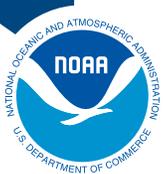


DRAFT

**Amendment 14
to the 2006 Consolidated
Atlantic Highly Migratory Species
Fishery Management Plan**

September 2020

Highly Migratory Species Management Division
Office of Sustainable Fisheries
National Marine Fisheries Service
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**NOAA
FISHERIES**

Contents

Executive Summary	iv
1. Introduction	vi
Management History	1
1.1.1 1999 Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks.	2
1.1.2 Amendment 1 to the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks	2
1.1.3 Amendments 2 to the 2006 Consolidated Atlantic HMS Fishery Management Plan	2
1.1.4 Amendment 3 to the 2006 Consolidated Atlantic HMS Fishery Management Plan	2
1.1.5 Amendment 5a to the 2006 Consolidated Atlantic HMS Fishery Management Plan	5
1.1.6 Amendment 5b to the 2006 Consolidated Atlantic HMS Fishery Management Plan	6
1.1.7 Amendment 6 to the 2006 Consolidated Atlantic HMS Fishery Management Plan	7
1.1.8 Amendment 9 to the 2006 Consolidated Atlantic HMS Fishery Management Plan	7
1.1.9 Status of Atlantic Shark Stocks	7
Management Objectives	8
2. Summary of Management Options	9
Topic A: Acceptable Biological Catch Control Rule	9
2.1.1 Management Option A1	10
2.1.2 Management Option A2	11
2.1.3 Management Option A3—Preferred Management Option	12
Topic B: Phase-In Acceptable Biological Catch (ABC) Control Rule	13
2.1.4 Management Option B1	14
2.1.5 Management Option B2—Preferred Management Option	14
2.1.6 Management Option B3	15
2.1.7 Management Option B4	16
Topic C: Annual Catch Limit Development	16
2.1.8 Management Option C1	17
2.1.9 Management Option C2—Preferred Management Option	19
2.1.10 Management Option C3	21
2.1.11 Management Option C4	22
2.1.12 Management Option C5—Preferred Management Option	22
2.1.13 Management Option C6	23
Topic D: Carry-Over of Underharvested ACL	24
2.1.14 Management Option D1	25
2.1.15 Management Option D2	25
2.1.16 Management Option D3	26
2.1.17 Management Option D4	27
2.1.18 Management Option D5	27
2.1.19 Management Option D6—Preferred Management Option	28

Topic E: Multi-Year Overfishing Status Determination Criteria	29
2.1.20 Management Option E1	29
2.1.21 Management Option E2	30
2.1.22 Management Option E3—Preferred Management Option	30
3. Affected Environment	31
Brief Summary of Atlantic HMS Management	31
Summary of Shark Management and Stock Status	31
Shark Biology and Habitat	32
Shark Fisheries Data	33
Economic and Social Environment	34
4. Fishery Impact Statement	35
Description of Management Objectives	35
Economic Analysis of Expected Effects of the Proposed Action Relative to the Baseline	35
Conclusion	36
5. Applicable Law	36
Magnuson-Stevens Fishery Conservation and Management Act	36
5.1.1 Consistency with National Standards	36
5.1.2 Consideration of Section 304(g) Measures.	38
Paperwork Reduction Act	41
Coastal Zone Management Act	41
Environmental Justice	42
6. List of Preparers	42
List of Agencies, Organizations, and Persons Consulted	43
1. Overall Comments on this Rulemaking	46
2. Comments Regarding ABC Control Rule Options (Topic A)	47
3. Comments Regarding Phase-In Options (Topic B)	47
4. Comments Regarding ACL Options (Topic C)	47
5. Comments Regarding Carry-Over Options (Topic D)	48
6. Comments Regarding Multi-Year Overfishing Status Determination Criteria Options (Topic E)	49

Executive Summary

NOAA Fisheries is taking action to revise the general mechanism or “framework” used in establishing quotas and related management measures for Atlantic shark fisheries. The current framework was established in Amendment 3 to the 2006 Consolidated Atlantic Highly Migratory Species (HMS) Fishery Management Plan (FMP) (NMFS, 2010). This action proposes changes to the framework, incorporating for potential use several optional fishery management tools that were adopted in the 2016 revised guidelines for implementing National Standard 1 (NS1) of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). Amendment 14 would modify the general procedures that would be followed in establishing the acceptable biological catch (ABC) and annual catch limits (ACLs), and the process used to account for carryover or underharvests of quotas. It would also allow for the option to phase-in ABC control rules and proposes to adopt multi-year overfishing status determination criteria.

Atlantic HMS fisheries are managed under the dual authority of the Magnuson-Stevens Act and the Atlantic Tunas Convention Act (ATCA). Under the Magnuson-Stevens Act, NOAA Fisheries must, consistent with 10 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 necessary and appropriate to carry out 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 NOAA Fisheries’ Assistant Administrator for Fisheries.

Atlantic sharks, tunas, swordfish, and billfish are managed under the 2006 Consolidated Atlantic HMS FMP and its amendments. A framework for establishing ACLs and accountability measures (AMs) for Atlantic HMS shark fisheries was implemented in Amendment 3 to the 2006 Consolidated HMS FMP. Consistent with the Magnuson-Stevens Act, the framework established a mechanism for specifying ACLs at a level that would prevent overfishing and for including AMs to ensure ACLs would not be exceeded. In 2016, NOAA Fisheries published a final rule (81 FR 71858; October 18, 2016) that, among other things, revised the NS1 guidelines. The revisions were aimed at improving compliance with the requirements of NS1 and streamlining the guidelines to enhance their utility for managers and the public. Draft Amendment 14 proposes changes to the framework established in Amendment 3 to consider adopting some of the provisions in the revised guidelines. These provisions allow for more flexibility in management measures to meet certain NS1 obligations while accounting for uncertainty and improving stability within the fishery. Draft Amendment 14 does not propose actually applying the revised framework to any of the shark stocks or stock complexes. Proposed application of the revised framework to specific shark stocks and management complexes would take place in subsequent FMP amendments or regulatory action, with appropriate environmental impacts analysis and an opportunity for public comment.

On May 21, 2019, NOAA Fisheries published a Notice of Intent to prepare an Environmental Impact Statement (EIS) for Amendment 14 to the 2006 Consolidated HMS FMP (84 FR 23014). From May 21 through July 31, 2019, NOAA Fisheries conducted four scoping meetings, and presented information about Amendment 14 scoping to the New England, Mid-Atlantic, and South Atlantic Fishery Management Councils and the Atlantic States Marine Fisheries Commission. During this time, the agency received five written comments and a variety of verbal comments on options presented in the Amendment 14 Issues and Options paper. NOAA Fisheries was initially prepared to undertake an EIS for Amendment 14, but determined, after considering public comments, the structure of the Amendment, and National Environmental Policy Act (NEPA) guidance, that an EIS is not required for the Amendment as structured. Amendment 14 does not propose to make any

actual changes to the current quotas or other management measures; it would update the general approach that would be used. Any changes to quotas or other management measures would occur through the appropriate rulemaking processes and would be informed by the appropriate NEPA analyses accompanying those specific proposals. Since the Amendment 14 framework would not implement measures with effects, it would not individually or cumulatively have a significant effect on the human environment and is appropriately categorically excluded from further NEPA analysis. Thus, neither an environmental assessment nor an EIS is required. As such, NOAA Fisheries has determined that Amendment 14 is categorically excluded from any further NEPA analysis.

In Draft Amendment 14, NOAA Fisheries considers management options to establish an ABC control rule and modify the existing ACL framework, and to establish within the framework the option to implement phase-in provisions and modify carry-over provisions, and would establish the basis for multi-year overfishing status determinations. A full description and analysis of the different management options considered can be found in Chapter 2 of this document. We have identified preferred management options that are consistent with the Amendment objectives and applicable legal requirements. A list of preferred management options can be found below (Table 0.1). NOAA Fisheries will take public comment into consideration before finalizing any measures. After reviewing public comments, the preferred management options may be altered, or different management options may be adopted, at the final amendment stage.

Table 0.1 Preferred Management Options in the Draft Amendment 14 to the 2006 Consolidated Highly Migratory Species Fishery Management Plan

Topic	Preferred Option
Acceptable biological catch control rule	<i>Management Option A3</i> Create a tiered ABC control rule.
Phase-in acceptable biological catch control rule	<i>Management Option B2</i> Flexibility to use phase-in ABC control rules for any modifications in ABC.
Annual catch limit development	<i>Management Option C2</i> Actively manage all sector ACLs (commercial and recreational).
	<i>Management Option C5</i> Establish an ACL for each Atlantic shark management group, without commercial ACL species linkage considerations.
Carry-over	<i>Management Option D6</i> Allow carry-over only for underharvest of the commercial quotas (landings only) under certain conditions.
Multi-year overfishing status determination criteria	<i>Management Option E3</i> Compare a three-year average of fishing mortality estimates to the overfishing limit to determine overfishing status.

1. Introduction

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires that any fishery management plan (FMP) or FMP amendment be consistent with 10 national standards. Specifically, National Standard 1 (NS1) requires that “conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield (OY) from each fishery for the United States fishing industry.” In 2016, NOAA Fisheries revised the NS1 guidelines (81 FR 71858; October 18, 2016). The goal of the revisions was to improve, streamline, and enhance their utility for managers and the public, and to facilitate compliance with the requirements of the Magnuson-Stevens Act while providing additional management flexibility.

The 2016 revised NS1 guidelines addressed a range of issues, such as providing guidance on phasing in changes to catch limits and carrying over unused quota from one year to the next (81 FR 71858; October 18, 2016). In Draft Amendment 14, NOAA Fisheries is considering implementing some of the new management options from the 2016 NS1 guidelines for Atlantic shark stocks and management complexes. Draft Amendment 14 focuses particularly on provisions related to acceptable biological catch (ABC), annual catch limits (ACLs), carryover, and overfishing determinations. An ABC is “a level of a stock or stock complex’s annual catch, which is based on an ABC control rule that accounts for the scientific uncertainty in the estimate of the overfishing limit (OFL), any other scientific uncertainty, and the Council’s risk policy.” 50 CFR 600.310(f)(1)(ii). An ACL is defined as “a limit on the total annual catch of a stock or stock complex, which cannot exceed the ABC, which serves as the basis for invoking accountability measures (AMs). An ACL may be divided into sector-ACLs.” 50 CFR 600.310(f)(1)(iii).

Under the Magnuson-Stevens Act, the requirement to establish a mechanism for specifying ACLs and AMs applies “unless otherwise provided for under an international agreement in which the United States participates” (Pub. L. 109-479 104(b)(1)). This exception applies to stocks or stock complexes subject to management under an international agreement, which is defined as “any bilateral or multilateral treaty, convention, or agreement which relates to fishing and to which the United States is a party” (Magnuson-Stevens Act, section 3(24)). On January 16, 2009, NMFS published NS1 guidelines providing guidance for implementing the ACL and AM requirements of the Magnuson-Stevens Act (74 FR 3178). Per the January 2009 final rule, ACLs and AMs apply to all fisheries “unless otherwise provided for under an international agreement in which the United States participates.”

While small coastal sharks, large coastal sharks, and pelagic sharks are predominantly managed through domestic management measures, ICCAT has adopted a number of recommendations regarding sharks caught in association with ICCAT fisheries (e.g., ICCAT recommendations 04-10, 10-07, 10-08, 11-08, 15-06, 19-06, 19-07). ATCA authorizes Secretary of Commerce to promulgate regulations as may be necessary and appropriate to implement binding ICCAT recommendations. Some shark species or complexes (e.g., small coastal sharks) are managed solely through domestic actions taken under the Magnuson-Stevens Act. Other shark species (e.g., shortfin mako sharks) are managed through a combination of domestic actions taken under the Magnuson-Stevens Act and international actions taken pursuant to international fishery agreements or through other appropriate international organizations. As Regional Fishery Management Organizations, including ICCAT, undertake more direct management measures for shark fisheries, the methods for managing affected species may also adapt in response.

Atlantic shark stock assessments for large coastal, small coastal, and smoothhound sharks are generally completed through the Southeast Data, Assessment, and Review (SEDAR) process. SEDAR uses several different approaches in assessing stocks. The “benchmark” approach has been used to develop first-time assessments for stocks and to incorporate new datasets or new analytical methods into existing assessments. It is the most time-consuming and intensive approach for developing assessments. SEDAR is now moving away from benchmark assessments to “research track” assessments. Although still time-consuming, research track assessments should allow scientists to select the best approach to assess the stocks or species groupings under review. In the past, SEDAR has also used a “standard” assessment approach to incorporate recent information into existing assessments. For this approach, existing input datasets are updated and new information and changes in model configuration may be considered for incorporation as well. Alternatively, the most rapid of the three approaches, the “update” approach, can be used. This approach is used strictly to incorporate the most recent information into existing assessment analyses; no changes to the types of data or models is considered. With regard to stocks/species group management, the results from research track assessments cannot be directly used for management as these assessments require significant time and may not use the most recent data. Instead, management recommendations would result from the stock being assessed secondarily via an update using the methods determined appropriate during the research track assessment (i.e., a standard assessment or update). Outside of SEDAR, some pelagic shark species are assessed by ICCAT’s Standing Committee on Research and Statistics (SCRS). Additionally, some species are assessed by academia (e.g., scalloped hammerhead) or by other countries (e.g., porbeagle). When that happens, NOAA Fisheries reviews the assessment for the appropriateness of using the results for management purposes. Recent stock assessments have aimed to assess species individually at the stock level to the extent possible, with the assessment providing a total allowable catch (TAC) for that species.

NOAA Fisheries receives a biological reference point, such as the TAC, from an Atlantic shark stock assessment and uses that information to calculate the ACL. Since Amendment 3 to the 2006 Consolidated Atlantic HMS FMP, NOAA Fisheries has, in practice, set the ABC, OFL, and overall ACL equal to the TAC (ABC=OFL=ACL=TAC). For more explanation on this process, see the description of Amendment 3 below under the Management History section. NOAA Fisheries has used the subsequent ABC to calculate the shark sector ACLs, and the commercial sector ACL is further divided into the commercial landings quota and commercial dead discards for the non-prohibited shark species. Additionally, a sector ACL is established for the non-HMS fishery dead discards, based on the dead discard estimates provided by either stock assessments or historic non-HMS fishery dead discard estimates.

For the prohibited shark complex, where the fisheries are closed and commercial and recreational retention and landings are not allowed, the ACL is set equal to zero, which NOAA Fisheries clarified in Amendment 5b (82 FR 16478; April 4, 2017). Draft Amendment 14 is not proposing any changes to the approach to management of the prohibited shark complex.

In light of the 2016 revised NS1 guidelines, NOAA Fisheries is considering revising the framework established in Amendment 3 to include modifying the ABC control rule, revising processes for the implementation of an ABC, modifying the management options for carry-over, phase-in, and multi-year overfishing provisions. In Draft Amendment 14, NOAA Fisheries considers a range of management options for federally-managed Atlantic shark stocks within the following topic areas:

- ABC Control Rule Management Options
- Phase-in ABC Control Rule
- ACL Development
- Carry-over Options
- Multi-year Overfishing Status Determination Criteria

These options are being considered to establish the general framework through which specific management measures would later be developed and adopted. Any changes to the management and quotas of HMS-managed Atlantic sharks would occur in future FMP amendments or regulatory action. A full description of the management options considered can be found in Chapter 2.

NOAA Fisheries published a Notice of Intent to prepare an Environmental Impact Statement (EIS) for Amendment 14 (84 FR 23014; May 21, 2019). Comments received on the Amendment 14 scoping document also included comments provided at the May 2019 HMS Advisory Panel meeting. Details on the comments received during the scoping comment period are listed in Appendix 1.

NOAA Fisheries was initially prepared to undertake an EIS for Amendment 14, but determined after considering public comments, the structure of the Draft Amendment, and NEPA guidance, that an EIS is not required. Amendment 14 will only establish the procedures to set the ABC, ACLs, and quotas, and calculate carryover or underharvests of sharks. Amendment 14 will not make changes to the current quotas or other management measures. Any changes to ABCs, ACLs, quotas, or carryover would be made in future FMP amendments or regulatory action, and would be informed by the appropriate NEPA analyses and public review. Since the Amendment 14 framework itself would not implement measures with effects, it would not individually or cumulatively have a significant effect on the human environment and is appropriately categorically excluded from further NEPA analysis. As neither an environmental assessment nor an EIS is required, NOAA Fisheries has determined that Amendment 14 is categorically excluded from further NEPA analysis.

For FMPs and plan amendments, the Magnuson-Stevens Act requires a fishery impact statement (FIS), which assesses, specifies, and describes the likely effects of conservation and management measures on participants in the fishery or fisheries being managed, fishing communities, and participants in neighboring fisheries. The FIS includes an assessment and description of the economic and social impacts of the proposed action on the various components of the fishery being managed, over the entire range of the regulated species, on participants in the fishery and in other fisheries, and on fishing communities. Chapter 4 is the draft FIS for Draft Amendment 14. NOAA Fisheries will consider public comments on Draft Amendment 14 before finalizing any management options. The proposed measures may be altered or different management options may be adopted at the final rule stage.

Any written comments on this document should be submitted via the Federal e-Rulemaking Portal (www.regulations.gov/#!docketDetail;D=NOAA-NMFS-2019-0040) by XXXX, 2020. For further information, contact Ian Miller, Guý DuBeck, or Karyl Brewster-Geisz at (301) 427-8503.

Management History

In 1993, NOAA Fisheries finalized the first FMP for Sharks of the Atlantic Ocean (58 FR 21931; April 26, 1993) (1993 FMP). The 1993 FMP established many of the management measures for Atlantic sharks that are the basis for those in place today, including permitting and reporting requirements, management complexes, commercial quotas, and recreational bag limits. NOAA Fisheries has continued to implement various management measures for Atlantic shark fisheries, including revised quotas, management groups, and a mechanism for establishing ACLs. Those management measures that are relevant to the options under consideration in this action are discussed below. For more detailed information, please see the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks (64 FR 29090; May 28, 1999) (1999 FMP), Amendment 1 to the 1999 FMP, the 2006 Consolidated Atlantic HMS FMP, and Amendments 2, 3, 5a, 5b, 6, 9, and 11 to the 2006 Consolidated Atlantic HMS FMP.

1.1.1 1999 Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks

In the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks and Amendment 1 to the Atlantic Billfish FMP, many of the management practices from the 1993 FMP were changed. For example, the 1999 FMP established that management measures for overfished Atlantic tunas, swordfish, and sharks should have at least a 50 percent chance of rebuilding within a specified rebuilding timeframe. Compared to other HMS and fish species, many shark species are slow growing, take a long time to mature, have few pups, and have a low reproductive potential, reproducing only every two or three years. As described in the 1999 FMP, when addressing management measures for overfished Atlantic shark stocks, NOAA Fisheries' general objective is to rebuild the stock within the rebuilding period with a 70-percent probability. For some shark stocks, depending on factors such as the level of data uncertainty, NOAA Fisheries has occasionally, and on a case-by-case basis, determined that a different level of probability is appropriate. For stocks where overfishing is occurring, the FMP specified that NOAA Fisheries would adopt measures to end overfishing immediately, consistent with the Magnuson-Stevens Act and NS1 requirements.

1.1.2 Amendment 1 to the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks

In 2003, in Amendment 1 to the 1999 FMP (68 FR 74746; December 24, 2003), NOAA Fisheries established, among other things, that shark quota levels would start with the maximum sustainable yield (MSY) calculated in the stock assessment. That level was then reduced, as appropriate; to achieve that OY on a continuing basis. For stocks that were not overfished, OY was equal to MSY reduced by 25 percent. For overfished stocks, MSY was reduced by the amount recommended in the stock assessment, tempered by other management measures that could decrease shark mortality. OY was divided into three parts: commercial landings, recreational harvest, and dead discards, with dead discards and recreational landings accounted for before calculating the overall commercial quota. This approach to calculating the commercial quota is very similar to the current methodology. The resulting overall commercial quota was then split, based on past landings, into three fishing seasons for the entire year. Each year, the seasonal commercial quota was adjusted as appropriate based on any over- and/or underharvest from the relevant fishing season in the previous year.

1.1.3 Amendments 2 to the 2006 Consolidated Atlantic HMS Fishery Management Plan

Amendment 2 to the 2006 Consolidated Atlantic HMS FMP (73 FR 35778; June 24, 2008; corrected version published July 15, 2008; 73 FR 40658), implemented revised management measures, including a single shark fishing season each year, and a measure to close specific shark fisheries with a minimum of five days' notice once 80 percent of the quota was harvested (See Amendment 3 explanation, below, discussing changes to this measure). This closure approach provided a management buffer for landings that may have occurred outside of federal waters but are counted against the federal quota (e.g., state landings) or were reported and/or accounted for after the season closed.

1.1.4 Amendment 3 to the 2006 Consolidated Atlantic HMS Fishery Management Plan

Congress amended the Magnuson-Stevens Act in 2007 to require that each FMP establish a mechanism for specifying ACLs at a level that will prevent overfishing and include AMs to ensure ACLs are not exceeded (16 U.S.C. §1853(a)(15)). Amendment 3 amended the HMS FMP to include a mechanism to specify ACLs for stock complexes and certain specific shark species (75 FR 30483; June 1, 2010; corrected version published August 17, 2010; 75 FR 50715). It also identified AMs.

Amendment 3 was implemented consistent with the 2009 NS1 guidelines related to ACLs, AMs, and reference points (74 FR 3177; January 16, 2009).

Amendment 3 Mechanism for Establishing ACLs and AMs

According to the NS1 guidelines, ACLs and AMs are related to other reference points, including an OFL and ABC. OFL is greater than or equal to the ABC limit, which is greater than or equal to the ACL. As such, NMFS in Amendment 3 established for all Atlantic sharks a mechanism to use when establishing ACLs and applying AMs. The following excerpt from Amendment 3 explains the approach taken:

NMFS considers the OFL to be the annual amount of catch that corresponds to the estimate of maximum fishing mortality threshold (MFMT) applied to the stock abundance. The ABC would be established to account for uncertainty in the assessment. Ideally, the actual ABC would be established as part of the stock assessment reports, results, and/or conclusions. However, because the current assessments predate [National Standard 1 Guidelines] NSG1 and because some stock assessments, particularly those done by ICCAT scientists, may not provide an ABC, until such a time that new stock assessments for HMS incorporate an estimate of ABC, [NOAA Fisheries] NMFS is establishing the ABC equal to the ACL for sharks. This would ensure that the ABC is below the OFL, which is required under NSG1, and should account for scientific uncertainty at a level that is acceptable given the biological characteristics of the species. Management uncertainty can be accounted for using some AMs (e.g., precautionary inseason management) or the use of ACTs less than a stock's ACL.

In general, the ACL is equivalent to the total allowable catch (TAC) for all fisheries that interact with a given shark species. The TAC, or ACL, is provided as part of the stock assessment report, results, and/or conclusions and is the level of mortality that is acceptable given the biological characteristics of the species that would allow a stock to rebuild or remain sustainable during a given timeframe. For overfished stocks, the ACL is equal to the stock assessment's projection that shows rebuilding with a 70-percent change of success. NMFS uses the 70 percent probability of rebuilding for sharks given their life history traits, such as late age of maturity and low fecundity (i.e., instead of 50 percent, which is commonly used for other species). Additionally, NMFS may establish "sector-ACLs," such as recreational harvest, discards from other fisheries, and the commercial harvest. The commercial harvest would include discards and the "commercial landings components of the sector ACL," which would be the commercial landings quota for specific shark fisheries.

A number of shark stocks have not been individually assessed. Additionally, a number of shark stocks are managed in a complex as some species have not been individually assessed, such as oceanic whitetip (*Carcharhinus longimanus*) and common thresher sharks (*Alopias vulpinus*). As such, NMFS is establishing some exceptions to the above mechanism for establishing ACLs and AMs. For example, MSY, OY, and the status determination criteria for pelagic sharks have been defined in the 1999 FMP (see below) and do not change in this amendment. Additionally, quotas have been established for the pelagic shark complex and for blue and porbeagle sharks. * * *. [G]iven that the current commercial quotas and recreational bag limits serve as limits on catch and prevent overfishing, in the absence of a specific TAC, NMFS considers these quotas to be equivalent to the ACL, ABC, and TAC for pelagic sharks. As needed and required, NMFS can adjust these ACLs and apply AMs.

For sharks, the quotas are generally for the commercial fishery, not the recreational fishery. NMFS has not established quotas for the recreational shark fishery due to the difficulty in estimating recreational catches in real time, but may consider doing so in the future. While the shark

recreational fishery does not have a formal quota, catches within the recreational shark fishery are considered when stock assessments are conducted and are taken into account when NMFS establishes the OFL, ABC, ACL, and TAC. NMFS also takes the recreational catches, along with discards from the commercial sector, into account when establishing the commercial quota or “commercial landings components of the ACL.” Because sector ACLs are being used, sector AMs would also be used. This action would change the quotas for SCS and establish a commercial quota for smooth dogfish. It does not change the quotas that were previously established for LCS and pelagic sharks.

NSG1 also requires NMFS to establish AMs. NMFS already has AMs along with measures analogous to annual catch targets (ACTs) in place in commercial Atlantic shark fisheries. Specifically, NMFS closes the quota for each shark species/complex with five days’ notice upon filing in the Federal Register when 80 percent of a given quota is filled or projected to be reached. Eighty percent of the shark quota is, therefore, the ACT. An example of a postseason AM currently in the HMS FMP for these fisheries is overharvests of the commercial quotas are removed from the next fishing year’s quota. In addition, underharvests for shark species that are not overfished or are not experiencing overfishing are added to the base quota the following year and carry forward is capped at 50 percent of the base quota. There is no carryover of underharvests for species that are unknown, overfished, or experiencing overfishing. The measures considered in this final Amendment 3 to the Consolidated HMS FMP do not change these AMs.

In summary, this amendment and associated rulemaking establishes the mechanism for specifying ACLs as required by Section 303(a)(15) of the statute and is consistent, to the greatest extent practicable with NSG1. Quotas, or landings component of the sector ACL, would be adjusted annually for over- and under harvests from the previous fishing year. ACLs are adjusted based on the result of stock assessments, which are usually done through a FMP amendment. In short, for all HMS managed sharks, with the exceptions noted above, the methods are:

- $OFL > ABC \geq ACL$ (until estimates of ABC are available);
- OFL = the annual amount of catch that corresponds to the estimate of MFMT applied to a stock’s abundance relative to the level of fishing mortality (F);
- ABC = to be determined by future stock assessments, as appropriate; in the interim, NMFS assumes $ABC = ACL$;
- $ACL = TAC$; for overfished stocks this will be the projection that shows 70 percent probability of rebuilding;
- Commercial quota = landings component of the sector ACL; and
- AMs = restrictions on use of over- and underharvests and closing the fishery when commercial landings are at or projected to be at 80 percent of the quota.

Under this mechanism established in Amendment 3, if NOAA Fisheries receives a biological reference point, such as the TAC from an Atlantic shark stock assessment, NOAA Fisheries uses that information to calculate the ACL. If an ABC or an OFL has not been determined in a recent Atlantic shark stock assessment, the ABC and OFL are set equal to the ACL, which is then set equal to the TAC recommended in the stock assessment. NOAA Fisheries selects a TAC from the assessment with a 70 percent chance of maintaining healthy stock status or rebuilding such that the TAC would have a high probability of not negatively impacting healthy stock status. This is the risk policy for HMS when determining the TAC for a shark species after an assessment. The ACL is then split into “sector-ACLs” based on proportions of harvest that is caught or discarded, similar to the process described in Amendment 1 to the 1999 FMP (Figure 1.1). The commercial sector ACL is set the same as the commercial quota minus commercial discards.

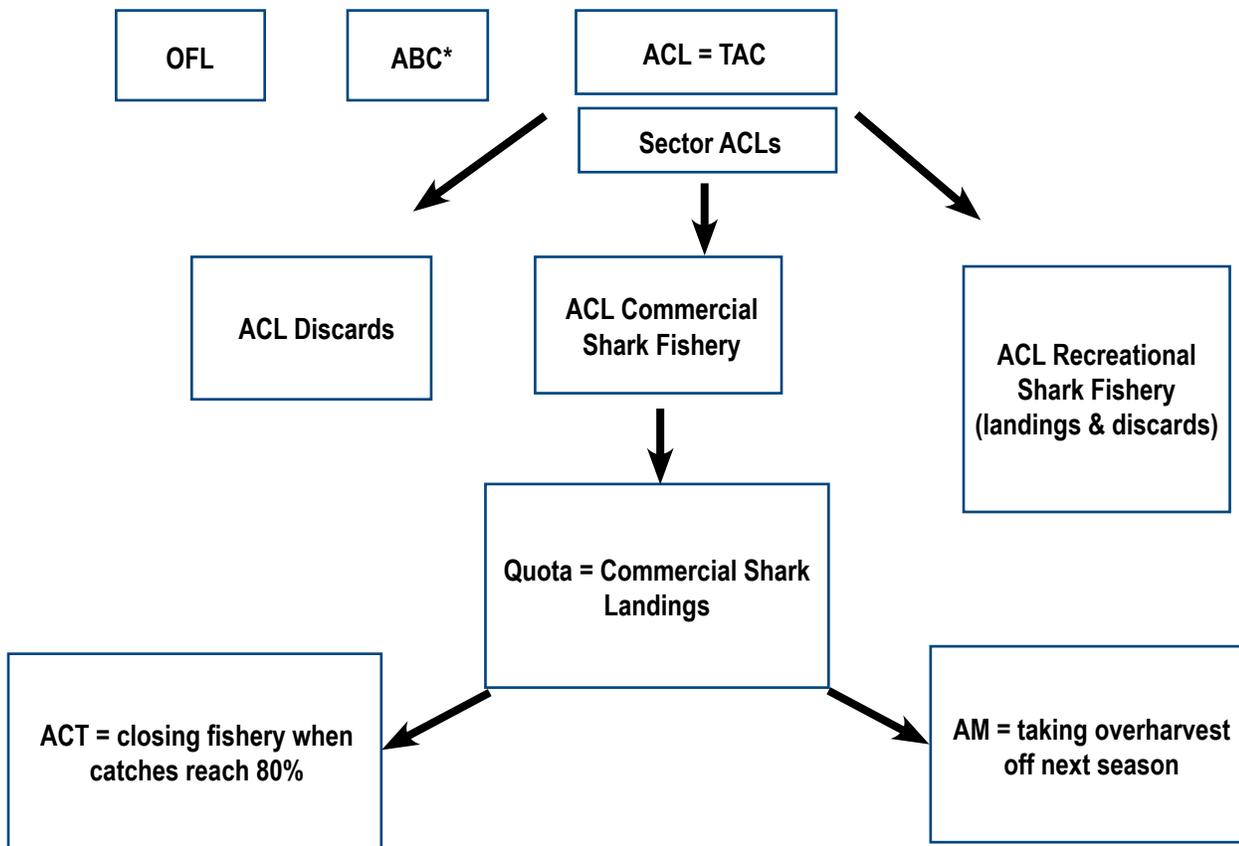


Figure 1.1 Generalized Mechanism for Establishing Acceptable Biological Catches/Annual Catch Limits under Amendment 3. *Currently, ACL = ABC as no ABC has been designated in recent shark stock assessments.

1.1.5 Amendment 5a to the 2006 Consolidated Atlantic HMS Fishery Management Plan

The final rule for Amendment 5a to the 2006 Consolidated Atlantic HMS FMP (Amendment 5a) was published on July 3, 2013 (78 FR 4038) and implemented measures to maintain rebuilding of sandbar sharks; end overfishing and rebuild scalloped hammerhead and Atlantic blacknose sharks; and establish a TAC and commercial quota and recreational measures for Gulf of Mexico blacknose and blacktip sharks (NOAA Fisheries 2013). The management groups, commercial quotas, and quota linkages are outlined in Figure 1.2 below.

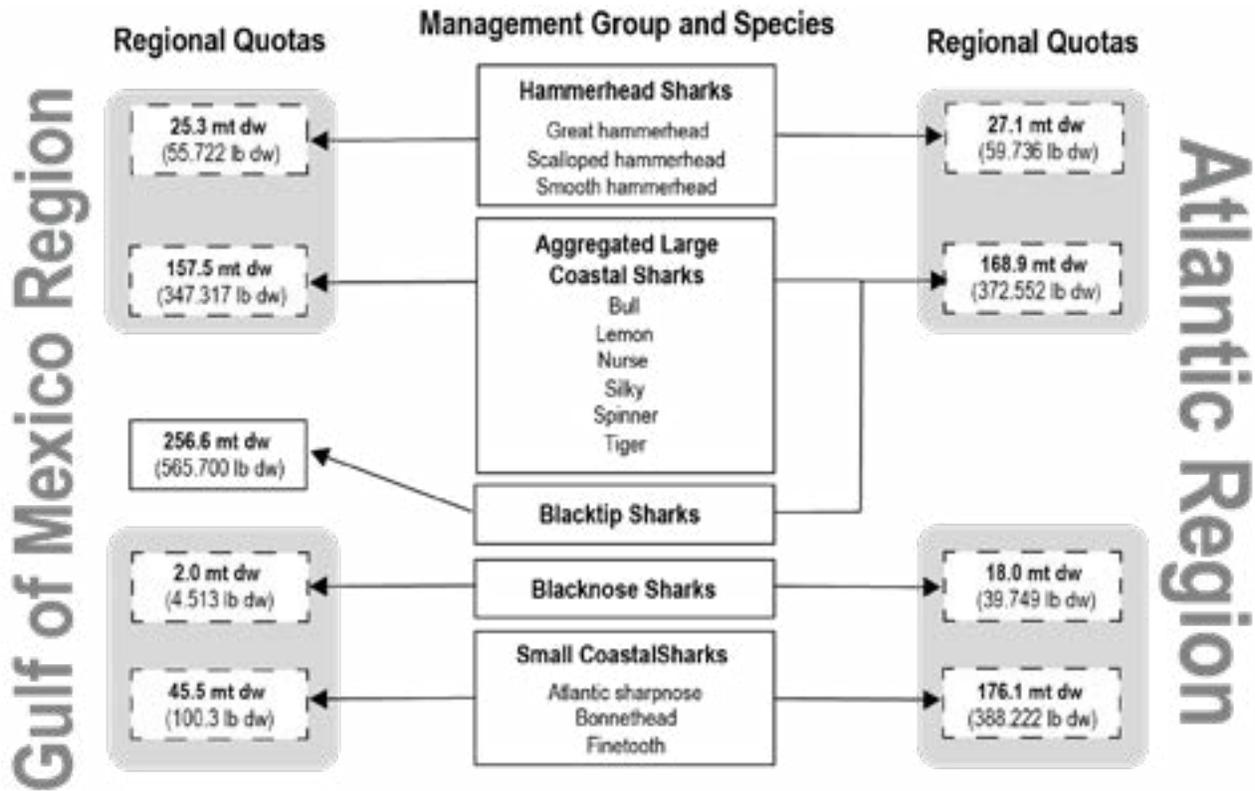


Figure 1.2. Diagram of Management Group, Commercial Quotas, and Quota Linkages Resulting from the Implementation of Amendment 5a to the 2006 Consolidated Atlantic Highly Migratory Species Fishery Management Plan. Note: mt = Metric tons; dw = Dressed weight.

1.1.6 Amendment 5b to the 2006 Consolidated Atlantic HMS Fishery Management Plan

Amendment 5b to the 2006 Consolidated Atlantic HMS FMP clarified, among other things, ACLs for the prohibited shark species complex and implemented preventative AMs for the complex (82 FR 16478; April 4, 2017). Amendment 5b clarified that the ACL for the prohibited shark complex is zero, consistent with provisions in the NS1 guidelines. Under the NS1 guidelines, if an ACL is set equal to zero and the accountability measures for the fishery is a closure that prohibits fishing for a stock, as is the case with the prohibited shark complex, additional AMs are not required if only small amounts of catch (including bycatch) occur, and the catch is unlikely to result in overfishing; see § 600.310(g)(3). Dusky sharks are within the prohibited shark complex and were experiencing overfishing. Amendment 5b adopted additional AMs for that stock, reducing fishing mortality to the extent needed to end overfishing and rebuild the stock. While stock assessments have not been completed for all other prohibited shark species, the best available information does not suggest that overfishing is occurring on other species in this complex. Commercial and recreational retention and landings of prohibited sharks are not allowed, the fishery is closed, and there is only a small amount of bycatch occurring for the complex. NMFS established a mechanism in Amendment 5b to annually monitor a rolling three-year average of the bycatch to ensure it remains small or whether additional measures should be considered.

1.1.7 Amendment 6 to the 2006 Consolidated Atlantic HMS Fishery Management Plan

Amendment 6 to the 2006 Consolidated Atlantic HMS FMP (80 FR 50074; August 18, 2015) established, among other things, a non-blacknose small coastal sharks (SCS) TAC of 489.3 metric tons (mt) dressed weight (dw) and a non-blacknose SCS TAC of 999.0 mt dw in the Atlantic and Gulf of Mexico regions, respectively. Additionally, this final rule apportioned the Gulf of Mexico regional commercial quotas for aggregated large coastal shark (LCS), blacktip, and hammerhead sharks into western and eastern sub-regional quotas.

1.1.8 Amendment 9 to the 2006 Consolidated Atlantic HMS Fishery Management Plan

Amendment 9 to the 2006 Consolidated HMS FMP (80 FR 73128; November 24, 2015) implemented the smooth dogfish/smoothhound shark measures that were delayed in Amendment 3. Smoothhound sharks include smooth dogfish, Florida smoothhound, and Gulf of Mexico smoothhound. While all three species are regularly seen in the Gulf of Mexico, only smooth dogfish are seen along the Atlantic coast. The regulations implemented in Amendment 9 included establishment of an open access commercial smoothhound shark vessel permit. As authorized by the Shark Conservation Act, which otherwise broadly prohibits the removal of shark fins at sea, this permit allows for the removal of smoothhound shark fins at sea along the Atlantic Coast from Maine through the east coast of Florida as long as they make up at least 25 percent of retained catch on board by weight, and the fin-to-carcass ratio does not exceed 12 percent. Amendment 9 also established regional smoothhound quotas in the Atlantic and Gulf of Mexico and required shark recreational anglers to obtain an HMS Angling or Charter/Headboat permit to retain smoothhound sharks caught in federal waters. Dealers purchasing smoothhound sharks caught in federal waters are also required to obtain an HMS dealer permit.

1.1.9 Status of Atlantic Shark Stocks

Stock assessments measure the impact of fishing on stocks and project harvest levels that maximize the number of fish that can be caught while preventing overfishing, and where necessary, rebuild depleted stocks. The thresholds that NOAA Fisheries uses to determine the status of Atlantic HMS are presented in Figure 1.3. This figure, also called a Kobe plot, is often used by stock assessment scientists to summarize the results of various stock assessment models. A stock is considered “overfished” when the current biomass (B) is less than the biomass for the minimum stock size threshold ($B < BMSST$). The minimum stock size threshold (MSST) is determined based on the natural mortality of the stock and the biomass at maximum sustainable yield (BMSY). Maximum sustainable yield (MSY) is the maximum long-term average yield that can be produced by a stock on a continuing basis. The biomass can fall below the BMSY without causing the stock to be declared “overfished” as long as the biomass is above BMSST.

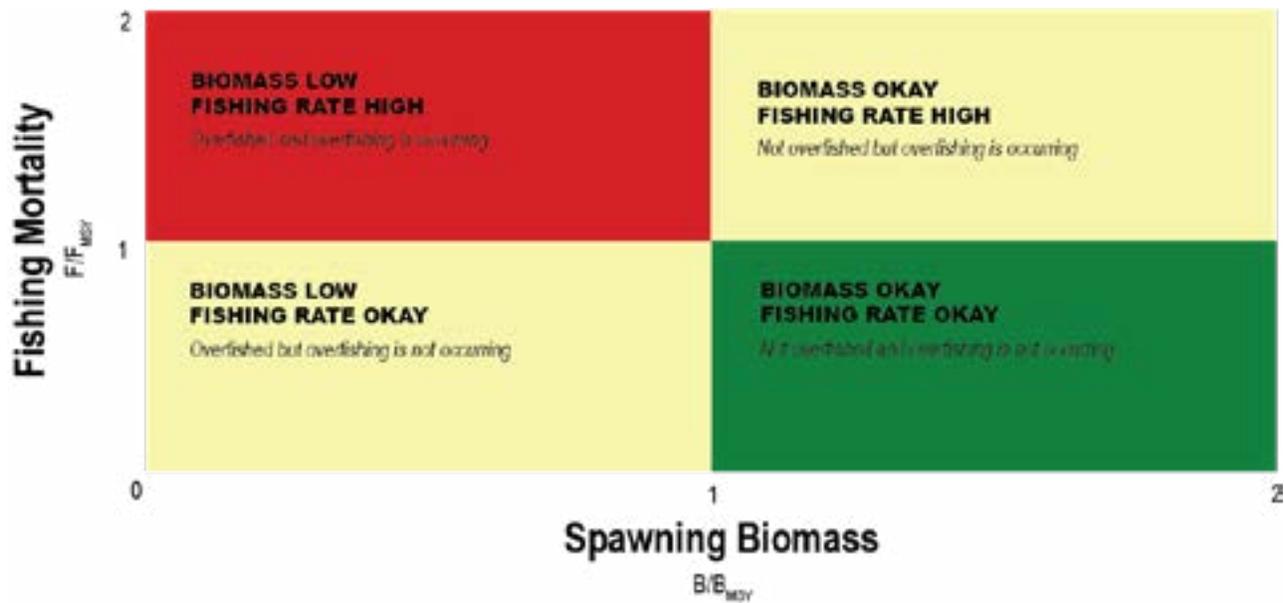


Figure 1.3. “Kobe Plot” Representation of Stock Status Determination and Rebuilding Terms

Scope and Organization of this Document

This document constitutes Draft Amendment 14 to the 2006 Consolidated HMS FMP and includes a fishery impact statement, as required under the Magnuson-Stevens Act. Chapter 2 provides a description of the different management options being considered. Chapter 3 describes the affected environment. Chapter 4 is the fishery impact statement. Chapter 5 explains applicable law in relation to the Amendment’s proposed management options, and Chapter 6 lists preparers, persons consulted, and a summary of the comments received during scoping.

Management Objectives

NOAA Fisheries is exploring options for modifying or establishing reference points and increasing management flexibility for Atlantic shark fisheries under its management. Such flexibility is needed to account for uncertainty and improving stability within the fishery.

Generally, the objective of Draft Amendment 14 is to incorporate additional flexibility into an updated framework for Atlantic shark fisheries, with modifications to the ABC control rule and ACL provisions, and with options regarding overfishing status determinations, carryover, and phase-in of changes in acceptable catch levels, consistent with NS1 and the 2016 revised NS1 Guidelines. NOAA Fisheries has identified the following specific objectives with regard to this action:

- Optimize the ability for the commercial shark fishery to harvest available, science-based shark quotas, to the extent practicable, while also considering fairness among sectors.
- Revise the ABC control rule methodology established in Amendment 3 to increase accountability and transparency when implementing ABCs for shark fisheries, consistent with provisions in the revised NS1 guidelines.
- Revise the ACL framework to reflect changes in the ABC control rule methodology to ensure that effective ACLs are established for non-prohibited shark species, taking into account scientific uncertainty.

- Modify the process for accounting for and distributing quota underharvest or overharvest in the commercial sector ACLs.
- Increase management flexibility to react to and account for changes in the distribution of shark harvest among sectors.
- Increase management flexibility to appropriately react to scientific uncertainties, changes in stock status, or changes in allowable harvest levels to ensure stability within the fishery.

NOAA Fisheries will consider public comments on the management options presented as well as input from consulting parties prior to implementation of a final amendment.

2. Summary of Management Options

Draft Amendment 14 includes a wide range of management options and identifies the current preferred management options that would meet the objectives of the action as described in Chapter 1. To achieve the goals of Amendment 14, NOAA Fisheries developed a range of management options that consider changes to an ABC control rule for sharks, explores different ways to implement phase-in and carry-over provisions, and considers different ways to implement multi-year overfishing determinations.

Topic A: Acceptable Biological Catch Control Rule

The Magnuson-Stevens Act requires ACLs that prevent overfishing for all federally-managed fish stocks. The OFL-ABC-ACL definition framework was established in NS1 guidelines in order to set ACLs that prevent overfishing while accounting for both scientific and management uncertainty. The OFL is the best estimate of the maximum amount of a stock that can be caught in a year without resulting in overfishing. The ABC is the catch level, usually recommended by a Council's Scientific and Statistical Committee (SSC) that accounts for scientific uncertainty in the estimate of OFL, as well as any other sources of scientific uncertainty. The ABC may not exceed the OFL, and the degree to which the ABC is reduced from the OFL is based on the level of scientific uncertainty and risk preferences described in the ABC control rule. Finally, the ACL is the limit on the total annual catch for a stock or stock complex. The ACL is informed by the OFL and ABC and cannot exceed the ABC. The ACL can be set lower than the ABC to account for the degree to which the stock's management measures are able to accurately constrain catch (i.e., management uncertainty) as well as relevant ecological, economic, and social considerations.

The NS1 guidelines state, “[f]or stocks and stock complexes required to have an ABC, each Council [or Secretary for HMS] must establish an ABC control rule that accounts for scientific uncertainty in the OFL and for the Council's risk policy, and that is based on a comprehensive analysis that shows how the control rule prevents overfishing. The Council's risk policy could be based on an acceptable probability (at least 50 percent) that catch equal to the stock's ABC will not result in overfishing, but other appropriate methods can be used.” 50 CFR 600.310(f)(2). Additionally, the NS1 guidelines state, “[w]hen determining the risk policy, Councils could consider the economic, social, and ecological trade-offs between being more or less risk averse. The Council's choice of a risk policy cannot result in an ABC that exceeds the OFL. The process of establishing an ABC control rule may involve science advisors or the peer review process established under Magnuson-Stevens Act section 302(g)(1)(E).”

NOAA Fisheries outlines different management options and the preferred option for the general approach to the ABC control rule framework for the Atlantic shark fisheries below. This Amendment establishes the framework but does not apply it to particular stocks. Instead, NOAA Fisheries will, in future rulemakings, propose application and detailed analysis on the application of the ABC control rule for shark stocks and how any quotas may change as a result.

2.1.1 Management Option A1

No Action. Maintain the existing ABC methodology established in Amendment 3 where the TAC, OFL, and ABC are all set equal and they all equal the sum of the sector ACLs ($TAC = OFL = ABC = ACL$).

Under Management Option A1, NOAA Fisheries would maintain the current approach for setting an ABC for sharks. NOAA Fisheries developed the current ABC methodology for sharks through Amendment 3 to the 2006 Consolidated HMS FMP. Under the applicable NS1 guidelines at the time (2009 guidelines), $OFL = ABC = ACL$ was allowed if there was justification and analysis for why the approach will prevent overfishing. The justification for this approach was articulated above under the Amendment 3 management history and stated that a biological reference point, such as the TAC, from an Atlantic shark stock assessment is used to calculate the ACL. The TAC from the assessment has a 70 percent chance of maintaining healthy stock status or rebuilding such that the TAC would have a high probability of not negatively impacting healthy stock status.

For all shark stocks that are assessed, NOAA Fisheries currently sets the ABC equivalent to the TAC based on the information provided by current shark stock assessments. For overfished stocks, in most cases, the TAC and the resulting ABC is equal to the stock assessment's projection that would end overfishing and would rebuild with a 70 percent chance of likelihood within the rebuilding time period. For stocks that are not overfished, the TAC and resulting ABC is equal to the stock assessment's projection that shows the stock will not become overfished within a certain time period specified within the assessment. NOAA Fisheries usually uses this 70 percent (instead of 50 percent, which is commonly used for other species) probability standard for sharks as a function of the risk policy because of life history traits, such as late age of maturity and low fecundity, and the variability in the modeling. In the past, however, NOAA Fisheries has also used 50 percent or other probabilities on a case-by-case basis, based on scientific advice. Therefore, under this option (the status quo), the ABC, which is set equal to the TAC, accounts for scientific uncertainty in the TAC based on the stock assessment and a risk tolerance that reflects the life history traits of sharks.

For stocks that are not assessed, NOAA Fisheries sets the ABC based on historic harvest information in combination with any information from past quota levels (e.g., the ABC for the aggregated large coastal shark management group or the ABC of the non-blacknose small coastal shark management group) or sets the ABC based on the ABC of the species that is assessed within that management group (e.g., the ABC for the hammerhead shark management group). The ABCs for these non-assessed species are adjusted occasionally as species become assessed and are pulled out of management groups.

NOAA Fisheries has an internal review process, consisting of staff from Regional Science Centers and/or Office of Science and Technology, which provides a separate review of ABC control rule recommendations to ensure they would be consistent with stock status. While SEDAR stock assessments are peer reviewed, and NOAA Fisheries ensures the current process for establishing ACLs is based on the best scientific information available, NOAA Fisheries does not have an SSC for Secretarially-managed Atlantic HMS to review stock assessments, develop, and apply ABC

control rules, and to make ABC recommendations for the stocks that they manage. The internal stock assessment review process ensures that the assessment and stock status determination are scientifically valid and reflective of the current state of each stock and appropriately take into account the risk policy to rebuild the stock.

Under Management Option A1, NOAA Fisheries accounts for scientific uncertainty at an acceptable level given the biological characteristics of sharks and the risk policy as explained above. Management uncertainty is accounted for using AMs such as taking off any overharvest in the next fishing season, and only applying up to 50 percent of the underharvest to the next fishing season for healthy stocks.

Because this option does not utilize the flexible approaches in the 2016 NS1 guidelines that provide opportunities to better account for uncertainty and provide stability in the fisheries in establishing future ABCs, NOAA Fisheries does not prefer Management Option A1 at this time.

2.1.2 Management Option A2

Create a standardized ABC control rule

Under Management Option A2, NOAA Fisheries would create a standardized ABC control rule for non-prohibited shark species and/or management groups. For shark stocks that have an assessment, NOAA Fisheries would set the standardized ABC control rule at a static percentage for each shark species and/or management group such as at 75 percent of the species' and/or management group's OFL. In cases where an assessment is not available, NOAA Fisheries would set the ABC to a standardized percentage of the average three-year harvest for sharks across all sectors (fishing groups). In cases where ICCAT has established a TAC, regardless of whether an assessment has been conducted, NOAA Fisheries would follow the ICCAT recommended TAC and set that as the ABC.

For many shark stock assessments, the inputs to the stock assessment model may not have a high degree of certainty. For example, one input into most stock assessment models is shark harvest. When considering shark harvests over time, those harvests can be highly variable from year to year. The specific reasons for this variation depends on the species, but can include incorrect species identification, changing market variability, and surveys (such as the Marine Recreational Information Program) that may not be best designed to account for rare event species like sharks. Ideally, an ABC control rule would account for this variability and would consider the uncertainty of the data for each species. Under this option, NOAA Fisheries would design a standardized ABC control rule that would account for both scientific uncertainty and could be set based on NOAA Fisheries risk policy for sharks (which is to use a 70 percent probability of success). The standardized ABC control rule would not be adjusted based on the specifics for each species and the uncertainty surrounding any species-specific stock assessment. For example, stocks that are not overfished (e.g., Gulf of Mexico blacktip sharks), stocks that are overfished (e.g., sandbar sharks), stocks with a recent stock assessment (e.g., smoothhound sharks), and stocks without a recent stock assessment (e.g., finetooth sharks) would all have the same ABC control rule. The ABC control rule would be a standardized percentage reduction in the OFL, such as 70 percent of the OFL.

An internal review process, consisting of staff from Regional Science Centers and/or Office of Science and Technology, would provide a separate review of ABC control rule recommendations to ensure the decisions would be consistent with stock status. While SEDAR stock assessments are peer reviewed, and NOAA Fisheries ensures the current process for establishing ACLs is based on the best scientific information available, NOAA Fisheries does not have an SSC for Secretariately-managed Atlantic HMS to review stock assessments, develop, and apply ABC control rules, and to

make ABC recommendations for the stocks that they manage. The internal stock assessment review process ensures that the assessment and stock status determination are scientifically valid and reflective of the current state of each stock and appropriately take into account the risk policy to rebuild the stock.

NOAA Fisheries does not prefer Management Option A2. This management option would limit management flexibility by creating a one size fits all ABC control rule for all shark stocks without taking into consideration species-specific best scientific information available, which limits managers ability to accurately manage those stocks. This approach assumes that scientific uncertainty would be similar for all managed shark species, regardless of stock status or data availability. NOAA Fisheries risk policy of setting the OFL at 70 percent probability of rebuilding or maintaining healthy status (for most shark stocks) already creates a standardized approach at determining an ABC.

2.1.3 Management Option A3—Preferred Management Option

Create a tiered ABC control rule.

Under Management Option A3, the preferred management option, NOAA Fisheries would adopt a general tiered approach to ABC control rules that allows for more flexibility in the application of the ABC control rules and which accounts for different levels of uncertainties associated with different tiers.

A tiered ABC control rule is one in which stocks are categorized into tiers depending on the availability and quality of scientific data. For each tier, the control rule outlines the different processes and parameters for specifying ABCs. A tiered ABC control rule for the shark fisheries would account for scientific uncertainty on a stock by stock basis and would be determined based on NOAA Fisheries' risk policy. A tiered ABC control rule may further account for the risk of overfishing or the probability of rebuilding, as applicable.

Stock data may have different levels of scientific uncertainty (i.e., data-rich, data-moderate, and data-limited). The tiered ABC control rule could have explicit guidance about the risk tolerance. For example, stocks with greater uncertainty in their OFL and/or greater vulnerability to overfishing may require more risk-averse ABC control rules. These tiers would directly relate to NOAA Fisheries' risk policy in selecting the probability of rebuilding, ending overfishing, or maintaining a healthy stock status. In cases where an assessment is not available, NOAA Fisheries could set the ABC at a percentage of historical harvest for sharks across all sectors as binned in the management framework.

Under this preferred management option, the ABC control rule would be tiered to reflect the levels of uncertainty in the data and stock status, which is an approach some of the Regional Fishery Management Councils have used. For example, the South Atlantic Fishery Management Council (SAFMC) approved a tiered ABC control rule for their FMPs through Amendment 29 to the snapper grouper fishery FMP (SAFMC, 2015). In Amendment 29, the SAFMC bins their stocks in a four level ABC control rule that is based on data quality and availability as follows:

- Level 1: Assessed stocks. The assessment provides the OFL. A scoring system is used to determine an adjustment factor which is used to derive ABC.
- Level 2: Unassessed stock with reliable landings and life history data that can be used in a depletion-based stock reduction analysis (DBSRA) to determine the OFL. ABC is derived by applying the scoring system for assessed stocks to determine that adjustment factor, or from expert judgement if not possible.
- Level 3: Unassessed stocks without enough data to complete a DBSRA, so it uses a depletion corrected average catch to determine the ABC. This level requires an increased

- amount of expert insight.
- Level 4: Unassessed stocks/only reliable catch stocks (ORCS). OFL and ABC derived on a case-by-case basis. Apply ORCS approach using a catch statistic, a scalar derived from the risk of overexploitation, and the Council’s risk tolerance level.
- Level 5: Unassessed stocks. There is a decision tree that is used to determine ABC.

Similar to the framework established by the SAFMC for their ABC control rules, Management Option A3 could use stock status to determine the “tier” or “category” in which to place a stock to determine the necessary ABC control rule. NOAA Fisheries managers in consultation with the NOAA Fisheries stock assessment scientists would assign each stock to one of the following tier categories based on the ABC control rule. These are general approaches to how NOAA Fisheries may establish an ABC control rule for shark stocks and management complexes in a subsequent FMP amendments or regulatory actions as appropriate. NOAA Fisheries may revise these tiers based on public comment and NOAA Fisheries stock assessment scientists input.

Under this option, NOAA Fisheries would continue to use the internal review process, consisting of staff from Regional Science Centers and/or Office of Science and Technology, to provide a review of ABC control rule recommendations to ensure the decisions would be consistent with stock status. The SEDAR stock assessments are peer reviewed and NOAA Fisheries ensures the current process for establishing ACLs is scientifically based to make ABC recommendations for the stocks that they manage. The stock assessment review process ensures that the assessment and stock status determination are scientifically valid and reflective of the current state of each stock.

Given the tiered approach’s flexibility in considering and account for stock status, available data, and a stock’s vulnerability to overfishing, NOAA Fisheries prefers this management option for setting ABC control rules for sharks at this time. This preferred management option would not limit the scientific processes used for setting ABC control rules or constrain the resulting ABCs. This management option would also ensure that all shark stocks are managed with an ABC that is based on the best scientific information available. The specific tiered ABC control rule levels and how species are determined to fit into each level would be analyzed in a subsequent rulemaking.

Topic B: Phase-In Acceptable Biological Catch (ABC) Control Rule

The 2016 revised NS1 guidelines state, “Large changes in catch limits due to new scientific information about the status of the stock can have negative short-term effects on a fishing industry. To help stabilize catch levels as stock assessments are updated, a Council may choose to develop a control rule that phases in changes to ABC over a period of time, not to exceed 3 years, as long as overfishing is prevented each year (i.e., the phased-in catch level cannot exceed the OFL in any year). In addition, the Councils should evaluate the appropriateness of phase-in provisions for stocks that are overfished and/or rebuilding, as the overriding goal for such stocks is to rebuild them in as short a time as possible.” (600.310 (f)(2)(ii)(A)).

NOAA Fisheries prefers to use management options presented in the 2016 revised NS1 guidelines to increase management flexibility to phase-in changes to the ABC control rule. This flexibility would allow NOAA Fisheries the ability to phase-in in change to the shark fishery to relieve economic impacts to fishery or cause market instability with a market surplus. NOAA Fisheries will still evaluate each application in a stock-by-stock analysis at the time of implementation and determine the best process to rebuild the stock.

In the HMS shark stock context, a phase-in ABC control rule would allow the phase-in changes to the ABC over a period of time, not to exceed three-years, as long as overfishing is prevented and after evaluating the appropriateness of phase-in provisions for stocks that are overfished and/or

rebuilding. A phase-in ABC control rule would allow NOAA Fisheries to have an increased level of flexibility to determine how the ABC for a particular species or management group is implemented and to help stabilize catch levels as stock assessments are updated to lessen negative short-term effects on a fishing industry.

2.1.4 Management Option B1

Maintain status quo. Do not use a phase-in ABC control rule for HMS stocks. Reduce ABC below OFL and/or to the level at which rebuilding or ending overfishing would occur.

Under Management Option B1, NOAA Fisheries would not implement a phase-in ABC control rule. The ABC would be implemented without phasing the ABC in over time, which is how shark ABCs are currently implemented. However, given the NS1 guidelines has afforded NOAA Fisheries additional flexibility for the phase-in of an ABC, NOAA Fisheries does not prefer Management Option B1 at this time.

2.1.5 Management Option B2—Preferred Management Option

Allow consideration of phase-in ABC control rules for modifications in ABC.

Management Option B2 would allow for consideration of using a phase-in ABC control rule for modifications to the ABC. NOAA Fisheries would have the option to phase-in a new ABC over up to three years, in a stepwise fashion, as outlined in the NS1 guidelines. Under this management option, any reduction or increase in ABC, regardless of stock status, could be phased in over a three-year period. During the three-year phase-in period, the ABC must remain under the OFL (the TAC if OFL is not offered in stock assessment) and NOAA Fisheries must prevent overfishing. NOAA Fisheries will still evaluate each application of an ABC phase-in on a stock-specific basis to determine the best process to rebuild the stock.

For example, if a stock assessment determines that a stock requires a reduction in the ABC by 30 percent, NOAA Fisheries could reduce the ABC by 10 percent per year over a three-year period to achieve a 30 percent reduction in the ABC as long as overfishing is prevented (i.e., the level of catch still remains below the OFL). In year one, the ABC would be 90 percent of the original ABC, year two would be 80 percent of the original ABC, and year three would be 70 percent of the original ABC. In this example, the length and percentage of the phase-in period could be determined through consultations with the internal scientific review process (see Management Option A3) in conjunction with the ABC recommendations.

Under the preferred Management Option B2, NOAA Fisheries would follow guidelines for using the phase-in provision as laid out in the NS1. Specifically, when considering the appropriateness of applying a phase-in ABC control rule for a stock or management complex, NOAA Fisheries would ensure that the resulting ABC prevent overfishing (i.e., ABC cannot exceed OFL). The ABC control rules would be based on a comprehensive analysis that shows how the control rule prevents overfishing (50 CFR 600.310 (f)(2)(i)). The impact of phase-in on a stock's rebuilding progress would be considered, as the overriding management goal for stocks in a rebuilding plan is to rebuild them in as short a time as possible.

If a phase-in ABC control rule has been determined to be appropriate to achieve a needed reduction in ABC based on scientific advice, NOAA Fisheries would implement the phase-in ABC provision by setting the year one ABC at a level below the OFL. In year two, NOAA Fisheries would set the ABC at the 50 percent of the difference between the OFL and the recommended ABC. Finally, in year three, NOAA Fisheries would set the ABC at the recommended level. NOAA Fisheries believes this could be the best method for sharks due to the high variability in shark stock assessments.

If a phase-in ABC control rule has been determined to be appropriate to achieve a needed reduction in ABC based on scientific advice, NOAA Fisheries would implement the phase-in ABC provision by setting the year one ABC at a level below the OFL. In year two, NOAA Fisheries would set the ABC at the 50 percent of the difference between the OFL and the recommended ABC. Finally, in year three, NOAA Fisheries would set the ABC at the recommended level. NOAA Fisheries believes this could be the best method for sharks due to the high variability in shark stock assessments.

Conversely, if NOAA Fisheries determines that a phase-in approach is appropriate for an increase in ABC, NOAA Fisheries would implement the phase-in ABC provision by setting the year one ABC at 25 percent of the difference between the current ABC and recommended ABC. In year two, NOAA Fisheries would set the ABC at 50 percent of the difference, and in year three, it would set the ABC at the recommended level.

NOAA Fisheries prefers this management option because it increases the flexibility in how NOAA Fisheries implements ABCs after stock assessments. Since many shark stocks are unassessed and/or in an unknown stock status, these shark stocks could see a significant change in ABC after they are assessed. NOAA Fisheries prefers to have the flexibility to phase-in large changes, allowing stakeholders additional time to adjust to reduced ABCs and stakeholders, including markets, to adjust to increased ABCs. NOAA Fisheries recognizes that this approach may have limited impacts on the health of a stock, since the fishery would be managed below the OFL during the phase-in period and could lead to more stable fisheries over time. However, these impacts would need to be analyzed on a stock by stock basis during relevant rulemakings, prior to implementation of a phase-in ABC.

2.1.6 Management Option B3

Use a phase-in ABC control rule for healthy shark stocks; no phase-in for overfished/overfishing stocks.

Under Management Option B3, NOAA Fisheries would use a phase-in provision for the ABC control rule only if the stock is healthy (not overfished, no overfishing). NOAA Fisheries would implement the full ABC in one year/step if an assessment determines a stock to be overfished and/or overfishing is occurring.

A stock assessment may determine that a stock is healthy (not overfished and/or overfishing is not occurring), but needs a reduction in mortality to maintain the stock status. If a stock is healthy, a phase-in approach may not have a detrimental impact as long as the total catch remains below the OFL. This management option should not cause long-term harm to the stock since the stock is not overfished, and therefore, would not slow a rebuilding timeline or impact any biological stock characteristics. However, any stocks determined to utilize a phase in ABC control rule would require a detailed impact analysis prior to implementation of the control rule.

This option would also allow for phase-in for an increase in the ABC if the stock is determined to be healthy. As with option B2, this option would help stabilize market conditions and avoid creating a market surplus due to large increases of an ABC. NOAA Fisheries does not prefer this management option because it would limit management flexibility to appropriately react to changes in stock status and changes in allowable harvest levels within the fishery. Additionally, the limited flexibility may have detrimental economic impacts to the fishery.

2.1.7 Management Option B4

Use a phase-in ABC control rule, unless the stock is overfished with overfishing occurring.

Under Management Option B4, NOAA Fisheries would implement the full ABC in one year/step if an assessment indicates a stock to be overfished with overfishing is occurring. In the event a stock is not overfished with overfishing occurring, then NOAA Fisheries would have the option to phase-in the reduced ABC to allow for more management flexibility as needed.

Stocks that are both overfished and experiencing overfishing are stocks in which the fishing mortality is too high and the stock biomass is too small to replace losses. If the stock is overfished and experiencing overfishing, it is not achieving MSY or OY. Thus, NOAA Fisheries would implement the necessary ABC as soon as possible to help rebuild the stock and end overfishing. This option would only allow for a phased-in approach if the stock is determined to be healthy and the ABC is to be increased. Gradually increasing the ABC would also help stabilize market conditions and avoid creating a market surplus due to large increases of an ABC.

NOAA Fisheries does not prefer this management option because it would not allow management flexibility to appropriately react to stock status and would not help reduce economic impact of having a large reduction in a single year's catch limits and thus would not address potential instability in the fishery.

Topic C: Annual Catch Limit Development

The NS1 guidelines state, "If sector-ACLs are used, sector-AMs should also be specified. 'Sector,' for purposes of this section, means a distinct user group to which separate management strategies and separate catch quotas apply. Examples of sectors include the commercial sector, recreational sector, or various gear groups within a fishery. If the management measures for different sectors differ in the degree of management uncertainty, then sector-ACLs may be necessary so that appropriate AMs can be developed for each sector. If a Council chooses to use sector-ACLs, the sum of sector-ACLs must not exceed the stock or stock complex level ACL. The system of ACLs and AMs designed must be effective in protecting the stock or stock complex as a whole. Even if sector-ACLs and sector-AMs are established, additional AMs at the stock or stock complex level may be necessary." (600.310(f)(4)(ii)).

An ACL is a limit on the total annual catch of a stock and/or stock complex, which cannot exceed the ABC that serves as the basis for invoking AMs. An ACL may be divided into sector-ACLs. ACLs are used as a limit on a sector or stock to prevent overfishing. As a result of the modified ABC control rule provisions in the NS1 guidelines, NOAA Fisheries has determined that it is appropriate to review the ACL framework for shark stocks that is currently used and was established in Amendment 3. Since the various user groups within the fishery and management measures for the different sector-ACLs differ so much, NOAA Fisheries is considering an option to actively manage the sectors (commercial and recreational) and have management and accountability measures based on separate mortality estimates.

2.1.8 Management Option C1

No Action. No change to the current mechanism for determining ACLs.

Under Management Option C1, NOAA Fisheries would maintain the existing process for determining the ACL for all shark species and/or management groups, which was established in Amendment 3 to the 2006 Consolidated Atlantic HMS FMP (Figure 1.1). NOAA Fisheries has, in practice, set the ABC, OFL, and overall ACL equal to the TAC (ABC=OFL=ACL=TAC). The TAC usually is provided as part of the stock assessment report, results, and/or conclusions, and determines the level of acceptable mortality, given the biological characteristics of the species that would allow a stock to rebuild or remain sustainable for a given timeframe. For overfished stocks, in most cases, the ACL is equal to the stock assessment's projection that shows rebuilding with a 70 percent chance of success within an acceptable rebuilding timeframe. NOAA Fisheries currently uses the 70 percent probability of rebuilding for sharks given their life history traits, such as late age of maturity and low fecundity (instead of 50 percent, which is commonly used for other species), with some limited exceptions made on a case-by-case basis. The 70 percent rebuilding threshold is consistent with NOAA Fisheries' risk policy for shark species. Additionally, Amendment 3 established three "sector-ACLs" for 1) recreational harvest (landings and discards), 2) commercial discards, and 3) commercial landings. The commercial discard section ACL includes discard estimates within HMS managed fisheries and from fisheries that are not managed as part of the HMS fishery management plan to ensure that all mortality is included. The discard estimates are currently calculated during a stock assessment. The commercial landings ACL is the commercial shark quota for specific shark fisheries. It is calculated by removing the recreational and discard estimates from the TAC received from the stock assessment. The commercial shark landing quota also has accountability measures where the shark fishery closes when the landings have reached or are projected to reach 80 percent of the commercial quota (only if NOAA Fisheries determines that the commercial quota would be exceeded by the end of the year), which is the annual catch target (ACT).

Landings and discards of recreational ACLs are determined when a stock assessment is conducted. These numbers are used as the annual recreational mortality estimates in the interim years between stock assessments due to the paucity of recreational landings and discard data for most shark species obtained through various regional recreational surveys conducted by federal and state agencies. To date, active inseason monitoring of recreational shark landings and discards is not conducted, as it is difficult to do outside of stock assessments. The commercial landings ACL is the only ACL for sharks that is actively monitored and adjusted each year.

More details on these calculations and the establishment of specific TACs and ACLs can be found in the amendments to the 2006 Consolidated Atlantic HMS FMP: Amendment 2 (2008), Amendment 3 (2010), Amendment 5a (2013), Amendment 6 (2015), and Amendment 9 (2016). The specific ACLs for sharks are in Table 1.1.

Table 1.1 Total Allowable Catches and Annual Catch Limits (mt dw) of Current Shark Management Groups. Note: mt dw = Metric tons dressed weight; LCS = Large coastal shark; SCS = Small coastal shark.

Fishery	TAC = ACL	Commercial Sector ACL	Recreational Sector ACL	Dead Discard Sector ACL
Aggregated LCS—Atlantic	346.2	204.6	147.1	N/A
Aggregated LCS—Eastern Gulf of Mexico	175.2	103.6	71.7	N/A
Aggregated LCS—Western Gulf of Mexico	147.6	81.2	60.4	N/A
LCS shark research fishery	50.0	50.0	N/A	0
Blacktip—Gulf of Mexico	413.4	256.6	60.3	96.2
Blacktip—Eastern Gulf of Mexico	40.5	25.1	5.9	9.4
Blacktip—Western Gulf of Mexico	372.9	231.5	54.4	86.7
Hammerhead—Atlantic	41.2	27.1	2.5	11.4
Hammerhead—Eastern Gulf of Mexico	20.4	13.4	1.3	5.6
Hammerhead—Western Gulf of Mexico	18.1	11.9	1.1	5.0
Sandbar	158.3	90.7	39.7	25.9
Non-blacknose SCS—Atlantic	489.3	264.1	100.6	122.4
Non-blacknose SCS—Gulf of Mexico	999.0	112.6	66.2	818.7
Blacknose—Atlantic	21.2	17.2	0.4	3.5
Blacknose—Gulf of Mexico	34.9	0	2.6	32.3
Prohibited species	0	0	0	0
Pelagic shark complex	488.0	Undefined	Undefined	Undefined
Porbeagle shark	11.3	1.7	0.1	9.5
Blue shark	279.0	Undefined	Undefined	Undefined
Smoothhound—Atlantic	1,430.6	1,201.7	188.4	39.1
Smoothhound—Gulf of Mexico	509.6	336.4	0.6	169.8

NOAA Fisheries does not prefer this management option because the current mechanism for establishing an ACL is based on the older NS1 guidelines from 2009 without considering options for management presented in the 2016 guidelines. In light of the revised NS1 guidelines, NOAA Fisheries is considering revising the shark fishery ABC framework established in Amendment 3 (including modifying the ABC control rule (Topic A), phasing in the implementation of an ABC (Topic B), and modifying carry-over, phase-in and multi-year overfishing provisions (Topics D and E)) in order to update fishery management regulations to improve the health of shark stocks and the fishery. Thus, after reviewing the revised NS1 guidelines, NOAA Fisheries has determined that it is appropriate to consider changes for setting and managing ACLs at this time.

2.1.9 Management Option C2—Preferred Management Option

Actively manage all sector ACLs (commercial and recreational).

Under Management Option C2, the preferred management option, the overall ACL would be split into two different sector ACLs (commercial and recreational) as described in Figure 2.2. The revised framework would only apply to non-prohibited sharks. In cases where ICCAT has established a TAC, regardless of whether an assessment has been conducted, NOAA Fisheries would follow the ICCAT recommended TAC and set that as the ABC. The overall ACL would be set below the ABC to account for management uncertainty. Management uncertainty includes shark mortality from fisheries not managed directly by the NOAA Fisheries Atlantic HMS Management Division, any research mortality, and expected variability in landings estimates. This overall ACL would be further divided into commercial and recreational fishery sector ACLs based on historical landings or results of the stock assessment.

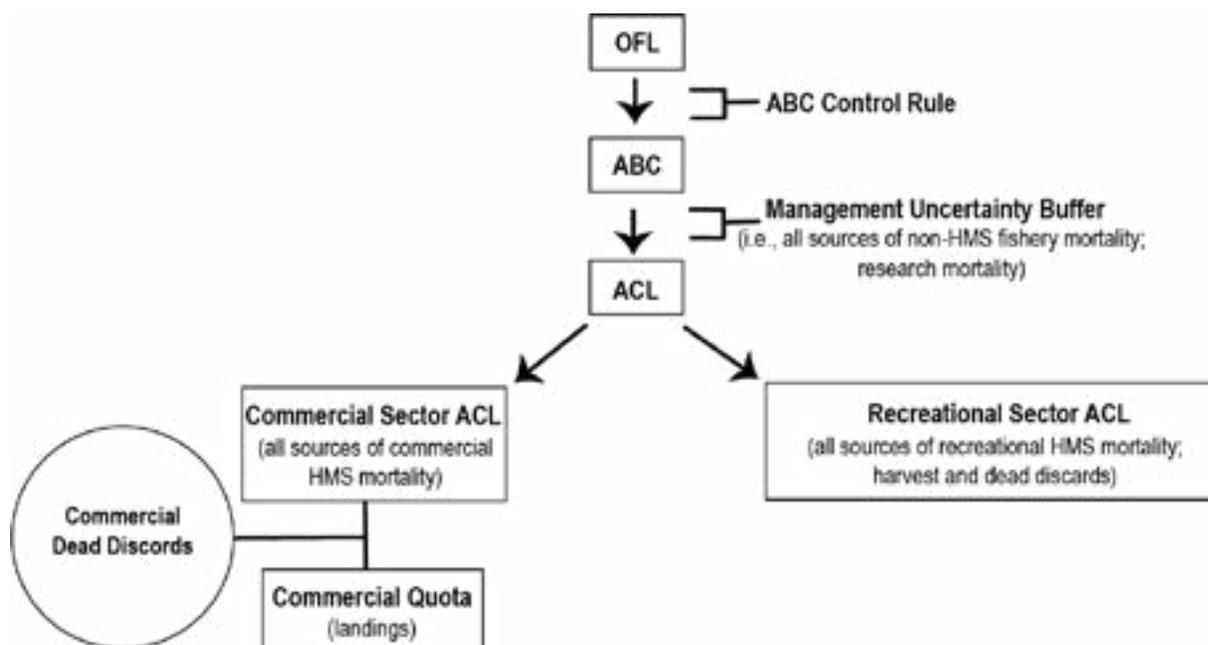


Figure 2.1 The Annual Catch Limit Framework for Non-Prohibited Shark Species under Preferred ACL Development Management Option C2.

For the commercial ACL, NOAA Fisheries would manage commercial quotas and account for HMS commercial fishery dead discards. Currently, commercial quotas are actively managed and monitored through electronically submitted dealer reports on a weekly basis to ensure quotas are not exceeded. As for the commercial dead discards, NOAA Fisheries receives estimates during stock assessments. These commercial dead discard estimates include HMS fisheries and non-HMS fisheries (e.g., snapper-grouper fishery, menhaden fishery, and shrimp trawl fishery). All of the commercial dead discards are removed from the overall ABC and estimates are used as a proxy for mortality that must be annually accounted for until a subsequent stock assessment updates the estimates. Under this management option, the commercial dead discards would include all shark fishery mortality (estimated dead discards and/or post release mortality) associated with the shark management group and/or species. These would be accounted for before setting a commercial quota. All shark mortality that occurs outside of HMS fisheries would be accounted for through the management uncertainty buffer set between the ABC and overall ACL. This would ensure that the mortality counted against the ACL matches the mortality used in the assessment to calculate the OFL or TAC.

If the shark species and/or management group has not been assessed, NOAA Fisheries would identify those sources of mortality by actively monitoring the commercial dead discard estimates in HMS fisheries on a two-year cycle. To calculate the dead discard estimates, NOAA Fisheries would compile observer data, logbook data, and work with the SEFSC to determine these estimates. The most recent year of dead discard estimates would have the highest levels of uncertainty due to the potential of late reports, incomplete surveys, and unverified data. In addition, many shark species are rarely observed, which could result in large confidence intervals in mortality estimates. Since some of the data (observer and logbook) are not finalized until after the start of the following year and annual estimates of catch and interactions are variable year to year, NOAA Fisheries would revise the dead discard estimates ACLs based on the most recent past three complete years of data. For example, the 2023 commercial dead discards ACL for a shark species and/or management group would be based on dead discard data from 2019 through 2021, and the 2024 commercial dead discards ACL would be based on data from 2020 through 2022. NOAA Fisheries believes actively managing and adjusting the dead discard estimates ACLs on a multi-year cycle would be the best method to handle variability in the shark fishery. If NOAA Fisheries adjusted the dead discard estimate annually, the annual estimates could result in large annual adjustments in the fishery that may well be unwarranted given the lack of precision in the data. Thus, it would be beneficial for NOAA Fisheries to base any management decisions on multiple years of data to help smooth out the large levels of variability in these estimates.

Regarding underharvest of the commercial ACL, NOAA Fisheries is considering some management options below. The preferred option (Management Option D6) would allow only underharvest from the commercial sector to be eligible for carry-over. Any unused quota would be added to the next year's commercial quota for any management group as long as the overall ACL remains below the ABC. For overharvest, NOAA Fisheries would reduce the commercial ACL to account for the overharvest. This would reduce next year's commercial quota for any management group.

For the recreational ACL, NOAA Fisheries would actively monitor the overall recreational fishing mortality. This would include accounting for the harvest and dead discard estimates for the shark management group and/or species within the recreational fishing sector. Currently, NOAA Fisheries calculates the recreational mortality through a stock assessment and removes this mortality estimate from the overall OFL for the shark species/complex. Similar to commercial dead discards, the recreational mortality estimate from a stock assessment is used as a proxy, where the same mortality estimate is removed from the ACL every year, until the next stock assessment provides more accurate mortality estimates. The data on recreational mortality for Atlantic sharks is obtained through various regional recreational surveys conducted by federal and state agencies. These surveys provide estimated (i.e., extrapolated) numbers of shark interactions based on data provided by anglers and captains. The data used to establish the recreational ACL would match the recreational data source(s) used in the relevant stock assessment (e.g., if the stock assessment used LPS data, the recreational ACL would also use LPS data, and not use MRIP data or other sources).

Given the high annual variability of recreational harvest and mortality, NOAA Fisheries would continue to collect recreational estimates through various regional recreational surveys conducted by federal and state agencies. The recreational ACL would be adjusted annually based on data from the past three years. Using a multi-year average would be similar to the approach for estimating commercial dead discards. The most recent year of harvest and dead discard estimates would have the highest levels of uncertainty due to potentially late reports, incomplete surveys, and unverified data. In addition, many shark species are rarely observed in recreational surveys, resulting in large confidence intervals in harvest and mortality estimates. Using such data for annual estimates could result in large annual adjustments in the fishery that may well be unwarranted given the lack of precision in the data. Thus, it would be beneficial for NOAA Fisheries to base any management decisions on multiple years of data to help smooth out the large levels of variability in these

estimates. For example, the 2023 recreational ACL for a shark species and/or management group would be based on consideration of all recreational estimate data from 2019 through 2021 and the 2024 recreational dead discard ACL would be based on data from 2020 through 2022.

Regarding underharvest and overharvest of the recreational ACL, NOAA Fisheries would consider management measures to limit mortality by adjusting the bag limits, size limits, gear restrictions, and/or other measures as appropriate on a stock-specific basis the following fishing season based on the three-year average. For example, in a situation where a healthy shark management group's recreational ACL is not fully harvested, NOAA Fisheries could increase bag limits or reduce size limits to increase fishing opportunities through the annual specifications or inseason action. If that same healthy shark management group ACL is overharvested, bag limits could be reduced, size limits increased, or area/season restrictions could be implemented.

NOAA Fisheries prefers this management option because it allows for the commercial and recreational sectors to be actively managed and have management and accountability measures, based on separate mortality estimates. As mentioned above, NOAA Fisheries monitors mortality in the commercial and recreational sectors differently. In the recent HMS Advisory Panel meetings, the members have indicated that it would support divisions in the ACLs between the sectors so that there is a reasonable expectation of allocation on a yearly basis. Management Option C2 would provide each sector with a percentage of quota, which would not be reallocated unless the overall ACL was exceeded.

2.1.10 Management Option C3

Establish a "reserve" sector ACL; develop mechanisms for inseason transfer.

In Management Option C3, NOAA Fisheries would create a "reserve" sector ACL, which would be subtracted from the overall Shark Fishery ACL. Similar to the Atlantic bluefin tuna fishery, the "reserve" sector ACL would be an amount held in reserve for inseason transfers, annual adjustments, and/or research. The "reserve" sector ACL amount would be developed based on management uncertainty to ensure that the overall harvest from all sectors does not exceed the ABC. NOAA Fisheries would develop criteria to determine the appropriate quota distribution from the reserve sector. The "reserve" sector ACL would create a buffer between the ABC and the overall ACL, thus allowing for adjustments resulting from any over or underharvests. Due to the reporting and data quality of each sector ACL, NOAA Fisheries would develop a mechanism for inseason transfer every two years. This would allow NOAA Fisheries time to ensure all the mortality is accurately accounted for and the overall ACL was not exceeded.

NOAA Fisheries does not prefer this management option at this time because transferring from the "reserve" sector ACL to any other sector ACL would not be on a seasonal basis (January 1 through December 31). If NOAA Fisheries created a "reserve" sector ACL, it would be difficult to appropriately distribute to the commercial and recreational sector ACLs during the season, as mortality estimates from commercial dead discards and recreational harvest would not be available until after a fishing year ends. Even under the preferred Management Option C2, a "reserve" sector ACL would have little benefit regarding making quota available to the fisheries during a given season due to the lags in receiving discard and recreational sector data. While the "reserve" sector ACL could create an additional buffer for the OFL, NOAA Fisheries does not prefer this management option at this time.

2.1.11 Management Option C4

Establish an ACL for each shark complex (combining management groups) as a whole, without a focus on individual species.

Management Option C4 would establish an overall ACL for each management group as a whole rather than for individual species. This would combine all the shark species that are often caught together with the same gear type and/or similar ecological conditions into larger management groups. This is how the Atlantic HMS management groups were established in 1993 (LCS, SCS, and pelagic shark complexes). Under this management option, NOAA Fisheries could create a Gulf of Mexico LCS complex by combining the blacktip, aggregated LCS, and hammerhead shark management groups, and an Atlantic LCS complex by combining the aggregated LCS and hammerhead shark management groups. For the SCS complex, NOAA Fisheries could combine the non-blacknose SCS and blacknose shark management groups and create separate regional groups. For the pelagic shark complex, NOAA Fisheries could combine the blue, porbeagle, and other pelagic shark management groups together.

For example, the Atlantic aggregated LCS quota (168.9 mt dw) would be combined with the Atlantic hammerhead shark quota (27.1 mt dw) for an Atlantic LCS complex quota of 196 mt dw. NOAA Fisheries would monitor the overall LCS landings in the Atlantic region without setting individual species quotas. NOAA Fisheries would implement management measures (i.e., retention limits, opening dates) for the whole LCS complex.

NOAA Fisheries does not prefer this management option because NOAA Fisheries would not be able to use the best available science to manage each shark species and ensure OFLs recommended from stock assessments for individual species and the resulting ABCs are not exceeded. When the shark species are combined into large complexes, NOAA Fisheries would not be able to implement specific management measures to ensure the rebuilding of the shark species based on information from stock assessments that are significantly different than what is currently in place for the management of Atlantic sharks. Management measures implemented for the larger complex could not limit landings for individual shark species stocks, potentially leading to overfishing of the more vulnerable stocks.

2.1.12 Management Option C5—Preferred Management Option

Establish an ACL for each Atlantic shark management group, without commercial ACL quota linkages.

Under Management Option C5, NOAA Fisheries would establish an ACL for each existing shark management group and remove commercial management group linkages. NOAA Fisheries manages the Atlantic shark fishery based on ACLs established for each shark management group through FMP amendments (Table 1.1). Currently, NOAA Fisheries manages each Atlantic shark management group to a specific commercial ACL, with some linkages among shark management groups whose species are often caught together, to prevent exceeding the established quotas through discarded bycatch. For example, the commercial hammerhead shark management group ACL is linked to the commercial aggregated LCS management group ACL. Both of these management groups open or close together, after commercial landings have reached or are projected to reach 80-percent of the available overall, regional, and/or sub-regional quota, if the commercial fishery's landings are not projected to reach 100 percent of the applicable quota before the end of the season.

Under Management Option C5, NOAA Fisheries would change the current management structure in the HMS fishery. To ensure ACLs are not exceeded, NOAA Fisheries would need to account for all potential mortality when the commercial ACL species linkages are removed. NOAA Fisheries would ensure that any discarded bycatch that may occur when the fishery remains open would be accounted for in the commercial dead discard estimates. In this case, the assumed discards would be increased to cover any additional mortality, and it could potentially reduce the commercial ACL quotas for the fishery.

NOAA Fisheries prefers Management Option C5 because the fisheries could remain open all year to ensure that each shark management group quota is fully utilized. However, once an ACL is reached, NOAA Fisheries would close that ACL to prevent overharvesting. This was the case with the SCS fishery in the Atlantic region from 2013 to 2017, before management measures changed to implement a retention limit for blacknose sharks. However, NOAA Fisheries would still account for the dead discards after a shark management group is closed and this potential increase in estimated mortality could reduce commercial quotas.

While NOAA Fisheries considered keeping the current management structure with commercial ACL species linkages, NOAA Fisheries does not prefer keeping quota linkages since historically commercial ACL quota linkages have negatively impacted the fishery and closed seasons earlier than would otherwise be necessary. ACL species linkages were established to minimize discards in the shark fishery. Since NOAA Fisheries would be actively monitoring those discards and adjusting the commercial sector-ACL appropriately, removing this AM would increase the opportunity to utilize of the available commercial quotas. The monitoring provisions would ensure that ACLs were adhered to achieve conservation objectives. In all of the quota linkages listed above, one shark management group has a larger quota than its linked shark management group. Once one of the linked quotas is reached, both management groups are closed regardless of the remaining quotas. Since NOAA Fisheries started implementing commercial ACL quota linkages in the shark fishery in Amendment 5a to the 2006 Consolidated HMS FMP (78 FR 40317; July 3, 2013), seven shark management groups through 2019 were closed early due to quota linkages. The remaining under-utilized commercial ACL quota from 2013 to 2019 from the seven shark management groups accounts for 161.3 mt dw, which has been lost to the commercial fishery. In addition, commercial ACL quota linkages have caused fishermen to discard shark species to ensure that certain fisheries remain open longer.

2.1.13 Management Option C6

Create species-specific ACLs with commercial ACL quota linkages.

Under Management Option C6, NOAA Fisheries would create species-specific ACLs, independent of the status of other species. NOAA Fisheries could also consider species linkages for each species-specific commercial ACL. Currently, some shark species are managed in a management group (aggregated LCS, hammerhead, non-blacknose SCS, pelagic sharks). Under this management option, each species of shark would have its own ACL. For example, each Atlantic region aggregated LCS management group species (blacktip, bull, lemon, nurse, silky, spinner, and tiger shark) and hammerhead shark management group species (great, scalloped, and smooth) would be managed separately with its own ACL. Since there has not been stock assessments for these shark species, the ACLs could be based on average mortality. In addition, NOAA Fisheries could consider quota linkages for the species-specific ACLs or not linking the ACLs. If the ACLs are linked, then when one species' commercial ACL is reached, the other linked species' commercial ACL would also close, potentially resulting in an underutilization of that species' quota.

NOAA Fisheries does not prefer this management option because of the administrative difficulties in establishing and monitoring numerous species-specific ACLs, the confusion that could be caused from multiple species openings and closures, and the potential misidentification of shark species by fishermen. In particular, some assessed species have group TACs recommended by the scientists because of this identification issue (e.g., Gulf of Mexico smoothhound sharks). In addition, other species have not been assessed in a formal stock assessment and lack data to create species-specific ACLs. For instance, NOAA Fisheries created the hammerhead shark management group in Amendment 5a to the 2006 Consolidated HMS FMP due to the difficulty in differentiating hammerhead shark species, especially when dressed (heads removed). Therefore, NOAA Fisheries combined hammerhead sharks into a management group and counted all of the landings towards one quota to solve the issue. If all three large hammerhead sharks are not grouped under one quota, some scalloped hammerhead sharks could be misidentified as smooth or great hammerhead sharks and would not be appropriately accounted for, possibly leading to mortality in excess of the scalloped hammerhead ACL. In addition, establishing and monitoring numerous species-specific ACLs would cause administrative difficulties and potentially cause delays in timely management measures.

Topic D: Carry-Over of Underharvested ACL

The NS1 guidelines state, “ABC control rules may include provisions for the carry-over of some of the unused portions of an ACL (i.e., an ACL underage) from one year to increase the ABC for the next year, based on the increased stock abundance resulting from the fishery harvesting less than the full ACL. The resulting ABC recommended by the SSC must prevent overfishing and must consider scientific uncertainty consistent with the Council's risk policy. Carry-over provisions could also allow an ACL to be adjusted upwards as long as the revised ACL does not exceed the specified ABC. When considering whether to use a carry-over provision, Councils should consider the likely reason for the ACL underage. ACL underages that result from management uncertainty (e.g., premature fishery closure) may be appropriate circumstances for considering a carry-over provision. ACL underages that occur as a result of poor or unknown stock status may not be appropriate to consider in a carry-over provision. In addition, the Councils should evaluate the appropriateness of carry-over provisions for stocks that are overfished and/or rebuilding, as the overriding goal for such stocks is to rebuild them in as short a time as possible” (600.310 (f)(2)(ii)(B)).

Based on the NS1 guidelines, NOAA Fisheries is considering developing carry-over provisions, permitting underharvests in one year to be added to the allowable catch in a subsequent year. Underharvest may be the result of a variety of factors, including changes in effort, fish availability, socioeconomic constraints, and/or regulatory constraints. Since HMS-managed shark stocks do not have annual stock assessment updates, it would not be possible to update projections for potential increases in stock biomass due to underharvests. Therefore, calculating appropriate increases in the ABC are not currently feasible. Thus, the range of management options below are constrained to applying a carry-over approach if the ACL is lower than the ABC and there is an underharvest. Consistent with the NS1 guidelines, NOAA Fisheries may account for underharvests by adjusting the next year's ACL upwards (by adding all or part of the underharvest) as long as the ACL that is adjusted with the underharvest does not exceed the pre-specified ABC.

In all instances, as is done now, carry-over would not be available for stocks that are overfished or experiencing overfishing; this limitation on possible carry-over would help ensure that any potential underharvest would contribute to improving the status for stocks in those conditions.

2.1.14 Management Option D1

No Action. Allow up to 50 percent carry-over of the commercial landings sector ACL if a stock is not overfished, not experiencing overfishing, or not in an unknown status.

Under Management Option D1, NOAA Fisheries would maintain the status quo where the carry-over of the underharvest of a commercial landings sector ACL of shark stocks would be based on the individual shark species' stock status. For shark stocks that are not overfished or are not experiencing overfishing, underharvest from the previous commercial sector-fishing year for that particular stock would be added to its base commercial sector ACL in the following year to create an "adjusted" commercial sector ACL. This carry-over of the underharvest currently only applies to the Gulf of Mexico blacktip shark, Gulf of Mexico smoothhound shark, and Atlantic smoothhound shark stocks. The underharvest carry-over would continue to be capped at 50 percent of the base ACL for the commercial landings sector, which would limit the amount of underharvest that could be applied in the subsequent fishing year, to protect healthy species and prevent quota stockpiling. The carry-over of underharvest of an ACL would only occur for commercial ACLs.

NOAA Fisheries has not traditionally actively monitored recreational harvest of sharks on an inseason or annual basis. As such, the recreational sector ACL has not needed to be adjusted as a result of any carry-over of any underharvest. Instead, NOAA Fisheries has used the harvest levels and discards provided during stock assessments to adjust the recreational sector ACL when needed. This approach is used due to the large uncertainty in the estimates of recreational harvest and discard data for most shark species.

Under Management Option D1, NOAA Fisheries would not apply carry-over of underharvests for individual species that have an unknown stock status, are overfished, or are experiencing overfishing. Further, if any species within a complex has a stock status determination of unknown, overfished, or experiencing overfishing, then carry-over of underharvest would not be applied to the complex's ACL. By not allowing carry-over for these stocks, any underharvest would contribute to improving stock status.

NOAA Fisheries does not prefer Management Option D1 since this option would only allow underharvest carry-over to three shark stocks (Gulf of Mexico blacktip shark, Gulf of Mexico smoothhound shark, and Atlantic smoothhound shark). Currently, most of the commercial shark quotas are underharvested. In addition, there are no current HMS regulations that require shark fisheries to stay below the ACL or the ABC, which is inconsistent with the NS1 guidelines. This option does not utilize available quotas and ACLs, and likely would contribute to continued underharvests.

2.1.15 Management Option D2

Distribute any unused catch to the sector where the underharvest occurs, provided the overall ACL does not exceed ABC.

This option would distribute any unused catch to the sector ACL (i.e., commercial or recreational) where the underharvest occurred. The underharvest would be carried over to that sector in the following year, as long as the overall ACL does not exceed the ABC. The distribution back to the underharvested sector would encourage equity in disbursement and would only have an effect on the sector that did not fully utilize their ACL. Because the overall ACL must remain under the ABC, it is possible that only a portion of the underharvest would be carried over.

For example, if the commercial sector ACL for one management group was fully utilized, and the recreational sector ACL for that same management group was underharvested by 25 mt dw, NOAA Fisheries would redistribute the underharvest back to the recreational sector ACL, as long as the overall ACL does not exceed ABC. Thus, the following fishing season the commercial sector ACL of this management group would be the same as the previous fishing season, while recreational sector ACL would be increased by 25mt dw.

This option is not preferred because there is less confidence in the recreational data compared to the commercial data. Recreational data are estimated and are usually not finalized until 6 months after the end of the calendar year. Therefore, NOAA Fisheries would not know the underharvest carry-over amount until half-way through the following year. Given the low confidence in the data, this approach may not help to fully utilize ACLs. Additionally, if underharvest is a result of a regulatory restriction(s) that prevents full ACL utilization (e.g., as a result of early closures due to quota linkages) or if underharvest occurs consistently in one sector, redistribution of the underharvest to that same sector may not increase opportunities to utilize the ACL.

2.1.16 Management Option D3

Distribute any unused catch across all sectors based on the regulatory proportion of the sector allocation, provided the overall ACL does not exceed ABC.

Under Management Option D3, any unused catch would be carried over and distributed across both the commercial and recreational sectors based on the proportions of the sector ACL distribution specified in the regulations. The unused ACL would be carried forward regardless of which sector the underharvest occurred in, as long as the overall ACL does not exceed the ABC. As with Management Option D2, because the overall ACL must remain under the ABC, it is possible that only a portion of the underharvest will be carried over.

For example, the commercial sector ACL for one management group accounts for 60 percent of the overall ACL, and the recreational sector ACL accounts for 40 percent of the overall ACL. If, after the fishing season, the commercial sector ACL was fully utilized, but the recreational sector ACL was underharvested by 10 mt dw, NOAA Fisheries would distribute the underharvest across both sector ACLs based on the proportions of the sector ACL distribution specified in the regulations. Thus, the following fishing season the commercial sector ACL of this management group would be increased by 6 mt dw (60 percent of 10 mt dw), while recreational sector ACL would be increased by 4 mt dw (40 percent of 10 mt dw).

This option is not preferred because there is less confidence in the recreational data than the commercial data. Recreational data are estimated and are usually not finalized until 6 months after the end of the calendar year. Therefore, NOAA Fisheries would not know the underharvest carry-over amount until half-way through the following year. There is more confidence in commercial data as they are census data, and are updated on a weekly basis. Given these disparities, this approach may not help to fully utilize ACLs. Additionally, if underharvest is a result of a regulatory restriction(s) that prevents full ACL utilization (e.g., as a result of early closures due to quota linkages) or if underharvest occurs consistently in one sector, redistribution of the underharvest to that same sector may not increase opportunities to utilize the ACL.

2.1.17 Management Option D4

Distribute any unused portion of ACLs to the “reserve” sector ACL.

Under this option, if Management Option C3, which includes establishing a “reserve” sector allocation, is also preferred, then any underharvests of the overall ACL would be applied to the reserve allocation in the subsequent year. NOAA Fisheries could then use the available reserve sector ACL to cover any potential overharvests or to increase initial quotas, if needed.

For example, if the commercial sector ACL for one shark management group was underharvested by 25 mt dw, and the recreational sector ACL was underharvested by 20 mt dw, NOAA Fisheries would redistribute the total underharvest of 45 mt dw to the “reserve” sector ACL. In the following fishing season, NOAA Fisheries could transfer the reserve section ACL to any of the management group sectors during the season. As with option D3, the overall ACL would still need to remain below the ABC.

This option is not preferred because the preferred ACL management option does not include a reserve sector. In addition, there is uncertainty with the confidence of the recreational data estimates. It would make the process more difficult to accurately move quota inseason from the “reserve” sector ACL.

2.1.18 Management Option D5

Allow limited carry-over of underharvest to be distributed equally to the different sector ACLs, provided the overall ACL does not exceed the ABC.

Under this option, a limited portion of the unused overall ACL would be carried over on an annual basis and equally distributed to the different sector ACLs. NOAA Fisheries would limit the percentage of carry-over due to uncertainty in reporting, landings, and the biological condition of shark stocks.

For example, the overall ACL (combined commercial and recreational ACLs) for one healthy stock status shark management group with a high certainty with the landings reported is underharvested by 20 percent. Under Management Option D5, NOAA Fisheries could limit that carry-over to 15 percent of the overall ACL and equally distributed to the different sector ACLs. The remaining 5 percent would be held back for any potential management uncertainty. Another example would be where the overall ACL (combined commercial and recreational ACLs) for one shark management group with a high uncertainty with the landings reported has an overfished stock status and is underharvested by 20 percent. This option would limit that carry-over to potentially 5 percent of the overall ACL and equally distributed to the different sector ACLs. The remaining 15 percent would be held back for any potential management uncertainty. As with the other management options, the overall ACL would still need to remain below the ABC.

This option is not preferred because there is less confidence in the recreational data than the commercial data. Recreational data are estimated and are usually not finalized until 6 months after the end of the calendar year. Therefore, NOAA Fisheries would not know the underharvest carry-over amount until half way through the following year. There is more confidence in commercial data as they are census data, and are updated on a weekly basis. Given these disparities, this approach may not help to fully utilize ACLs. Additionally, if underharvest is a result of a regulatory restriction(s) that prevents full ACL utilization (e.g., as a result of early closures due to quota linkages) or if underharvest occurs consistently in one sector, equal distribution of the limited carry-over underharvest may not increase opportunities to utilize the ACL.

2.1.19 Management Option D6—Preferred Management Option

Allow carry-over, and only for underharvests of commercial quotas (landings only) under certain conditions.

Under Management Option D6, the preferred option, only underharvests from the commercial sector would be eligible for carry-over. Any unused quota would be added to the next year's commercial quota for any management group as long as the overall ACL remains below the ABC. Management Option D6 would be different from current regulations since this option would not cap carry-over underharvest to 50 percent of the base commercial quota and would not restrict which shark stocks can receive carry-over. In addition, this management unit also restricts the available underharvests that can be carried over to ensure the ABC is not exceeded.

This management option would allow carry-over for healthy, overfished, and unknown (unassessed) stocks. For overfished stocks, the ABC would be set to reflect the annual catch that is consistent with the schedule of fishing mortality rates in the rebuilding plan. For unknown (unassessed) stocks, NOAA Fisheries in the past established the commercial quota at the historical average landings for that shark management group. As long as the commercial quota is not exceeded, carry-over of the underharvest would be appropriate. Shark stocks that are overfished and experiencing overfishing would not be eligible for any carry-over of underharvests of the commercial quotas.

This management option considers current catch monitoring limitations in HMS fisheries. Specifically, commercial landings are the only portion of the catch that is consistently reported and closely monitored on a frequent basis (weekly) with a high level of certainty across the entire range of the fishery. Estimates of dead discards are typically only compiled and evaluated during a stock assessment and have significantly higher year-to-year variability and associated uncertainty. Allowing carry-over due to an underharvest of dead discards would also not incentivize bycatch avoidance. Recreational harvest estimates are usually not finalized until 6 months after the end of the calendar year and could have high levels of uncertainty. Applying carry-over based on highly variable and/or uncertain estimates of recreational harvest and dead discards could carry a high risk of overages in subsequent years.

While this approach may appear to disadvantage the recreational sector by not allowing carry-over of recreational underharvests, this is not the intent of this option. NOAA Fisheries would like to maintain the current approach to recreational management by allowing shark fishing opportunities year-round without interruption, and by limiting mortality by a combination of bag limits, size limits, and gear restrictions. If recreational ACL underharvests or overharvests occur, NOAA Fisheries could implement management measures to adjust the ACL accordingly, and, if warranted, reconsider the overall allocation between the commercial and recreational sectors following the process outlined in Draft Amendment 12.

This option is preferred because of the high confidence in commercial data, which are census data, and updated on a weekly basis and could provide improved opportunities to utilize available quota. In combination with preferred Management Option C5 (removal or quota linkages), NOAA Fisheries believes the commercial ACL could be fully optimized on an annual basis.

Topic E: Multi-Year Overfishing Status Determination Criteria

The NS1 guidelines state, “[I]n certain circumstances, a Council may utilize a multi-year approach to determine overfishing status based on a period of no more than 3 years. The Council should identify in its FMP or FMP amendment, circumstances when the multi-year approach is appropriate and will be used. Such circumstances may include situations where there is high uncertainty in the estimate of F in the most recent year, cases where stock abundance fluctuations are high and assessments are not timely enough to forecast such changes, or other circumstances where the most recent catch or F data does not reflect the overall status of the stock. The multi-year approach to determine overfishing status may not be used to specify future annual catch limits at levels that do not prevent overfishing” (600.310(e)(3)).

NOAA Fisheries recognizes that the length of time between shark stock assessments is often greater than five years. The NS1 guidelines provide flexibility in overfishing status determinations to allow for a multiyear approach in instances where the length of time between assessments does not provide more timely feedback to evaluate overfishing status annually. Therefore, NOAA Fisheries is exploring management options to incorporate this additional flexibility.

NOAA Fisheries may utilize a multi-year approach to determine overfishing status based on the NS1 guidelines, and identify where the multi-year approach is appropriate. NOAA Fisheries shark stock assessments are not timely enough to reflect changes in stock status based on successful rebuilding plans. Additionally, the shark stock assessment process is not timely enough to accurately reflect status based on catch. NOAA Fisheries knows that the most recent catch levels are the most variable. Therefore, NOAA Fisheries needs the management flexibility to accurately change the stock status based on the current catch levels while utilizing a multiple year approach to reduce the uncertainty from the most recent catch data.

2.1.20 Management Option E1

No Action. Do not allow for multi-year overfishing stock determination criteria; overfishing occurs when $F > MFMT = FMSY$; Stock Status would not change without a stock assessment.

Under this management option, NOAA Fisheries would maintain the current overfishing status determination criteria for shark stocks, which is when F exceeds the maximum fishing mortality threshold ($MFMT = FMSY$). Changes in stock status would not occur without a stock assessment, which means there would be no change in stock status for any period of time between stock assessments.

NOAA Fisheries does not prefer Management Option E1 because most shark species can often go 5 to 10 years between assessments and the status can change more quickly than what is captured by assessments conducted under these timeframes. Given the extended periods of time between stock assessments, it would be beneficial to have the ability to evaluate and, if needed, adjust the stock status based on the most recent values for the status determination criteria to determine the new stock status as with Management Option D3. This would allow for more responsive management of shark stocks.

2.1.21 Management Option E2

Change stock status annually in response to fishing mortality estimates.

Under Management Option E2, NOAA Fisheries would use the results of a completed stock assessment to determine the initial overfishing status, and outside of an assessment year, would make decisions on stock status annually based on catch without the need for a stock assessment. If catch exceeds the OFL annually, then NOAA Fisheries would change the stock status of that species to “overfishing occurring.” Conversely, if the catch is below the OFL annually, then NOAA Fisheries would change the stock status of that species to “no overfishing occurring.” This option would allow NOAA Fisheries to determine if overfishing has ended or if overfishing has begun without the need for a stock assessment. This option would not be used to determine if a stock is overfished.

Many shark stocks are assessed infrequently, which means that overfishing determinations are made infrequently as well. For example, sandbar sharks were assessed 5 years apart in 2011 and 2016 (overfished and not subject to overfishing), and finetooth sharks were assessed in 2007 (not overfished with no overfishing occurring) and there are currently no plans to re-assess (over 13 years to date). This management option would give NOAA Fisheries the ability to evaluate stock status annually to determine if fishing mortality estimates are exceeding the OFL. Evaluating the stock status could reduce the chance of overfishing and minimize management actions needed to end overfishing or rebuild a stock.

NOAA Fisheries does not prefer this management option given the high annual variability of recreational and commercial harvests and bycatch estimates. The most recent estimates of mortality typically have the highest levels of management uncertainty (e.g., late reports, incomplete surveys). Applying an annual approach to determine overfishing stock status may add greater uncertainty into the management process, and result in management decisions that are either not beneficial to the stock or the stakeholders involved. Using such data for annual overfishing determinations could result in high instability in the fishery that might be unwarranted given the lack of accuracy in the data. For these reasons, NOAA Fisheries does not prefer this management option.

2.1.22 Management Option E3—Preferred Management Option

Compare a three-year average of fishing mortality estimates to the OFL to determine overfishing status.

Under Management Option E3, the preferred management option, NOAA Fisheries would use the results of a completed stock assessment to determine the initial overfishing status, and outside of an assessment year, NOAA Fisheries would compare a three-year rolling average of catch to the OFL to determine overfishing status. This management option is the same as option E2 except that it uses a three-year rolling average instead of an annual measurement. As with management option E2, this management option would not be used to determine if a stock is overfished.

Specifically, if the three-year rolling average of catch exceeds the OFL, then NOAA Fisheries would change the stock status of that species to “overfishing occurring.” Conversely, if the three-year rolling average of catch is below the OFL, then NOAA Fisheries would change the stock status of that species to “no overfishing occurring.” This option would allow for a continued rolling average of catch compared to the OFL to determine if changes in management have been effective in ensuring overfishing is not occurring. If management is not effective, this option would allow for actions to be taken to end overfishing without the need to wait for an assessment.

NOAA Fisheries recognizes that the length of time between shark stock assessments is often greater than five years. The provisions in the NS1 guidelines provide more flexibility in changing stock status to more timely reflect the current stock status of the shark species. Due to the high variability in the dead discard and recreational estimate data used to determine fishing mortality, NOAA Fisheries proposes to use a three-year average for this determination. The most recent year of estimates would have the highest levels of uncertainty due to the potential of late reports, incomplete surveys, and unverified data. Many shark species are rarely observed in the commercial and recreational surveys, which could result in large confidence intervals in mortality estimates. Some of the data are not finalized until after the start of the following year and annual estimates of catch and interactions are variable year to year. Using such data for annual estimates could result in large annual adjustments in the fishery that may well be unwarranted given the lack of precision in the data.

NOAA Fisheries prefers this management option since it would allow more flexibility in declaring shark stocks as having overfishing occurring or not occurring compared to the status quo, and would provide a more accurate status of the current stock status when compared to Management Option E2. In addition, this option would allow for more responsive management of shark stocks. The use of a three-year rolling average would also help to minimize the impact of highly variable annual estimates of recreational harvest and commercial bycatch on overfishing determinations, and thus provide more stability to the fishery.

3. Affected Environment

Brief Summary of Atlantic HMS Management

This section provides a brief history of fisheries management with a focus on Atlantic sharks. In 1993, NOAA Fisheries finalized the first FMP for Sharks of the Atlantic Ocean (58 FR 21931; April 26, 1993) (1993 FMP). The 1993 FMP established many of the management measures for Atlantic sharks that are the basis for those in place today, including permitting and reporting requirements, species complexes, commercial quotas, and recreational bag limits. NOAA Fisheries has continued to implement various management measures for Atlantic shark fisheries, including revised quotas, management groups, and a mechanism for establishing ACLs. Some of these measures are discussed in Chapter 1 of this document or in the 2019 Atlantic HMS SAFE report (NOAA Fisheries 2020). Information on the complete HMS management history as it relates to sharks can be found in the 2006 Consolidated Atlantic HMS FMP (NOAA Fisheries 2006) and Amendments 2, 3, 5a, 5b, 6, 9, and 11 to the 2006 Consolidated Atlantic HMS FMP. Detailed descriptions of the relevant FMPS are outlined in Chapter 1 of this document or in the 2019 Atlantic HMS SAFE report (NOAA Fisheries 2020).

Summary of Shark Management and Stock Status

The domestic stock status determination criteria and thresholds used to determine the stock status of Atlantic HMS are presented in Chapter 2 of the 2019 HMS SAFE Report (NOAA Fisheries 2020). Atlantic shark stock assessments for large coastal sharks and small coastal sharks are generally completed by the SEDAR process. All SEDAR reports are available [online](#). ICCAT's SCRS has assessed blue, shortfin mako, and porbeagle sharks. All SCRS final stock assessment reports can be found on the [ICCAT website](#). In some cases, NOAA Fisheries also looks at available resources, including peer reviewed literature, for external assessments that, if deemed appropriate, could be used for

domestic management purposes. NOAA Fisheries followed this process in determining the stock status of scalloped hammerhead sharks based on an assessment for the sharks completed by Hayes et al. (2009). Information on the stock status for Atlantic Shark species can be found in Chapter 2 of the 2019 HMS SAFE Report.

Shark Biology and Habitat

Sharks belong to the class Chondrichthyes (cartilaginous fishes), which also includes rays, skates, and deep water chimaeras (ratfishes). From an evolutionary perspective, sharks are an old group of fishes characterized by skeletons lacking true bones. The earliest known sharks were identified from fossils from the Devonian period, over 400 million years ago. These primitive sharks were small creatures, about 60 to 100 cm long, that were preyed upon by larger armored fishes that dominated the seas.

Shark species have highly variable life history characteristics and reproductive potential. These differences may have major effects on the management of these species and the levels at which sustainable yield can be achieved. NOAA Fisheries has considered this information in establishing reference points and management groups in previous amendments and rulemakings. Detailed information regarding the biology and reproductive potential of shark species managed by NOAA Fisheries is available in the 2006 Consolidated Atlantic HMS FMP (71 FR 58057; November 1, 2006).

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

Table 3.1 Common Names of Shark Species Included within the Five Species Complexes

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

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

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

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

^Listed under the Convention on International Trade in Endangered Species (CITES) Appendix II.

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

Shark Fisheries Data

NOAA Fisheries monitors commercial landings of Atlantic sharks through electronically submitted dealer reports. Summary information of shark landings 2014 through 2018 are provided below and discussed in detail in the 2019 SAFE report (Tables 5.9 – 5.16). Over this period, the highest commercial landings of LCS in the Atlantic region were from 2015 with a total landings of 281 metric tons, dressed weight (mt dw), primarily due to high landings in the hammerhead shark complex and the sandbar shark research fishery. The lowest commercial landings for the time period occurred in 2018 with a total landings of 142 mt dw. Landings are variable over the time period and between the different LCS management groups with average annual landings of 214.7 mt dw.

In the Gulf of Mexico region, the highest commercial landings of LCS sharks occurred in 2018 with a total landings of 600 mt dw, primarily due to high landings of blacktip sharks. The lowest commercial landings for this time period occurred in 2015 with a total commercial LCS landings of 300 mt dw. Average annual commercial LCS landings over this period were 437.4 mt dw.

In the Atlantic region, over this period, the highest commercial landings of SCS were from 2015 with a total of 160 mt dw landed, primarily of Atlantic sharpnose sharks. The lowest commercial landings over this period occurred in 2016 (95 mt dw for all SCS combined) when the blacknose shark fishery closed earlier in the season. The average annual commercial landings of SCS from 2014-2018 were 129.6 mt dw.

In the Gulf of Mexico, commercial landings of SCS over this period had the highest landings in 2015 with 91 mt dw landed, primarily of Atlantic sharpnose sharks. The lowest landings occurred in 2017 with 65 mt dw landed for all small coastal sharks combined. The average annual commercial landings from 2014-2018 of SCS were 74.2 mt dw.

Commercial landings of smoothhound sharks in the Atlantic and Gulf of Mexico combined between 2016 and 2018 averaged 369 mt dw with the highest landings occurring in 2018 with 412 mt dw landed. The lowest landings occurred in 2016 with 318 mt dw landed.

Pelagic sharks are harvested commercially both in the Gulf of Mexico and Atlantic regions. The highest commercial landings from 2014 to 2018 were in 2014 with 163 mt dw landed, primarily from shortfin mako. The lowest commercial landings occurred in 2018 with 55 mt dw landed, primarily due to a reduction in shortfin mako landings. Average commercial landings were 107.8 mt dw for 2014-2018.

Economic and Social Environment

In 2017, 9.9 billion pounds, valued at \$5.4 billion, were landed for all fish species by U.S. fishermen at U.S. ports. That represents a 2.1 percent increase over the 9.6 billion pounds, valued at \$5.3 billion that were landed for all fish species by U.S. fishermen at U.S. ports in 2016. The total value of commercial HMS landings in 2018 was \$33.3 million (2019 SAFE Report). Revenues of HMS fisheries are further discussed in the 2019 Atlantic HMS SAFE report (NOAA Fisheries 2020). This report includes information related to the revenue breakdown by gear type and gives specific information on the ex-vessel prices for the landed Atlantic HMS.

4. Fishery Impact Statement

For FMPs and plan amendments, Magnuson-Stevens Act requires a FIS, which assesses, specifies, and describes the likely effects of conservation and management measures on participants in the fishery or fisheries being managed, fishing communities, and participants in neighboring fisheries.

The information contained in this document, taken together with the data and analysis incorporated by reference, comprise the complete FIS.

Specifically, Section 303(a)(9) of the Magnuson Stevens Act requires NOAA Fisheries to include a FIS for plans or amendments (in the case of a plan or amendment there to submitted to or prepared by the Secretary after October 1, 1990), 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.
- The safety of human life at sea, including whether and to what extent such measures may affect the safety of participants in the fishery.

This chapter describes the fishery impacts as required by the Magnuson-Stevens Act.

Description of Management Objectives

The objectives of this action is to incorporate additional flexibility into an updated framework for Atlantic fisheries, with modifications to the ABC control rule and ACL provisions, and with options regarding status determination criteria, carryover, and phase-in of changes in acceptable catch levels, consistent with NS1 and the NS1 Guidelines. The revisions address a range of issues, including providing guidance on phasing in changes to catch limits and carrying over unused quota from one year to the next (81 FR 71858; October 18, 2016).

Economic Analysis of Expected Effects of the Proposed Action Relative to the Baseline

The social and economic impacts from all the management options considered in this action, relative to the status quo, are expected to be neutral as none of them would require regulatory changes to the shark fishery at this time, or significantly change administrative costs to the agency. Draft Amendment 14 proposes changes to the shark management framework established in Amendment 3 to consider adopting some of the provisions in the revised NS1 guidelines. These provisions allow for more flexibility in management measures to meet certain NS1 obligations while accounting for uncertainty and improving stability within the fishery. Draft Amendment 14 does not propose actually applying the revised framework to any of the shark stocks or stock complexes. Proposed application of the revised framework to specific shark fisheries would take place in subsequent rulemakings, with appropriate environmental impacts analysis and an opportunity for public comment.

There are potential benefits associated with this action relative to the no-action management option. The management options being considered would establish greater transparency and

flexibility in the management of Atlantic shark fisheries that could provide greater stability to the commercial and recreational shark fisheries in the long term.

Conclusion

This action will not have an impact, direct or indirect, on the fishery, participants, safety at sea or other fisheries. This action is not implementing regulations, modifying regulations or directly changing management. Any future actions implemented applying the management approaches implemented through Amendment 14 will be analyzed at the time they are proposed.

5. Applicable Law

Magnuson-Stevens Fishery Conservation and Management Act

Any FMP and any implementing regulations must be consistent with 10 national standards contained in the Magnuson-Stevens Act (Sec. 301). This section describes how the preferred management options for Draft Amendment 14 are consistent with the national standards.

5.1.1 Consistency with National Standards

5.1.1.1 National Standard 1

NS1 requires that conservation and management measures prevent overfishing while achieving, on a continuing basis, optimum yield from each fishery. Draft Amendment 14 proposes changes to the shark management framework established in Amendment 3 to consider adopting some of the provisions in the revised NS1 guidelines. These provisions allow for more flexibility in management measures, while accounting for uncertainty and improving stability within the fishery. Draft Amendment 14 does not propose actually applying the revised framework to any of the shark stocks or stock complexes. Proposed application of the revised framework to specific shark fisheries would take place in subsequent FMP amendments and/or rulemakings, with appropriate environmental impacts analyses and opportunities for public comment.

As summarized in other chapters, over the years, NOAA Fisheries has undertaken numerous management actions, including the 2006 Consolidated Atlantic HMS FMP (NOAA Fisheries 2006), Amendment 2 (NOAA Fisheries 2008), Amendment 3 (NOAA Fisheries 2010), Amendment 5a (NOAA Fisheries 2013), Amendment 6 (NOAA Fisheries 2015), and Amendment 5b (NOAA Fisheries 2017b), to address overfishing and to rebuild shark stocks. The preferred management options in this document build upon ongoing management efforts to rebuild, manage, and conserve target species in accordance with NS1, the NS1 guidelines, and other Magnuson-Stevens Act requirements.

5.1.1.2 National Standard 2

Consistent with NS2, NOAA Fisheries developed the preferred management options in this document to fully utilize the best scientific information available. Under the preferred management

options, NOAA Fisheries would improve flexibility in overfishing status determinations to allow for a multiyear approach in instances where the length of time between assessments does not provide more timely feedback to evaluate overfishing status based on current fishing levels. As noted above, Amendment 14 would establish a framework for use in future actions. For any such actions, NOAA Fisheries would also use the best scientific information available in developing management options.

5.1.1.3 National Standard 3

NS3 requires that, to the extent practicable, an individual stock of fish be managed as a unit throughout its range and interrelated stocks of fish be managed as a unit or in close coordination. Consistent with the approach set forth in the 2006 Consolidated HMS FMP (and its amendments), Draft Amendment 14 would also apply to managed Atlantic shark stocks throughout their range within the U.S. Exclusive Economic Zone (EEZ) and in state waters as a condition of Federal HMS fishing permits, unless the state has more restrictive measures.

5.1.1.4 National Standard 4

NS4 requires that conservation and management measures do not discriminate between residents of different states. Furthermore, if it becomes necessary to allocate or assign fishing privileges among various U.S. fishermen, such allocation should be fair and equitable to all fishermen; be reasonably calculated to promote conservation; and should be carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges. The preferred management options in this document are consistent with NS4, as they would apply across the entire Atlantic, Gulf of Mexico, and Caribbean U.S. EEZ. The preferred management options do not allocate or assign fishing privileges, or modify current allocations of fishing privileges. The 2006 Consolidated HMS FMP (and its amendments) and implementing regulations address consistency of existing allocations and other conservation and management measures with NS4.

5.1.1.5 National Standard 5

NS5 requires that conservation and management measures should, where practicable, consider efficiency in the utilization of fishery resources with the exception that no such measure shall have economic allocation as its sole purpose. The preferred management measures should improve the utilization of the fishery resources by ensuring there is greater flexibility to achieve optimum yield. None of the preferred management measures has economic allocation as its sole purpose. The 2006 Consolidated HMS FMP (and its amendments) and implementing regulations address consistency of existing conservation and management measures with NS5.

5.1.1.6 National Standard 6

NS6 states that conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches. Consistent with NS6, the preferred management measures provide the flexibility to consider the differences in fisheries (commercial and recreational), fishery resources, and variability of catches over time. The resulting framework in Draft Amendment 14 should allow future ABCs, ACLs, phase-in ABC provisions, carry-over provisions, and multi-year overfishing designations to account for and address these differences as appropriate. The 2006 Consolidated HMS FMP (and its amendments) and implementing regulations address consistency of existing conservation and management measures with NS6.

5.1.1.7 National Standard 7

NS7 states that conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication. The focus of Draft Amendment 14 is to propose changes to the shark management framework based upon the 2016 revised NS1 guidelines. Thus, there are no costs or duplication to address here. The 2006 Consolidated HMS FMP (and its amendments) and implementing regulations address minimizing costs and avoiding duplication in the fishery's existing conservation and management measures.

5.1.1.8 National Standard 8

NS8 states that conservation and management measures shall, consistent with the conservation requirements of the Magnuson-Stevens Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to provide for the sustained participation of such communities, and to the extent practicable, minimize adverse economic impacts on such communities. Taking into account fishing communities, Draft Amendment 14 is intended to provide flexibility in addressing NS1 requirements, consistent with the NS1 guidelines. This action would not have economic impacts on communities, because it is establishing a framework for future regulatory actions. The 2006 Consolidated HMS FMP (and its amendments) and implementing regulations address consistency of existing conservation and management measures with NS8.

5.1.1.9 National Standard 9

NS9 states that conservation and management measures shall, to the extent practicable, minimize bycatch, and to the extent that bycatch cannot be avoided, minimize the mortality of such bycatch. Draft Amendment 14 proposes changes to the shark management framework for use in subsequent FMP amendments and/or rulemakings. Thus, it would not have impacts on bycatch or bycatch mortality. The 2006 Consolidated HMS FMP (and its amendments) and implementing regulations address consistency of existing conservation and management measures with NS9.

5.1.1.10 National Standard 10

NS10 states that conservation and management measures shall, to the extent practicable, promote the safety of human life at sea. Draft Amendment 14 proposes changes to the shark management framework for use in subsequent FMP amendments and/or rulemakings. Thus, it would not have impacts on safety at sea. The 2006 Consolidated HMS FMP (and its amendments) and implementing regulations address consistency of existing conservation and management measures with NS10.

5.1.2 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). The summary of the requirements of Section 304(g) and an explanation of how NOAA Fisheries is consistent with these requirements are below. Draft Amendment 14 sets out the procedure NOAA Fisheries will follow for establishing ABCs and ACLs in future rulemakings. No quotas or other management measures would actually be changed or affected. The preferred management options are described in more detail in Chapter 2.0 of the document.

Table 5.1 Requirements to Implement Fishery Management Plan Amendments and Related Actions by NOAA Fisheries

Requirement	Actions Taken
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 this amendment and conducted scoping on relevant issues (84 FR 23014). The comment period for scoping closed on July 31, 2019. Draft Amendment 14 is the next step in the FMP amendment process. Written comments received on the issues and options paper, during the scoping meetings, and at HMS Advisory Panel meetings were considered when preparing this amendment. During the public comment period, NOAA Fisheries conducted four public hearings and one public webinar, consulted with the New England Fishery Management Council, and the South Atlantic Fishery Management Council
Establish an advisory panel for each FMP.	As part of the 2006 Consolidated Atlantic HMS FMP, NOAA Fisheries combined the Atlantic Billfish and HMS Advisory Panels into one. The combined 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. This amendment would not change the HMS Advisory Panel, and discussed the relevant subjects at the September 2019 meeting, including extensive discussion of the preferred management options, as outlined in the Amendment 14 Scoping document.

Requirement	Actions Taken
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 no impacts expected on U.S. fishermen. The preferred management options in this document are necessary to evaluate and incorporate additional tools to better manage shark stocks through the use of phase-in and carry-over provisions, multiyear overfishing designations, and the modification of current ABC control rules, which in the long-term 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.	No measures are being proposed as part of this action with regard to harvest of allocation, quota, or fishing mortality levels. Draft Amendment 14 is developing a framework to implement management measures in subsequent rulemakings to be consistent with the NS1 guidelines, and considers changes to ABC control rule, phase-in ABC provisions, carry over provisions, and multiyear overfishing designations.
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. Draft Amendment 14 to the 2006 Consolidated Atlantic HMS FMP is the culmination of one of those reviews.
Diligently pursue, through international entities, comparable international fishery management measures with respect to HMS.	Draft Amendment 14 is developing a framework to implement management measures in subsequent rulemakings to be consistent with the NS1 guidelines, and considers changes to ABC control rule, phase-in ABC provisions, carry over provisions, and multiyear overfishing designations. For internationally managed stocks that establish a TAC, the TAC would be adopted and implemented as appropriate.

Requirement	Actions Taken
<p>Ensure that conservation and management measures under this subsection:</p> <ol style="list-style-type: none"> 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 	<p>The goal of Draft Amendment 14 is to modify the current framework for determining and implementing ABCs and ACLs for domestic shark species. Therefore, it is only relevant to domestic shark stocks. In addition, no management measures are proposed as part of this action, and these requirements are not applicable for this action.</p>

ABC = Acceptable biological catch. TAC = Total allowable catch. ACL = Annual catch limits. NS1 = National Standard 1. ICCAT = International Commission for the Conservation of Atlantic Tunas.

Paperwork Reduction Act

There are no new collection of information requirements in the action pursuant to the Paperwork Reduction Act.

Coastal Zone Management Act

NOAA Fisheries has determined that this action will not affect the coastal zone of any state beyond that previously analyzed in the consistency determinations for Amendments 2, 5a, 6, and 9 sent to the states following publication of the applicable rules. Consequently, no additional consistency consultation is required.

NOAA Fisheries previously determined that the final rule to implement Amendment 2 to the 2006 Consolidated HMS FMP (73 FR 35778, June 24, 2008; corrected on 73 FR 40658; July 15, 2008), the final rule to implement Amendment 5a to the 2006 Consolidated HMS FMP (78 FR 40318; July 3, 2013), the final rule to implement Amendment 6 to the 2006 Consolidated HMS FMP (80 FR 50073; August 18, 2015), and the final rule to implement Amendment 9 to the 2006 Consolidated HMS FMP (80 FR 73128; November 24, 2015) are consistent to the maximum extent practicable with the enforceable policies of the approved coastal management program of coastal states on the Atlantic including the Gulf of Mexico and the Caribbean Sea. Pursuant to 15 CFR 930.41(a), NOAA Fisheries provided the Coastal Zone Management Program of each coastal state a 60-day period to review the consistency determination and to advise the Agency of their concurrence. NOAA Fisheries received concurrence with the consistency determinations from several states and inferred consistency from those states that did not respond within the 60-day time period.

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 management options may cause disproportionately high and adverse human health or environmental effects on these populations.

Community profile information are available in the 2006 Consolidated Atlantic HMS FMP (Chapter 9), a report by MRAG Americas, and Jepson (2008) titled “Updated Profiles for HMS Dependent Fishing Communities” (Appendix E of Amendment 2 to the 2006 Consolidated Atlantic HMS FMP), and in the 2015 HMS SAFE Report. The MRAG report updated community profiles presented in the 2006 Consolidated 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 (NOAA Fisheries 2011 and NOAA Fisheries 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 management options have no ecological and economic impacts and provide for the sustained participation of fishing communities. The preferred management options 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. Since the Draft Amendment 14 framework would not implement measures with effects, it would not individually or cumulatively have a significant effect on the human environment and is appropriately categorically excluded from further NEPA analysis. Thus, neither an environmental assessment nor an EIS is required.

6. List of Preparers

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

- Randy Blankinship, Division Chief
- Karyl Brewster-Geisz, Branch Chief
- Heather Baertlein, Data Management Specialist
- Peter Cooper, Branch Chief
- Tobey Curtis, Fishery Management Specialist
- Guy DuBeck, Fishery Management Specialist
- Clifford Hutt, Fishery Management Specialist
- Lauren Latchford, Fishery Management Specialist
- Brad McHale, Branch Chief
- Ian Miller, Fishery Management Specialist
- Larry Redd, Fishery Management Specialist
- Noah Silverman, Acting Branch Chief
- Jackie Wilson, Fishery Management Specialist

The development of this document also involved considerable input from other staff members and Offices throughout NOAA including, but not limited to:

- Other Divisions within the Office of Sustainable Fisheries
- NOAA Fisheries Southeast Fisheries Science Center
- NOAA Fisheries Northeast Fisheries Science Center
- NOAA Office of General Counsel
- NOAA Fisheries NEPA

List of Agencies, Organizations, and Persons Consulted

Under 304(g)(1)(A) of the Magnuson-Stevens 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. Specifically, the HMS Advisory Panel was consulted during the scoping stage and plan to consult during the proposed amendment stage of this action. Hard copies will be provided to anyone who requests copies.

During the scoping phase, NOAA Fisheries conducted four scoping meetings, and presented to the New England, Mid-Atlantic, and South Atlantic Fishery Management Councils and the Atlantic States Marine Fisheries Commission. During this time, the agency received five written comments (Table 6.1) and a variety of verbal comments on options. All comments received during the scoping phase are in Appendix 1.

Table 6.1 Individuals that submitted written public comments on scoping for Amendment 14

Name	Affiliation
Andrea Treece	Earthjustice
Mariah Pflieger	Oceana
Marty Scanlon	Blue Water Fishermen’s Association
Rusty Hudson	Directed Sustainable Fisheries, Inc
Thomas Chapman	U.S. Fish and Wildlife Service

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NOAA Fisheries. 2016. Final Amendment 9 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.

NOAA Fisheries. 2017a. Final Amendment 10 to the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks, and Highly Migratory. 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.

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NOAA Fisheries. 2020. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2019. Silver Spring MD: U.S. Department of Commerce, National Marine Fisheries Service. 253 pp.

SAFMC. 2020. Regulatory Amendment 29 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. SAMFC, North Charleston, SC. Public Document.

Appendix 1. Comments Received During Scoping

This section provides a summary of the comments received during scoping. The written comments received can all be found on [Regulations.gov](https://www.regulations.gov).

1. Overall Comments on this Rulemaking

- Due to the seasonality of recreational fishing, a three-year running average would be useful.
- Exceptions are needed for international stocks. ICCAT does not currently manage sharks; they have recommendations, but do not manage.
- In order to improve overall management and support new management measures, NOAA Fisheries should examine means for improving fishery independent data collection, strengthening observer and reporting requirements, and ensuring that all observer, logbook, and other available data are used to calculate estimates of each shark population as well as estimates of fishing mortality, directed catch, and bycatch for each shark species.
- NOAA Fisheries should examine ways to better account for the age structure of shark populations in management measures, which can affect factors like size and fecundity.
- NOAA Fisheries should examine options for regularly evaluating shark population levels, particularly when stock assessments are not available, and regularly updating stock status determinations.
- Where the status of a stock is unknown, NOAA Fisheries should manage the stock under the assumption that it is vulnerable and may be overfished in order to ensure that it is complying with National Standard 1.
- NOAA Fisheries should review and update prohibited list of sharks.
- Commercial shark trip limits, and catch rates are set low due to some poor assessment results, plus the decades of various “precautionary” buffers in the modeling, and/or no assessments at all for many individual shark species since the HMS Management Division became involved in the SEDAR process in 2005.
- Currently, not many commercial shark fishermen are able to make a viable living under the regulations implemented by NOAA Fisheries, and especially since the 2008, though some rules did make data collection more accurate. Other rule, like the one that implemented linkages, have caused catch and landing issues time and again leaving uncaught allocations for other sharks, and closures, and/or trip limit reductions, and resulting in hurting the commercial fishing markets.
- NOAA Fisheries needs to find solutions to opening limited ACLs for prohibited shark species to gather data for future stock assessments.
- We are concerned with how NOAA Fisheries, ICCAT, and CITES shark issues have increased management efforts over the years domestically, and internationally as with some large coastal shark species, scalloped hammerhead sharks and shortfin mako sharks, etc.
- The U.S. shark fishing commerce will be compromised by unreliable rules if the rest of the nations involved in the short term fail with their efforts at protecting available shark resources, and our nation’s utilization of the same species based on straddling stocks of sharks due to migration habits.
- Transparency at all phases of the science and management is paramount for positive results in the future here and abroad. Success is measured collectively, not individually with highly migratory shark species when countries share the same stocks in their EEZ, and/or on the high seas.

2. Comments Regarding ABC Control Rule Options (Topic A)

- Support for tiered approach option that accounts for the level of uncertainty in data for a given stock and its vulnerability to overfishing and/or rebuilding requirements.
- Support for a peer reviewed process option.
- NOAA Fisheries needs to clarify how a peer review process would work.
- Support for creating a SSC for sharks, which will ensure that the actions taken on behalf of the agency are based on the best available science, rather than the power or influence of any given stakeholder.
- The ABC control rule should be flexible enough to adjust for different regions in fishery.
- The current management system carries a significant risk of overfishing because it does not have any scientific uncertainty buffer between the OFL, ABC, and ACL.
- A precautionary ABC that fully accounts for uncertainty in estimating the OFL is critical to ensure both that the OFL is not exceeded and the OFL, ABC, and ACL actually prevent overfishing.
- Support for a tiered ABC control rule that accounts for data certainty and availability and builds in more precaution for data-poor species.
- In developing a tiered ABC control rules, NOAA Fisheries should require at least a 70 percent probability of achieving rebuilding targets for all species in the fishery.
- Peer review is a part of the function of stock assessments. For unassessed species, as part of control rule and able to get an ABC from that committee similar to a SSC. Independent and external scientists that give us advice from the scientific perspective.

3. Comments Regarding Phase-In Options (Topic B)

- Support for a three-year approach for increasing and decreasing the ACLs
- NOAA Fisheries should fully consider potential impacts with different stock statuses including variations of overfished, overfishing, and rebuilding.
- Phasing-in necessary decreases in ABC could increase the risk of overfishing, particularly in situations with highly uncertain catch information or infrequent assessment updates.
- The three-year phase-ins would weaken the necessary response to new data on shark population health by extending the timeline for setting sustainable catch levels based on new scientific information.
- The Magnuson-Stevens Act does not permit NOAA Fisheries to increase the risk of overfishing in order to provide more stability to fishing participants.
- Delaying necessary reductions in ABC is particularly risky in fisheries where ACLs are set equal to ABCs or in situations where an ABC phase-in would result in a reduced buffer (or no buffer at all) between the OFL and ABC.
- Phase-in of needed reductions could also undermine the recovery of stocks that are overfished or at risk of becoming overfished.
- Phasing in a new ABC for a stock that is overfished or experiencing overfishing is plainly contrary to the Magnuson-Stevens Act requirement to end overfishing immediately and rebuild the stock in the shortest time possible.
- NOAA Fisheries should eliminate any consideration of using a phase-in ABC control, especially for stocks that are overfished, experiencing overfishing, or approaching either status.

4. Comments Regarding ACL Options (Topic C)

- Support for species-specific ACLs with no linkages.
- Support for grouping species.
- Support for creating different groups of species (e.g., GOM blacktip, bull, and spinner group) based on catch composition, likelihood of correct identification, and areas caught.

- NOAA Fisheries should focus on options for ACL development that fully account for management uncertainty, actively manage all sector ACLs, and effectively limit both directed fishing and bycatch for all shark species.
- Support for sector-specific ACLs for shark species that would be used to actively open and close each sector, which would facilitate more responsive management and greater accountability than the current ACL mechanism.
- NOAA Fisheries should strengthen reporting and data collection mechanisms to improve estimates of fishing mortality in the recreational sector, as well as estimates of bycatch mortality in all sectors.
- NOAA Fisheries should establish precautionary, science-based, and enforceable limits on the recreational fishery. Such a step is essential to prevent or end overfishing and protect these vulnerable populations.
- A species-specific ACL might not prevent bycatch of the same species in other fisheries.
- Any ACLs need to fully address and limit shark mortality from both intentional catch and bycatch (including discards).
- NOAA Fisheries should examine ways to improve and coordinate bycatch data collection across fisheries to gain more complete data on shark bycatch, and ways to incorporate that data into ACLs or bycatch caps in all fisheries that catch sharks.
- The discard ACLs must be enforced with effective accountability measures that both address overages and correct management issues that led to any overages.
- NOAA Fisheries must establish a substantial buffer between the relevant ABC and ACL to account for considerable uncertainty in management of these species including time lags in catch reporting, bycatch in other fisheries, and data analysis.
- NOAA Fisheries should ban fishing for or landings of all stocks that do not have valid species-specific stock assessments

5. Comments Regarding Carry-Over Options (Topic D)

- Support for distribution of unused ACL from underharvest option.
- Concern about quota linkage impacts and real-time recreational ACL carry-over.
- Allow underharvest carry-over only for closed fisheries due to linkages (Aggregated LCS, Hammerhead, and blacktip shark closure) or weather impacts.
- NOAA Fisheries should reject further consideration of using a carry-over ABC control rule. To the extent NOAA Fisheries considers carrying over uncaught ACL, it must require a significant buffer between the ACL and ABC to account for the considerable management uncertainty in the shark fisheries, and rigorous analysis to ensure that such an approach will consistently prevent overfishing.
- No carry-over should be allowed for stocks that are overfished, experiencing overfishing, approaching an overfished or overfishing status, or in an unknown status.
- Before any proposed carry-over, NOAA Fisheries review should examine key inputs such as recruitment, biomass, and fishing mortality rate, and an analysis of whether an underage in landings occurred because of a lack of effort or because there are fewer fish available than predicted.
- In addition to scientific uncertainty, management uncertainty must also be considered before allowing the ACL to be revised.
- The use of carry-overs of unused catch from one year to the next should be avoided unless an effective catch monitoring program is in place, strong accountability measures exist, and the fishery's management and scientific uncertainty is very low.
- Allowing the carry-over of any amount of unused ACL in instances with significant scientific and management uncertainty, and without understanding the reason for the underage, greatly increases the risk of overfishing and should be avoided, particularly for populations at low levels.

- In order to ensure that any ACL carry-over would not risk overfishing, NOAA Fisheries would need to implement a buffer between the ACL and ABC that fully accounts for management uncertainty—e.g., delays in receiving and analyzing catch data and detecting when ACL is being approached, as well as delays in responding to catch information.
- Should NOAA Fisheries further consider ACL carry-over options, it must ensure that any stock subject to carry-over of uncaught ACL also receives full payback of any ACL exceedances.
- ACLs must fully account for all fishing-related mortality, including bycatch mortality and discards, before NOAA Fisheries considers any carry-over of “unused” ACL.
- Carryover of uncaught allocation to the following year usually depends on the stock status of the target species, and will be limited to not exceeding either the OFL, or ABC, and sector ACLs in total (carryover 25 to 50 percent of uncaught sharks could be useful).

6. Comments Regarding Multi-Year Overfishing Status Determination Criteria Options (Topic E)

- Support for using fishing estimates for stock determination criteria option with a three-year average.
- Suggest using different types of averages due to data variability, particularly in the recreational fishery.
- Need to provide more clarification for the percent standard error meta-analysis.
- NOAA Fisheries should not consider multi-year overfishing status determination criteria since it could hide the fact that overfishing is occurring with an average over years and not show a trend that is occurring with the fishing now. For instance, the last two years of an assessment could show overfishing is occurring, but averaging these with the initial year of the assessment could result in a determination that overfishing is not occurring. The last two years could indicate a trend that would go unaddressed, possibly until the next assessment (which, for many fisheries, would not occur until three years later).
- Since most shark species have long life cycles, it may be difficult to connect individual years of overfishing to measurable jeopardy in achieving maximum sustainable yield on a long-term continuing basis.
- NOAA Fisheries should consider using fishing mortality estimates to determine stock status on an annual basis since many shark species do not get regular stock assessments. Fishing mortality estimates to update stock status in the meantime could facilitate more responsive management and more timely action to prevent or end overfishing.
- Reject any alternative that would increase rebuilding timeframes or that may increase the probability of overfishing a stock.
- Three-year cycles can be useful to judge OFL and/or ABC average landings, and could prove more useful than annual cycles, particularly for the recreational sector.