pelagic longline fleet in HMS areas NCA, SAR, TUN, TUS, 2006 to 2018**
Source: Pelagic Logbooks

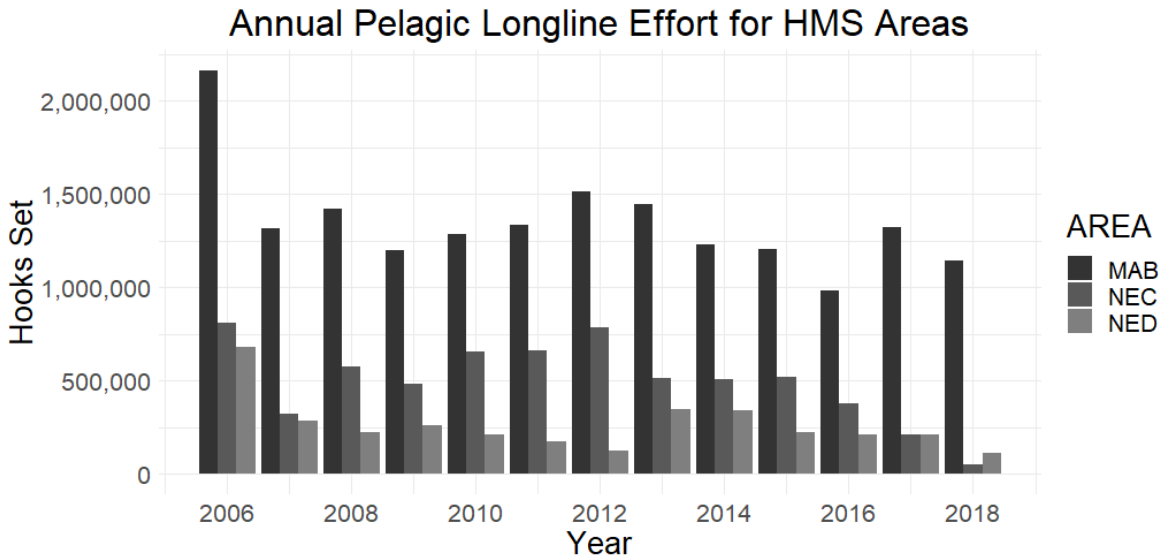


Figure 11.5 **Total number of hooks set by the pelagic longline fleet in HMS areas MAB, NEC, NED, 2006 to 2018**
Source: Pelagic Logbooks

Seasonal Effort

While there is relatively little variation between years for seasonal effort, seasonal variation within the fishing year does exist. Figure 11.6 below provides a summary of the number of hooks set for each season. Seasonal effort for each HMS region, measured by the number of sets deployed for the years 2006 through 2018, is shown in Figure 11.7. Figure 11.8 through Figure 11.11 shows heat maps of seasonal sets for the years 2006 through 2018, with warmer colors representing higher densities of sets. In the winter, sets are more

concentrated in the western Gulf, off the east coast of Florida, and the Mid-Atlantic Bight. Effort shifts in the spring to include concentrations of sets in the South Atlantic Bight and towards the Northern Gulf. More fishing activity occurs in the Northeast Distant and Coastal areas in the summer and fall. Notably in the fall, more effort was concentrated in the Mid-Atlantic Bight.

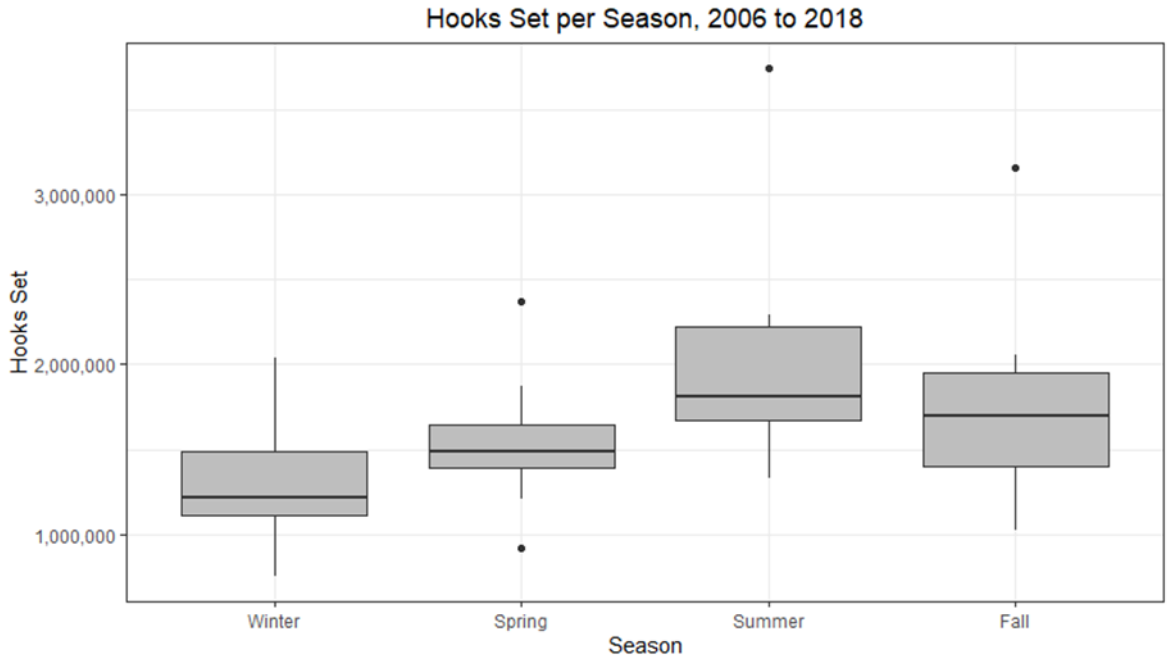


Figure 11.6 **Boxplots showing the median (solid horizontal line), interquartile range containing 50 percent of the data points (shaded box), range (solid vertical lines) of effort per season from the pelagic longline fishery, and outliers (points)**
Source: Pelagic Logbooks (2006 - 2018)

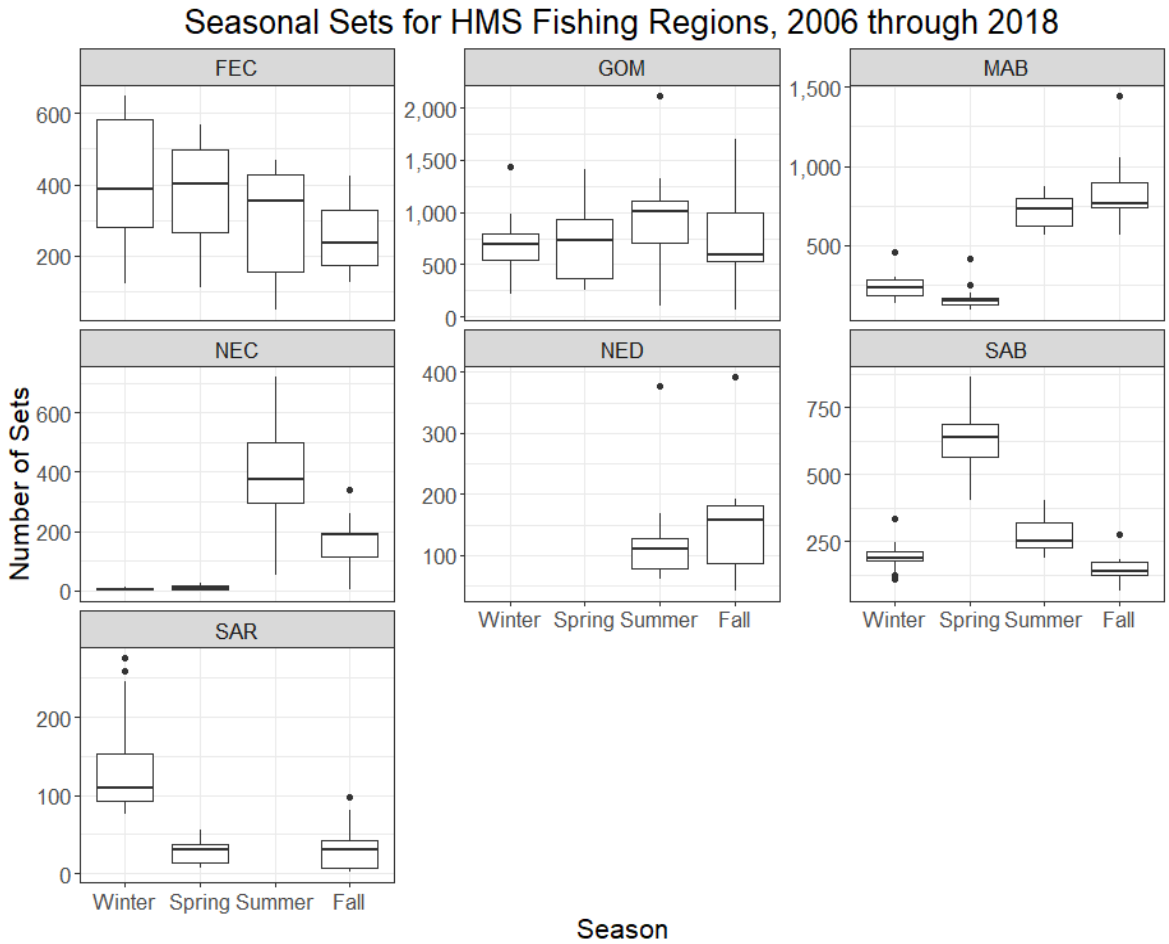


Figure 11.7 **Boxplots showing the median (solid horizontal line), interquartile range containing 50 percent of the data points (shaded box), range (solid vertical lines), and outliers (points) of sets by the pelagic longline fleet for each season in selected fishing areas**
Source: Pelagic Logbooks

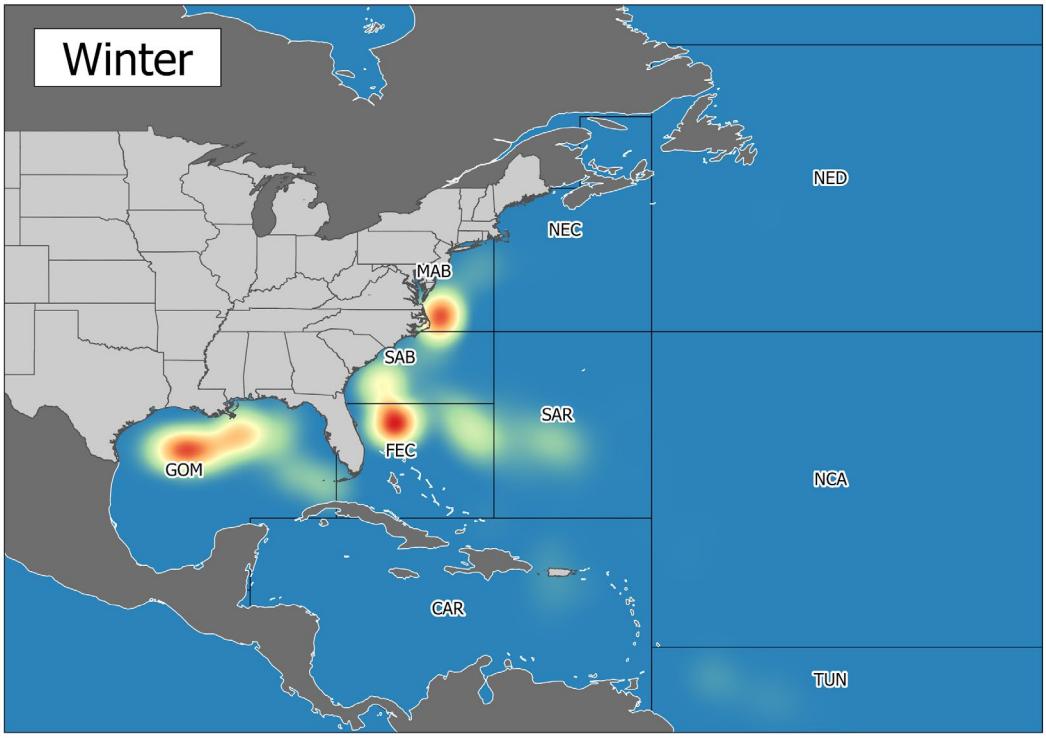


Figure 11.8 **Point density heat map of sets deployed by the pelagic longline fleet in the winter**

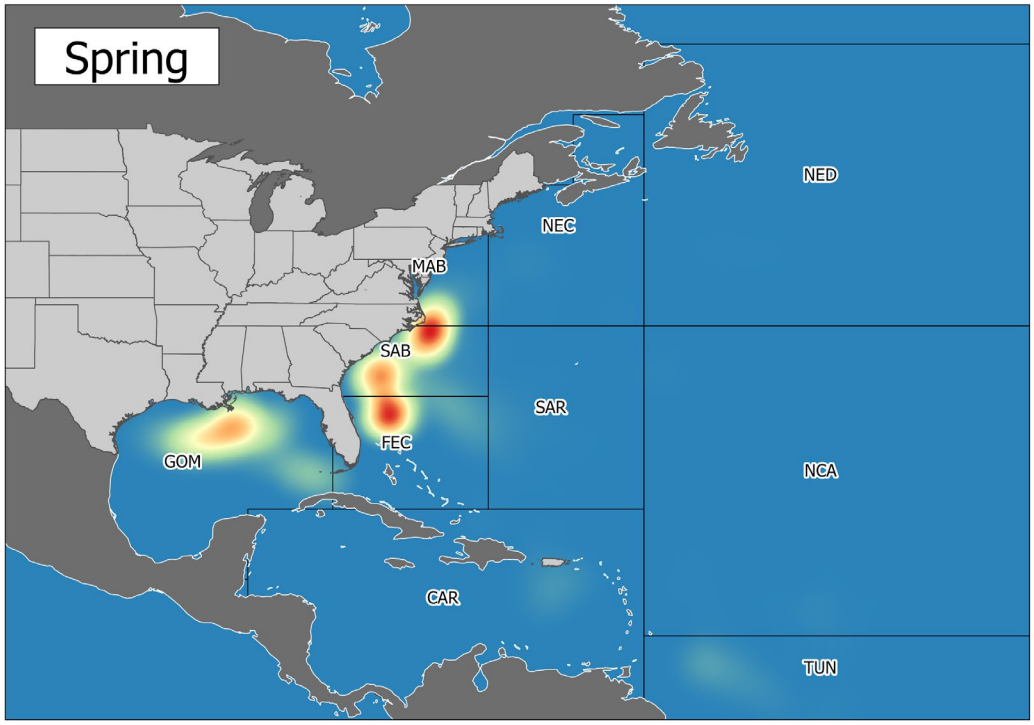


Figure 11.9 **Point density heat map sets deployed by the pelagic longline fleet in the spring**

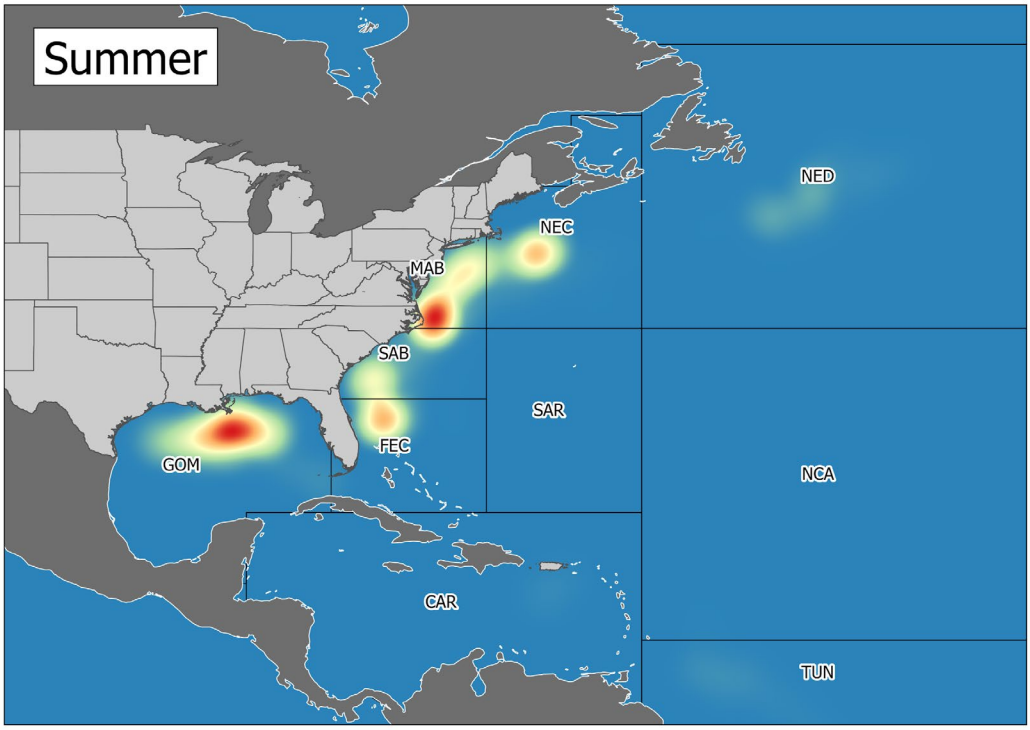


Figure 11.10 Point density heat map of sets deployed by the pelagic longline fleet in the summer

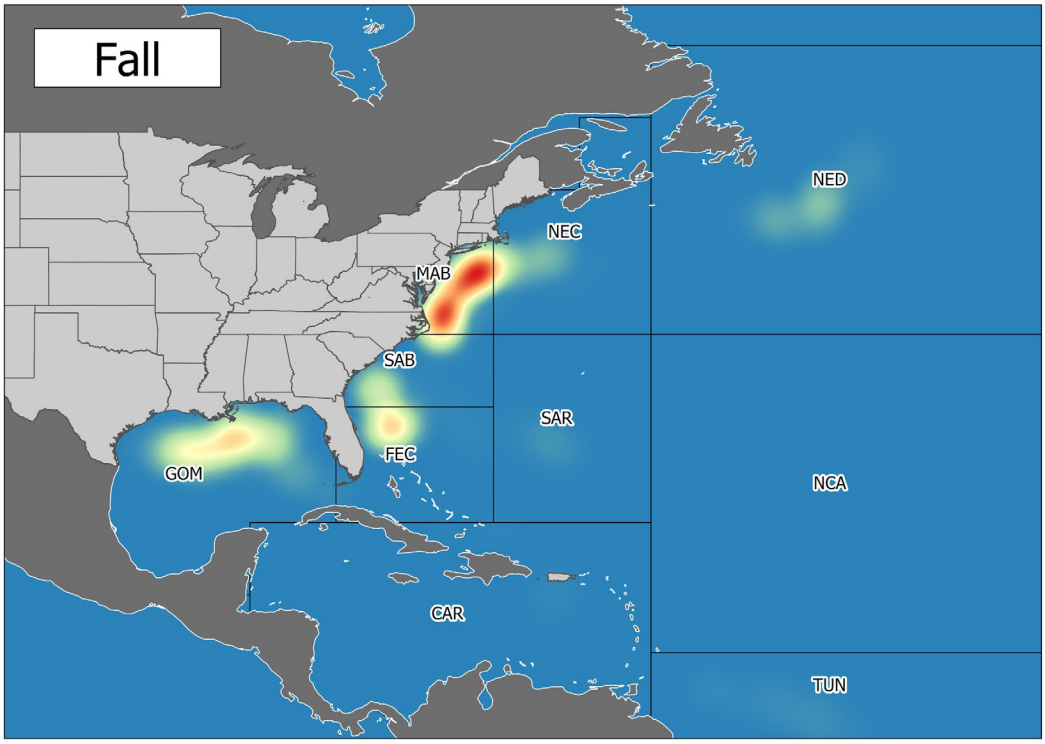


Figure 11.11 Point density heat map of sets deployed by the pelagic longline fleet in the fall

Gear Deployments for Target Species in the Pelagic Longline Fishery

Participants in the pelagic longline fishery generally deploy gear in the morning or evening, and the gear is allowed to soak for around 8 hours on average, at which point the gear is retrieved, or hauled back. With exception to sets targeting dolphin fish and yellowfin tuna, sets are generally deployed and allowed to soak overnight. Figure 11.12 below shows the frequency of gear deployment throughout the hours of the day for common targets of the pelagic longline fishery. Fishing depth varies among targeted species, and is generally deepest when fishing for yellowfin. Figure 11.13 shows the depths fished for different target species in the pelagic longline fishery.

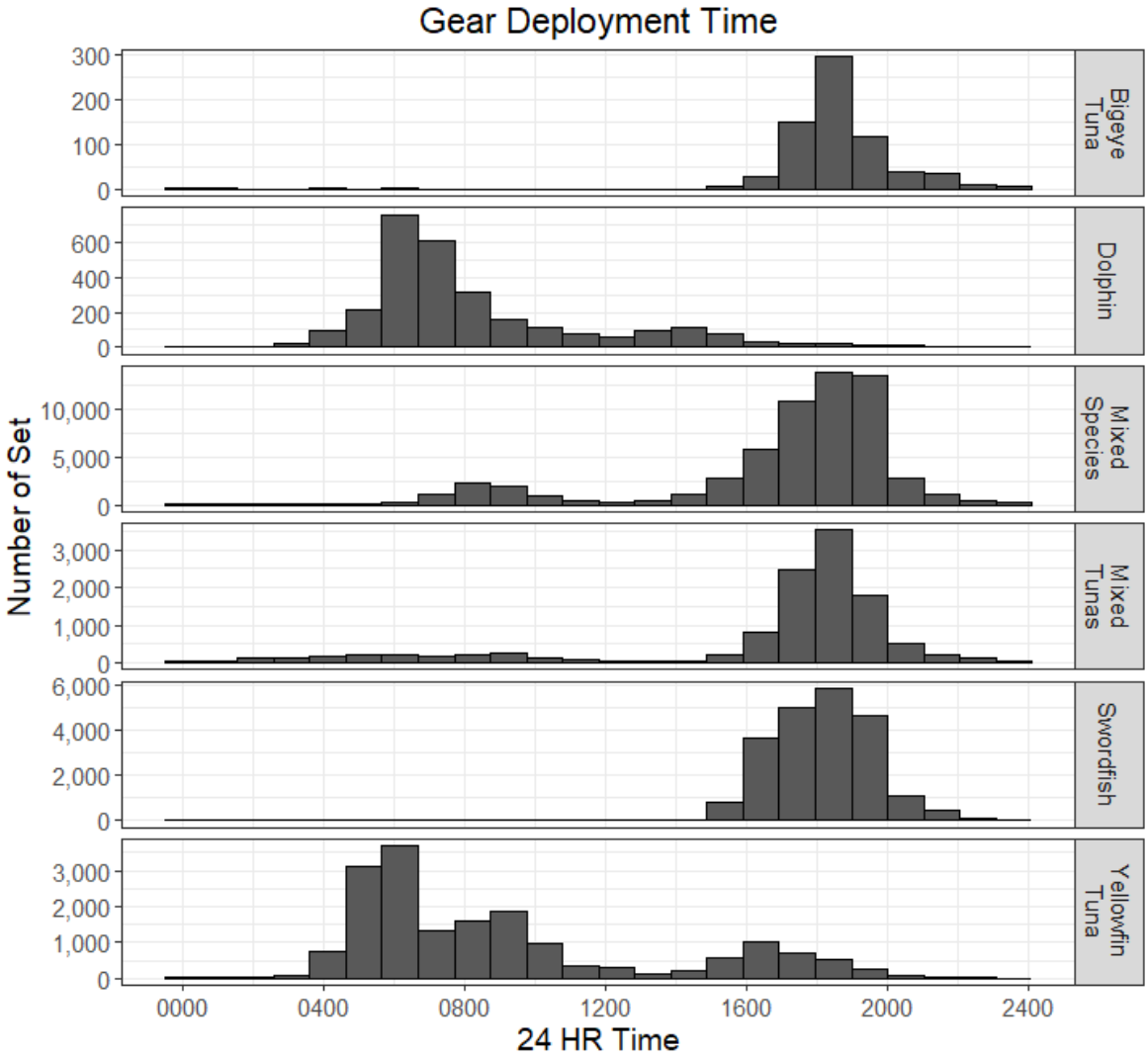


Figure 11.12 **Time periods gear is deployed for common target species and species groups. Note the change in scale for each species group**
Source: Pelagic Logbooks (2006-2018)

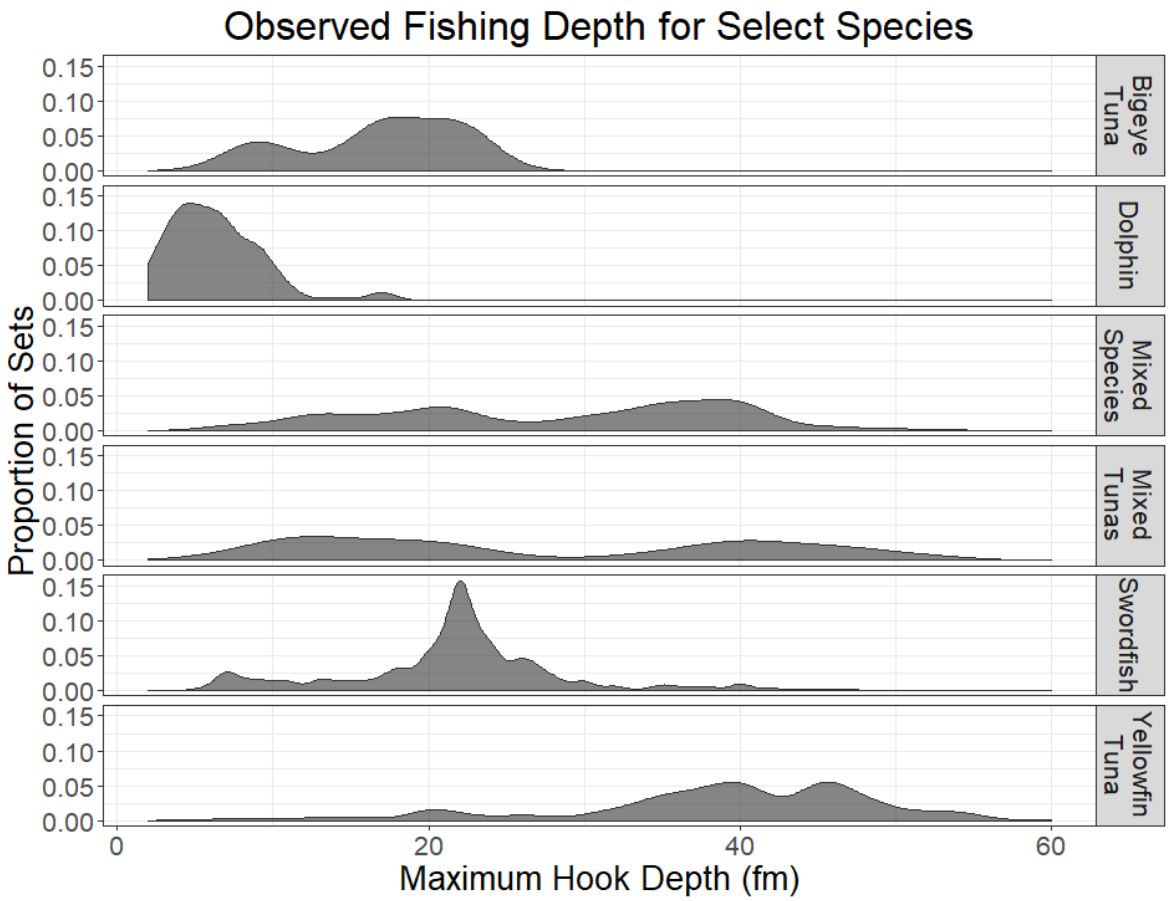


Figure 11.13 Density plots of maximum hook depth by target species/species groupings
Source: NOAA Fisheries Pelagic Observer Program

Select Gear Characteristics of the Pelagic Longline Fishery

Gear characteristics for swordfish and yellowfin targeted sets in the Gulf of Mexico and Atlantic excluding the Gulf are presented in Table 11.8. Sets Targeting is the number of sets reported for each region and species, and Prop. Lightsticks is the proportion of these sets for each region that deployed lightsticks. Descriptive statistics (range, mean, and standard deviation) of mainline length, number of hooks set, gangion length, and floatline length are reported for each region and target.

Table 11.8 Descriptive statistics of gears used by vessels targeting yellowfin tuna and swordfish in the Gulf and Atlantic

	GOM						ATL					
	SWO			YFT			SWO			YFT		
Sets Targeting	3580			14786			18448			3028		
Prop. Lightsticks	0.974			0.258			0.952			0.097		
	Range (min,max)	Mean	Std. Dev	Range (min,max)	Mean	Std. Dev	Range (min,max)	Mean	Std. Dev	Range (min,max)	Mean	Std. Dev
Mainline Set (nm)	(7, 46)	23.97	6.69	(3, 77)	28.84	4.68	(2, 77)	27.03	8.62	(2, 50)	26	10.4
Hooks Set (n)	(64, 1400)	539.93	237.48	(22, 1500)	628.99	185.68	(50, 1800)	766.62	241.45	(60, 1765)	732.76	216.62
Gangion Length (fm)	(2, 40)	15.77	7.6	(1, 80)	29.57	7.07	(1, 90)	9.51	3.24	(1, 35)	10.26	2.54
Floatline Length (fm)	(4, 80)	9.66	2.86	(1, 80)	11.45	3.62	(1, 90)	7.54	3.3	(1, 50)	8.01	2.27

Source: Pelagic Logbooks (2006-2018)

Effort Density Calculations

Pelagic longline hook distribution, as expressed by the isopleths containing 50, 75, and 95 percentiles of the volumetric hook density (number of hooks set per square kilometer), from the pelagic longline fishery were calculated for the time periods 2006 to 2011 (Figure 11.14), 2012 to 2014 (Figure 11.15), and 2015 to 2018 (Figure 11.16) using data from pelagic logbooks. Isopleths were generated from logbook reported set points (Lat./Lon.) and weighted by the number of hooks deployed at each set. Kernel density estimation was performed to calculate a surface with the number of hooks deployed for each unit of square area (square kilometers). The surface density volumes were then calculated and converted to lines that contain the corresponding values.

While the distribution of the areas with greatest fishing effort has changed little between the three time periods, the isopleth containing the 95th percentile now encompasses a larger area of the Sargasso Sea since 2012. More recently, a larger density of hooks have been set in the Northeast Distance and Caribbean areas.

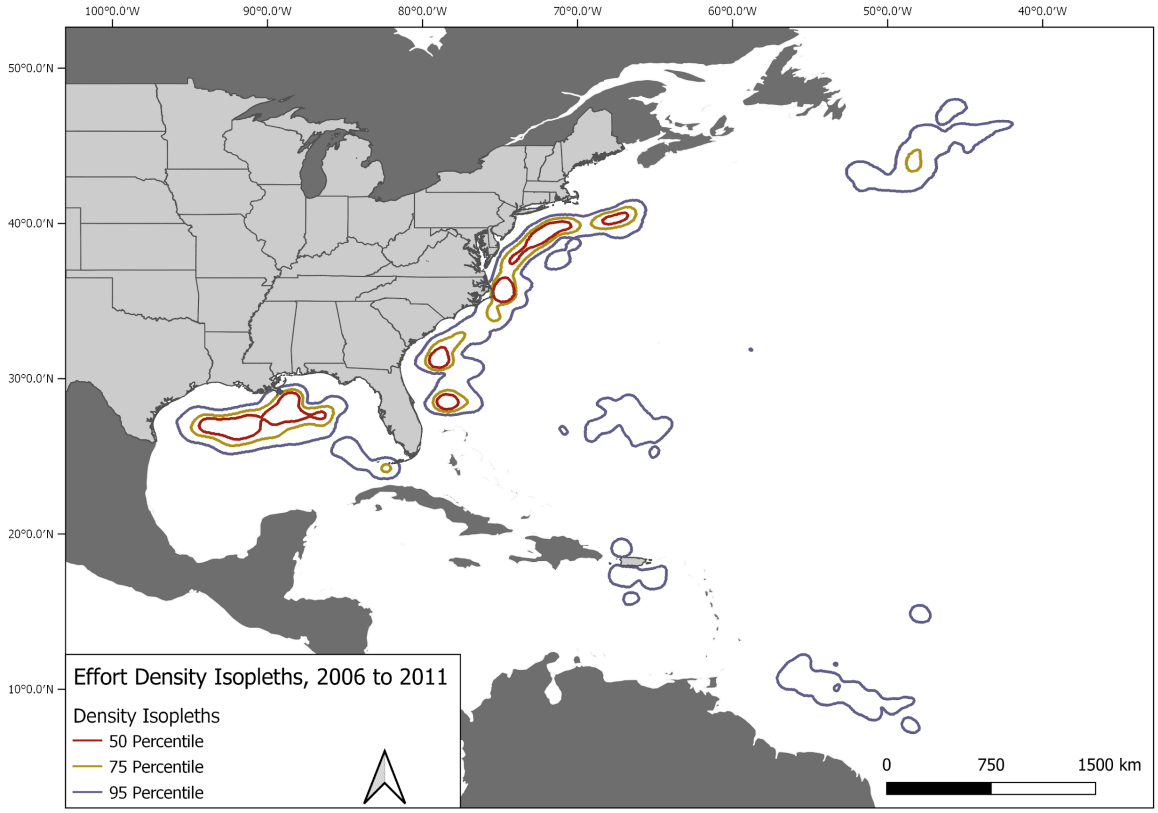


Figure 11.14 Effort (hook density) isopleths from the pelagic longline fishery, 2006 to 2011
Source: Pelagic Logbooks

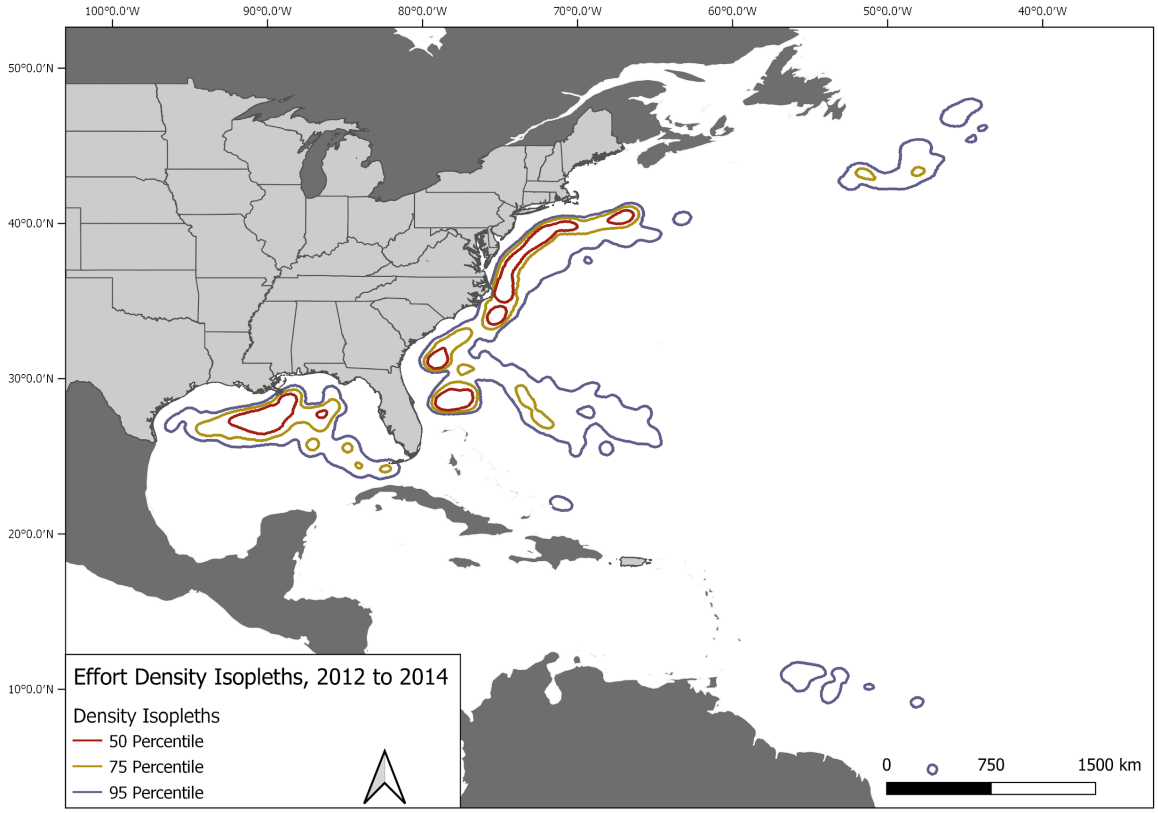


Figure 11.15 Effort (hook density) isopleths from the pelagic longline fishery, 2012 to 2014
Source: Pelagic Logbooks

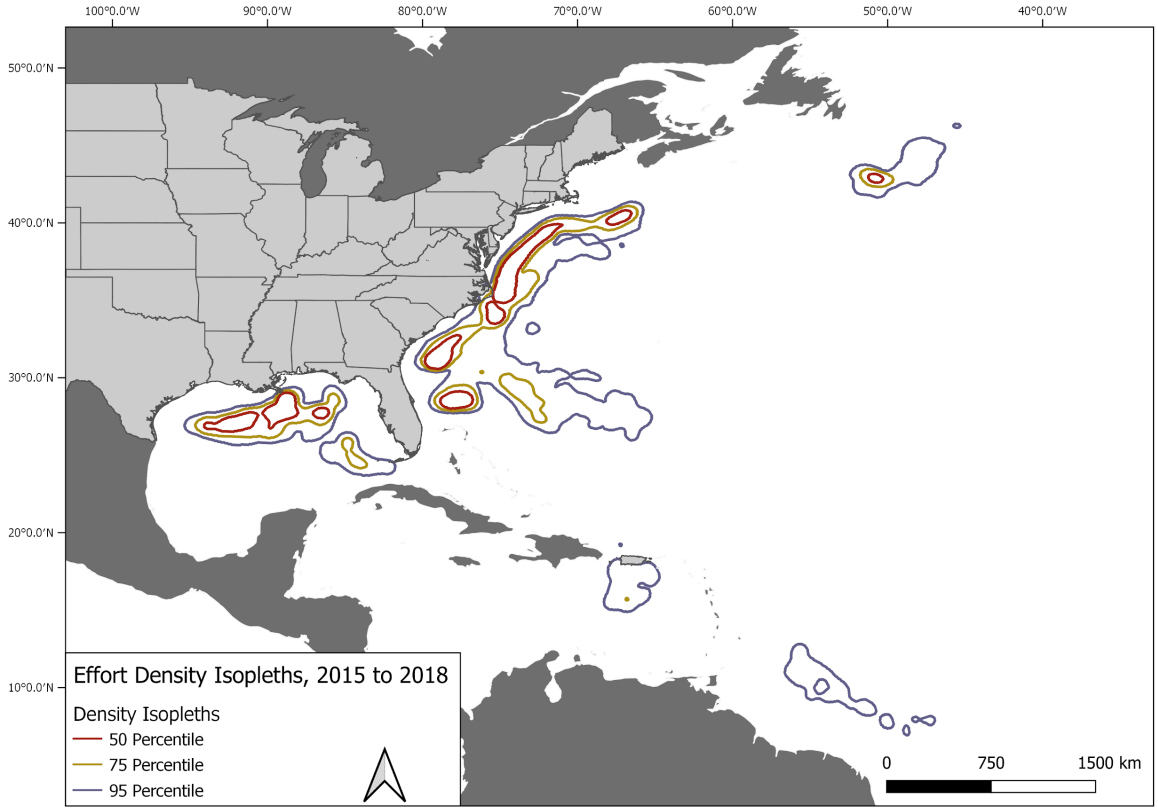


Figure 11.16 Effort (hook density) isopleths from the pelagic longline fishery, 2015 to 2018
Source: Pelagic Logbooks

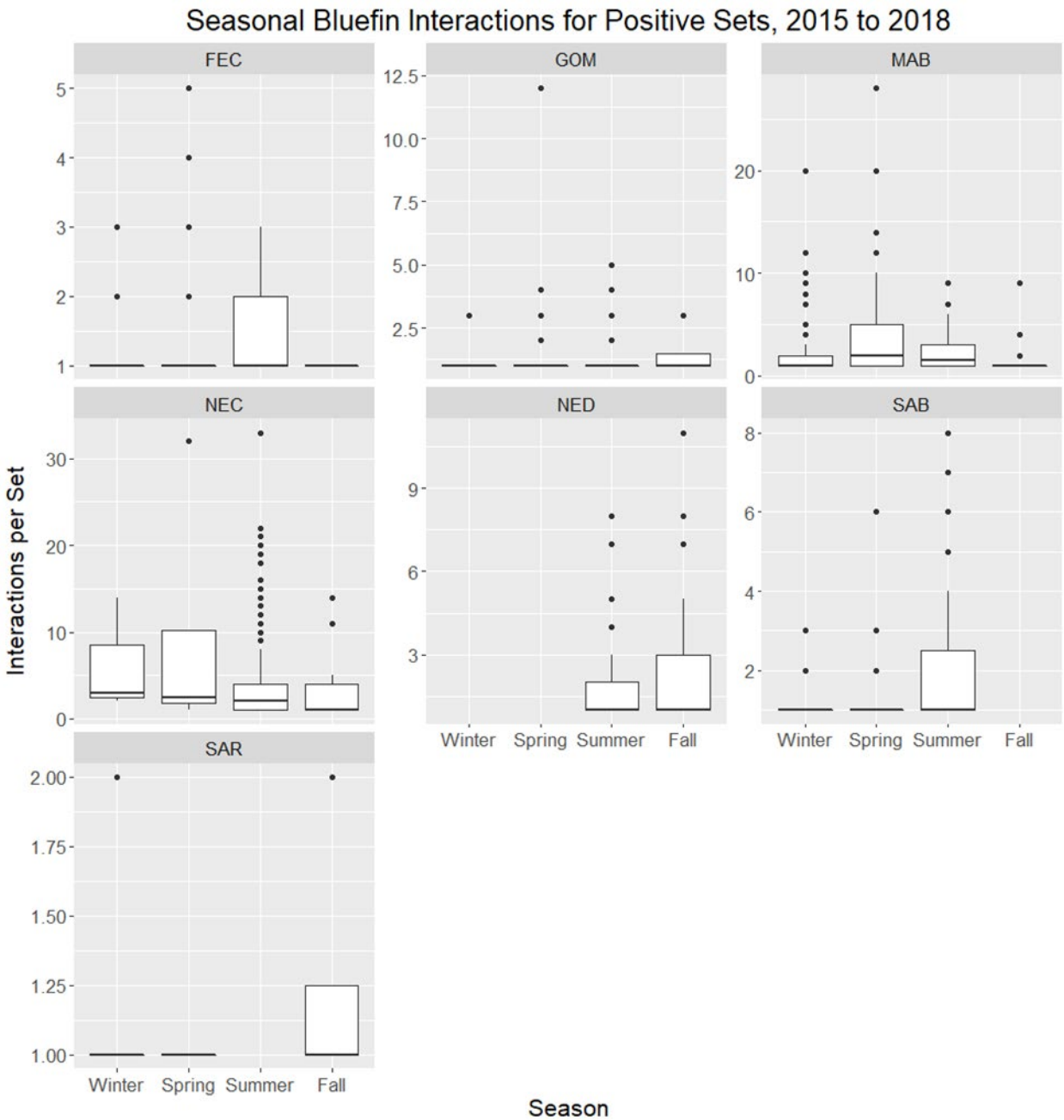


Figure 11.17 Bluefin CPUE of pelagic longline gear by season (2015-2018)
Source: Pelagic Logbooks

Seasonal catch of bluefin varies across HMS fishing areas. Table 11.9 below reports the total number of sets fished in each region and season, the percent of sets positive for bluefin, and number of bluefin interactions for the period 2015 through 2018. Sets were counted as positive for bluefin if at least one was caught during a set. The boxplots in Figure 11.17 report seasonal set level interactions for bluefin positive sets for the specified region and season. Effort was generally highest in the winter for more southern areas (the Gulf of Mexico and the east coast of Florida) and shifted north as the seasons progressed.

Total bluefin interactions and the percent of sets positive for bluefin for all regions combined was highest in the summer. Fishing sets along the Mid-Atlantic Bight and in the Gulf of Mexico accounted for two-thirds of effort in the summer, but a larger number of interactions occurred in the Northeast Coastal region than both of those regions combined. The Northeast Coastal and Distant areas had the highest percent of sets positive for bluefin in the summer, and there were several sets in the Northeast Coastal area that caught over 10 bluefin. The largest number of bluefin per set also occurred in summer along the South Atlantic Bight.

In the fall, effort was once again concentrated in the Gulf and along the Mid-Atlantic Bight, but seasonal totals of bluefin interactions reported were less compared to any other season. The percent of positive sets along the Mid-Atlantic Bight was lowest in the fall compared to other seasons for the area, but due to the high amount of effort in the fall (higher than any other season and area) the area recorded the second most numerous bluefin interactions. There was a relatively small number of sets in the Northeast Distance area, but a majority of fall bluefin interactions were reported from this region and the number of interactions per set is higher than any other area in the fall.

Spring marked the second most numerous bluefin interactions. More than 40 percent of sets were deployed along the South Atlantic Bight, but this area accounted for only 11 percent of all bluefin interactions. Conversely, the Mid-Atlantic Bight saw less than 10 percent of the effort and accounted for 44 percent of bluefin interactions in spring. The number of bluefin interactions in the Gulf peaked in spring.

In the Gulf, there was comparable fishing effort in the winter and spring, but a much lower percent of sets had bluefin interactions in the winter. While relatively low compared with other areas, seasonal effort and bluefin interactions peaked in the Sargasso Sea during winter. The percent of bluefin positive sets in the Northeast Coastal area was the highest observed from any season or area, but there was a very small number of sets deployed. Waters along Florida's east coast recorded the highest number of bluefin interactions for winter, and the highest percent of positive sets for the region occurred in winter.

Table 11.9 Number of sets, percent of sets positive for bluefin, and number of interactions with bluefin for each HMS fishing area per season 2015 through 2018

	Winter			Spring			Summer			Fall		
AREA	Total Sets	Percent Positive	BFT Interactions	Total Sets	Percent Positive	BFT Interactions	Total Sets	Percent Positive	BFT Interactions	Total Sets	Percent Positive	BFT Interactions
FEC	1,349	11.41	189	1,138	8.61	120	475	4.63	34	625	0.48	3
GOM	1,745	1.56	31	1,525	6.30	131	2,978	2.52	100	1,920	0.21	6
MAB	801	7.24	151	546	15.02	293	3,025	7.60	486	3,176	1.01	44
NEC	19	28.57	19	30	13.33	38	911	16.03	617	325	3.38	40
NED	C	C	C	0	0.00	0	371	20.49	134	428	25.47	220
NCA	C	C	C	5	0.00	0	8	0.00	0	C	C	C
SAB	606	6.44	47	2,659	2.07	75	1,065	5.54	120	453	0.00	0
SAR	538	8.36	51	55	9.01	5	C	C	C	71	5.63	5
TUN	C	C	C	170	0.00	0	C	C	C	C	C	C
TUS	0	0.00	0	C	C	C	0	0.00	0	0	0.00	0
Total	5,058	6.40%	488	6,128	5.55%	662	8,833	6.88%	1,491	6,998	2.33%	318

A 'C' in a cell denotes data that cannot be displayed due to confidentiality.
Source: Pelagic Logbooks (2006-2018)

11.5 Appendix E: Allocation Alternatives

Table 11.10 Pelagic Longline category quota distributions and IBQ allocations 2015 to 2019

	Quota Distribution	IBQ (mt)	Date	IBQ to Each Eligible Shareholder* (lb)		
				High Tier (~1.2 %)	Medium Tier (~0.6 %)	Low Tier (~0.37 %)
2015	Annual allocation	137.3	January 1, 2015	3,616	1,808	1,124
	Transfer from Reserve category	34.0	July 28, 2015	551	551	551
	ICCAT baseline quota increase	11.0	August 28, 2015	292	146	90
	2015 Total	182.3		4,459	2,505	1,765
2016	Annual allocation	148.3	January 1, 2016	3,913	1,956	1,206
	Transfer from Reserve category	34.0	January 4, 2016	551	551	551
	2016 total	182.3		4,464	2,507	1,757
2017	Annual allocation	148.3	January 1, 2017	3,913	1,956	1,206
	Transfer from Reserve category**	45.0	March 2, 2017	1,102	1,102	1,102
	2017 total	193.3		5,015	3,058	2,308
2018	Annual allocation	148.3	January 1, 2018	3,913	1,956	1,206
	Transfer from Reserve category**	44.5	April 13, 2018	1,102	1,102	1,102
	ICCAT baseline quota increase	15.3	October 5, 2018	404	202	124
	2018 total	208.1		5,419	3,260	2,432

	Quota Distribution	IBQ (mt)	Date	IBQ to Each Eligible Shareholder* (lb)		
				High Tier (~1.2 %)	Medium Tier (~0.6 %)	Low Tier (~0.37 %)
2019	Annual allocation	163.6	January 1, 2019	4,317	2,157	1,330
	2018 total	163.6		4,317	2,157	1,330

* Only allocated to eligible shareholders, for which the valid permit was associated with a vessel.
** Transfer from Reserve Category to active vessels only (vessels with recent fishing activity). Source: NOAA Fisheries 2019

11.6 Appendix F: Deepwater Horizon Oceanic Fish Restoration Project (OFRP) Proxies

The tables below show information used in the analyses of the allocation alternatives that is relevant to the use of proxies for the Deepwater Horizon OFRP. Table 11.11 and Table 11.12 regarding hooks and sets are based on VMS data. The proxy values for landings (Table 11.13) (designated species landings) is based on eDealer landings data. The proxy value for the revised Amendment 7 allocation (Table 11.14) are based on logbook data.

Table 11.11 Values for Calculation of Proxy Number of Hooks for Participants in the Deepwater Horizon OFRP in the Gulf of Mexico

Metric	2017 (March-June)	2018 (January-June)
Total number of hooks set in Gulf of Mexico during project (by non-participants)	362,518	437,425
Total number of non-participant vessels fishing in Gulf of Mexico	23	20
Average number of hooks per vessel (i.e., proxy number of hooks for each participating vessel)	15,762	21,871
Number of OFRP participants	7	10
Total number off proxy hooks	110,334	196,839

Source: eDealer

Table 11.12 Values for Calculation of Proxy Number of Sets for Participants in the Deepwater Horizon OFRP in the Gulf of Mexico

Metric	2017 (March-June)	2018 (January-June)
Total number of sets in Gulf of Mexico during project (by non-participants)	487	576
Total number of non-participant vessels fishing in Gulf of Mexico	23	20
Average number of sets per vessel (i.e., proxy number of sets for each participating vessel)	21	29
Number of OFRP participants	7	10
Total number off proxy sets	147	290

Source: eDealer

Table 11.13 Values for Calculation of Proxy Landings for Participants in the Deepwater Horizon OFRP in the Gulf of Mexico; (Designated Species Landings)

Metric	2017 (March-June)	2018 (January-June)
Total amount of landings in Gulf of Mexico during project (by non-participants) (lb)	278,531	268,775
Total number of non-participant vessels fishing in Gulf of Mexico	17	16
Average pounds per vessel (i.e., proxy landings for each participating vessel)	16,384	16,798
Number of OFRP participants	7	10
Total amount of Proxy Landings (lb)	114,688	167,980

Based upon eDealer data and 5 designated species

Table 11.14 Values for Calculation of Proxy Landings for Participants in the Deepwater Horizon OFRP in the Gulf of Mexico; (Revised Amendment 7 Allocation Alternative)

Metric	2017 (March-June)	2018 (January-June)
Total amount of landings in Gulf of Mexico during project (by non-participants) (lb)	278,531	268,775
Total number of non-participant vessels fishing in Gulf of Mexico	17	16
Average pounds per vessel (i.e., proxy landings for each participating vessel)	16,384	16,798
Number of OFRP participants	7	10
Total amount of Proxy Landings (lb)	114,688	167,980

Based upon logbook data and 7 designated species

11.7 Appendix G: Comparison of Dynamic Allocation Alternatives

The following tables contain data that compare various metrics among the allocation alternatives that were used in the evaluation of the impacts of the alternatives. The metrics include share percentages associated with quartiles, examples of IBQ allocations based on the share percentages and an annual Longline category quota of 360,656 pounds, and gains and losses compared to the No Action Alternative.

Table 11.15 Comparison of Share Percentages under Dynamic Allocation and No Action Alternatives

Alternative	Quartile 4	Quartile 3	Quartile 2	Quartile 1
hooks	2.05%	1.23%	0.73%	0.17%
sets	1.85%	1.35%	0.82%	0.17%
landings	2.09%	1.18%	0.64%	0.12%
equal	1.02%			
No Action	High Tier 1.2%	Medium Tier 0.6%	Low Tier 0.37%	No eligible 0 %

Table 11.16 Comparison of IBQ Allocations* (in pounds) under Dynamic Allocation and No Action Alternatives

Alternative	Quartile 4	Quartile 3	Quartile 2	Quartile 1
hooks	7,407	4,435	2,634	610
sets	6,665	4,880	2,944	609
landings	7,555	4,237	2,303	423
equal	3,680			
No Action	High Tier 4,317	Medium Tier 2,157	Low Tier 1,330	No eligible 0

* Based on an annual Longline quota of 360,656 pounds

Table 11.17 Gains and Losses associated with Dynamic Allocation based on Dynamic Allocation Alternatives Compared to the No Action Alternative

Metric	hooks	sets	landings	equal
Number of vessels gaining and losing IBQ allocation	66	66	57	61
	(31)	(31)	(42)	(37)
Average pounds of IBQ allocation (in pounds) gained or lost (lb)	2,362	2,369	2,873	1,944
	(1,867)	(1,884)	(1,668)	(637)
Average of lease value of IBQ allocation gained or lost*	$4,015	$4,028	$4,888	$3,305
	($3,174)	($3,203)	($2,836)	($1,083)
Sum of lease value of IBQ allocation gained or lost*	$264,997	$265,843	$278,384	$201,576
	($98,383)	($99,280)	($119,124)	($40,067)

Based on Longline category allocation of 360,656 pounds and lease price of $1.70 per pound

Highlighted cells: highest and lowest values among alternatives; Green means beneficial to be a high or low value; red means detrimental to be a high or low value.