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## 1.0 INTRODUCTION

Atlantic Highly Migratory Species (HMS)<sup>1</sup> are managed under the dual authority of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) and the Atlantic Tunas Convention Act (ATCA). Under the Magnuson-Stevens Act, the National Marine Fisheries Service (NMFS) must, consistent with the National Standards, manage fisheries to maintain optimum yield (OY) by rebuilding overfished fisheries and preventing overfishing. Under ATCA, NMFS is authorized to promulgate regulations, as may be necessary and appropriate, to implement the recommendations from the International Commission for the Conservation of Atlantic Tunas (ICCAT). The management measures proposed for this FMP amendment and associated rulemaking, which primarily address Atlantic shark issues, are taken under the authority of the Magnuson-Stevens Act. In addition to these two laws, any management measures must also be consistent with other applicable laws including, but not limited to, the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the Coastal Zone Management Act (CZMA).

Chapters 2 and 4 of this document provide a description of the alternatives considered and the analyses of the potential impacts. Chapter 3 provides a description of the fishery and Chapter 5 discusses any mitigating measures regarding the alternatives. Chapters 6, 7, and 8 fully analyze the economic impacts of the alternatives and address the requirements of a Regulatory Impact Review (RIR) and Final Regulatory Flexibility Analysis (FRFA). Chapter 9 provides the community profiles and social impact analysis. Chapter 10 describes consistency with the National Standards, other requirements of the Magnuson-Stevens Act, and other applicable law. There are also several appendices, which explain quotas and retention limits under the DEIS and FEIS, a technical response to a comment submitted on the latest large coastal shark stock assessment, additional analyses based on public comment, responses to public comments received on the DEIS and proposed rule, and an HMS Fishing Communities Final Report.

NMFS is implementing management measures via rulemaking that would reduce fishing mortality and effort for the purpose of rebuilding overfished Atlantic shark species while ensuring that a limited shark fishery can be maintained.

### 1.1 Brief Management History

This section provides a brief overview of HMS management. More detail regarding the management history of Atlantic shark management can be found in Section 3.1.

In the 1980s, the Regional Fishery Management Councils were responsible for the management of Atlantic HMS. Thus, in 1985 and 1988, the five Councils finalized joint FMPs for swordfish and billfish, respectively. In 1989, the Councils requested that the Secretary of

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<sup>1</sup>The Magnuson-Stevens Act, at 16 U.S.C. 1802(14), defines the term “highly migratory species” as tuna species, marlin (*Tetrapturus* spp. and *Makaira* spp.), oceanic sharks, sailfishes (*Istiophorus* spp.), and swordfish (*Xiphias gladius*). Further, the Magnuson-Stevens Act, at 16 U.S.C. 1802(27), defines the term “tuna species” as albacore tuna (*Thunnus alalunga*), bigeye tuna (*Thunnus obesus*), bluefin tuna (*Thunnus thynnus*), skipjack tuna (*Katsuwonus pelamis*), and yellowfin tuna (*Thunnus albacares*).

Commerce (Secretary) manage Atlantic sharks. NMFS finalized a shark FMP in 1993. Atlantic Tunas did not have a Fishery Management Plan until 1999.

On November 28, 1990, the President of the United States signed into law the Fishery Conservation Amendments of 1990 (Pub. L. 101-627). This law amended the Magnuson Fishery Conservation and Management Act (later renamed the Magnuson-Stevens Fishery Conservation and Management Act or Magnuson-Stevens Act) and gave the Secretary the authority (effective January 1, 1992) to manage HMS in the exclusive economic zone (EEZ) of the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea under authority of the Magnuson-Stevens Act (16 U.S.C. §1811). This law also transferred from the Fishery Management Councils to the Secretary, effective November 28, 1990, the management authority for HMS in the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea (16 U.S.C. §1854(f)(3)). At this time, the Secretary delegated authority to manage Atlantic HMS to NMFS.

Under the Magnuson-Stevens Act, NMFS must maintain OY of each fishery by preventing overfishing and rebuilding overfished stocks. To do this, NMFS must, among other things, consider the National Standards, including using the best scientific information as well as the potential impacts on residents of different States, efficiency, costs, fishing communities, bycatch, and safety at sea (16 U.S.C. §1851 (a)(1-10)). The Magnuson-Stevens Act also has a specific section that addresses preparing and implementing FMPs for Atlantic HMS (16 U.S.C. §1854 (g)(1)(A-G)). In summary, the section includes, but is not limited to, requirements to:

- Consult with and consider the views of affected Councils, Commissions, and advisory groups;
- Evaluate the likely effects of conservation and management measures on participants and minimize, to the extent practicable, any disadvantage to U.S. fishermen in relation to foreign competitors;
- Provide fishing vessels with a reasonable opportunity to harvest any allocation or quota authorized under an international fishery agreement;
- Diligently pursue comparable international fishery management measures; and,
- Ensure that conservation and management measures promote international conservation of the affected fishery, take into consideration traditional fishing patterns of fishing vessels, are fair and equitable in allocating fishing privileges among U.S. fishermen and do not have economic allocation as the sole purpose, and promote, to the extent practicable, implementation of scientific research programs that include the tagging and release of Atlantic HMS.

## **1.2 Rebuilding and Preventing Overfishing of Atlantic Sharks**

Under National Standard (NS) 1 of the Magnuson-Stevens Act and implementing regulations (50 CFR 600.310), NMFS is required to “prevent overfishing while achieving, on a continuing basis, the OY from each fishery for the U.S. fishing industry.” In order to accomplish this, NMFS must determine the maximum sustainable yield (MSY) and specify status determination criteria to allow a determination of the status of the stock. In cases where the fishery is overfished or where overfishing is occurring, NMFS must take action to rebuild the stock (by specifying rebuilding targets) or take action to prevent overfishing. In the 1999 Fishery Management Plan (FMP) for Atlantic tunas, swordfish, and sharks (HMS) and

maintained in the 2006 Consolidated HMS FMP, NMFS outlined these status determination criteria and a set of rebuilding targets. This amendment does not change these criteria or targets.

On February 14, 2007 (72 FR 7016), NMFS published a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) to develop alternatives for guidance regarding Annual Catch Limits (ACLs) and Accountability Measures (AMs) and other overfishing provisions of the Magnuson-Stevens Act. Both ACLs and AMs are new requirements of the Magnuson-Stevens Reauthorization Act. The intent is to revise the NS1 guidelines consistent with these new requirements through a forthcoming proposed and final rule. Per section 104(b) of the Magnuson-Stevens Reauthorization Act, these ACL and AM requirements would take effect in fishing year 2010, for stocks determined by the Secretary of Commerce to be undergoing overfishing. Stocks not determined to be undergoing overfishing will need ACLs and AMs by 2011. Fish stocks determined to be overfished by the Secretary after July 12, 2009, would need to prepare and implement a FMP, FMP amendment, or proposed regulations within two years. Despite the fact that this FMP amendment will be finalized before the final revised guidelines for NS1 are completed, NMFS has been developing this action bearing in mind the Agency's preliminary and developing interpretations of ACLs and AMs as reflected in the NOI and elsewhere. Thus, NMFS intends for the management measures included for rebuilding overfished sharks and preventing overfishing of sharks to be consistent, as much as possible, with the revised National Standard 1 Guidelines when finalized.

#### *Rebuilding Targets and Status Determination Criteria in the Consolidated HMS FMP*

According to the definition at § 600.310 (d) of the Magnuson-Stevens Act regulations, overfishing occurs whenever a stock or stock complex is subjected to a rate or level of fishing mortality that jeopardizes its capacity to produce MSY on a continuing basis. The 1999 HMS FMP established the maximum fishing mortality threshold (MFMT) as  $F_{MSY}$ .  $F_{MSY}$  is defined as the fishing mortality level necessary to produce MSY on a continuing basis. If the MFMT exceeds  $F_{MSY}$  for more than one year then the stock is considered to be subject to overfishing, and remedial action must be taken. This is the current situation for sandbar and dusky sharks.

The 1999 FMP for Atlantic Tunas, Swordfish, and Sharks (1999 FMP) established the minimum stock size threshold (MSST) as  $(1-M)B_{MSY}$  when natural mortality ( $M$ ) is less than 0.5. Most species of sharks have  $M$  less than 0.5. When the stock falls below MSST, the stock is overfished and remedial action must be taken to rebuild the stock. This is the current situation for sandbar, dusky, and porbeagle sharks.

Stocks are considered rebuilt when current biomass ( $B$ ) levels are equal to  $B_{MSY}$ .  $B_{MSY}$  is the level of stock abundance at which harvesting the resource can be sustained on a continual basis at the level necessary to support MSY. Stocks are considered healthy when  $F$  is less than or equal to  $0.75 F_{MSY}$  and  $B$  is greater than or equal to  $B_{OY}$  (the biomass level necessary to produce OY on a continuing basis). Blacktip sharks in the Gulf of Mexico region are considered healthy; however, the 2005/2006 assessment recommended that catches of blacktip sharks in this region should not increase.

Unlike past assessments, the 2005/2006 LCS stock assessment determined that it is inappropriate to assess the LCS (Large Coastal Sharks) complex as a whole and determined that

status of the complex is unknown. This is due to the variation in life history parameters across species in the complex, different intrinsic rates of increase, and different catch and abundance data for all the species included in the LCS complex. Because of insufficient data available for some individual species within the complex, individual species assessments were not possible with the exception of blacktip and sandbar sharks. Therefore, NMFS is examining alternative options to managing the LCS complex as a whole, which are described in more detail in Chapters 2 and 4. Similarly, the assessment concluded that the status of blacktip sharks in the South Atlantic region is unknown because the assessment was unable to provide estimates of stock status or reliable population projections. As a result, the assessment recommended that current catch levels should not change.

The 1999 FMP established that management measures for Atlantic tunas, swordfish and sharks should have at least a 50-percent chance of reaching the target reference points used in developing rebuilding projections. This target is consistent with the technical guidelines for National Standard 1. The 1997 shark quota rule used a 50-percent probability in order to ensure that the stock levels were maintained and did not decline further while a rebuilding plan was developed (April 7, 1997, 62 FR 16647). However, as described in the 1999 FMP and maintained in the 2006 Consolidated HMS FMP, 50-percent is minimally acceptable for sharks. In both the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks and the 2003 Amendment 1 to that FMP, NMFS used a 70-percent probability to determine the rebuilding plan for the LCS to ensure that the intended results are actually realized.

Compared to other HMS and fish species, many shark species are slow growing, take a long time to mature (*e.g.*, sandbar sharks mature between 12 and 15 years), have few pups per brood, and generally reproduce every two or three years (*e.g.*, the sandbar shark has an average of eight to nine pups every other year). Given these life history traits, many shark species have a low reproductive potential. Moreover, while there is sufficient data for certain shark species facilitating species specific stock assessments (*i.e.*, blacktip and sandbar sharks), many other shark species are not encountered as frequently in commercial fisheries or fishery-independent surveys and data is lacking, resulting in an inability to conduct species specific assessments. Such data constraints make it difficult to manage most sharks on a species basis. However, in this amendment, NMFS has taken a step towards species-specific management by removing sandbar sharks from the LCS complex and defining a new complex as “non-sandbar LCS,” comprised of silky, tiger, blacktip, spinner, bull, lemon, nurse, scalloped hammerhead, great hammerhead, and smooth hammerhead sharks. Given that most sharks have low reproductive potential, are long-lived, and experience slow growth, this amendment to the Consolidated HMS FMP will result in NMFS using a 70-percent chance of success in order to ensure that shark stocks are able to rebuild.

#### *National Standard 1 and Determining the Rebuilding Timeframe*

Under the NS1 Guidelines, if a stock is overfished, NMFS is required to “take remedial action by preparing an FMP, FMP amendment, or proposed regulation...to rebuild the stock or stock complex to the MSY level within an appropriate time frame” (50 CFR 600.310(e)(3)(ii)). Additionally, “in cases where a stock or stock complex is overfished, [the] action must specify a time period for rebuilding the stock or stock complex that satisfies the requirements of section

304(e)(4)(A) of the Magnuson-Stevens Act.” The time frame to rebuild the stock or stock complex must be as short as possible taking into account a number of factors including:

- The status and biology of the stock or stock complex;
- Interactions between the stock or stock complex and other components of the marine ecosystem;
- The needs of the fishing communities;
- Recommendations by international organizations in which the United States participates; and
- Management measures under an international agreement in which the United States participates.

The lower limit of the specified time frame for rebuilding is determined by the status and biology of the stock and “is defined as the amount of time that would be required for rebuilding if fishing mortality were eliminated entirely” (50 CFR 600.310 (e)(4)(ii)(B)(1)).

The National Standard 1 Guidelines specify two strategies for determining the rebuilding time frame depending on the lower limit of the specified time frame for rebuilding. The first strategy (50 CFR 600.310 (e)(4)(ii)(B)(2)) states that:

“[i]f the lower limit is less than 10 years, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities and recommendations by international organizations in which the United States participates, except that no such upward adjustment can result in the specified time period exceeding 10 years, unless management measures under an international agreement in which the United States participates dictate otherwise.”

The second strategy (50 CFR 600.310 (e)(4)(ii)(B)(3)), which is applicable for most species of sharks because the lower limit is generally 10 years or greater, specifies that:

“[i]f the lower limit is 10 years or greater, then the specified time period for rebuilding may be adjusted upward to the extent warranted by the needs of fishing communities...except that no such upward adjustment can exceed the rebuilding period calculated in the absence of fishing mortality, plus one mean generation time or equivalent period based on the species’ life-history characteristics.”

#### *2005/2006 Stock Assessments and Rebuilding Timeframe for Sandbar Sharks*

The 2005/2006 LCS stock assessment conducted assessments for sandbar sharks, blacktip sharks, and the LCS complex. Unlike past assessments, the 2005/2006 LCS complex assessment determined that it is inappropriate to assess the LCS complex as a whole, and the Agency determined that the status of the LCS complex is unknown. Results of the sandbar shark stock assessment determined that sandbar sharks are overfished (Spawning Stock Fecundity<sub>2004</sub> (SSF) / SSF<sub>MSY</sub> = 0.72) and overfishing is occurring ( $F_{2004}/F_{MSY} = 3.72$ ). The assessment recommended a sandbar specific total allowable catch (TAC) level and a corresponding rebuilding timeframe. Because the LCS complex is no longer appropriate for assessment purposes, and specific recommendations were made for sandbar sharks, NMFS is setting a separate rebuilding plan for

sandbar sharks in this amendment. One objective of this amendment is to ensure that fishing mortality levels for sandbar sharks are maintained at or below levels that would result in a 70-percent probability of rebuilding in the timeframe recommended by the assessment.

The base-case model from the 2005/2006 assessment for sandbar sharks provided probable values for future population condition and status. In all cases, OY is the yield from a fishery that will provide the greatest overall benefit to the nation, considering all of the requirements of the Magnuson-Stevens Act National Standards, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems. As such, the TAC recommended by the stock assessment is considered OY. The stock assessment discussed three rebuilding scenarios, including: 1) rebuilding timeframe under no fishing, 2) a TAC corresponding to a 50-percent probability of rebuilding, and 3) a TAC corresponding to a 70-percent probability of rebuilding. Under no fishing, the stock assessment estimated that sandbar sharks would rebuild in 38 years. Adding a generation time (28 years), as described under NS1 for species that require more than 10 years to rebuild even if fishing mortality were eliminated entirely, the target year for rebuilding the stock was estimated to be 2070 (28 years mean generation time + 38 years to rebuild if fishing mortality eliminated = 66 years, starting in 2008). Assuming fishing mortality from 2005 to 2007 would be maintained at levels similar to 2004 (the last year of data used in the stock assessment was from 2004) and that there would be a constant TAC between 2008 and 2070, the assessment estimated that sandbars would have a 70-percent probability of rebuilding by 2070 with a TAC of 220 metric tons (mt) whole weight (ww) (158 mt dressed weight (dw))/year and a 50-percent probability of rebuilding by 2070 with a TAC of 240 mt ww (172 mt dw)/year. As described previously, NMFS is using the 70-percent probability of rebuilding to ensure that the intended results of a management action are actually realized given the life history traits of sandbar sharks.

Measures considered in this amendment include modifying species complexes, reducing commercial quotas, accounting for recreational landings and dead discards, implementing strict retention limits, increasing reporting, and limiting the number of participants authorized to land sandbar sharks. Such measures are necessary to ensure that the rebuilding timeframe is met for sandbar sharks with a 70 percent probability of success. The amendment also includes potential AMs (*e.g.*, adjusting commercial quotas based on overharvests and counting all unclassified sharks against the appropriate shark quotas based on observer reports) that could be used to ensure rebuilding by 2070. Sandbar sharks would be separated from the LCS complex and the quota would be reduced to 116.6 mt dw/year, which would bring the total TAC to 158.3 mt dw (220 mt ww) once other sources of sandbar sharks mortality are accounted for. The actual commercial quota available may fluctuate based on overharvests in the preceding year. At this time, NMFS considers the 220 mt ww to be the ACL required by Magnuson-Stevens Act. Under the preferred alternative, NMFS would close the fishery when reports indicate that 80 percent of the quota has been taken) as a means to decrease the likelihood that quotas are exceeded. In the future, the ACL of 220 mt ww might change depending on previous years' overharvests if any and/or when the final rule is published for new Magnuson-Stevens Reauthorization Act requirements regarding ACLs (per the notice of intent published February 14, 2007, 72 FR 7016).

As initially established in the 1999 FMP, Amendment 2 to the Consolidated HMS FMP would maintain quota adjustment as a management measure to account for overharvests. All alternatives, except Alternative 5 (which would close Atlantic shark fisheries), include a process for harvest-based quota adjustment. Thus, the actual commercial base quota available may fluctuate due to overharvests in the preceding year, resulting in an adjusted quota. To account for the 2007 overharvest while retaining an allowable amount of fishing effort that is consistent with the TAC recommended by the stock assessment to ensure rebuilding, NMFS would close the commercial sandbar shark fishery and establish a small research fishery and distribute the 2007 overharvest over multiple years to allow for the research fishery to start in 2008. A multiyear (5) adjusted quota is also the preferred measure for accounting for 2007 overharvest in the non-sandbar shark LCS fishery as described in Appendix C.

### *2005 Stock Assessment and Rebuilding Timeframe for Dusky Sharks*

Dusky sharks have been a prohibited species since 2000. Prior to that time, they were managed in the LCS complex. The first species-specific stock assessment for dusky sharks was conducted by the Southeast Fisheries Science Center (SEFSC) in 2006 (the SEFSC started the assessment before the decision was made to conduct stock assessments using the Southeast Data Assessment and Review (SEDAR) process; the last year of data used in the assessment was 2003). This stock assessment employed three formal stock assessment methodologies to determine stock status, including: surplus production modeling, age-structured production catch-free modeling, and age-structured production modeling. Within each scenario, baseline scenarios were identified that should be regarded as the most appropriate. All methodologies and scenarios explored (approximately 30 scenarios) indicated that dusky sharks are overfished ( $SSF_{2003}/SSF_{MSY} = 0.15-0.47$ ). Of the scenarios explored, 27 of 30 indicated that dusky sharks are experiencing overfishing ( $F_{2003}/F_{MSY} = 1.68 - 1,180$ ). The SEFSC was not able to determine which scenario was the most appropriate to use for management purposes. Therefore, NMFS is providing the range of SSF and F estimates from the baseline methodologies.

Projections incorporating the status determination criteria were completed with three modeling approaches. Projections to the year 2100 with no fishing mortality indicate that the stock would only have a nine-percent probability of being rebuilt in that timeframe. This means it would take much longer to reach the 70-percent probability success threshold for rebuilding as described earlier. Projections with the age-structured production model (*i.e.*, baseline scenario) predicted that dusky sharks could be rebuilt with a 70-percent probability by the year 2400. Other projections from the three modeling approaches indicate that rebuilding of dusky sharks will take between 100-400 years. NMFS is also assuming that the rebuilding timeframe for dusky sharks would be at least 100 years.

As mentioned earlier, the harvest of dusky sharks has been prohibited since 2000. Despite this fact, they are still overfished with overfishing occurring. NMFS believes this is at least partly due to the fact that they are caught as bycatch, predominantly in longline fisheries. Fishermen are likely to catch dusky sharks when targeting sandbar sharks with bottom longline (BLL) or pelagic longline (PLL) gear. By reducing dusky shark bycatch, NMFS can reduce dusky shark mortality to the extent practicable as required by the Magnuson-Stevens Act. Thus, given the rebuilding timeframe for dusky sharks and their bycatch on BLL gear, the measures preferred in this amendment focus on reducing bycatch of dusky sharks in BLL fisheries. The

preferred measures included would limit the number of vessels that are authorized to land sandbar sharks to reduce dusky shark bycatch. There would also be a finite number of trips that would be taken targeting sandbar sharks as the quota for sandbar sharks would be reduced by approximately 80 percent compared to the previous quota. Once this quota was met, there would be no more targeting or possession of sandbar sharks and other shark species within the shark research fishery. Trips targeting sandbar sharks would also be subject to 100 percent Federal observer coverage, therefore, the Agency would be attaining near real-time information on catch composition from those vessels that are most likely to be catching dusky sharks as bycatch. This would allow the Agency to respond to and implement additional measures if necessary.

Implementing a more restrictive retention limit for non-sandbar LCS (*e.g.*, 33 non-sandbar LCS/vessel/trip for directed permit holders) would also result in reduced fishing effort targeting sharks with BLL gear. NMFS is also preferring measures that would not allow dusky sharks to be collected for public display, limiting the number of dusky sharks authorized for research, not allowing certain species of sharks that look like dusky sharks to be possessed in recreational fisheries, maintaining the mid-Atlantic shark closed area, and implementing additional time/area closures for BLL gear as recommended by the South Atlantic Fishery Management Council in Amendment 14. More information on these time/area closures can be found in Chapters 2 and 4. These measures are all expected to reduce effort and fishing mortality, which will increase the likelihood of rebuilding dusky sharks.

Despite not having a definitive TAC, NMFS does have some measures that could be implemented if catch of dusky sharks in the commercial fishery is higher than expected (*e.g.*, if catches are higher than those estimated in the analyses described in Chapter 4). Under the preferred measures, NMFS would take several measures depending on the situation. In the research fishery, if dusky catch is high by a particular vessel or in a particular region, NMFS could stop that trip or stop all research trips in that region and/or time. Additionally, if after reviewing the data from a particular year, NMFS decides that the catch was too high, NMFS could adjust the research protocols and reduce effort or modify gear requirements, as needed. For the non-research trips, NMFS could either reduce the retention limit in an attempt to reduce effort or work with the appropriate regional Fishery Management Council to reduce bycatch mortality in certain fisheries, or consider other measures, as appropriate.

#### *2005 Stock Assessment and Rebuilding Timeframe for Porbeagle Sharks*

A stock assessment was conducted for North Atlantic porbeagle sharks in 2005 by the Canadian Department of Fisheries and Oceans. This assessment was reviewed by NMFS and determined to be the best available science and appropriate for use in U.S. domestic management. Results indicate that porbeagle sharks are overfished (Spawning Stock Number (SSN)<sub>2004</sub>/SSN<sub>MSY</sub> = 0.15-0.32), however, overfishing is not occurring ( $F_{2004}/F_{MSY} = 0.83$ ). The assessment recommended that there is a 70-percent probability of rebuilding in 100 years if F levels are maintained at or below 0.04 (current F level). As such, NMFS is establishing the rebuilding timeframe to be 100 years.

NMFS had proposed prohibiting porbeagle landings in commercial and recreational fisheries in the draft Amendment 2 to the Consolidated HMS FMP. Commercial landings of porbeagle sharks are well below the 92 mt dw/year quota allocated for this sector as there is no

directed fishing for porbeagle sharks in the United States. Recreational landings generally only occur in a small number of tournaments in the Northeastern United States (NMFS, 2006). Furthermore, the United States does not contribute to a significant proportion of Atlantic-wide fishing mortality of porbeagle sharks, porbeagle sharks are not currently experiencing overfishing, and a prohibition may simply lead to an increase in the number of dead discards of porbeagle sharks. Thus, the Agency prefers to implement a reduced TAC for porbeagle sharks to cap porbeagle mortality at its current level while allowing possession of porbeagle sharks in recreational and commercial fisheries.

The 2005 Canadian porbeagle stock assessment incorporated U.S. commercial landings in their assessment. Based on their assessment, if fishing mortality for porbeagle sharks is kept at or below its current level ( $F = 0.04$ ), then porbeagle sharks have a 70-percent probability of rebuilding within 100 years. Because porbeagle sharks are not currently experiencing overfishing, the rate of fishing mortality does not need to be reduced in order for rebuilding to occur. As mentioned above, even if  $F$  were below its current level (or equal to zero) the same rebuilding timeframe would still be required because of the status and biology of the species. Therefore, NMFS will set a TAC of 11.3 mt dw based on current commercial landings of 1.7 mt dw, current commercial discards of 9.5 mt dw, and current recreational landings of 0.1 mt dw. This will result in a commercial quota of 1.7 mt dw, which would likely allow porbeagle sharks to rebuild within 100 years. If the TAC is exceeded, the Agency may explore additional accountability measures, including reducing the TAC or other management measures, as necessary. In addition, NMFS will encourage the release of all live porbeagle sharks to maximize their chances of post-release survival as well as to reduce the number of dead discards by allowing some harvest of porbeagle sharks.

#### *2005/2006 Assessments for Blacktip Sharks*

The 2005/2006 stock assessment assessed blacktip sharks for the first time as two separate populations: Gulf of Mexico and Atlantic. Blacktip sharks were assessed separately in the two regions based on tagging studies that suggested that the stocks are geographically distinct and isolated. Therefore, NMFS determined the status of the Gulf of Mexico blacktip shark population is not overfished ( $SSF_{2004}/SSF_{msy} = 2.54 - 2.56$ ) and that overfishing is not occurring ( $F_{2004}/F_{msy} = 0.03 - 0.04$ ), yet the status of the Atlantic population is unknown. As a result, NMFS is implementing management measures to ensure that current catches do not increase in order to keep these populations at sustainable levels consistent with advice from the stock assessment. Currently, NMFS is not implementing a rebuilding plan for blacktip sharks.

### **1.3 Purpose and Need**

As described above, based on the results of the 2005 Canadian porbeagle shark stock assessment, the 2006 dusky shark stock assessment, and the 2005/2006 LCS stock assessment, NMFS has determined that a number of shark fisheries are overfished and an amendment to the 2006 Consolidated HMS FMP is needed to implement management measures in order to rebuild overfished stocks and prevent overfishing. In addition to the management measures described in this document, NMFS is also making clarifications and other changes to the regulatory text that were described in the proposed rule. These changes include modifying the frequency of shark

stock assessments conducted by the Agency and clarify the timing of issuing the annual Stock Assessment and Fishery Evaluation (SAFE) Report.

NMFS published updated determinations for the shark species/complexes that were assessed in conjunction with a Notice of Intent (November 7, 2006, 71 FR 65086) to prepare an Environmental Impact Statement. An issues options presentation was released on January 5, 2007, followed by seven scoping hearings and a public comment period that closed on February 5, 2007. A pre-draft document describing potential alternatives that might be included in the DEIS and proposed rule for Amendment 2 to the HMS FMP was released to HMS consulting parties on March 6, 2007, and presented to the HMS Advisory Panel (AP). The AP and consulting parties submitted comments prior to March 31, 2007. The Notice of Availability announcing the DEIS and the proposed rule were both published on July 27, 2007, at 72 FR 41325 and 41392, respectively. The public comment period was originally slated to end on October 10, 2007, however, it was subsequently extended (October 3, 2007, 72 FR 56330) and reopened until December 17, 2007 (November 15, 2007, 72 FR 64186), to provide Fishery Management Councils, the Atlantic States Marine Fisheries Commission, and the general public additional opportunities to submit comments.

#### **1.4 Objectives**

Consistent with the Consolidated HMS FMP objectives, the Magnuson-Stevens Act, and other relevant Federal laws, the specific objectives of this action are to:

- Implement rebuilding plans for sandbar, dusky, and porbeagle sharks;
- Provide an opportunity for the sustainable harvest of blacktip sharks and other sharks, as appropriate;
- Prevent overfishing of Atlantic sharks;
- Analyze bottom longline (BLL) time/area closures and take necessary action to maintain or modify the closures, as appropriate;
- Improve, to the extent practicable, data collections or data collection programs.

#### **1.5 Other Considerations**

##### *Fisheries Disasters*

NMFS received several comments during the public comment period concerning declaration of a fisheries disaster. Section 312 (a) of the Magnuson-Stevens Act states:

“At the discretion of the Secretary or at the request of the Governor of an affected State or a fishing community, the Secretary shall determine whether there is a commercial fishery failure due to a fishery resource disaster as a result of natural causes, man-made causes beyond the control of fishery managers to mitigate through conservation and management measures, including regulatory restrictions (including those imposed as a result of judicial action) imposed to protect human health or the marine environment, or undetermined causes.”

### *Capacity Reduction Programs*

The Magnuson-Stevens Act provides for voluntary reduction of excess fishing capacity through fishing capacity reduction programs. Some participants of the Atlantic shark fishery expressed interest in reducing fishing capacity for sharks via some form of buyout program. Buyouts can occur via one of three mechanisms, including: through an industry fee, via appropriations from the United States Congress, and/or provided from any State or other public sources or private or non-profit organization(s). A buyout plan was not proposed in this rulemaking, despite requests for consideration from the HMS Advisory Panel and other affected constituents, because the Agency is unable to independently initiate a buyout or consider it as a management option. Instead, buyouts must be initiated via one of the aforementioned mechanisms. However, should appropriations be made available or another business plan be presented to the Agency, NMFS would consider these options, as appropriate.

Some participants in the shark fishery requested that an industry “business plan” be developed. A business plan was drafted under a cooperative agreement with the Gulf & South Atlantic Fishery Development Foundation (GSAFDF). The final report was received by NMFS on September 12, 2006 (Gulf & South Atlantic Fisheries Foundation, 2006).

The objective of the buyout business plan submitted by GSAFDF was to assess the feasibility of a buyout program within the Atlantic commercial shark fishery. The buyout plan consisted of four components, including the analysis of socioeconomic impacts to shark-dependent communities, management, policy and resource analysis, calculation of fair-market value for a shark permit and/or vessel, and the development of the buyout business plan. Mailings to shark fishery permit holders were conducted to solicit feedback on options being considered for the buyout business plan. These options included a “reverse buyback” and several permit buyback scenarios. No vessel or non-shark permit buybacks were included in the analysis. The majority of the industry respondents to the study did not support the options being considered in the business plan. As a result, the report concluded, “An evaluation of the Buyout Business Plan options, and comments received by commercial fishermen, indicates that the Total Allowable Catch (TAC) of the shark fishery cannot adequately support a buyback which industry would support.” It is worth noting that this determination was made prior to the sandbar stock assessment recommending a TAC of 158 mt dw for sandbar sharks. The report also concluded that a buyout program within the shark fishery could still be feasible if issues surrounding latent effort and additional financial resources outside of the shark fishery fleet could be attained in order to implement a buyout program. The recent stock assessments (2005/2006) have indicated that further reductions in shark quotas will be necessary. These reductions may result in more latent and underutilized capacity in the shark fishery.

### *Limited Access Privilege Programs (LAPP)*

Section 303A of the Magnuson Stevens Act (16 U.S.C. 1853a) describes the requirements for Limited Access Privilege Programs (LAPPs). A LAPP is a federal permit to harvest a quantity of fish, usually expressed as a percentage of a fishery’s TAC that may be held for exclusive use by an entity. These programs may be implemented to address numerous issues, including but not limited to: ending the race for fish, reducing overcapitalization, improving efficiency and safety, while still addressing the biological needs of a stock. These programs can

be designed specifically to meet the needs of a fishery for which they are designed, provided they meet the requirements outlined in the Magnuson-Stevens Act. There are numerous examples of LAPPs in the United States, including the Alaska halibut and sablefish, Gulf of Mexico red snapper, and Mid-Atlantic surf clam and ocean quahog Individual Fishing Quota (IFQ) programs. The Agency received comments from the public on Amendment 2 to the Consolidated Atlantic HMS FMP related to the potential for a LAPP in the Atlantic shark fishery. A LAPP for the shark fishery was not considered or analyzed in this amendment because of the ramifications this type of program would have for the existing permit structure and the time required for implementing these programs. Setting up a LAPP or ITQ system would have taken too much time to set up and implement, therefore allowing overfishing of sharks to continue in spite of the mandate to rebuild overfished stocks in § 304(e) of the Magnuson-Stevens Act.

The Magnuson-Stevens Act states that for stocks identified as overfished or having overfishing occurring, the appropriate Council or Secretary shall prepare a fishery management plan, plan amendment, or proposed regulations for the fishery to end overfishing in the fishery and rebuild affected stocks within one year of that determination. NMFS satisfied that timing provision: sandbar sharks and dusky sharks were determined to be overfished with overfishing occurred on November 7, 2006 (71 FR 65086), and NMFS published the draft Amendment 2 to the Consolidated HMS FMP on July 27, 2007 (72 FR 41325). NMFS notes that the 2006 Magnuson-Stevens Fishery Conservation and Management Reauthorization Act amended § 304(e) to include a two-year timing provision for preparation and implementation of actions, and the new provision will be effective July 12, 2009. To properly design an ITQ system that appropriately considers the views of all stakeholders and then to implement such a system would take NMFS several years, and therefore was not considered as a reasonable alternative for this action due to the MSA two-year action mandate. However, the HMS Management Division intends to explore options for permit reform that may include implementation of a LAPP for the shark fishery with the HMS Advisory Panel in April 2008.

#### *2005/2006 Sandbar Stock Assessment*

A report entitled “Report to Directed Shark Fisheries, Inc. on the 2006 SEDAR 11 Assessment for Sandbar Shark” prepared by Dr. Frank J. Hester and Dr. Mark Maunder was received by NMFS during the scoping period for this amendment. This report provided a critique of the sandbar shark stock assessment methods, data, and results. The authors stated concerns regarding which data sets were used in the assessment, selectivity curves employed, appropriateness of catch series included, the age-at-maturity (*i.e.* maturity ogive: the age at which 50 percent of individuals in a given species are sexually mature) for sandbar sharks, and the selection of biological parameters for sandbar sharks. During the review workshop held June 5-9, 2006, the panel selected by the Center for Independent Experts (CIE) found that the data and the models employed during the data and assessment workshops, respectively, were the best available for evaluating the stock status of sandbar sharks. The CIE is responsible for providing independent peer-review of the science involved in Agency decisions and was created in response the U.S. Ocean Action Plan (2004) which emphasized the need to increase independent peer review NMFS science. The Agency has sent a formal response to the authors addressing their concerns and is moving forward with management measures with the recommendations of the stock assessments. The report submitted by Dr.’s Hester and Maunder and the Agency

response are included in Appendix B. Dr. Hester has also submitted an additional comment during the open comment period on the proposed rule which NMFS has incorporated into the overall responses to comments. However, a formal Agency response to Dr. Hester addressing this comment was not prepared.

### *Circle Hooks*

The Agency compiled the results of several studies which used circle hooks in various BLL fisheries. Yet, the results of these BLL studies were found to be inconclusive regarding the impact that circle hooks have on protected resources as well as target species caught in BLL fisheries. The efficacy using of circle hooks to reduce bycatch and post-hooking mortality of sea turtles is well-documented in other fisheries, including the HMS PLL fishery. Circle hooks are required for the Atlantic HMS pelagic longline fishery consistent with the June 2004 Biological Opinion. The Agency is not proposing that circle hooks be required for BLL fisheries targeting shark at this time for several reasons: 1) lack of data demonstrating conservation benefits in BLL fisheries, 2) potential inconsistencies between Council-managed and HMS BLL fisheries that may occur as a result of requiring circle hooks, and 3) observer data indicating that circle hooks are already the most frequently used type of hook on trips targeting shark in the South Atlantic and Gulf of Mexico regions. The preferred alternative described in this document would implement a shark research fishery. As a part of this research fishery, NMFS could conduct field trials that assess the efficacy of circle hooks for reducing bycatch and post-hooking mortality of sea turtles in the shark BLL fishery.

## **Chapter 1 References**

Gulf & South Atlantic Fishery Development Foundation, Inc. 2006. Development of a Buyout Business Plan for the Southeast U.S. Commercial Shark Fishery. Cooperative Agreement No. NA17FD2367 (GSAFFI #84).