DRAFT

ENVIRONMENTAL ASSESSMENT,

REGULATORY IMPACT REVIEW, AND

INITIAL REGULATORY FLEXIBILITY ANALYSIS

FOR A

PROPOSED RULE

TO IMPLEMENT QUOTA ADJUSTMENTS

IN THE ATLANTIC LARGE AND SMALL COASTAL SHARK FISHERIES

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

September 2004

Rule to Implement Quota Adjustment Measures in the Large and Small Coastal Atlantic Shark Fisheries
Framework Adjustment to Amendment One to the Fishery Management Plan for Atlantic Tunas, Swordfish and Sharks

Actions: Revise regional and trimester quota levels for Atlantic large coastal sharks (LCS) and small coastal sharks (SCS) and remove the requirement for NOAA Fisheries to publish shark management actions 30 days prior to their effective date .

Type of Statement: Environmental Assessment and Regulatory Impact Review

Lead Agency: National Marine Fisheries Service

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Abstract:

The Highly Migratory Species (HMS) Management Division is proposing regulations that would revise regional quota levels for Atlantic large coastal sharks (LCS) and small coastal sharks (SCS), and would create a framework mechanism for making annual adjustments to quotas based on new landings data**.** This proposed action is necessary because landings data indicate that regional effort and catches of LCS and SCS have changed in recent years. For example, LCS and SCS landings in the Gulf of Mexico have increased in the past two years. These adjustments to the regional quotas would ensure that the quotas are based upon the best available information and reflect current and historical landings. This proposed rule also includes alternatives for distribution of quotas within regional trimester seasons, accounting for over- and underharvests during the transition from semi-annual to trimester seasons, and a framework for future review and adjustment of regional and trimester quotas as necessary. Furthermore, NOAA Fisheries is proposing to revise the requirement that the fishing season notification be filed with the Office of the Federal Register at least 30 days prior to the beginning of each season. Background information on the issues and a description of the alternatives being considered for this rulemaking are described in detail in this environmental assessment.

FINDING OF NO SIGNIFICANT ENVIRONMENTAL IMPACT FOR A RULE TO IMPLEMENT QUOTA ADJUSTMENT MEASURES IN THE LARGE AND SMALL COASTAL ATLANTIC SHARK FISHERIES

National Marine Fisheries Service
August 16, 2004

The Highly Migratory Species Management Division of the Office of Sustainable Fisheries submits the attached Environmental Assessment (EA) for the Atlantic shark fisheries for Secretarial review under the procedures of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). This EA was developed as an integrated document that includes a Regulatory Impact Review. Copies of the EA and Regulatory Impact Review are available at the following address:

Highly Migratory Species Management Division, F/SF1
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910
(301) 713-2347

or

http://www.nmfs.noaa.gov/sfa/hms

This action would:

- Adjust the regional small and large coastal shark quotas in commercial shark fisheries in the Atlantic Ocean to more accurately reflect current and historical landings;
- Adjust the proportion of each regional quota distributed to each trimester season beginning in 2005;
- Account for over- and underharvests in the transition from semi-annual to trimester seasons; and
- Create a framework mechanism for annual adjustment of regional or trimester season quotas, as necessary
- Allow NOAA Fisheries to publish notification of each season's length in the Federal Register prior to the start of each fishing season rather than 30 days prior the start of the fishing season.

The EA considers information contained in the Environmental Impact Statement associated with the 1999 Final Fishery Management Plan for Atlantic Tunas, Swordfish and Sharks (HMS FMP), the 2003 Stock Assessment and Fishery Evaluation (SAFE) report, and the 2003 Amendment 1 to the HMS FMP. All information used is herein incorporated by reference.

National Oceanic and Atmospheric Administration Administrative Order 216-6 (NAO 216-6) (May 20, 1999) contains criteria for determining the significance of the impacts of a proposed

action. In addition, the Council on Environmental Quality regulations at 40 C.F.R. §1508.27 state that the significance of an action should be analyzed both in terms of "context" and "intensity." Each criterion listed below is relevant to making a finding of no significant impact and has been considered individually, as well as in combination with the others. The significance of this action is analyzed based on the NAO 216-6 criteria and CEQ's context and intensity criteria. These include:

1. Can the action be reasonably expected to jeopardize the sustainability of any target species that may be affected by the action?

The action is not expected to jeopardize the sustainability of LCS or SCS, which are the target species affected by the action. The quotas for these stock complexes would still be based on the maximum sustainable yield estimated by the most recent stock assessments and should not impact the rebuilding plan for LCS implemented in Amendment 1 to the HMS FMP, or cause SCS to become overfished. The overall quotas for LCS and SCS would not be changed, however, the quotas would be re-distributed among the different regions.

2. Can the action be reasonably expected to jeopardize the sustainability of any non-target species?

The proposed action is not expected to jeopardize the sustainability of any non-target species. The overall quotas for LCS and SCS are not being changed, only the proportion of the quota being allocated to certain regions. For example, even though the quota for LCS in the Gulf of Mexico is being increased by approximately 7 percent, the LCS quota for the South Atlantic is proposed to be decreased by 16 percent, based upon updated landings data. As a result, there may be increased effort in the Gulf of Mexico, but a corresponding decline in effort in the South Atlantic. Historically finfish bycatch has averaged approximately 5 percent in the bottom longline fishery, and approximately 7 percent in the shark drift gillnet fishery. Finfish bycatch for the bottom longline fishery includes, but is not limited to, skates, rays, cobia, redfish, bluefish, and great barracuda. In the shark drift gillnet fishery, bycatch includes king mackerel, little tunny, cownose ray, crevalle jack, cobia, spotted eagle ray, great barracuda, tarpon, Atlantic stingray, and Spanish mackerel. None of these species are listed under the Endangered Species Act, and, since the overall numbers of these species being caught incidentally is very low, this proposed action is not expected to jeopardize the sustainability of any of these species.

3. Can the action be reasonably expected to allow substantial damage to the ocean and coastal habitats and/or essential fish habitat (EFH) as defined under the Magnuson-Stevens Act and identified in FMPs?

This action is not expected to change the impact on EFH or to allow substantial damage to ocean and coastal habitats and/or EFH. The action would affect fishermen who hold commercial shark limited access permits fishing in federal waters, the U.S. exclusive economic zone (EEZ), and/or the high seas. Of the approved gears that are used in HMS fisheries, only bottom longlines,

principally targeting large coastal sharks, make contact with the bottom. If bottom longline gear becomes hung or entangled on bottom surfaces such as rock, hard and soft corals, it could have some adverse impacts. However, the nature of these impacts to shark or other species' EFH overall is considered to be minimal. The other gear types used to target sharks, pelagic longline and drift gillnets, are unlikely to have any impact on essential fish habitat.

4. Can the action be reasonably expected to have a substantial adverse impact on public health and safety?

The action is not expected to have adverse impacts on public health and safety.

5. Can the action be reasonably expected to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat of these species?

The October 29, 2003, Biological Opinion (BiOp) issued under Section 7 of the Endangered Species Act for Amendment 1 to the HMS FMP concluded that the continued operation of the Atlantic shark fisheries was not likely to jeopardize the continued existence of any listed species under NOAA Fisheries' purview. An analysis of the anticipated incidental takes of sea turtles (primarily loggerhead and leatherback sea turtles) and smalltooth sawfish resulted in a "non-jeopardy" determination in the aforementioned BiOp. This action is not expected to alter fishing practices or fishing effort significantly, and therefore should not have any further impacts not previously considered in the October 2003 BiOp.

6. Can the action be expected to have a substantial impact on biodiversity and ecosystem function within the affected area (e.g. benthic productivity, predator-prey relationships, etc.)?

The action is not expected to have a substantial impact on biodiversity or ecosystem function within the affected area. The action is not expected to change or alter overall fishing effort, therefore, landings of target and non-target species and endangered or threatened species should not increase either. The action is not expected to result in cumulative adverse effects that could have substantial effects on biodiversity or ecosystem function. This action does not increase quotas for LCS and SCS, rather, the portion given to individual regions may be changed based on updated historical landings. Current rebuilding initiatives for LCS would remain in place and future stock assessments would dictate further actions to protect the LCS or SCS complexes, if necessary.

7. Are significant social or economic impacts interrelated with significant natural or physical environmental effects?

The actions are not expected to have any significant social or economic impacts. NOAA Fisheries is revising the regional quotas based on updated historical landings data from both fishermen and dealers, for LCS and SCS. In the short term, re-adjusting the current regional quotas to account for increased fishing effort in the Gulf of Mexico could have a positive

economic effect by ensuring the SCS season opens January 1, 2005. There may be negative economic consequences resulting from the reduction in the South Atlantic quotas for LCS. However, these updated regional quotas which are based on current fishery data should provide a more accurate reflection of fishing effort by region and species group in the Atlantic Ocean. A framework mechanism for annual adjustment of regional quotas could prevent future closures due to overharvest and allow quotas to more accurately reflect current effort and landings in all regions. Only unused quota (up to 10 percent) could be transferred between regions during an annual quota adjustment. Removing the requirement for NOAA Fisheries to file notification of fishing seasons' length at least 30 days prior the beginning of the season is not anticipated to have any significant economic or social impacts on participants.

8. To what degree are the effects on the quality of the human environment expected to be highly controversial?

This action does not change the overall quotas of LCS and SCS. Instead, it adjusts the regional quotas based on updated landings information and provides a mechanism to adjust quotas in the future, as necessary. As such, this action is not expected to be highly controversial. This action maintains the health of the stocks and allows for a viable fishery. Public comment will be considered during the proposed rule phase of this rulemaking. Any comments received would be considered and responded to before finalizing this action.

9. Can the proposed action be reasonably expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?

The action would only affect fishermen in the commercial shark fishery in the EEZ of the Atlantic Ocean and therefore would not have any substantial impact on these areas.

10. To what degree are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

This proposed action simply adjusts the distribution of regional and trimester quotas and does not alter historical fishing practices or techniques significantly. Therefore, no unknown or unique risks are involved.

11. Is the action related to other actions with individually insignificant, but cumulatively significant impacts?

The overall quotas for the fishery, which were analyzed prior to implementation in Amendment 1 to the HMS FMP, are not being changed and therefore are not expected to have additional cumulative impacts. There are also no significant cumulative impacts expected as a result of adjusting regional quotas based on updated landings data. Therefore adverse economic and ecological impacts, in the long run, are abated.

12. Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

This proposed rulemaking will only affect incidental and directed permit holders in the commercial Atlantic shark fishery and will have no impact on any of the sites or objects listed above.

13. Can the proposed action be reasonably expected to result in the introduction or spread of a nonindiginous species?

No. This action applies to the domestic Atlantic commercial shark fishery only, and does not involve the transport, introduction, or spread of any non-indigenous species.

14. Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?

This action may result in future actions that distribute regional or trimester quotas that would be made by NOAA Fisheries in order to maximize the potential for shark fishermen to fulfill their allotted quotas while maintaining current rebuilding plans for overfished species and maintaining compliance with relevant laws. However, those future actions would represent minor adjustments to the regional quotas only, and are not expected to be significant.

15. Can the proposed action be reasonably expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?

NOAA Fisheries has determined preliminarily that these regulations would be implemented in a manner consistent with the Magnuson-Stevens Fishery Conservation and Management Act, the Marine Mammal Protection Act, the Endangered Species Act, and all other pertinent laws, and to the maximum extent practicable, with the enforceable policies of those coastal states on the Atlantic including the Gulf of Mexico and Caribbean that have approved coastal zone management programs. Letters have been sent to the relevant states asking for their concurrence.

16. Can the proposed action be reasonably expected to result in beneficial impacts not otherwise identified and described above?

Using updated landings information for the establishment of quotas, and providing the flexibility to adjust regional and trimester quotas to increase participants' likelihood of harvesting the entire quota will have positive economic benefits. Furthermore, by establishing a third trimester season participants will have the opportunity to supply markets with shark products during a time when the fishery historically been closed (September-December).

In view of the information presented in this document and the analysis contained in the attached Environmental Assessment prepared for quota adjustment measures in the Atlantic large and small coastal shark fisheries, it is hereby determined that this action will not significantly impact the quality of the human environment as described above and in the Environmental Assessment. In addition, all impacts to potentially affected areas, including national, regional and local, have been addressed to reach the conclusion of no significant impacts. Accordingly, preparation of an EIS for this action is not necessary.

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William T. Hogarth, Ph.D. Date
Assistant Administrator for Fisheries, NOAA

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1.0. PURPOSE AND NEED FOR ACTION

1.1 MANAGEMENT HISTORY

In 1993, the National Marine Fisheries Service (NOAA Fisheries) implemented the Fishery Management Plan (FMP) for Sharks of the Atlantic Ocean, which established three management units: large coastal sharks (LCS), small coastal sharks (SCS), and pelagic sharks (PS). Under that FMP, species groups were not managed on a regional basis. NOAA Fisheries identified LCS as overfished, and therefore, implemented commercial quotas for LCS and also established recreational harvest limits for all sharks.

In April 1999, NOAA Fisheries published the Fishery Management Plan for Atlantic Tunas, Swordfish and Sharks (HMS FMP), which included numerous measures to rebuild or prevent overfishing of Atlantic sharks in commercial and recreational fisheries. The HMS FMP replaced the 1993 FMP and the implementing regulations were published on May 28, 1999 (64 FR 29090). The HMS FMP addressed numerous shark management measures, including: reducing commercial LCS and SCS quotas, establishing a commercial quota for blue sharks and a species-specific quota for porbeagle sharks, expanding the list of prohibited shark species, implementing a limited access permitting system in commercial fisheries, and establishing season-specific over- and under-harvest adjustment procedures. The HMS FMP also partitioned the LCS complex into ridgeback and non-ridgeback categories but did not include regional quota measures.

In 2003, NOAA Fisheries found it necessary to re-examine and amend the measures enacted in the HMS FMP based on the 2002 stock assessments, litigation, and public comments. Implementing regulations for Amendment 1 to the HMS FMP were published on December 24, 2003 (68 FR 74746). Management measures enacted in the amendment included: re-aggregating the large coastal shark complex, using maximum sustainable yield (MSY) as a basis for setting commercial quotas, eliminating the commercial minimum size restrictions, establishing three regional commercial quotas (Gulf of Mexico, South Atlantic, and North Atlantic) for LCS and SCS management units, implementing trimester commercial fishing seasons effective January 1, 2005, imposing gear restrictions to reduce bycatch, and a time/area closure off the coast of North Carolina effective January 1, 2005. As a result of using MSY as a basis for setting quotas, and implementing a new rebuilding plan, the overall quota for LCS in 2004 (1,107 metric tons (mt) dressed weight (dw)) was considerably lower than either the 2002 LCS quota (1,285 mt dw) or the 2003 LCS quota (1,714 mt dw). The overall LCS quota in 2005 will remain at the current level of 1,107 mt dw.

Regional quotas for large and small coastal sharks were intended to improve overall management of the stocks by tailoring quotas to specific regions based on landings information. These quotas were based upon average historical landings (1999-2001) from the General Canvass and Quota Monitoring System (QMS) databases and were not expected to result in early closures or have economic impacts. The General Canvass database provides a near-census of the landings at major dealers in the southeast United States (including state landings) and the QMS

database collects information from dealers in the South Atlantic and Gulf of Mexico (does not include state landings). The Northeast Commercial Fisheries Database compiles dealer reports for sharks in the northeast United States. Logbook data was obtained from the Coastal Fisheries Logbook, which includes actual landings of sharks reported by federally permitted fishermen.

The data used to establish quotas in Amendment 1 to the HMS FMP indicated that the Gulf of Mexico, South Atlantic, and North Atlantic regions accounted for 4, 83, and 13 percent of the total SCS landings and 42, 54, and 4 percent of the total LCS landings, respectively. The annual regional quotas for the Gulf of Mexico, South Atlantic, and North Atlantic, not accounting for over- or under-harvests, are currently 18.2, 376.8, and 50 mt dw for SCS and 427, 549, and 40.7 mt dw for LCS, respectively. Each regional quota is currently split equally between the two semi-annual fishing seasons.

Historically, the commercial shark fishery has been managed under two semi-annual seasons. Amendment 1 to the HMS FMP implemented trimester seasons which will become effective January 1, 2005. This rulemaking considers alternatives for dividing the regional quotas for LCS and SCS between trimester seasons and for applying over- and underharvests from the current semi-annual seasons to the trimester seasons.

1.2 NEED FOR ACTION AND OBJECTIVES

Landings data from the first 2004 semi-annual shark fishing season commencing January 1, 2004, indicated that the catches of SCS in the Gulf of Mexico were higher than expected. As a result, the regional quota for both LCS and SCS were exceeded. As of July 30, 2004, 122 and 121 percent of the SCS and LCS quotas in the Gulf of Mexico had been harvested, respectively, resulting in the closure of that region. The North Atlantic experienced an overharvest of five percent of its LCS quota. As of July 30, 2004, LCS and SCS remain at 107 and 31 percent of their respective annual quotas. Similar overharvests may occur in the second fishing season of 2004. If adjustments to the regional quotas are not made, the shark fisheries in the Gulf of Mexico region may remain closed or re-open with a large reduction in quota for all seasons in 2005. This would have economic and social impacts that were not anticipated in Amendment 1 to the HMS FMP.

This proposed rule is necessary to adjust regional quotas based on updated landings information and to account for recent changes in the fishery. The overall quota for LCS and SCS would not be affected, only the percentage of the quota distributed to each of the regions, and how that quota is distributed between fishing seasons. Thus the overall rebuilding plan will not be affected, and impacts on target and non-target species, will be minimal. Alternatives being considered include modifying regional quota levels, developing a framework mechanism to make annual adjustments to regional quotas if necessary, and devising a one-time mechanism to account for over or underharvests in the transition from semi-annual season to trimester seasons. Options for making annual adjustments to quotas between seasons and regions will be explored to prevent future fishery closures and ensure that NOAA Fisheries is able to adapt to future

geographical changes in fishing effort. Furthermore, NOAA Fisheries is proposing to change the requirement to file the season length information at least 30 days before the opening date.

An emergency rule that published on December 27, 2002, (67 FR 78990; extended May 29, 2003, 68 FR 31983), implemented a new management measure from the 1999 HMS FMP that required dead discards from 2003 be subtracted from the commercial shark quotas in 2005. This emergency rule expired on December 27, 2003. In November 2003, NOAA Fisheries released Amendment 1 to the HMS FMP; the final rule implementing this Amendment was published on December 24, 2003 (68 FR 74746). Amendment 1 to the HMS FMP also dealt with the issue of dead discards and devised a process for subtracting them when calculating MSY, in conjunction with establishing a timeframe for rebuilding stocks of LCS by 2030, while still allowing fishing by enacting other conservation measures including reducing quotas, time/area closures, and gear restrictions. Dead discards are already accounted for under the new process for determining MSY, thus if NOAA Fisheries were to count the 2003 dead discards against the 2005 quota as stated in the December 27, 2002, rule, there could be the impression of double counting. Quotas were already reduced under Amendment1 and further reductions could cause negative economic impacts with negligible effects on the rebuilding plan. Therefore, NOAA Fisheries does not feel it is appropriate to count the 2003 dead discards against the 2005 commercial fishing quotas as stated in the 2002 emergency rule.

The objectives of this document are to describe and analyze the ecological, economic, and social impacts of numerous alternatives to adjust regional quotas to account for recent and future changes in the fishery and provide a mechanism for public comment on these alternatives. This rulemaking should ensure that appropriate regional quotas for LCS and SCS are in place by January 1, 2005, to coincide with the re-opening of these fisheries.

References Cited in Chapter 1

No references cited

2.0 SUMMARY OF THE ALTERNATIVES

This section provides a summary and basis for all the alternatives considered in this rulemaking. The selected alternatives describe methods for distributing the quotas of large coastal sharks (LCS) and small coastal sharks (SCS). Figure 2.7a-b provide a flowchart describing how quotas would be divided between regions and trimesters.

2.1 LCS AND SCS REGIONAL QUOTAS

Alternative A1: Maintain current regional quotas (No Action)

This alternative would maintain the current regional quota levels for LCS and SCS. Regional quotas were established in Amendment 1 to the HMS FMP for the Gulf of Mexico (Texas to the West coast of Florida), South Atlantic (East coast of Florida to North Carolina and the Caribbean), and North Atlantic (Virginia to Maine). The regional quotas for LCS in the Gulf of Mexico, South Atlantic, and North Atlantic are 42, 54, and 4 percent of the total LCS landings, respectively, and 4, 83, and 13 percent of the total SCS landings, respectively. Fishery participants are allowed to fish in any region, provided that the season for the region in question is open and the quota for that region has not been taken.

Current regional quotas were based upon average historical landings (1999-2001) from the general canvass and quota monitoring system (QMS) databases. Average landings were calculated in order to minimize the uncertainty associated with inter-annual fluctuations in regional landings data as well as differences in reported landings from the two different databases.

The regional quotas were intended to improve overall management of the stocks by tailoring quotas to specific regions based on landings information. Catch and biological data, which were broken down by regions, suggested that spatial differences in fishery practices and shark landings warranted this approach. For instance, due to migration patterns, fishing effort off of North Carolina increases at different times than fishing effort in the Gulf of Mexico. Additionally, shark pupping data indicates spatial and temporal differences in utilization of pupping grounds. Regional quotas reduce the likelihood of overlap and impacts on shark pupping periods because quotas allocated to each region are lower than the overall quota and thus result in shorter seasons. For example, the 2002 and 2003 first semi-annual seasons were considerably longer in duration than the 2004 first semi-annual season for all regions. Regional quotas thus provide a means to ensure that historical catches are maintained, to account equitably for regional differences in fishing effort, and to provide flexibility to reduce mortality on juveniles and reproductive female sharks.

Alternative A2: Establish new regional quotas based on updated landings information

This alternative would establish new regional quotas for LCS and SCS based upon updated landings information (1999-2003). For updated LCS and SCS landings from 1999-2003 see

Tables 2.1 and 2.2, respectively. During the first semi-annual shark fishing season in January 2004, the regional quotas for LCS and SCS in the Gulf of Mexico were exceeded. This alternative would re-distribute the quotas for 2005 based on updated landings information from the general canvass, quota monitoring, and coastal logbook databases, increasing the quotas for the Gulf of Mexico. The proposed quotas for LCS would be 49, 38, and 13 percent for the Gulf of Mexico, South Atlantic, and North Atlantic, respectively. Quotas for SCS are proposed to be 10,87, and 4 percent for the Gulf of Mexico, South Atlantic, and North Atlantic, respectively.

This alternative could allow the SCS fisheries to open in the Gulf of Mexico in January 2005. However, a one-time change in quota distributions would not provide a mechanism to address future changes in fishing effort and potential increases or decreases in regional shark abundance.

Alternative A3: *Establish new regional quotas based on updated landings information and develop a framework for annual adjustment of regional quotas, as necessary (Preferred Alternative)*

This alternative is identical to Alternative A2, but in addition to establishing new regional quotas, this alternative would allow NOAA Fisheries to transfer quota among the different regions, if necessary, through an annual framework adjustment process. Criteria for making the adjustment are discussed below. Once the quotas have been updated in this rule, future annual adjustments would not likely require additional National Environmental Policy Act (NEPA) analyses.

Updated SCS and LCS landings from 1999-2003 that are based on the general canvass, quota monitoring, and coastal logbook databases are presented in Tables 2.1 and 2.2. This alternative would re-distribute the current regional quotas based on the updated landings. For LCS, the quotas in the Gulf of Mexico and North Atlantic regions would increase, while the South Atlantic quota would decrease. For SCS, the quotas in the Gulf of Mexico and South Atlantic regions would increase, and the North Atlantic quota would decrease. The overall quota of 1,107 mt dw for LCS and 454 mt dw for SCS established in Amendment 1 would not be changed. The percentages for each of the regions would be based upon updated landings information from the general canvass, quota monitoring, and coastal logbook databases.

This alternative would also implement a mechanism for annual adjustment of the regional quotas, that may take place concurrently with a trimester adjustment. Regional adjustments may not be necessary if trimester adjustments are adequate for re-distribution of quota to ensure quotas are harvested fully (see preferred alternative B3). The following criteria would be used to determine whether regional quotas should be adjusted: if a region had an overharvest of more than 10 percent of its regional quota, and any other region or combination of regions had an underharvest of more than 10 percent of their respective quotas, then NOAA Fisheries may consider transferring up to 10 percent of the quota from the region with the underharvest to the region with the overharvest. The remainder of the overharvest would be counted against that region's quota for the same season of the following year. If a region has an overharvest less than 10 percent, then the overharvest would be counted against the regions quota for the same season of the following year. If the underharvest is less than 10 percent of the quota for any other

region or combination of regions, NOAA Fisheries would not transfer any quota. NOAA Fisheries would transfer no more than 10 percent of any regional quota in a given year. If two regions have an overharvest of more than 10 percent, and the third region has an underharvest of greater than 20 percent, then NOAA Fisheries would consider transferring up to 10 percent from the region with the underharvest to be split equally between the two regions with an overharvest (see example in Table 2.3).

Additional factors that may be considered prior to quota adjustment include, but are not limited to, protected species interactions and bycatch rates within a region, historic landings for the region, total landings reported for all regions at the end of their respective seasons, the number of storms during the open season, the size of a region's quotas, the amount of available quota remaining, the projected ability of the vessels fishing in region from which the quotas is proposed to be removed to harvest the remaining quota, and the projected ability of vessels fishing in the region receiving the quota to harvest the additional quota. NOAA Fisheries would file with the Office of the Federal Register for publication notification of any annual quota adjustments.

This alternative provides greater equity in distribution of catch among different regions, and helps address temporal and spatial variability in abundance of stocks, timing of harvest, and changes in fishing effort. Annual quota adjustment provides flexibility to managers, improves likelihood of harvesting the total quota, and allows adaptation to changes in the fishery.

Alternative A4: Establish a single quota for LCS and a single quota for SCS

This alternative would establish a single quota for LCS and a single quota for SCS. A single quota would eliminate the need for regional quotas and in-season adjustments, thus simplifying quota monitoring and management of the fishery. Since 1993, the fishery has been managed under a single quota system for each category. In 2003, Amendment 1 to the HMS FMP established regional quotas for the first time. The first 2004 shark fishing season was the first season in which an overharvest of SCS occurred since implementation of the FMP for sharks in 1993. There have been overharvests of the LCS quota which were subtracted from the quota for the same season of the following year, since implementation of the HMS FMP. NOAA Fisheries has not observed a consistent pattern of either overharvests resulting in decline in quotas over time or underharvests resulting in an accumulation of quota.

Although a single quota system might simplify management of the fishery, it may not provide the equitable distribution that is possible under a regional quota system, and would not tailor catches to seasonal and temporal variations in shark abundance. Given the increase in catch and effort in the Gulf of Mexico, it is possible that the entire quota could be harvested in the Gulf of Mexico and South Atlantic before the North Atlantic has had an opportunity to fish.

Alternative A5: Establish a single quota for SCS and regional quotas for LCS

This alternative would establish a single quota for SCS and regional quotas for LCS with the added provision that quota adjustments could be made to regional quotas for LCS similar to

alternative A3. Since there has never been an overharvest of SCS prior to this year in which new regional quotas were implemented, this alternative would simplify management of SCS while providing flexibility to adjust regional quotas for LCS. This would also allow the Gulf of Mexico SCS fishery to open in January 2005. The SCS fishery has predominantly taken place in the South Atlantic and Gulf of Mexico, with the North Atlantic only accounting for 13 percent of the landings based on data from the general canvass and QMS from 1999-2001.

Alternative A6: Combine quotas for the Gulf of Mexico and South Atlantic

This alternative would combine the regional quotas established in Amendment 1 to the HMS FMP in the Gulf of Mexico and the South Atlantic, resulting in two regional quotas for LCS and SCS (Gulf/South Atlantic and North Atlantic). Since the Gulf of Mexico and South Atlantic have the largest proportion of both the LCS and SCS quotas, combining them would account for 96 percent of the LCS quota and 87 percent of the SCS quota, thus helping prevent future overharvests while at the same time providing for a continued harvest of LCS and SCS in the North Atlantic. This alternative could provide managers with the flexibility to open the fishery in June or July in the North Atlantic, while at the same time keeping shark pupping areas closed in the South Atlantic and Gulf of Mexico.

Other alternatives considered but not further analyzed at this time

Alternative A7: Implement Individual Transferrable Quotas (ITQs)

This alternative would implement ITQs rather than regional quotas. ITQs have been used in a variety of different fisheries and may be considered as a management alternative in the future. Since implementation of ITQs would require significant additional data collection and analysis beyond the scope of this proposed rule, NOAA Fisheries may address this alternative in Amendment 2 to the HMS FMP or other future rulemaking.

2.2 TRIMESTER SEASON QUOTA DISTRIBUTION

Beginning in January 2005, each regional quota will be divided between three trimester seasons. The first trimester season will operate between January 1 and April 30, the second trimester season will operate between May 1 and August 31, and the third trimester season will operate between September 1 and December 31 (Table 2.4). The following alternatives consider ways in which the quota for each region could be divided among the three seasons. The preferred alternative for the trimester season quota distribution would be applied to the preferred alternative for LCS and SCS regional quota levels described above.

Alternative B1: Equal quotas for each trimester season

This alternative would split the quota for each region equally among the three trimester seasons. Landings information from the general canvass, quota monitoring, and coastal logbook databases would be used to determine the overall regional quota (see Section 2.1), and the quota would be split evenly among the three seasons. Since 1993, the quotas have been divided equally between

two semi-annual seasons. Dividing the quota for each region equally between the two semi-annual seasons worked well in the past because effort and landings between the two seasons were similar. An equal split of the quota between the three seasons may not be appropriate given that regional quotas are now in effect, effort and landings are different in the three regions during the three seasons, and one or more of the seasons may be shortened to address shark pupping concerns.

Alternative B2: Divide quotas in proportion to the historic landings during each trimester season

This alternative would divide the regional quotas in proportion to historic landings in each region according to landings data from the general canvass, quota monitoring system, and logbook databases. Data indicate that landings have varied greatly during the three seasons in the past and quotas would be divided according to the effort and landings anticipated for each season. Updated landings for SCS are included in Tables 2.5a-c and landings for LCS are in Tables 2.6a-c. Splitting quotas in this manner would provide NOAA Fisheries with flexibility to restrict the season length and landings during selected seasons to address shark pupping concerns.

Alternative B3: *Divide trimester quotas in proportion to the historic landings in each region; review trimester quotas and make adjustments as necessary (Preferred Alternative)*

This alternative would divide each regional quota into trimester seasons in proportion to historic landings for those seasons based on data from the general canvass, quota monitoring system, and logbook databases (See Tables 2.5, 2.6 (a-c), and Figure 2.7 (a-b)). Similar to Alternative A3, once the quotas have been updated in this rule, future annual adjustments would not likely require additional NEPA analysis.

Landings data indicate that there are temporal variations in catches with highest catches currently occurring in January and July. Fewer sharks have been caught during the third trimester season because the fishery has historically been closed during that period. NOAA Fisheries anticipates that the change to trimester seasons will result in additional landings during that period and that it may take time for effort and landings to stabilize. This alternative would provide NOAA Fisheries with the flexibility to adjust to these changes in the fishery.

NOAA Fisheries could make adjustments based a number of factors including, but not limited to, protected species interactions and bycatch rates within a trimester, the historic landings for the region, total landings reported for all regions at the end of their respective seasons, the number of storms during the open season, the size of a region's quotas, the amount of available quota remaining in a given trimester, the projected ability of the vessels fishing in region from which the quotas is proposed to be removed to harvest the remaining quota, and the projected ability of vessels fishing in the region receiving the quota to harvest the additional quota, and potential ecological impacts. Adjustments to regional quotas (preferred alternative A3) would be

distributed between trimester seasons based on historic landings for that region. NOAA Fisheries would file with the Office of the Federal Register for publication notification of any trimester quota adjustments.

2.3 ACCOUNTING FOR OVER- AND UNDERHARVEST IN THE TRANSITION FROM SEMI-ANNUAL TO TRIMESTER SEASONS

Beginning in January 2005, the commercial shark fishery will be based upon trimester fishing seasons, and the following alternatives describe methods for addressing any over- or underharvest carried over from the 2004 to the 2005 fishing season. Over- or underharvests will be applied only to the region in which they occurred and not to any other regions. Beginning in 2006, any over- or underharvest accrued under the trimester season would be accounted for in the same trimester season of the following year.

Alternative C1: Divide any over- or underharvest from the semi-annual seasons equally between the trimester seasons

This alternative would divide any over- or underharvest from the semi-annual season equally between the trimester seasons. This alternative would help to spread out the cost or benefit of any over- or underharvests throughout the fishing year.

Alternative C2: Carry over any over- or underharvest from the first semi-annual season to the first trimester season and any over- or underharvest from the second semi-annual season to the second trimester season

This alternative would carry over any over- or underharvest from the first semi-annual season to the first trimester season, and any over- or underharvest from the second semi-annual season to the second trimester season. The dates for the first semi-annual season (January through June) and the first trimester season (January through May) are similar, and there is overlap between the dates for the second semi-annual season (July through December) and the second trimester seasons (May through August). Since the commercial shark fishing season has historically been closed by August or early September, most of the over- or underharvest would have been accrued during the second trimester. This alternative does not account for some over- or underharvest that may have occurred during the third trimester season.

Alternative C3: *Transfer any over- or underharvest from the first semi-annual season to the first trimester season, and divide any over- or underharvest from the second semi-annual season equally between the second and third trimester seasons (Preferred Alternative)*

This alternative would carry over any over- or underharvest from the first semi-annual season to the first trimester season, but would divide any over- or underharvest from the second semi-annual season equally between the second and third trimester seasons. This alternative would account for the overlap between the second semi-annual season and the second and third trimester seasons.

Alternative C4: Divide any over- or underharvest from the first semi-annual season between the first and second trimesters seasons, and divide any over- or underharvest from the second semi-annual season between the second and third trimester seasons

This alternative would divide any over- or underharvest from the 2004 first semi-annual season in the following proportions: 2/3 of the over- or underharvest would be carried over to the first 2005 trimester season, and 1/3 to the second 2005 trimester season, and 2/3 of the over- or underharvest from the 2004 second semi-annual season would be carried over to the 2005 second trimester season, and 1/3 to the third trimester season.

Other alternative considered but not further analyzed at this time

Alternative C5: Do not transfer any over- or underharvest from 2004 to 2005

This alternative would not transfer any over or underharvests from the 2004 to the 2005 season. The alternative is not further analyzed because it may inhibit the rebuilding plan established for LCS in Amendment 1 to the HMS FMP and is not equitable for regions that have experienced underharvests in 2004.

Table 2.1 Commercial Landings of LCS (mt dw) by Region and Year.

	Gulf of Mexico			South Atlantic			North Atlantic		Total		
	Canvass	QMS	Logbook	Canvass	QMS	Logbook	CFDBS*	Logbook	Canvas	QMS	Logbook
1999	1356.4	668.2	465.8	1158.2	474.5	477.3	224.5	160.9	2514.6	1367.	1104.0
2000	1255.5	878.0	499.7	1060.2	503.8	474.0	215.6	170.0	2315.7	1597.	1143.7
2001	1270.6	597.0	609.9	922.1	488.1	452.0	410.8	110.9	2192.7	1495.	1172.8
2002	1406.8	552.8	667.6	1271.2	678.8	517.7	462.2	123.3	2678.0	1693.	1308.6
2003	1836.0	698.5	737.8	847.7	674.9	535.4	357.3	71.2	2683.7	1730.	1344.4
Total	7125.3	3394.5	2980.8	5259.4	2820.1	2456.4	1670.4	636.3	12384.7	7885.	6073.5
Average	1425.1	678.9	596.2	1051.9	564.0	491.3	334.1	127.3	2476.9	1577.	1214.7
Total Combined	13,500.6			10,535.9			2,306.7		26,343.2		
Average Combined	900.0			702.4			230.7		1,833.1		
Proposed Percentage/ Region (Based on Average Combined)	49% (498.33 mt dw)			38% (386.46 mt dw)			13% (132.2 mt dw)		100%		
Percent in Amendment 1	42% (427.14 mt dw)			54% (549.18 mt dw)			4% (40.68 mt dw)		100%		

*Northeast Commercial Fisheries Database System (CFDBS). There is no canvass data available for the North Atlantic

Table 2.2 Commercial Landings of SCS (mt dw) by Region and Year.

	Gulf of Mexico			South Atlantic			North Atlantic		Total		
	Canvass	QMS	Logbook	Canvass	QMS	Logbook	CFDBS*	Logbook	Canvass	QMS	Logbook
1999	11.8	14.5	26.5	391.3	314.3	198.4	6.9	2.1	403.1	335.7	227
2000	11.6	24.1	13	357.5	224.1	74.5	18.4	9.3	369.1	266.6	96.8
2001	8.8	18.9	34.5	446.3	301.0	143.9	8.1	7.8	455.1	328.0	186.2
2002	36.9	11.4	42.4	311.1	242.9	156.7	21.4	5.4	348.0	275.7	204.5
2003	47.9	46.1	73.6	168.3	191.9	147.0	5.5	7.4	216.2	243.5	228.1
Total	117.0	115.0	190.0	1674.5	1274.2	720.6	60.3	32.0	1791.5	1449.5	942.6
Average	23.4	23.0	38.0	334.9	254.8	144.1	12.1	6.4	358.3	289.9	188.5
Total Combined	422.0			3669.3			92.3		4183.6		
Average Combined	28.1			244.6			9.2		282.0		
Proposed Percent/Region (Based on Average Combined	10% (45.4 mt dw)			87% (394.98 mt dw)			3% (13.6 mt dw)		100%		
Percent in Amendment 1	4% (18.16 mt dw)			83% (376.82 mt dw)			13% (59.02 mt dw)		100%		

*Northeast Commercial Fisheries Database System (CFDBS). There is no canvass data available for the North Atlantic

Table 2.3 Table Demonstrating Quota Adjustment Described in Alternative A3. The 2004 LCS quotas and harvest levels are provided as an example. Weights are in metric tons (mt) dressed weight (dw). This table is provided as an example and does not include actual data.

Region	Gulf of Mexico	South Atlantic	North Atlantic
Regional Quota Percent	42%	54%	4%
Semi-Annual Quota (mt dw)	190.3	244.7	18.1
Reported Total Harvest (mt dw)	213.4	212.5	0
Amount Overharvest (mt dw)	23.1		
Percent Overharvest	12%		
Amount Underharvest (mt dw)		32.2	18.1
Percent Underharvest		13%	100%
10 Percent Overharvest (mt dw)	19		
10 Percent Underharvest (mt dw)		24.4	1.8
Quota Added or Removed	+19	-17.2	-1.8
Adjusted Quota (mt dw)	209.3	227.5	16.3
Over- Underharvests	-4.1	+7.8	+16.3
Adjusted Quota (mt dw)	205.2	235.3	34.4

Applying the mechanism from Alternative A3: in this example 1.8 mt dw was taken from N. Atlantic and 17.2 mt dw was taken from S. Atlantic to account for up to 10 percent (19 mt dw) of the overharvest for the Gulf of Mexico. The remaining overharvest above 10 percent (4.1 mt dw) would be subtracted from the new Gulf of Mexico quota (209.3 - 4.1 = 205.2). Notice that the underharvests for the S. Atlantic and N. Atlantic regions meet the threshold of at least 10 percent underharvest for each region. According to the criteria listed in Alternative A3, if this threshold were not met for one of the regions, no quota would be transferred from that region. For example, if the S. Atlantic only had a 4 percent underharvest, no quota would have been transferred from that region to the Gulf of Mexico. If the N. Atlantic still had a 100 percent underharvest, then only 1.8 mt dw (10 percent of the N. Atl quota) would have been transferred to the Gulf of Mexico.

Table 2.4 Commercial Shark Fishing Seasons Under Semi-Annual Seasons and Trimester Seasons.

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Semi-Annual Seasons	**First**						**Second**					
Trimester Seasons	**First**				**Second**				**Third**			

Table 2.5a Gulf of Mexico LCS Landings (lbs dw) for Years 1999-2003 by Month and Year from General Canvass Data.

	Gulf of Mexico												
	First Trimester Season				Second Trimester Season				Third Trimester Season				
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1999	418,922	448,075	524,831	19,988	11,131	7,829	772,566	5,066	611,140	165,721	3,018	1,936	2,990,223
2000	402,363	408,090	630,998	10,890	17,547	37,401	837,089	408,673	7,334	3,623	2,574	1,340	2,767,922
2001	530,834	558,519	405,735	5,271	4,217	10,113	801,438	455,171	14,791	2,493	9,812	2,769	2,801,163
2002	379,945	393,514	427,969	225,023	7,780	7,779	884,662	516,094	230,180	11,698	1,381	15,322	3,101,347
2003	422,257	418,278	532,035	244,822	115,078	19,081	1,192,975	771,473	277,462	13,846	7,708	32,711	4,047,726
Total	2,154,321	2,226,476	2,521,568	505,994	155,753	82,203	4,488,730	2,156,477	1,140,907	197,381	24,493	54,078	
Average	430,864	445,295	504,314	101,199	31,151	16,441	897,746	431,295	228,181	39,476	4,899	10,816	
Total Combined	7408359.0				6883163.0				1416859.0				15,708,381
Average Combined	370418.0				344158.2				70843.0				785419.1
Proposed Percent/ Trimester (Based on Average Combined	47% (234.21 mt dw)				44% (219.27 mt dw)				9% (44.85 mt dw)				100%

Table 2.5b South Atlantic LCS Landings (lbs dw) for Years 1999-2003 by Month and Year from General Canvass Data.

	South Atlantic												
	First Trimester Season				Second Trimester Season				Third Trimester Season				
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1999	571,550	421,534	339,120	40,830	30,491	74,196	415,189	48,112	451,402	124,310	23,822	12,804	2,553,360
2000	487,665	548,297	564,793	25,787	49,554	9,038	440,722	167,167	5,693	7,989	25,763	4,927	2,337,395
2001	520,669	291,510	314,970	18,080	17,233	9,123	504,361	272,105	27,250	9,497	12,858	35,315	2,032,971
2002	582,877	322,299	570,990	346,417	23,541	11,108	589,565	213,555	129,874	1,399	6,639	4,367	2,802,631
2003	602,158	259,230	517,017	274,187	78,075	5,093	293,489	128,437	92,995	19,503	30,752	9,471	2,310,407
Total	2,764,919	1,842,870	2,306,890	705,301	198,894	108,558	2,243,326	829,376	707,214	162,698	99,834	66,884	
Average	552,984	368,574	461,378	141,060	39,779	21,712	448,665	165,875	141,443	32,540	19,967	13,377	
Total Combined	7,619,980				3,380,154				1,036,630				12,036,764
Average Combined	380,999				169,008				51,832				601,838
Proposed Percent/ Trimester (Based on Average Combined	63% (243.47 mt dw)				28% (108.21 mt dw)				9% (34.78 mt dw)				100%

Table 2.5c North Atlantic LCS Landings (lbs dw) for Years 1999-2003 by Month and Year from General Canvass Data.

	North Atlantic												
	First Trimester Season				Second Trimester Season				Third Trimester Season				
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1999	72,709	58,973	31,241	18,449	14,011	29,543	174,398	7,959	24,793	21,140	24,390	17,260	494,866
2000	45,633	16,150	25,906	9,598	8,004	30,414	253,452	48,328	7,243	15,764	13,956	875	475,323
2001	107,732	62,585	63,556	10,878	228,844	47,475	267,857	65,164	19,771	7,508	8,927	15,387	905,684
2002	170,021	62,249	144,728	97,689	23,537	118,398	243,237	109,654	36,511	6,247	4,664	2,011	1,018,946
2003	72,043	36,209	86,035	70,664	72,325	162,726	129,323	91,138	25,887	22,257	15,231	3,904	787,742
Total	468,138	236,166	351,466	207,278	346,721	388,556	1,068,267	322,243	114,205	72,916	67,168	39,437	
Average	93,628	47,233	70,293	41,456	69,344	77,711	213,653	64,449	22,841	14,583	13,434	7,887	
Total Combined	1,263,048				2,125,787				293,726				3,682,561
Average Combined	63,152				106,289				14,686				184,128
Proposed Percent/ Trimester (Based on Average Combined	34% (44.98 mt dw)				58% (76.67 mt dw)				8% (10.58 mt dw)				100%

Table 2.6a Gulf of Mexico SCS Landings (lbs dw) for Years 1999-2003 by Month and Year from General Canvass Data.

	Gulf of Mexico												
	First Trimester Season				Second Trimester Season				Third Trimester Season				
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1999	0	0	235	609	1,213	1,540	7,216	13	4,752	49	8,018	2,460	26,115
2000	12,078	1,200	5,607	27	54	407	4,068	1,838	306	0	35	0	25,620
2001	0	7,101	10,645	179	35	311	52	749	209	8	59	0	19,348
2002	20,715	11,258	19,314	15,733	32	60	10,496	1,992	1,553	97	95	78	81,423
2003	5,040	13,773	24,300	3,913	2,440	569	12,459	28,815	12,353	169	572	1,174	105,577
Total	37,833	33,332	60,101	20,471	3,774	2,887	34,291	33,407	19,173	323	8,779	3,712	
Average	7,567	6,666	12,020	4,094	755	577	6,858	6,681	3,835	65	1,756	742	
Total Combined	151,737				74,359				31,987				258,083
Average Combined	75,896				3,718				1,599				12,904
Proposed Percent/ Trimester (Based on Average Combined)	59% (26.79 mt dw)				29% (13.17 mt dw)				12% (5.45 mt dw)				100

Table 2.6b South Atlantic SCS Landings (lbs dw) for Years 1999-2003 by Month and Year from General Canvass Data.

	South Atlantic												
	First Trimester Season				Second Trimester Season				Third Trimester Season				
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1999	14,958	48,665	20,330	46,557	136,498	149,164	159,347	134,599	108,453	18,700	10,948	14,418	862,637
2000	13,645	41,757	56,434	35,539	56,828	114,896	87,385	145,813	108,820	74,382	32,472	20,120	788,091
2001	58,918	76,708	24,312	63,639	66,168	148,745	125,672	135,407	140,374	36,014	69,814	38,002	983,973
2002	29,412	16,784	34,119	72,890	34,581	96,792	89,532	99,055	99,540	80,969	27,371	4,814	685,859
2003	27,447	12,061	31,636	18,975	15,718	29,988	38,957	76,861	56,921	38,926	7,990	15,621	371,101
Total	144,380	195,975	166,831	237,800	309,793	539,585	500,893	591,735	514,108	248,991	148,595	92,975	
Average	28,876	39,195	33,366	47,560	61,959	107,917	100,178	118,347	102,822	49,798	29,719	15,895	
Total Combined	744,986				1,942,006				1,004,669				3,691,661
Average Combined	37,249				97,100				50,234				184,583
Proposed Percent/ Trimester (Based on Average Combined	20% (79.0 mt dw)				53% (209.34 mt dw)				27% (106.65 mt dw)				100

Table 2.6c North Atlantic SCS Landings (lbs dw) for Years 1999-2003 by Month and Year from General Canvass Data.

	North Atlantic												
	First Trimester Season				Second Trimester Season				Third Trimester Season				
	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1999	1,791	785	914	100	324	6,055	560	506	271	251	2,347	1,338	15,242
2000	357	164	324	35	1,114	143	229	572	4,715	32,197	744	0	40,594
2001	523	0	293	239	991	5,188	32	0	4,715	2,091	60	3,723	17,855
2002	954	99	19	23	1,001	815	735	6	3,465	37,706	2,230	190	47,243
2003	59	10	696	762	750	1,340	525	1,775	915	1,851	2,060	1,467	12,210
Total	3,684	1,058	2,246	1,159	4,180	13,541	2,081	2,859	14,081	74,096	7,441	6,718	
Average	737	212	449	232	836	2,708	416	572	2,816	14,819	1,488	1,343	
Total Combined	8,147				22,661				102,336				133,144
Average Combined	407				1,133				5,117				6,657
Proposed Percent/ Trimester (Based on Average Combined	6% (0.82 mt dw)				17% (2.31 mt dw)				77% (10.47 mt dw)				100

Figure 2.7a. Proposed distribution of LCS quotas among regions and trimester seasons. Quotas are not adjusted for over- or underharvests.

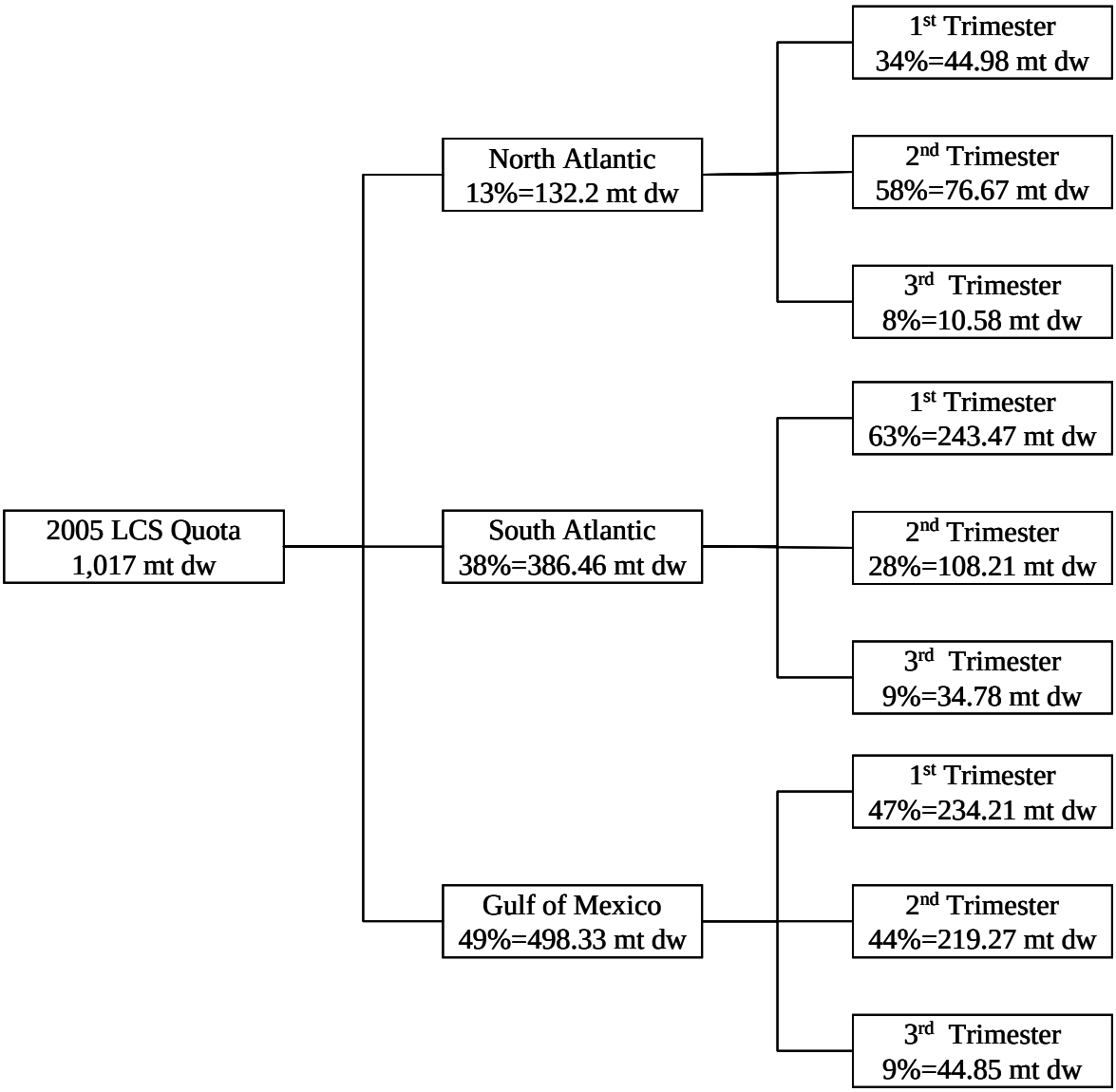
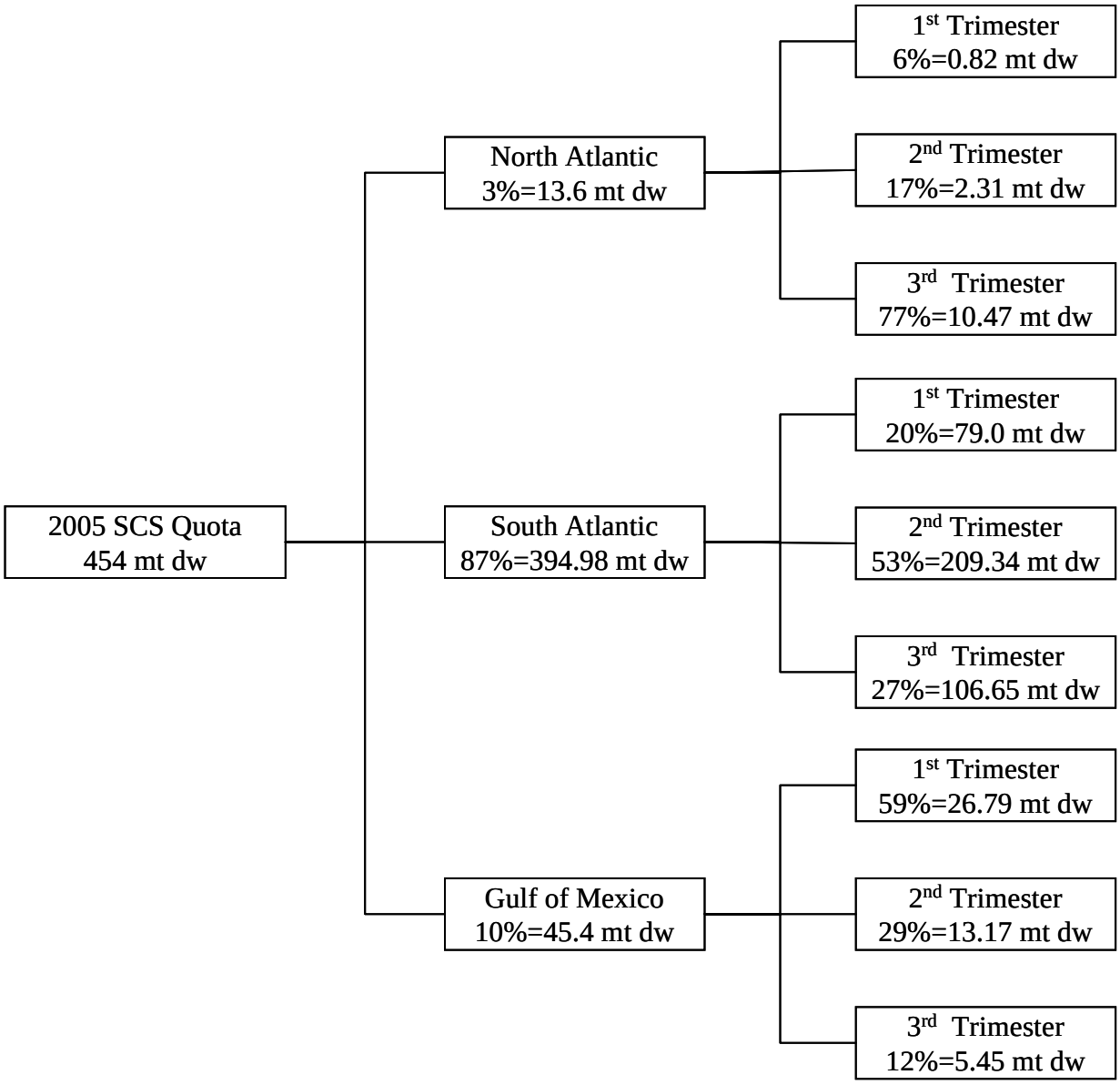


Figure 2.7b. Proposed distribution of SCS quota among regions and trimester seasons. Quotas are not adjusted for over- or underharvests**.**



3.0 AFFECTED ENVIRONMENT

Sharks, skates, and rays are included in the class Selachii, and together with chimaeras, comprise the class Chondrichthyes, or cartilaginous fishes. This diverse group of fishes can be distinguished from bony fishes (class Osteichthyes) by their cartilaginous skeleton. The great majority of commercially and recreationally important species of Chondrichthyans are Elasmobranchs. Elasmobranchs are primarily top-level carnivores and their abundance is relatively small compared to lower trophic levels. Elasmobranchs are more susceptible to overfishing than most bony fishes because of their late age of sexual maturity and relatively slow growth rates. Recovery of populations from severe depletions (caused either by natural phenomena or human-induced mortality) can take longer for elasmobranch species because of life history traits.

The information presented here should be considered a summary. More detailed descriptions of the life histories, and population status of shark species under authority of NOAA Fisheries can be found in the 1999 HMS FMP, the 2002 LCS and SCS stock assessments, the 2003 and 2004 SAFE reports, and Amendment 1 to the HMS FMP.

3.1 LARGE COASTAL SHARKS

On October 17, 2002, NOAA Fisheries announced the availability of the 2002 LCS stock assessment and the workshop meeting report (67 FR 64098). The results of this stock assessment indicate that the LCS complex is still overfished and overfishing is occurring. Additionally, the 2002 LCS stock assessment found that sandbar sharks are no longer overfished. Based on these results, a rebuilding plan for LCS was established in Amendment 1 to the HMS FMP. Under this rebuilding plan, LCS should be rebuilt by the year 2030.

3.2 SMALL COASTAL SHARKS

On May 8, 2002, NOAA Fisheries announced the availability of the first SCS stock assessment since 1992 (67 FR 30879). The Mote Marine Laboratory and the University of Florida provided NOAA Fisheries with another SCS assessment in August 2002. Both of these stock assessments indicate that overfishing is occurring on finetooth sharks. The three other species in the SCS complex (Atlantic sharpnose, bonnethead, and blacknose) are not overfished and overfishing is not occurring. Amendment 1 to the HMS FMP established management measures to maintain the status of SCS.

3.3 DESCRIPTION OF ATLANTIC SHARK FISHERIES BY GEAR TYPE

Commercial shark fishing effort is generally concentrated in the southeastern United States and Gulf of Mexico (Cortes and Neer, 2002). Approximately 84-91 percent of LCS, 56-64 percent of pelagic sharks, and nearly all of SCS landings came from the southeast region (Cortes and Neer, 2002). McHugh and Murray (1997) found in a survey of shark fishery participants that the largest concentration of bottom longline fishing vessels is found along the central Gulf coast of Florida, with the John's Pass - Madeira Beach area considered the center of directed shark

fishing activities. Consistent with other HMS fisheries, some shark fishery participants move from their home ports to other fishing areas as the seasons change and fish stocks move. However, analyses in Amendment 1 indicate that vessels using bottom longline gear are not as 'migratory' as vessels using pelagic longline gear.

Below is a description of Atlantic shark fisheries by gear-type. Please refer to section 2.4 and 2.5 of the HMS FMP, section 4.5 of the 2003 SAFE, and section 3.3 of Amendment1 to the HMS FMP for additional information. The gears primarily employed in the directed LCS and SCS fisheries in the Gulf of Mexico and South Atlantic are bottom longline, gillnet, and pelagic longline.

3.3.1 BOTTOM LONGLINE FISHERY

The Atlantic bottom longline fishery targets both LCS and SCS and are the primary commercial gear employed in these fisheries in all regions. Gear characteristics vary by region, but in general, an approximately ten-mile long monofilament bottom longline, containing about 600 hooks, is fished overnight. Skates, sharks, or various finfishes are used as bait. The gear typically consists of a heavy monofilament mainline with lighter weight monofilament gangions. Some fishermen may occasionally use a flexible 1/16 inch wire rope as gangion material or as a short leader above the hook.

The Commercial Shark Fishery Observer Program (CSFOP) documents the bottom-longline fishery, and between 2000 and 2002, found that LCS comprised 66.2 percent of the total catch (Burgess and Morgan, 2002). In 2003, LCS comprised 71.5 and 64.8 percent of the total catch for the first and second semi-annual seasons respectively (Burgess and Morgan, 2003, 2004). Sandbar sharks dominated the observed catches in the Carolina and Florida Gulf Coast regions. In the Carolina region, sandbar sharks comprised 67.4 percent of the total catch and 77.2 percent of the large coastal shark catch. In the Florida Gulf region, sandbar sharks comprised 62.0 percent of the total catch and 66.5 percent of the large coastal catch. In the Florida East Coast region, sandbar sharks comprised 17.2 percent of the total observed catch, and 37.1 percent of the large coastal shark catch. Tiger sharks comprised 17.1 percent of the total observed catch and 37.0 percent of the large coastal shark catch, while blacktip sharks comprised 7.9 percent of total observed catch and 17.2 percent of the large coastal catch (Burgess and Morgan, 2002).

In 2003, CSFOP data show that the SCS comprised 30.0 percent of the total observed catch (Burgess and Morgan, 2003; Burgess and Morgan 2004). The SCS catch was dominated by Atlantic sharpnose shark (96.6 percent). The remainder of the small coastal catch consisted of blacknose (3.8 percent), and bonnethead sharks (0.2 percent) (Burgess and Morgan, 2003). The Atlantic sharpnose shark was the most frequently caught shark in the Florida East Coast region and accounted for 51.6 percent of the total observed catch, and 96.0 percent of the small coastal catch in that region (Burgess and Morgan, 2002).

3.3.2 GILLNET FISHERY

The southeast shark drift gillnet fishery is comprised of about five vessels based out of two ports in northern Florida (South Atlantic Region) that use nets typically 456 to 2,280 meters long and 6.1 to 15.2 meters deep, with stretched mesh from 12.7 to 22.9 cm. This fishery is currently prohibited in the state waters off South Carolina, Georgia, and Florida, thereby forcing some of these vessels into deeper waters under Federal jurisdiction, where gillnets are less effective. The entire process (set to haulback) takes approximately 9 hours (Carlson and Baremore, 2002a). A total of 41 strikenet sets were observed on 3 vessels from January through September 2003. However, 51 additional trips were made when the observer departed with the vessel but no strike was made. Reasons for not striking for sharks included the inability to locate the school, sharks located in state waters, and poor weather conditions (Carlson and Baremore, 2003).

NOAA Fisheries implemented a restricted area to reduce bycatch of right whales from November 15 through March 31. In this area only gillnets used in a strikenet fashion can operate during times when right whales are present (September 23, 2002; 67 FR 59471). Operation in this area at that time requires 100 percent observer coverage. This is done with a smaller second vessel actively setting the net around a school of sharks or the drift gillnet vessel actively setting the net in the wake of a shrimp vessel. Vessels fishing in a strikenet fashion used nets 364.8 meters long, 30.4 meters deep, and with mesh size 22.9 cm. Observed catch in the strikenet fishery consisted of 6 species of sharks (96.7 percent of total number caught) and 7 species of teleosts and rays (3.3 percent of total number caught). No marine mammals or sea turtles were observed caught. The blacktip shark made up 94.7 percent of the number of sharks caught. Bycatch included crevalle jack, red drum, and great barracuda, (Carlson and Baremore, 2003).

A total of 24 driftnet sets were observed on 5 vessels from February through September, 2004. Driftnet vessels carried nets ranging in length from 547.2-2736 m; depths from 7.6-13.7 m and stretched mesh sizes from 12.7-22.9 cm. The most frequently used mesh size was 12.7 cm. For all observed driftnet sets, set duration averaged 0.4 hrs. Sets were made in sea water averaging 15.4 m deep. Haulback and processing of the catch averaged 3.4 hrs. Average soak time for the driftnet (time net was first set minus time haulback began) was 10.8 hrs.

The observed driftnet catch consisted of 9 species of sharks, 23 species of teleosts, 2 species of rays, and 1 species of marine mammal. Total observed catch composition (percent of numbers caught) were 79.0 percent sharks, 20.7 percent teleosts, 0.3 percent rays, and 0.03 percent protected species (i.e marine mammals, sea turtles, sawfish). Three species of sharks made up 92.9 percent (by number) of the observed shark catch. These species were the Atlantic sharpnose shark, blacknose shark, and finetooth shark. By weight, the shark catch was made up of Atlantic sharpnose shark, (55.3 percent), blacknose shark (17.1 percent), blacktip shark (10.7 percent), and finetooth shark (10.3 percent). Four species of teleosts and rays made up 90.8 percent by number of the overall non-shark species. These species were little tunny (45.6 percent); king mackerel (23.3 percent); great barracuda (11.8 percent); and red drum (10.2 percent). For incidental driftnet catch species, the highest proportion discarded dead (with observed catch greater than 10 specimens) was Atlantic sailfish, (100.0 percent), king mackerel (78.3 percent), and cobia, (28.7 percent). Red drum had the highest discard proportion alive (98.1 percent) (Carlson and Baremore, 2003).

3.3.3 PELAGIC LONGLINE FISHERY

The U.S. pelagic longline fishery for Atlantic HMS primarily targets swordfish, yellowfin tuna, or bigeye tuna in various areas and seasons and catches sharks incidentally. Although this gear can be modified (i.e., depth of set, hook type, etc.) to target swordfish, tuna, or sharks, like other hook and line fisheries, it is a multi-species fishery. Longline gear sometimes attracts and hooks non-target finfish with no commercial value, as well as species that cannot be retained by commercial fishermen, such as billfish or some species of sharks. Pelagic longlines may also interact with protected species such as marine mammals, sea turtles and sea birds.

Pelagic longline gear is composed of several parts. The primary mainline can vary from five to 40 miles in length, with approximately 20 to 30 hooks per mile. The depth of the mainline is determined by ocean currents and the length of the floatline, which connects the mainline to several buoys and periodic markers with radar reflectors and radio beacons. Lightsticks, which contain chemicals that emit a glowing light, are often used to attract bait fish which may, in turn, attract pelagic predators. When targeting swordfish, the lines generally are deployed at sunset and hauled in at sunrise to take advantage of the nocturnal near-surface feeding habits of the large pelagic species (Berkeley *et al*., 1981). In general, longlines targeting tuna are set in the morning, deeper in the water column, and hauled in the evening. Except for vessels of the distant water fleet which undertake extended trips, fishing vessels preferentially target swordfish during periods when the moon is full to take advantage of increased densities of pelagic species near the surface.

From May 1992 through December 2000, the Pelagic Observer Program (POP) recorded a total of 4,612 elasmobranchs (15 percent of the total catch) caught off the southeastern U.S. coast in fisheries targeting tunas and swordfish (Beerkircher *et al.*, 2004). Of the 22 elasmobranch species observed, silky sharks were numerically dominant (31.4 percent of the elasmobranch catch), with silky, dusky, night, blue, unidentified, tiger, and scalloped hammerhead sharks making up the majority (84.6 percent) (Beerkircher *et al.*, 2004).

3.4 PROTECTED RESOURCES

Under the Marine Mammal Protection Act (MMPA) (16 U.S.C. 1361 et seq.) the Atlantic shark gillnet fishery is classified as Category II (occasional serious injuries and mortalities), and the shark bottom longline as Category III (remote likelihood or no known serious injuries or mortalities) (July 20, 2004, 69 FR 43338). A Biological Opinion for Atlantic shark fisheries (NOAA Fisheries, 2003a) was prepared in October of 2003 in response to the proposed measures in Amendment 1 to the HMS FMP. It concluded that the continued operation of the shark fisheries would not adversely affect marine mammals.

In accordance with the MMPA, NOAA Fisheries published stock assessment reports for Atlantic and Gulf of Mexico marine mammals in September 2002. Species such as bottlenose dolphin, north Atlantic right whale, Atlantic spotted dolphin, humpback whale, minke whale, harbor porpoise, long-finned pilot whale, short finned pilot whale, white-sided dolphin, common dolphin, harbor seal, and harp seal are sometimes hooked during commercial fishing operations

and fishermen are required to report takes of mammals to NOAA Fisheries in a marine mammal logbook (69 FR 43338, July 15, 2004).

Observations in 1996 through 2000 have been extrapolated to estimate serious injury and mortality of 784 marine mammals, including 242 Risso's dolphin, 514 long and short-finned pilot whales, and 28 pygmy sperm whales by pelagic longline fisheries (Waring *et al.*, 2002). The shark bottom longline fishery has been observed to interact with three delphinid species between 1994 and 2004 (Morgan pers. comm., 2004). Bycatch estimates for the shark bottom longline fishery have not been extrapolated for marine mammals. Observed takes of marine mammals in the Southeast Atlantic shark gillnet fishery during 1999-2003, totaled 12 bottlenose dolphins and four spotted dolphins. Extrapolated observations from these data suggest serious injury and mortality of 25 bottlenose dolphin and one Atlantic spotted dolphin in the shark gillnet fishery from 1999 through 2002 (Garrison, 2003). In 2003 there was one smalltooth sawfish interaction in the shark gillnet fishery in which the animal was released alive (Carlson and Baremore 2003).

This section provides a summary of background information from the October 29, 2003, Biological Opinion (NOAA Fisheries 2003a). Please refer to Section 3.5 of the HMS FMP (NOAA Fisheries, 1999) and Section 8.0 of the latest SAFE (NOAA Fisheries, 2003b) report for additional information. Additional information specific to the pelagic longline fishery can be found in the Final Supplemental Environmental Impact Statement for the Reduction of Bycatch and Bycatch Mortality in the Atlantic Pelagic Longline Fishery (NOAA Fisheries, 2004). The 2003 Biological Opinion (NOAA Fisheries 2003a), found that the continuation of the shark fisheries were not likely to jeopardize the continued existence of the endangered Kemp's Ridley, green, hawksbill, and leatherback sea turtles, and the threatened loggerhead sea turtle. Critical habitat has not been designated for these species in the action area, therefore, none should be affected. The 2003 BiOp included an ITS for all sea turtles and smalltooth sawfish. Further detail on the October 2003 Biological Opinion is provided in Amendment 1 to the HMS FMP, Section 4.10 (NOAA Fisheries 2003c).

Loggerhead Sea Turtles

In the bottom longline fishery a total of 55 sea turtles out of 862 observed sets, were caught from 1994 through the first semi-annual season of 2004 (See Table 2.5 and Figures 2.1)(A. Morgan, pers. comm.). Of the 55 observed sea turtles, 43 were loggerhead sea turtles of which 26 were released alive. Another nine loggerheads were released in an unknown condition and eight were released dead. Based on extrapolation of observer data in Amendment 1 to the HMS FMP, it was estimated that a total of 2,003 loggerhead sea turtles were taken in the shark bottom longline fishery from 1994 through 2002 (NOAA Fisheries, 2003a). An additional 503 unidentified sea turtles were estimated to have been taken. On average, 222 loggerhead sea turtles and 56 unidentified sea turtles were taken annually during this time period in the shark bottom longline fishery.

In the shark gillnet fishery, loggerhead sea turtles are rarely caught. During the 1999 right whale calving season no loggerhead sea turtles were caught in this fishery (Carlson and Lee, 1999). No

loggerhead sea turtles were observed caught with strikenets during the 2000-2002 right whale calving seasons (Carlson 2000; Carlson and Baremore, 2001; Carlson and Baremore, 2002a). However, three loggerhead sea turtles have been observed caught with drift gillnets during right whale calving season, one each year from 2000 to 2002 (Carlson, 2000; Carlson and Baremore, 2001; Carlson and Baremore, 2002a; Garrison, 2003).

During the 2000 and 2001 non-right whale calving seasons, no loggerhead sea turtles were observed caught in gillnets fished in a strikenet method and one loggerhead sea turtle was observed caught and released alive in gillnets fished in a driftnet method (Carlson and Baremore, 2001). No loggerhead sea turtles were caught outside of the right whale calving season in 2002 (Carlson and Baremore, 2002b), and no loggerhead turtles were observed caught during or after the right whale calving season in 2003 or the 2004 first semi-annual season in the directed shark gillnet fishery (Carlson and Baremore 2003; Carlson pers. comm). One loggerhead sea turtle mortality was reported in abandoned fishing gear in January 2004, and was not considered part of normal fishing operations.

Leatherback Sea Turtles

Of the 55 observed sea turtle interactions in the bottom longline fishery from 1994-2004, there were four interactions with leatherback sea turtles of which one was dead and three were released with their condition unknown. Based on extrapolation of observer data, it was estimated that 269 leatherback sea turtles were taken in the shark bottom longline fishery from 1994 through 2002 (NOAA Fisheries, 2003a). On average, 30 leatherback sea turtles each year were taken by the shark bottom longline fishery during 1994 through 2002. This analysis only estimates takes without discriminating between live and dead releases. Of the observed leatherback takes, 25 percent were lethal. Applying the observed mortality rate of 25 percent to the total leatherback takes and an additional 42 percent post-release mortality estimate due to hook ingestion to the remaining, results in an estimated total number of leatherbacks killed as a result of the selected action at 17 per year. The leatherback mortality is very conservative because it is known that leatherbacks rarely ingest or bite hooks, but are usually foul hooked on their flippers or carapaces, reducing the likelihood of post-hooking release mortality. However, leatherback-specific data for this fishery is not available and therefore the most conservative estimate is used.

In the shark gillnet fishery, leatherback sea turtles are sporadically caught. During the 1999 right whale calving season two leatherback sea turtles were caught in this fishery, and both were released alive (Carlson and Lee, 1999). No leatherback sea turtles were observed caught with strikenets during the 2000-2002 right whale calving seasons (Carlson, 2000; Carlson and Baremore, 2001; Carlson and Baremore, 2002a). Leatherback sea turtles have been observed caught in shark drift gillnets including 14 in 2001 and two in 2002 (Carlson, 2000; Carlson and Baremore, 2001; Carlson and Baremore, 2002a; Garrison, 2003). NOAA Fisheries temporarily closed the shark gillnet fishery (strikenetting was allowed) from March 9 to April 9, 2001, due to the increased number of leatherback interactions that year (66 FR 15045, March 15, 2001).

From 2000-2004, no leatherback sea turtles were observed caught in gillnets fished in strikenet or driftnet methods (Carlson and Baremore, 2001; 2002b; 2003; Carlson pers. comm.).

Smalltooth Sawfish

As of April 1, 2003, NOAA Fisheries listed smalltooth sawfish as an endangered species (68 FR 15674) under the Endangered Species Act (ESA). After reviewing the best scientific and commercial information, the status review team determined that the continued existence of the U.S. Distinct Population Segment of smalltooth sawfish was in danger of extinction throughout all or a significant portion of its range from a combination of the following four listing factors: the present or threatened destruction, modification, or curtailment of habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; inadequacy of existing regulatory mechanisms; and other natural or manmade factors affecting its continued existence.

To date there has been only one observed catch of a smalltooth sawfish in shark gillnet fisheries. The sawfish was taken on June 25, 2003, in a gillnet set off of southeast Florida and it was released alive (Carlson and Baremore, 2003). The set was characteristic of a typical drift gillnet set, with gear extending 30 to 40 feet deep in 50 to 60 feet of water. Prior to this event it was speculated that the depth at which drift gillnets are set above the sea floor may preclude smalltooth sawfish from being caught. Although sometimes described as a lethargic demersal species, smalltooth sawfish feed mostly on schooling fishing, thus they would occur higher in the water column during feeding activity. In fact, smalltooth sawfish and Atlantic sharks may be attracted to the same schools of fish, potentially making smalltooth sawfish quite vulnerable if present in the area fished. The previous absence of smalltooth sawfish incidental capture records is more likely attributed to the relatively low effort in this fishery and the rarity of smalltooth sawfish, especially in Federal waters. These factors may result in little overlap of the species with the gear.

The recently observed smalltooth sawfish was cut from the net and released alive with no visible injuries. This indicates that smalltooth sawfish can be removed safely if entangled gear is sacrificed.

Given the high rate of observer coverage in the shark gillnet fishery, NOAA Fisheries believes that smalltooth sawfish takes in this fishery are very rare. The fact that there were no smalltooth sawfish caught during 2001 when 100 percent of the fishing effort was observed, indicates that smalltooth sawfish takes (observed or total) most likely do not occur on annual basis. Based on this information, the 2003 BiOp estimated that one incidental capture of a sawfish (released alive) over the next five years, will occur as a result of the use of gillnets in this fishery (NOAA Fisheries, 2003a).

However, sawfish have been observed caught (seven known interactions, six released alive, one released in unknown condition) in shark bottom longline fisheries from 1994 through 2003 (Morgan pers. comm., 2003, Burgess and Morgan 2004). Based on these observations, expanded sawfish take estimates for 1994-2002 were developed for the shark bottom longline

fishery (NOAA Fisheries, 2003a). A total of 466 sawfish were estimated to have been taken in this fishery during 1994-2002, resulting in an average of 52 per year. Additionally, it is important to note that all of the sawfish takes observed, except for one, were released alive.

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4.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES CONSIDERED

All of the alternatives described in this document would only apply to fishermen on vessels that have been issued federal limited access shark permits. The selected alternatives describe methods for quota distribution within the large coastal sharks (LCS) and small coastal sharks (SCS) fisheries.

4.1 LARGE AND SMALL COASTAL SHARK REGIONAL QUOTA LEVELS

As described in chapter two, the alternatives for LCS and SCS regional quota levels are:

A1 Maintain Current Regional Quotas (No Action)

A2 Establish New Regional Quotas Based on Updated Landings Information

A3 *Establish New Regional Quotas Based on Updated Landings Information and Develop a Framework for Adjustment of Regional Quotas, As Necessary - Preferred Alternative*

A4 Establish a Single Quota for LCS and a Single Quota for SCS

A5 Establish a Single Quota for SCS and Regional Quota for LCS

A6 Combine Quotas for the Gulf of Mexico and South Atlantic

Alternative A3 is the preferred alternative.

Ecological Impacts

For each of the alternatives being considered, the overall quotas for LCS and SCS would not be changed and would continue to be based on MSY as described in Amendment 1 to the HMS FMP. MSY is determined for the entire Atlantic region, rather than regionally, because of the fact that most of these species are migratory in nature and move to different locales throughout the year. As a result of using MSY as a basis for setting quotas and implementing a new rebuilding plan, the overall quota for LCS in 2004 was reduced compared to 2002 and 2003. The overall LCS quota in 2005 will remain at the current level of 1,107 mt dw. Estimates of MSY will be updated based on future stock assessments, and any proposed changes to the overall quotas would require further rulemaking. All of the alternatives considered for updating regional quotas would be unlikely to impact the stocks as the overall quotas have been reduced compared to 2002 and 2003 and still conform to the rebuilding plan in Amendment 1 to the HMS FMP. Any over- or underharvests from 2004 will be accounted for in the 2005 regional quotas.

Alternative A1 would maintain the current regional quotas established in Amendment 1 to the HMS FMP which were based upon average landings from 1999-2001. This alternative may not allow the SCS fishery in the Gulf of Mexico to open for the first trimester season in 2005 due to

an overharvest of 122 percent of the quota that occurred in the Gulf of Mexico during the first semiannual season of 2004. Similarly, for LCS, the 2005 first trimester season would likely be shortened, however not significantly, to account for a 21 percent overharvest of LCS during the first semi-annual season of 2004. Because data from 2002 and 2003 indicate that fishing effort has changed since 2001, using data from 1999-2001 exclusively may not provide the most representative sample for which to establish quotas. Furthermore, this alternative does not provide the ability to modify quotas using updated landings information from 2002, 2003, or in future years.

Alternatives A2 and A3 would modify regional, but not the overall quotas, and as such, are not expected to have adverse negative ecological impacts. Alternative A2 would result in a one-time adjustment to the regional quotas based on updated landings information from 1999 through 2003. This alternative would adjust regional quota levels corresponding to increased landings in the Gulf of Mexico and North Atlantic, but would still be within the range considered in Amendment 1. These increases in landings may be the result of increased fishing effort and/or increased abundance of LCS and SCS in the Gulf of Mexico and North Atlantic. Quotas would be reduced in the South Atlantic to compensate for these increases.

Alternative A3 would establish the same regional quotas as A2, however, this alternative also proposes a framework for the annual review of regional quotas and, adjustment as necessary. Adjustments would provide managers with the flexibility to divide regional quotas for the upcoming fishing year based upon a number of factors, including, but not limited to: the current fishing years' harvest (total landings), environmental factors, the amount of available quota remaining, previous weather patterns in a particular region which may have influenced fishing effort and landings, and the ability of vessels within, and in other regions, to harvest the additional quota.

In order to mitigate incentives to overharvest, and to prevent an accumulation of quota in a particular region over time, annual quota transfers would be limited to 10 percent and would be dependent on whether or not another region has at least a 10 percent underharvest for the same species group and season. The flexibility to modify regional quotas on an annual basis, if necessary, allows managers to adapt to changing environmental conditions or new data regarding regional shark pupping that may limit recruitment. This alternative depends on annual assessments of landings by region and on the timely reporting of accurate data for its efficacy at determining the subsequent year's quota. This alternative would ensure that more of the unharvested quota is utilized, and that unharvested quota does not accumulate in a particular region or regions. Used in combination, alternatives A3 and B3 would allow for adjustments to both regional and trimester season quota distributions, respectively, to prevent such an accumulation of quota in a specific region or season over time. The would help to stabilize the fishery at current effort levels and avoid encouraging activation of latent fishing effort.

Additional flexibility in distributing quotas would help address changes in fishing effort on an annual basis and allow for distribution of fishing effort to minimize interactions with juvenile and reproductive female sharks while not affecting overall rebuilding plans for overfished species of LCS. Alternative A3 coupled with trimester seasons effective January 1, 2005, could

reduce fishing pressure during shark pupping (May - August) in all regions. Furthermore, increases to the LCS quota for the Gulf of Mexico (+71.2 mt dw or 7 percent of overall quota) and North Atlantic (+91 mt dw or 9 percent) in the 2005 fishing year would be offset by a decrease in the South Atlantic (-162 mt dw or 16 percent).

In general, bycatch rates are low in both the bottom longline and shark gillnet fisheries at five and seven percent, respectively. Observer data indicates that bycatch rates for the bottom longline fishery are consistent between the Gulf of Mexico and South Atlantic. Therefore, increases in fishing effort (and bycatch) in the Gulf of Mexico as a result of increased quota (+7 percent or 72.4 mt dw) should be offset by a more substantial decrease in quota (-16 percent or 162 mt dw) and corresponding effort (and bycatch) in the South Atlantic. Bycatch associated with the gillnet fishery is not expected to increase significantly as a result of the quota shift because these vessels fish predominately in a limited portion of the South Atlantic for SCS and that quota is only being increased by 19 mt dw (4 percent). Gillnet vessels are subject to high levels of observer coverage to actively monitor bycatch in this fishery.

Similarly, both Alternatives A2 and A3 are not expected to have adverse negative impacts on protected resources. Since 1994, there have been 23 and 31 observed interactions with sea turtles in the Gulf of Mexico and South Atlantic, respectively. An increase in quota (and fishing effort) of seven percent in the Gulf of Mexico is not expected to increase interaction levels above that deemed permissible in the incidental take statement for the shark fishery. The concurrent decrease in quota (and fishing effort) in the South Atlantic may reduce interactions with sea turtles in the shark fishery as a whole as this is where the majority of observed interactions took place.

For smalltooth sawfish, there have been 8 observed interactions in the shark bottom longline fishery from 1996-2004, with 7 of those interactions occurring in the Gulf of Mexico, and one in the South Atlantic. Interactions with this species are extremely rare events. For example, there were no observed interactions in 2004, fishery-wide. At the time of this writing, the Gulf of Mexico LCS fishery has closed for the year, and there were no observed interactions with smalltooth sawfish. While substantial increases in effort could result in increased sawfish interactions, the increase in quota to the GOM is unlikely to be enough to increase interaction rates to levels outside the incidental take statement. Particularly since the current LCS quota is lower than historical quotas, and; an intent of this alternative is to correct inconsistencies between historic and current fishing effort in the regions. Review of future landings data and subsequent adjustment of quota, as necessary, could minimize the potential for negative ecological impacts as a result of increased interactions with endangered species due to levels of fishing effort in a particular region.

Alternative A4 would establish a single quota for LCS and SCS, eliminating the existing regional quotas. Regional quotas as described in Alternatives A1-A3 may increase the burden on managers to monitor the fishery on a finer scale than in the past, and potentially create problems that were not present under a single quota management system. For example, rulemaking would not have been required to address changes in regional harvests under a single quota management system as long as the overall quota was not exceeded. Any over- or

underharvests would have been accounted for the following year. Regional quotas provide a means to ensure that historical catches are maintained, account for regional differences in fishing effort, and provide flexibility to reduce mortality on juveniles and reproductive female sharks.

Alternative A4 was in place from 1993 to 2003 and was changed in Amendment 1 to the HMS FMP to allow additional flexibility to manage the commercial shark fishery on a regional basis. Based on past landings data, the majority of the SCS and the LCS quotas are harvested in the South Atlantic and Gulf of Mexico. Less flexibility exists without regional quotas because regional pupping areas cannot be closed and there are fewer options in the case of an over- or underharvest.

Alternative A5 would establish a single quota for SCS and regional quotas for LCS with the provision that adjustments could be made to the LCS quota on an annual basis (similar to A3). It may be appropriate to remove the North Atlantic regional quota for SCS as most of their landings are in the South Atlantic and Gulf of Mexico, however, this alternative does not provide NOAA Fisheries with the opportunity to manage SCS stocks in these regions with the resolution afforded by regional quotas.

Alternative A6 would combine the quotas for the Gulf of Mexico and South Atlanti based on those in Amendment 1 to the HMS FMP resulting in two regional quotas for LCS and SCS (Gulf of Mexico/South Atlantic and North Atlantic). Combining the Gulf of Mexico and South Atlantic would account for 96 and 87percent of the LCS and SCS landings, respectively. Many participants presently fish in both regions. This alternative would not result in the same "derby-style" fishing as A4 because of the fact that the North Atlantic would still be guaranteed a portion of the quota. This option may not prevent future closures in the Gulf of Mexico or South Atlantic as this region combined could continue to achieve landings over an increased combined quota.

None of the alternatives is expected to have a negative ecological impact on Essential Fish Habitat (EFH) or on protected resources. Impacts on EFH and protected resources were analyzed in Amendment 1 to the HMS FMP, and this action would not change the rebuilding plan for LCS or alter in any of the management measures established in Amendment 1 to the HMS FMP. The October 29, 2003, Biological Opinion found that the continued operation of the Atlantic commercial shark fishery was not likely to jeopardize sea turtles or any other protected species.

Social and Economic Impacts

Adverse economic and social impacts to the commercial shark fishery are not expected as a result of the alternatives described for regional quota distribution because the overall quotas for LCS and SCS would not be changed. However, adjusting regional quotas may have short-term, minimal negative social and economic impacts on the region or regions whose quotas are being lowered, and short-term, minimal positive impacts on regions whose quotas would be increased. These adjustments are based on landings data that indicates changes in regional fishing effort and therefore increases or reductions should reflect current landings, therefore minimizing

impacts. Negative impacts could result in the South Atlantic region, for which the LCS quota would be lowered from 54 percent of the overall quota in 2003, to 38 percent of the overall quota in 2005 (Table 2.1). Regional LCS quotas for the Gulf of Mexico and North Atlantic would be slightly higher. Conversely, SCS quotas for the South Atlantic and Gulf of Mexico would be raised, and quotas for the North Atlantic would be lowered (Table 2.2). Differences from the regional percentages calculated in Amendment 1 are due in part to the updated data available for 2002 and 2003 and in part to errors that NOAA Fisheries has corrected in tabulating regional landings from the landings databases.

The regional quotas are based on landings derived from the general canvass, quota monitoring system, commercial fisheries database system, and the coastal fisheries logbook. The pelagic longline logbook was not used because landings are reported in numbers of fish, rather than fish weights as in the coastal fisheries logbook. Additionally, although LCS are occasionally caught in the pelagic longline fishery, most of the LCS and SCS landings are reported in the coastal fisheries logbook.

Even though the quotas would be based on the most recent landings information, removing unharvested quota from any region or regions would prevent those regions from harvesting the quota in future years and could thus be perceived to have a negative economic impact. For example, fishermen and dealers in the South Atlantic may believe that they potentially could have harvested additional quota in previous years if the season had been opened longer. The lower quotas and resulting shorter seasons may disrupt traditional markets, prevent fishermen and dealers from marketing product during periods they are accustomed to, may result in lower prices, and could potentially result in fishermen and dealers going out of business.

NOAA Fisheries establishes the season length based on historic catch rates and estimated closure dates based on the time required to catch 100 percent of the quota. To do this, NOAA Fisheries calculates the average reported catch rates for the fishery from recent years, prior to enactment of regional quotas, and uses the average catch rates to estimate the amount of available quota that would likely be taken by the end of each dealer reporting period. Prior to 2004, the season length was the same for the fishery as a whole across all regions, allowing all regions to land sharks up to the closing date. With implementation of regional quotas in 2004, NOAA Fisheries established different closure dates based on the different quotas assigned to the regions. As a result, NOAA Fisheries believes that each region has had an equal opportunity to land sharks and establish their regional quota.

Regional quotas have the potential to improve equity among different user groups and improve predictability in the market supply of sharks. Due to differences in fish availability, and potential measures taken to reduce impacts on juvenile sharks and reproductive females, regional quotas ensure that no user group or region is excluded from the opportunity to harvest sharks.

Alternative A1 could have negative social and economic impacts in the short-term for participants in the Gulf of Mexico because the SCS fishery may not open for the first trimester season in January 2005. Under Alternative A1, the quotas would be based upon the regional quotas established in Amendment 1 to the HMS FMP. Without making adjustments to the

regional quotas, and due to the overharvest (22 percent) of SCS in the Gulf of Mexico during the first 2004 semi-annual season, the SCS may be reduced. Similarly, the LCS season may need to be shortened due to an overharvest (21 percent) in 2004. The North Atlantic region might also be impacted as the CFDBS indicates that effort increased significantly in the 2002 season for LCS and SCS so the quotas should reflect these changes. The quotas established in Amendment 1 to the HMS FMP were based on landings data between 1999-2001 and may result in future fishery closures if increases in fishing effort in the Gulf of Mexico, continue to occur as this alternative does not allow for quota adjustments in the future. However, the South Atlantic region may experience positive economic impacts with this alternative as they would receive a greater proportion of the LCS quota than with the alternatives that employ updated landings for quota establishment.

Alternative A2 would update the regional quotas based on recent landings data (2002 and 2003) that may be more representative of the current distribution of fishing effort. This alternative would increase quotas for the Gulf of Mexico to mitigate impacts of the overharvest for SCS and LCS that occurred in 2004. The South Atlantic may face negative economic impacts as their quotas for LCS are being reduced by 16 percent (162.7 mt dw). Modifying the quotas based on additional data may provide a better representation of current fishing effort, but would not provide a mechanism to address future changes in fishing effort or landings as proposed in Alternative A3. Furthermore, if the 2002 and 2003 landings data were anomalous and/or inflated due to a drastic expansion of effort, setting a regional quota that is too high may deflate prices due to excess supply.

Alternative A3 modifies regional quota levels based on the 2002 and 2003 landings data and also develops a framework for future annual quota adjustment in the subsequent years based on the current years' landings information. This alternative, in conjunction with alternative B3, would provide managers the flexibility to modify regional quotas as necessary to adapt to changes in fishing effort. This alternative may have positive social and economic effects because it would allow fishermen to harvest quotas based on updated landings data. Furthermore, there may be a positive economic impact as a result of the flexibility to transfer over- and underharvests between regions, maximizing fishing effort and the potential for fisheries to attain regional quotas, without exceeding the overall quota. Quota transfers would be made if fishery-based criteria (outlined in Chapter 2.1) are met, ensuring that a corresponding underharvest and no potential for achieving their quota are met before the transfer. Overharvests would be deducted from the corresponding season during the next year. In order to mitigate potential negative economic impacts and incentives to overharvest, NOAA Fisheries would limit regional quota transfers to 10 percent. It is anticipated that eventually regional landings and quotas should stabilize to reflect the actual effort in each region and maximize the potential to achieve overall quota. If, at that point, a region continues to overharvest, without a corresponding underharvest in other regions, then the amount overharvested would be counted against the region's quota in the following year.

Alternatives A2 and A3 may present problems in monitoring the fishery and ensuring equity among different regions. Even though the quotas would be distributed to regions based on historical landings, allowing adjustments may create competition for quota among regions. For

example, fishermen may intentionally seek to exceed the quota in the hopes of receiving additional quota from another region. NOAA Fisheries believes that the 10 percent cap on any quota transfers may discourage deliberate attempts to exceed the quota.

The Gulf of Mexico region experienced an overharvest of SCS (122 percent of quota was taken) and LCS (121 percent of quota was taken) during the 2004 first semi-annual season. The North Atlantic experienced an overharvest of 5 percent (105 percent of quota was taken) for LCS. Preferred alternative A3 would increase quotas for the Gulf of Mexico and North Atlantic for LCS and for SCS in the Gulf of Mexico only. NOAA Fisheries to make adjustments to regional quota distribution to more accurately reflect recent landings. These increase in shark landings may have been the result of increased fishing effort, increased regional availability of sharks, or a combination of both. As of July 30, 2004, only 31 percent (70 of 227 mt dw) of the overall SCS semi-annual quota had been landed. For LCS, 107 percent of the overall semi-annual quota (544 of the 508.5 mt dw) had been landed.

Alternative A4 would establish single quotas for LCS and SCS and eliminate regional quotas. This may have detrimental social and/or economic impacts on fisheries in less temperate, northern areas as participants are not able to fish and/or the sharks may not arrive until after the season is closed. Fishermen in these areas may have to deal with seasons that close very quickly (or fail to open) as the entire quota may have already been taken in the South Atlantic and Gulf of Mexico. This option does not tailor fisheries to seasonal or temporal variation, interseasonal abundance of fish, or shifts in fishing effort which may have negative economic or social impacts. Additionally, Alternative A4 could have safety-at-sea considerations by forcing fishermen in the North Atlantic to fish earlier in the year. Since shark populations traditionally migrate from warmer waters in the south to north throughout the year, the opportunity to catch sharks is limited by both availability and weather conditions.

Alternative A5 alleviates some of the negative economic impacts of Alternative A4 by providing regional quotas for LCS in conjunction with a single quota for SCS. Since the majority of SCS landings are outside of the North Atlantic region this alternative would not be expected to have adverse impacts. This option would also allow the Gulf of Mexico to open in January 2005 so adverse short-term economic impacts to fishermen in that region are minimized. Alternative A6 would combine quotas for the Gulf of Mexico and South Atlantic, creating two regional quotas instead of three. This alternative would not have adverse economic impacts as currently most landings are in the Gulf of Mexico and South Atlantic. Since these fisheries are similar in nature (target species, timing, and gear) they are easily combined without adverse impacts. Maintaining a separate quota for the North Atlantic region allows participants the opportunity to wait for favorable weather and presence of migratory species. An increased quota for the two combined regions, without the flexibility to adjust quotas annually may increase fishing effort and could potentially result in overages that affect future stock sustainability..

This alternative would combine the regional quotas in the Gulf of Mexico and the South Atlantic, resulting in two regional quotas for LCS and SCS (Gulf/South Atlantic and North Atlantic). Since the Gulf of Mexico and South Atlantic have the largest proportion of both the LCS and SCS quotas, combining them would account for 96 percent of the LCS quota and 87

percent of the SCS quota, thus helping prevent future overharvests while at the same time providing for a continued harvest of LCS and SCS in the North Atlantic. This alternative could provide managers with the flexibility to open the fishery in June or July in the North Atlantic, while at the same time keeping shark pupping areas closed in the South Atlantic and Gulf of Mexico. However, this alternative could lead to conflicts between the Gulf of Mexico and the South Atlantic regions as to which region is entitled to what quantity of the shark quota. Furthermore, monitoring may be more difficult, and the potential for overages increased, as both regions would fish under the impression that they are both entitled to a larger quota.

Conclusion

Alternative A3 is the preferred alternative because it would allow fishery managers to adjust quotas based on more recent landings, and initiate a mechanism for adjusting regional quotas as needed to reflect fishing effort. This should result in market stabilization for shark products and positive ecological and economic impacts in the long-term.

4.2 TRIMESTER SEASON QUOTA DISTRIBUTION

As described in Chapter 2, the alternatives being considered for the trimester distribution within each region are:

B1 Equal quotas for each trimester season

B2 Distribute quotas in proportion to the historic landings during each trimester season

B3 *Divide trimester quotas in each region in proportion to the historic landings; review trimester quotas and make adjustments as needed - Preferred Alternative*

Alternative B3 is the preferred alternative.

Ecological Impacts

As discussed in Amendment 1 to the HMS FMP, trimester seasons are expected to have positive ecological impacts because fishing effort and landings could be redistributed outside of months when peak shark pupping activity is occurring, thus reducing impacts on targeted species during other times of the year as well. Similarly, for protected species such as sea turtles, most interactions have occurred during the first two months of each semi-annual season (Table 4.1), and any management action taken to reduce effort during these periods would be expected to have a beneficial impact on these species.

Alternative B1 would split the annual quotas evenly (one third/season) across seasons and within regions. This alternative would not adversely affect LCS or SCS stocks because it has relatively no bearing on the quantity of fish that may be taken, merely when those fish could be taken. Furthermore, based on historical landings this alternative would reduce fishing effort in the first and second seasons in the Gulf of Mexico and South Atlantic and in the second season for the

North Atlantic. A fixed quota of 33 percent for the second season would likely have some positive impacts on shark pupping because this quota level would translate to reduced effort compared to historical catches.

Alternative B2 uses historical landings as a basis for distributing percentages of quota between seasons. Shark pupping data for selected species indicate that, depending on location, pupping activities take place between March and September with the height of pupping activity between April and July. This peak corresponds with portions of the first and second trimester seasons. However, using landings and catch data as the basis for determining seasonal quotas without a framework for quota adjustment as needed, would not account for temporal and spatial variation in shark pupping and protected species distribution. Thus, this alternative would have negligible ecological impacts on shark pupping, however, may not provide the flexibility necessary to adjust seasonal quotas to avoid future impacts on shark pupping areas. Since the fishery has historically closed in August or early September, and landings during this period have been limited, data on potential ecological impacts during the third trimester are lacking.

Alternative B3 would divide the quotas in proportion to historical landings and also would allow NOAA Fisheries to make adjustments between the three seasons as necessary. This alternative would allow managers to divide seasonal quotas based on historical effort and also provide the flexibility to adjust quotas if needed. Using historical catches as a basis for establishing seasonal quotas, combined with season opening dates that consider shark pupping activities peaking between April and July, would minimize negative impacts on juvenile and reproductive females as well as potential for recruitment. Guidelines for making adjustments would take into account new information regarding regional shark pupping activities, the amount of quota remaining, and the ability of vessels to land the quota before making any transfers of quota. This alternative could have a positive ecological impact by allowing NOAA Fisheries to adjust seasonal quotas to address shark pupping concerns.

In addition, using preferred alternatives A3 and B3 in combination would allow adjustments to both regional and trimester season quotas, respectively, to prevent an accumulation of quota in a specific region or season over time. The would help to stabilize the fishery at current effort levels and avoid encouraging activation of latent fishing effort.

Alternatives B1, B2, and B3 could have varying impacts on protected resources, but are not expected to have any negative impacts on EFH. Since most interactions with protected resources, primarily loggerhead sea turtles, have historically occurred during the early part of the year (see Table 4.1 and Figure 4.1), any alternatives that result in lower quotas and restrict effort during this period could have a positive impacts, and conversely, any increases in fishing effort during this time of year could have a negative impact. The low number of observed sea turtle interactions in the months of October through December are likely because there has historically been little fishing effort in these months. If sea turtle interactions were to increase significantly during these months, alternative B3 would provide NOAA Fisheries with the option of reducing effort during this period. Alternative B3 thus provides flexibility to adjust seasonal quotas and could be considered the best alternative to address protected resource interactions. Shifting

some of the annual quota to the third trimester season during which sea turtle interactions are lowest would also have a positive impact.

Social and Economic Impacts

Although none of the alternatives would change the overall quota, each of the alternatives may have varying social and economic impacts due to changes in the timing and amount of harvest among the different regions and seasons. By dividing the annual quota among three regions and three seasons, the quota for each season would necessarily be lower than fishermen have been accustomed. As a consequence, the lower quotas and shorter seasons may have negative social and economic impacts. Fishermen have commented that the 2004 first semi-annual season resulted in one of the shortest fishing seasons with the lowest quotas on record. This was due, in part, to the new, lower quotas established as part of the rebuilding plan for the LCS complex in Amendment 1 to the HMS FMP, combined with the new regional approach to dividing up the overall quota. In 2005, the regional quotas for each season could be even lower because the quota would be divided among three rather than two seasons, however, fishermen should have the opportunity to fish for approximately the same amount of time, on an annual basis, and may be able to expand markets as there would be three season openings instead of two. The 2005 fishing season is proposed to allow for 9, 27, and 8 percent of the overall regional quota for the Gulf of Mexico, South Atlantic, and North Atlantic respectively harvested during the third trimester season. For SCS the third trimester is proposed to have 12, 27, and 77 percent of the regional quota for the Gulf of Mexico, South Atlantic, and North Atlantic respectively.

Alternative B1, which divides the regional quota equally among the three trimester seasons, would result in quota being distributed to the third trimester season (September through December) during which there has historically been no fishery. This could potentially have both positive and negative economic impacts. NOAA Fisheries has received comments stating that extending the fishing season later in the year (i.e. third trimester season) would have a positive economic impact by providing fishermen with the opportunity to fish later in the year and to market product year-round. Fishermen have noted that prices are sometimes driven down by the sudden surplus of product during the traditional start of the two semi-annual seasons. By having a third season later in the year, fishermen should have additional opportunities to market their product. However, new markets may need to be established and buyers and dealers would have to adjust to changes in supply and demand during different times of year. It is difficult to forecast with certainty what the demand or price of products may be during the new third trimester season, and NOAA Fisheries would like to have the flexibility to raise or lower trimester season quotas depending on the costs and benefits provided by each of the seasons.

The equal division of quota to three trimester seasons does not consider historical fishing effort within regions, and does not provide flexibility to re-distribute or modify quotas based on future changes in fishing effort or landings.

Alternative B2 considers historical fishing effort in establishing trimester season quotas and would help mitigate the negative economic and/or social impacts of fishery closures assuming that similar effort and landings are maintained. This alternative does not allow for annual

adjustments to seasonal quotas and may not provide the flexibility necessary to prevent closures if there is an increase in fishing effort in the future.

Alternative B3 would consider historical fishing effort in establishing seasonal quotas and would also allow NOAA Fisheries to make adjustments, as needed, to trimester quotas based on fishing effort and landings during the previous year's seasons. In the case of increased fishing effort and landings in a particular season, the quota for that season could potentially increase. Similarly, if effort and landings were lower than anticipated in a particular season, quota could be shifted to other seasons in which landings were higher, thus benefitting fishermen. This alternative would allow NOAA Fisheries to adjust trimester quotas as necessary to reflect current trends in the fishery. Coupled with Alternative A3, this would provide the flexibility necessary to adjust quotas between regions and across seasons providing further opportunities to fulfill LCS and SCS quotas on a yearly basis.

Communities may be impacted by each of the alternatives depending on the ability of fishermen, buyers, and dealers to adapt to the changes in the fishery. The transition from semi-annual to trimester seasons and to the lower quotas during individual seasons during those seasons could potentially result in some fishermen and dealers facing economic impacts and could have negative impacts on fishing communities. However, communities may benefit from a more predictable, year-round supply of sharks with corresponding price stabilization, and perhaps increases in revenues, coupled with the fact there would be three season openings instead of two with fishing extending later in the year, may have positive economic impacts. Potential safety concerns include increased pressure on fishermen to fish in unsafe weather conditions and having to adapt to fishing during non-traditional periods and conditions.

Conclusion

Alternative B3 is the preferred alternative because it considers historical and current fishing effort in establishing seasonal quotas and provides flexibility to modify quotas based on future changes in fishing effort and landings. Additionally, if data becomes available to suggest that quotas during a particular time of year should be adjusted to protect shark pupping and nursery areas, this alternative, along with timing of the season start date, would provide the necessary flexibility to do that.

4.3 ACCOUNTING FOR OVER- AND UNDERHARVEST IN THE TRANSITION FROM SEMI-ANNUAL TO TRIMESTER SEASONS

As described in Chapter 2, the alternatives considered for accounting for over- and underharvests in the transition from semi-annual to trimester seasons are:

C1: Divide any over- or underharvest from the semi-annual seasons equally between the trimester seasons,

C2: Carry over any over- or underharvest from the first semi-annual season to the first trimester season and any over- or underharvest from the second semi-annual season to the second trimester season,

C3: *Transfer any over- or underharvest from the first semi-annual season to the first trimester season, and divide any over- or underharvest from the second semi-annual season equally between the second and third trimester seasons (Preferred Alternative),*

C4: Divide any over- or underharvest from the first semi-annual season between the first and second trimesters seasons, and divide any over- or underharvest from the second semi-annual season between the second and third trimester seasons.

Alternative C3 is the preferred alternative.

Ecological Impacts

The following alternatives provide different accounting methods for over- and underharvests, and as such, are not expected to have any negative ecological impacts. The overall quota for LCS and SCS would not be changed, and any over- or underharvests would continue to be accounted for in the same season of the subsequent year. By accounting for overharvests, NOAA Fisheries ensures that shark landings do not repeatedly exceed the overall quota, or regional quotas, and that the LCS rebuilding plan is maintained. In recent years, over- and underharvests have been accounted for in the same semi-annual season of the following year. With the implementation of trimester seasons beginning in 2005, NOAA Fisheries needs to consider how to transfer over- or underharvests from the two 2004 semi-annual seasons to three trimester seasons for the first year under the trimester season. Since there is an overlap in the period between the semi-annual seasons and the trimester seasons, the primary difference between the alternatives is the season in which the over- or underharvest will be accounted for. Regardless of which alternative is selected as the final preferred alternative, beginning in 2006 any over- or underharvest would be carried over to the same trimester season of the following year.

NOAA Fisheries is aware of the potential for accumulating quota in a particular region due to repeated underharvests over time. This unharvested quota may have the unintended consequence of activating latent fishing effort and increasing overall effort in the fishery. In order to compensate for this, NOAA Fisheries is preferring alternatives A3 and B3 which would allow adjustments to both regional and trimester season quotas, respectively, to prevent such an accumulation of quota in a specific region or season over time. The intent is to stabilize the fishery at current effort levels and avoid encouraging activation of latent fishing effort.

Similarly, repeated overharvests have the potential to result in a decline in a particular regional or seasonal quota over time. Under preferred alternatives A3 and B3, NOAA Fisheries would have the option of adjusting regional quotas to match fishing effort. As in previous years, NOAA Fisheries can also establish the duration of the season to ensure that overharvests do not occur. Used in combination, these management techniques are expected to maintain current

fishing effort and prevent an accumulation or decline in regional quotas as a result of over- or underharvests over time. They also provide NOAA Fisheries with the option to mitigate any impacts of raising quotas during the second trimester season which corresponds to the primary shark pupping season. Thus, none of the alternatives are expected to have negative ecological impacts.

Alternative C1 would divide any over- or underharvest from the semi-annual seasons equally between the three trimester seasons. For example, any over- or underharvest in the Gulf of Mexico during the 2004 fishing year would be divided equally between the three trimester seasons in 2005. The same would hold true for the other regions. This alternative is not expected to have negative ecological impacts because overharvests would still be accounted for, as has been the case in the past. Any potential negative impact from transferring underharvest (increasing the next years quota), and thus raising the quota during the second trimester season (May through August), which overlaps with the primary shark pupping season could be mitigated by delaying the opening of that second trimester season until (e.g. July 1) in order to avoid most shark pupping activity which takes place between April and July in the Gulf of Mexico and South Atlantic.

Alternative C2 would transfer any over- or underharvest from the first semi-annual season to the first trimester season and any over- or underharvest from the second semi-annual season to the second trimester season. This alternative would be similar to the current practice of carrying over any over- or underharvest to the same season of the following year. Since there has historically not been a fishery during most of the third trimester season (September through December), no carryover of over- or underharvest would take place during the first year under the trimester seasons. In subsequent years, any over- or underharvest would be accounted for in the same season of the following year. This alternative would have no negative ecological impacts because any overharvest would still be accounted for and deducted accordingly. The ecological impact of adding quota to the second trimester season during the shark pupping period would be mitigated as described above. Transfer of underharvest is not expected to have any negative environmental impacts. Finally, by not transferring any overharvest to the third trimester during the first year would minimize the ecological impacts of starting a new fishery during this time of year. This would allow the fishery to start up more slowly and for NOAA Fisheries to monitor the fishery for potential impacts and make any necessary adjustments in future years.

Alternative C3 would carry over any over- or underharvest from the first semi-annual season to the first trimester season and divide any over- or underharvest from the second semi-annual season equally between the second and third trimester seasons. This alternative is being considered because the first trimester season (January through April) corresponds to the period in which the first semi-annual season has historically been held. The second trimester (May through August) and third trimester seasons (September through December) correspond to the period in which the second semi-annual season has historically been held (July through mid-September), and thus any over- or underharvests from the second 2004 semi-annual season would be split evenly between these two trimester seasons. This alternative is not expected to have any negative environmental impacts because overharvests would still be accounted for.

Unlike alternative C2, this alternative would transfer the over- or underharvest to the third trimester season. Excessive increases to harvest resulting from transferring a previous years' underharvest may potentially have negative ecological consequences depending on the level of effort and total landings during this period.

Alternative C4 would divide any over- or underharvest in the following proportions: 2/3 of the over- or underharvest from the 2004 first semi-annual season would be carried over to the first 2005 trimester season, and 1/3 to the second 2005 trimester season, and 2/3 of the over- or underharvest from the 2004 second semi-annual season would be carried over to the 2005 second trimester season, and 1/3 to the third trimester season. This alternative provides an equitable distribution of over- or underharvest among the three trimester seasons and is not expected to have any negative environmental impacts during the first two trimester seasons, but could have a negative impact during the third season for which there is little historic data.

Because alternatives C1, C3, and C4 propose to transfer over- or underharvest to the third trimester season in which there has historically been no fishery, there could be a negative impact on protected resources through increased interaction rates with sea turtles and smalltooth sawfish. However, current data indicates that most sea turtle interactions occur during the early part of the year (January and February) and decline throughout the remainder of the year (Table 2.5 and Figure 2.1). Interaction rates are thus not expected to increase during the third trimester season. Interaction rates during the first two seasons may actually decline if the quotas are lower and season lengths are shortened. None of these three alternatives is expected to have a negative impact on EFH. Alternative C2, which is similar to the current practice of carrying over any over- or underharvests to the same season of the following year, is not expected to have any negative ecological impacts on protected resources or EFH.

Social and Economic Impacts

Each of the alternatives may have varying degrees of either positive or negative social and economic impacts. Over- and underharvests have been accounted for in the past by either adding or subtracting quota from the same season of the following year, and NOAA Fisheries would continue to use this management technique to ensure that shark landings correspond to the quotas assigned to the fishery, and that the LCS rebuilding plan is maintained. These alternatives are not expected to alter historic fishing practices, beyond the addition of the third season, or the capability of fishermen to harvest the quota.

Alternative C1 would be of greatest economic benefit to the Gulf of Mexico because this region had a significant overharvest of SCS and a modest overharvest of LCS during the first 2004 semi-annual season. Splitting the overharvest equally among the three trimester seasons would help to mitigate any economic impact of what might otherwise be a much lower quota during the first 2005 trimester season. The economic impact on other regions, which had underharvests during the first 2004 semi-annual season, is expected to be minor, but positive. Those underharvests would be spread out evenly among the three seasons.

NOAA Fisheries is aware of concerns of how to account for over- or underharvests in the South Atlantic given that the time/area closure would be in effect off North Carolina from January through July beginning in 2005. Any underharvest carried over to the first or second trimester seasons may have little or no positive economic impact on fishermen affected by the time/area closure since the fishery would be closed during all of the first trimester season and portions of the second trimester season. Of the four alternatives, alternative C1 would likely provide the greatest economic benefit to the South Atlantic because it would result in the largest portion of the underharvest being transferred to the third trimester season when the mid Atlantic time/area closure would no longer be in effect. However, at the time of this rulemaking, NOAA Fisheries does not have information on over- or underharvest for the 2004 second semi-annual season with which to make adjustments to the trimester season quotas. Thus, NOAA Fisheries proposes to transfer any over- or underharvest from the first semi-annual season of 2004 to the first trimester season, and to divide any over- or underharvest from the second semi-annual season in a separate announcement for the second and third trimester seasons equally in early 2005, when information on over-or underharvests becomes available.

Conclusion

Alternative C3 is the preferred alternative because it accounts for the overlap between semi-annual and trimester seasons, provides an equitable distribution of any over- or underharvest in the transition from semi-annual to trimester seasons, and is not anticipated to result in increased protected resource interactions.

4.4 IMPACTS ON ESSENTIAL FISH HABITAT (EFH)

As described in the Amendment 1 to the HMS FMP, there is no evidence that physical effects caused by fishing bottom longline, pelagic longline, or gillnet gear are adversely affecting EFH for targeted or non-targeted species, to the extent that physical effects can be identified on the habitat or the fisheries. Of the approved gears that are used in the HMS fisheries, only bottom longlines, principally targeting large coastal sharks, make contact with the bottom. If bottom longline gear becomes hung or entangled on bottom substrates such as rock, and hard and soft corals, it could have some adverse impacts. However, the nature of these impacts to shark EFH overall is considered to be minimal. As noted in Section 10.1 of Amendment 1, EFH for sharks may encompass a wide range of habitats from coastal waters to deep offshore pelagic waters along the U.S. Atlantic and Gulf of Mexico coasts. Currently, little information exists on the effects of bottom longlining on benthic habitat. The principal components of the longline that can produce seabed effects are the anchors or weights, hooks, and mainline (Johnson, 2002). The only data currently available regarding bottom longline impacts are from submersible observations of halibut longline gear off southeast Alaska in 1992 (NPFMC 1992). The 1999 NOAA Fisheries EFH Workshop categorized the impact of bottom longline gear on mud, sand, and hard-bottom as low (Barnett, 2001).

Additionally, because the actions are not expected to change fishing practices or effort, they are not expected to change the impact of bottom longline gear on EFH beyond those impacts considered in Amendment 1 to the HMS FMP. As a precautionary measure, NOAA Fisheries

recommends fishermen take appropriate steps to identify and avoid bottom obstructions in order to mitigate any adverse impacts on EFH. The other gear types used to target sharks, such as gillnet or pelagic longline, are unlikely to have any impact on EFH.

4.5 IMPACTS ON OTHER FINFISH SPECIES

As described in the sections above, the proposed actions are not expected to alter fishing practices or effort and therefore should not have any impact on other finfish species that have not already been considered in the HMS FMP or Amendment 1 to the HMS FMP. Finfish bycatch for the bottom longline fishery includes, but is not limited to, skates, rays, cobia, redfish, bluefish, and great barracuda. According to data from the 2002 and 2003 reports for the Commercial Shark Fishery Observer Program, finfish bycatch accounted for approximately 5 percent of the catch in the bottom longline fishery (Burgess and Morgan 2003; Burgess and Morgan 2004). In the shark drift gillnet fishery, bycatch includes king mackerel, little tunny, cownose ray, crevalle jack, cobia, spotted eagle ray, great barracuda, tarpon, Atlantic stingray, and Spanish mackerel and accounts for approximately 7.4 percent of the catch (Carlson and Baremore 2001). Because this action would not result in a change in fishing effort or practices, NOAA Fisheries does not expect that sustainability of these bycatch species to be jeopardized by the action.

4.6 IMPACTS ON PROTECTED SPECIES

Management measures selected in this regional quota adjustment rule for Atlantic shark fisheries are not expected to have adverse impacts on protected species. Protected species of greatest concern in the shark fishery are right whales, sawfish, and sea turtles. Management actions that have been enacted to minimize bycatch of these species, include: mandatory use of non-stainless steel hooks in the bottom longline fishery, use of linecutters and dipnets for the effective release of sea turtles, posting the sea turtle handling and release placard provided by NOAA Fisheries in the wheelhouse, time/area closures, and the use of vessel monitoring systems to enforce these closures. NOAA Fisheries intends to update the sea turtle dehooking gear requirements for the bottom longline fishery to reflect recent changes in gear requirements (i.e. dehooking equipment) for the pelagic longline fishery. However, NOAA Fisheries has not yet analyzed the potential impacts of such an action, or provided an opportunity for public comment on potential gear changes in the bottom longline fishery. Thus, any such change will need to be part of a future rulemaking.

A Biological Opinion for Atlantic Shark Fisheries was prepared in October 2003 in response to the proposed measures in Amendment 1 to the HMS FMP. It concluded that the continued operation of the shark fisheries as amended by the actions in Amendment 1 would not adversely affect protected species. Implementation of regional quotas and trimester seasons were actions included in Amendment 1, therefore, this proposed rule which simply adjusts regional and trimester quotas, without increasing shark quotas should not increase fishing effort or protected species interactions. More detailed information related to the October Biological Opinion can be found in Amendment 1 to the HMS FMP.

4.7 COASTAL ZONE MANAGEMENT ACT CONCERNS

NOAA Fisheries has preliminarily determined that the proposed regulations would be implemented in a manner consistent to the maximum extent practicable with the enforceable policies of those Atlantic, Gulf of Mexico, and Caribbean coastal states that have approved coastal zone management programs. The proposed regulations will be submitted to the responsible state agencies for their review under Section 307 of the Coastal Zone Management Act.

4.8 ENVIRONMENTAL JUSTICE CONCERNS

Executive Order 12898 requires agencies to identify and address disproportionately high and adverse environmental effects of its regulations on the activities of minority and low-income populations. In particular, the environmental effects of the regulations should not have a disproportionate effect on minority and low-income communities. The communities of Dulac, LA, and Fort Pierce, FL, have significant populations of Native Americans and Black Americans, respectively. These two communities also have significant populations of low-income residents (NOAA Fisheries, 2003). None of the preferred alternatives for proposed management measures are expected to have a disproportionate impact on these minority or low-income populations.

4.9 CUMULATIVE IMPACTS OF THE ALTERNATIVES

Cumulative impact is the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR § 1508.7). A cumulative impact includes the total effect on a natural resource, ecosystem, or human community due to past, present, and future activities or actions of Federal, non-Federal, public, and private entities. The goal of this section is to describe the cumulative ecological, economic and social impacts of past, present and reasonably foreseeable future actions with regard to the Atlantic shark fishery.

Past, Present, and Reasonably Foreseeable Actions

The primary goals of the 1993 Shark FMP, 1999 HMS FMP, and Amendment 1 to the HMS FMP and their associated Final Environmental Impact Statements (FEIS) were to establish management measures intended to reduce overfishing, rebuild U.S. Atlantic shark populations, and to prevent overfishing of fully fished stocks. Alternatives to rebuild and manage the Atlantic shark fisheries have included, among other things, quotas for LCS, SCS, and pelagic sharks. As a result, SCS are not overfished, and while LCS are, several species are showing improvement.

Since the HMS FMP, NOAA Fisheries has finalized several supplemental environmental impact statements where final actions were designed to reduce impacts on both target and non-target species. The first one, published in June 2000, analyzed management measures, particularly

time/area closures, to reduce bycatch, bycatch mortality, and incidental catch in the pelagic longline fishery. The final actions were expected to have negative direct, indirect, and cumulative economic and social impacts for pelagic longline fishermen and were expected to have positive ecological impacts regarding reduction in bycatch and bycatch mortality. The rulemaking was expected to have little impact on directed shark fishermen but could impact fishermen who catch and land sharks incidentally.

The second supplemental environmental impact statement, published in July 2002, analyzed the management measures contained in a June 14, 2001, Biological Opinion addressing sea turtle bycatch and bycatch mortality in HMS fisheries. Certain measures in that rulemaking, such as the closure of the Northeast Distant Area (NED) to pelagic longline vessels, are expected to have negative direct, indirect, and cumulative economic and social impacts on pelagic longline fishermen. These effects however, have been mitigated in the short-term because vessels are able participate in an experimental fishery in the NED. The rulemaking also implemented measures in the shark gillnet fishery. The management measures for the shark gillnet fishery (required net checks for sea turtles and other marine mammals at least every two hours and ceasing of fishing and notification to NOAA Fisheries if a whale is taken) are anticipated to have little to no adverse impacts on shark fishermen and are expected to have some positive impact in regard to possible reductions in sea turtle mortality.

The third environmental impact statement (Amendment 1 to the HMS FMP), published in December 2003, amended the Atlantic commercial and recreational shark fishery regulations and included, among other things, aggregating the large coastal shark complex, using maximum sustainable yield as a basis for setting commercial quotas, eliminating the commercial minimum size, establishing regional commercial quotas and trimester commercial fishing seasons, adjusting the recreational bag and size limits, establishing gear restrictions to reduce bycatch or reduce bycatch mortality, establishing a time/area closure off the coast of North Carolina, removing the deepwater/other sharks from the management unit, establishing a mechanism for changing the species on the prohibited species list, updating essential fish habitat identifications for five species of sharks, and changing the administration for issuing permits for display purposes.

The latest final supplemental environmental impact statement to reduce sea turtle bycatch and bycatch mortality was published on June 25, 2004. The FSEIS proposed management measures to, among other things, limit vessels in the Atlantic pelagic longline fishery for highly migratory species, at all times, to possessing and/or using only certain hooks and baits; re-open the Northeast Distant (NED) Statistical Reporting Area to pelagic longline fishing under specific hook and bait limitations; require possession and use of specific sea turtle handling and release equipment and sea turtle handling and release protocols to reduce the bycatch and bycatch mortality of incidentally captured Atlantic sea turtles in the pelagic longline fishery.

A new Biological Opinion (2004 BiOp) issued for the Atlantic PLL fishery on June 1, 2004 found that the pelagic longline fishery was not likely to jeopardize the continued existence of loggerhead, green, hawksbill, Kemp's ridley, or olive ridley sea turtles, but was likely to jeopardize the continued existence of leatherback sea turtles. The 2004 BiOp included a

Reasonable and Prudent Alternative to avoid jeopardizing leatherbacks and other measures to reduce seaturtle bycatch and bycatch mortality.

Finally, on April 30, 2004 (69 FR 23730), NOAA Fisheries published in the Federal Register a notice of availability of an Issues and Options paper that examines possible alternatives for amending some of the regulations in the HMS and Atlantic Billfish FMPs. Proposed management measures, include but are not limited to, general category quota allocation of Atlantic bluefin tuna, filleting tunas at sea, changing the swordfish bag limit for anglers, changing the large coastal shark trip limit for directed permit holders, streamlining the limited access permit program, non-tournament reporting of billfish harvest, species identification workshops, implementation of the bycatch reduction plan, simplifying the quota and permitting administrative processes for exempted fishing permits, and updating essential fish habitat (EFH) identifications for all HMS. These management measures could affect fishermen, dealers, equipment suppliers, or anyone else involved in HMS fisheries.

Other actions taken subsequent to the 1999 HMS FMP include making the shark observer program mandatory in 2002, and mandatory cost earnings reporting, a new requirement for shark recreational anglers to obtain the HMS Angling category permit, and new regulations on shark exempted fishing permits in 2003. Further actions NOAA Fisheries may consider in the future include bycatch reduction measures, commercial trip limits, distribution between directed, incidental, and recreational permit holders, season openings and closings, limited access streamlining, recreational reporting, implementation of gear restrictions (dehookers), vessel monitoring systems (VMS), and pelagic shark quotas and adjustments based on assessments. NOAA Fisheries may address some or all of these issues in a forthcoming rulemaking.

Cumulative Ecological Impacts

The cumulative ecological impact of past and present management actions taken since the 1993 Shark FMP, the 1999 HMS FMP, and Amendment 1 to the HMS FMP Amendment were described and analyzed in Chapter 4 of Amendment 1 to the HMS FMP. The HMS FMP concluded that the cumulative long-term impacts of management measures implemented in the FMP would be to rebuild overfished fisheries, minimize bycatch and bycatch mortality, to the extent practicable, identify and protect essential fish habitat, and minimize adverse impacts of fisheries regulations on fishing communities, to the extent practicable. Amendment 1 to the HMS FMP concluded that the overall ecological impact of management actions has been to promote and improve the long-term sustainability and continued viability of Atlantic shark populations. Although the LCS complex as a whole is still overfished, the two dominant species, blacktip and sandbar, are no longer overfished, although overfishing on sandbar sharks is still occurring, and the SCS complex is not overfished. Finetooth sharks are experiencing overfishing, but are not yet at a point where they are overfished.

For non-target species, which include a wide variety of finfish species, rays, invertebrates and protected species such as sea turtles, the cumulative impact of reducing overall fishing effort has been positive. Measures that have been taken to reduce the bycatch of protected species in HMS Fisheries include implementation of the NED closed area to pelagic longlining from 2000-2003,

a requirement to post handling and release guidelines for incidentally captured sea turtles on vessels, requiring the use of non-stainless steel corrodible hooks, line cutters, dipnets, and dehooking devices to mitigate impacts on incidentally caught sea turtles. The time/area closure off North Carolina is also expected to reduce sea turtle bycatch. Measures have also been taken to reduce interactions with endangered right whales during the calving season by requiring 100 percent observer coverage. Additionally, new regulations on shrimp turtle excluder devices should reduce shark bycatch in shrimp fisheries and have a positive ecological impact.

Since the EFH provisions were added to the Magnuson-Stevens Act in 1996, action has been taken to identify and protect shark EFH. Additional research delineating important shark nursery and pupping areas has been undertaken and this information has contributed to the time/area closure for dusky and sandbar shark nursery habitat in EFH and HAPC areas implemented in Amendment 1 to the HMS FMP. The management measure to require VMS on shark bottom longline fishing vessels should further assist NOAA Fisheries in enforcement of the time/area closure, and protection of these vulnerable life stages of sharks. Several time/area closures have been implemented as part of HMS fisheries to reduce discards, protect other HMS species such as juvenile swordfish, and to reduce bycatch of protected species. Currently, approximately 3 million square miles of ocean are closed to HMS fishing at various times of the year. Cumulatively, these actions have had a positive ecological impact on HMS as a whole as well as on non-target species.

Actions NOAA Fisheries may consider in the future include commercial trip limits, bycatch reduction measures, allocation between directed, incidental, and recreational permit holders, season openings and closings, limited access streamlining, recreational reporting, and pelagic shark quotas and adjustments based on assessments. These measures, if considered, would be designed to address specific needs of the fishery, and as such, would be intended to have positive ecological impacts. Presently, there are no known third party planned actions that may affect target species. In summary, the past, present, and reasonably foreseeable future actions have had a positive ecological impact by reducing fishing pressure and allowing stocks to rebuild.

As described previously, the regional LCS quota for the Gulf of Mexico is proposed to be increased by 7 percent (71.2 mt dw) over the regional quota established for the Gulf of Mexico in Amendment 1. The South Atlantic quota will be decreased by 16 percent (162.72 mt dw), and the North Atlantic quota will be increased by 9 percent (91.5 mt dw) over the regional quotas established in Amendment 1. The adjustment of regional quotas is due in part to updated landings data, inclusion of an additional database (coastal fisheries logbook), and errors made in assimilating the data in 2003. The overall quota for LCS was reduced in Amendment 1 by approximately 35 percent from the 2003 quota of 1,714 mt dw, and 14 percent from 1997-2002 quotas of 1,285 mt dw. Since the overall quota will remain the same as the one established in Amendment 1 (1,107 mt dw), the regional quotas are still well below the historic average for any of the regions. The reduction in overall quotas, as well as regional quotas, resulted in a decline in overall and regional fishing effort for the shark bottom longline fishery beginning in 2004, and will likely continue in 2005. Thus, even though NOAA Fisheries proposes to increase the regional quota for the Gulf of Mexico and North Atlantic when compared to Amendment 1, these quotas are still much lower than in years 1997-2003 (Table 2.1). Furthermore, these

quotas are based upon effort from previous years 1999-2003, and are believed to be a more accurate reflection of current and historic fishing effort in all regions.

Although raising the regional quota in the Gulf of Mexico may have an impact on targeted, non-targeted, and protected species, the impact as described above, is considered to be minimal in comparison to the regional quotas established in Amendment 1, and in particular to the historical quotas for the region. Bycatch rates in the shark bottom longline fishery average approximately 5 percent of total landings for non-targeted species across all regions, and are much lower for protected species. Data from the shark bottom longline observer program indicate that there have only been 23 observed sea turtle interactions in the Gulf of Mexico, 31 observed sea turtle interactions in the South Atlantic, and one in the North Atlantic from 1994-2003. Since interaction rates with sea turtles have historically been higher in the South Atlantic than the Gulf of Mexico, raising the quota in the Gulf of Mexico and lowering the quota in the South Atlantic may have a positive impact on protected resources by lowering the overall interaction rates. For smalltooth sawfish, there have been 8 observed interactions in the shark bottom longline fishery from 1996-2004, with 7 of those interactions occurring in the Gulf of Mexico, and one in the South Atlantic. Interactions with this species are extremely rare events. For example, there were no observed interactions in 2004, fishery-wide. At the time of this writing, the Gulf of Mexico LCS fishery has closed for the year, and there were no observed interactions with smalltooth sawfish.

Cumulative Economic and Social Impacts

The cumulative economic and social impact of actions taken since the 1993 Shark FMP, the 1999 HMS FMP, and Amendment 1 to the HMS FMP Amendment were described and analyzed in Chapter 4 of Amendment 1, and are briefly summarized here. Although past management actions may have had some negative economic and social impacts, these actions have promoted the long-term sustainability and continued economic viability of the shark fishery. The overall impact of regulations dating back to the 1993 Shark FMP has been to reduce the overall quotas, number of participants, and latent effort in the shark fishery. As the LCS fishery rebuilds, shark fishermen may begin to experience positive economic benefits. The number of participants and their average gross revenue should not be adversely affected by this action as overall quotas are not being reduced.

4.10 COMPARISON OF ALTERNATIVES

The ecological, social, and economic impacts compared in Table 4.2 are for the foreseeable short-term future. However, NOAA Fisheries expects that many of the short-term, negative social and economic impacts associated with the alternatives could translate into positive longterm social and economic impacts as shark stocks continue to rebuild. Table 4.2 represents a summary of impacts associated with each of the alternatives, however, there are competing impacts associated with many of the alternatives listed. As such, please reference the individual alternatives as analyzed in chapters 4, 6, 7, 8 and 9.

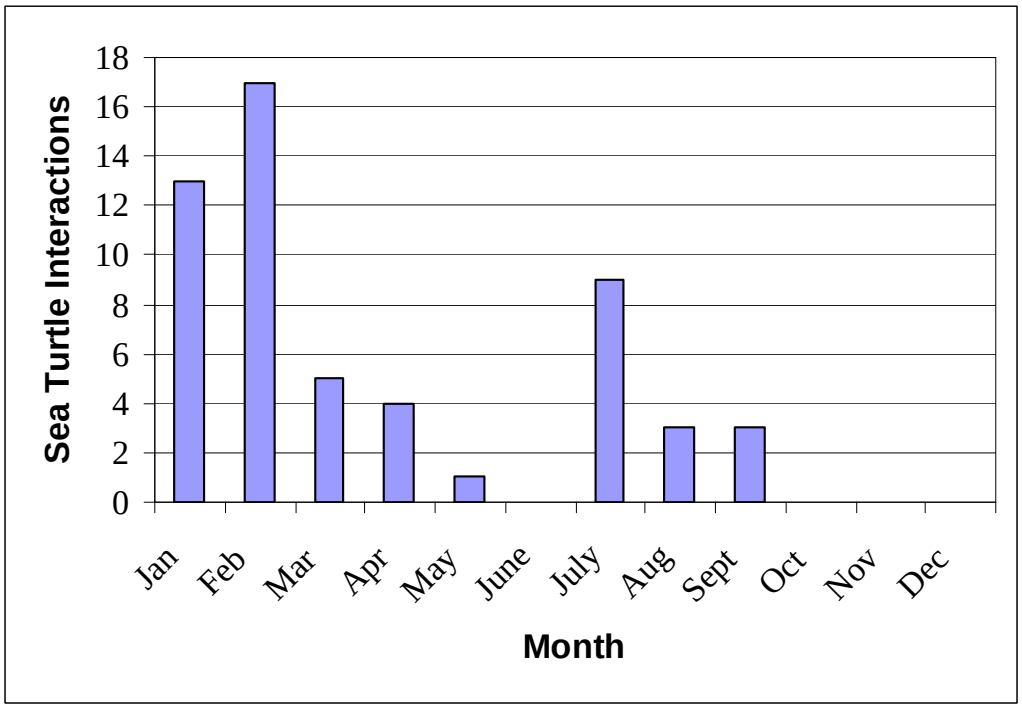
Table 4.1 Observed Sea Turtle Interactions by Month for Years 1994-2004(1) in the Shark Bottom Longline Fishery. Data from Commercial Shark Fishery Observer Program (A. Morgan pers. comm.).

Month	Number of Sea Turtle Interactions
January	13
February	17
March	5
April	4
May	1
June	0
July	9
August	3
September	3
October	0
November	0
December	0
TOTAL	55

Table 4.2 **Comparison of Proposed Alternatives.** This table compares the impacts of the alternatives considered in this section. The symbols +, -, 0 refer to positive, negative, and zero impacts respectively. Minor impacts and impacts that are possible but unlikely are noted with + or -. More than minor impacts are noted with ++ or --, and significant impacts are noted with +++ or ---. Refer to the proceeding sections for details of the impacts of each alternative.

Management Measure	Ecological Impacts	Economic Impacts	Social Impacts
LCS and SCS Regional Quotas			
A1	0	0	0
A2	0	+	+
A3 - Preferred	0	+	+
A4	0	-	0
A5	0	-	0
A6	0	-	0
Trimester Season Quota Allocation			
B1	0	-	-
B2	0	+	+
B3 - Preferred	0	+	+
Transfer of Over and Under-Harvest			
C1	0	0	0
C2	0	0	0
C3 - Preferred	0	0	0
C4	0	0	0

Figure 4.1 Observed Sea Turtle Interactions by Month for Years 1994-2004 in the Shark Bottom Longline Fishery. Data from Commercial Shark Fishery Observer Program (A. Morgan pers. comm).



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5.0 MITIGATION AND UNAVOIDABLE ADVERSE IMPACTS

5.1 MITIGATING MEASURES

NOAA Fisheries does not expect the proposed alternative to have significant ecological, economic, or social impacts. Thus, no mitigating measures are proposed at this time. NOAA Fisheries has requested comments on the preferred alternatives. If the submissions indicate impacts that require further consideration, mitigating measures would be considered.

Beginning in January 2005, trimester seasons will become effective in the commercial shark fishery. As described in Amendment 1, trimester seasons were anticipated to have short-term social and economic impacts because of the change in fishing practices and the need to build markets during times when the fishery had traditionally been closed. However, over time, because the openings of the fishery would be spread farther throughout the year, trimester seasons should have positive economic and social impacts. NOAA Fisheries delayed the effective date of the trimester seasons to January 2005 to mitigate any impacts by providing time to adjust. The current action establishes quotas for the trimester seasons.

5.2 UNAVOIDABLE ADVERSE IMPACTS

As described above, the selected alternatives are not expected to have adverse ecological, economic, and/or social impacts. The reasons for selecting those alternatives are outlined in the previous sections of this document. In considering the alternatives, NOAA Fisheries selected alternatives that would minimize the adverse impacts while maximizing the positive impacts.

5.3 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

The proposed alternatives would not result in any irreversible or irretrievable commitments of resources. In aggregate, the preferred alternatives are not expected to have a negative impact on sea turtle.

References Cited in Chapter 5

No references cited

6.0 ECONOMIC EVALUATION

This section assesses the economic impacts of the alternatives presented in this document. Analyses of the economic impacts are required under several laws, including: National Environmental Protection Act (NEPA), Magnuson-Stevens Act, Regulatory Flexibility Act (RFA), and Executive Order 12866 (E.O. 12866). This chapter explains some of the quantitative analyses but does not contain all of the economic analyses in this document.

6.1 ECONOMIC ANALYSES OF MANAGEMENT MEASURES

Chapter 6.0 of Amendment 1 to the HMS FMP describes the economic benefits and costs to the nation and individual fishermen of a number shark management alternatives. Because similar alternatives are considered in this document, a number of these analyses are relevant with respect to this action. Additional economic information can also be found in section 5 of the 2004 SAFE report. Please see the above referenced sections for more economic information regarding the commercial shark fishery and the impact of alternatives similar to those considered in this document.

6.1.1 NUMBER OF FISHING AND DEALER PERMIT HOLDERS

As of September 2003, approximately 358 fishermen had been issued an incidental commercial shark limited access permit and 253 had been issued a directed commercial shark limited access permit. Of these permit holders, 141 and 58 of the directed and incidental permit holders, respectively, reported landings in 2003. This analysis considers these vessels as "active" for determining the potential economic impacts of the proposed alternatives. The addresses of these permit holders range from Texas through Maine with over half (57 percent) of the directed permit holders located in Florida. Most of directed permit holders use bottom longline to target sharks. Because of the limited number of permits, the relatively short season lengths, and the relatively low profits available from shark fishing, it is unlikely that the number of active directed shark permit holders would increase substantially in the future.

The number of directed permit holders that use gillnet gear to fish for sharks has been fewer than 6 vessels in recent years. These fishermen fish off the east coast of Florida and Georgia. Because of the gear restrictions, the relatively short LCS season, the small profit margin, and the observer coverage requirements for these vessels, it is unlikely that the number of vessels in the gillnet fishery would increase substantially.

Also, as of September 2003, there were 254 dealers permitted to buy sharks. Dealer addresses also range from Texas through Maine with 38 percent located in Florida. NOAA Fisheries believes that all permit holders and related businesses (e.g. bait shops, tackle shops, processors, exporters), all of which are considered small entities, could experience a range of impacts because of the preferred actions described in this document. These impacts are described in this document and in Amendment 1 to the HMS FMP.

6.1.2 GROSS REVENUES OF COMMERCIAL SHARK FISHERMEN

NOAA Fisheries calculates gross revenues by combining current federal permit holders with their reported logbook landings for 2003. These landings are then multiplied by average prices (by region) for LCS flesh, LCS fins, and SCS flesh obtained from Table 5.2 of the 2004 SAFE report (Table 6.1). Average ex-vessel prices of LCS and SCS meat across all regions was approximately $0.79 and $0.53, respectively per lb dw in 2002. LCS fin prices, averaged across regions, were $19.86 per lb dw in 2002. Fishermen without current landings (2003) or those that fish in state waters are not included in this estimation of gross revenues.

Of all Atlantic HMS, sharks bring in the lowest total gross revenues (~$4.5 million total in 2003). Directed and incidental permit holders earned $4.4 and $0.1 million, respectively, of the total gross revenues for shark fishermen during 2003. If gross revenues for directed permit holders is averaged across the approximately 141 active directed shark permit holders, then the average annual gross revenues per shark fisherman is just over $31,085.60 (ranging from $25 to $344,122 based on individual landings). On average, incidental permit holders earned $1,946.18 in 2003, however, these fishermen are expected to earn the majority of their income from other fisheries.

6.1.3 VARIABLE COSTS AND NET REVENUES OF COMMERCIAL SHARK FISHERMEN

In 2003, NOAA Fisheries began selecting 20 percent of all active directed commercial shark fishermen to report cost earnings information. The collection of this information (OMB No. 0648-0371, expiration June 30, 2005) will greatly improve shark management. Using information from trips that did not include lightstick purchases (i.e. trips that are targeting sharks) preliminary estimates of average costs for fuel, bait, and ice are approximately $1,765, $570, and $398 per fishing trip, respectively. NOAA Fisheries is still reviewing, updating, and checking the data in this database so these should be considered estimates that are subject to change.

In the meantime, NOAA Fisheries believes that the variable costs for commercial shark fishermen using bottom longline gear are similar to the fishing costs for pelagic longline. There are some costs which may be lower for bottom longline gear. For instance, shark fishermen should not need lightsticks (used to catch swordfish) and often set less gear than pelagic longline fishermen. McHugh and Murray (1997) found that a seven day trip had an average profit (owner's share of catch minus all expenses) of $1,589. Vessels between 40 and 49 feet had an average profit of $1,975 for a seven day trip.

6.1.4 EXPECTED ECONOMIC IMPACTS OF THE REGIONAL QUOTA ADJUSTMENT

Economic analysis for regional and trimester quota adjustment were performed using a SAS computer program that compiled 2003 logbook and federal shark permit data to use as a baseline from which economic impacts of alternatives could be analyzed. It has been the convention of

NOAA Fisheries to compare the economic impacts of proposed alternatives to the most recent year for which complete logbooks are available (2003). Data were combined from four sources, including: 2003 pelagic longline logbooks, 2003 Snapper-Grouper (Coastal Fisheries Database) logbooks, 2003 north east multi-species logbook, and the shark permit database. Unclassified sharks and state landings were not included in this analysis. The output from SAS provided NOAA Fisheries with monthly landings data by vessel ID. Actual logbooks were used to provide economic impacts to discern the impacts of the proposed alternatives to active, federally permitted vessels. Microsoft Excel was used to create spreadsheets for determining landings and revenues by vessel ID, month, and region to determine the impacts of the proposed alternatives. Table 6.1 includes a summary of economic and landings information from the 2003 logbooks. Regional price data for LCS fins and flesh, and SCS flesh were obtained from Table 5.2 of the 2004 SAFE report. Prices were converted back to 2002 dollars (from 1996) by dividing by 0.872. The 2003 logbooks indicate that overall landings for LCS and SCS were 1,142.4 and 85.6 mt dw, respectively. Using these landings and the 2002 ex-vessel prices, gross revenues were estimated for the 2003 fishing season. NOAA Fisheries then compared the expected economic impacts of alternatives for regional quota adjustment. A summary of the expected impacts can be found in Table 6.2.

This economic analysis provides a comparison of proposed alternatives to one-year (2003) of reported landings and estimated gross revenues. Regional and trimester quotas would be based on five years of landings data (1999-2003). Long term negative economic impacts are not expected as a result of this proposed rule, however, some short term impacts may occur as a result of adjustment to the new regional quotas and seasons.

NOAA Fisheries considered six separate quota adjustment alternatives. It is important to note that only the percentages given to each region, by species group, were compared as annual quotas may change due to current over- or under-harvests being carried over from the previous year. NOAA Fisheries assumes that changes to shark quotas would likely result in similar changes to gross revenues. The 2003 landings derived from vessel logbooks were used as a baseline from which to compare the six alternatives. It is important to note that economic impacts of proposed measures would be different depending on which years' logbooks are employed, i.e. if a year other than 2003 were used as a baseline for comparison.

Alternative A1 would maintain the current regional quotas which became effective for the 2004 fishing year, however, were not in effect in the 2003 baseline year. Compared to 2003, this alternative would reduce quotas in the Gulf of Mexico (-6 and -63 percent for LCS and SCS respectively), increase quotas in the South Atlantic (+10 and +50 percent for LCS and SCS respectively), and in the North Atlantic LCS quotas would be reduced while SCS quotas are increased by -3 and +13 percent, respectively. Negative economic impacts may be most severe in the Gulf of Mexico region.

Compared to landings data from 2003 logbooks, Alternatives A2 and A3 would have the same effect on regional quotas and differ only in that alternative A3 includes a provision for the adjustment of regional quotas as needed based on updated landings information or changes in fishing effort. Quotas in the Gulf of Mexico would be increased by one percent and reduced by

57 percent for LCS and SCS, respectively. The South Atlantic region would receive a six percent decrease in LCS quotas and a 54 percent increase in SCS quotas. The North Atlantic region would receive increases of six and three percent, respectively for LCS and SCS quotas. Negative economic impacts would be most pronounced in the Gulf of Mexico region for SCS fisheries and in the South Atlantic region for LCS. However, because LCS are sold for fins, at a considerably greater ex-vessel price, and flesh the overall economic impacts may be greater in the South Atlantic. Updated landings used to establish these quotas reflect recent trends in these regional fisheries. Alternative 3 is the preferred alternative and includes a framework for updating regional quotas based on future fishing effort.

Alternative A4 would manage LCS and SCS without regional quotas, similar to management prior to Amendment 1 (1993-2004). For purposes of comparison, NOAA Fisheries assumed that regional landings from 2003 were representative of fishing effort by region and species group therefore the same percentages were distributed to each region. Economic impacts to the North Atlantic may be masked because of the fact that participants in that region may not be able to fish until later in the season, reducing the amount of available quota for LCS and SCS. Alternative 4 does not indicate any economic impacts because that is the quota system that was in place during the baseline year (2003) and since the comparison was made to the 2003 logbooks, NOAA Fisheries determined that there would be no economic impact. This alternative is not selected because of the fact that it would not update quotas based on current landings or provide regional management of shark quotas for the purposes of equitable quota distribution and protection of reproductive females or shark pups.

Alternative A5 would maintain regional quotas for LCS and eliminate regional SCS quotas. There would be negligible economic impacts on the Gulf of Mexico; increasing quotas for LCS by one percent and no effect on SCS quotas. The South Atlantic would have LCS quotas reduced by six percent with no effect on SCS quotas. North Atlantic quotas for LCS would be increased by six percent with no corresponding effect on regional SCS quotas.

Alternative A6 would combine the quotas for LCS and SCS in the Gulf of Mexico and South Atlantic regions. Estimated quotas for this alternative were derived by combining regional quotas for the Gulf of Mexico and South Atlantic from Amendment 1 to the HMS FMP. This alternative would reduce Gulf of Mexico quotas for SCS by 22.5 percent with no effect on LCS. The South Atlantic quotas would be increased by four and 10.5 percent respectively for LCS and SCS and the North Atlantic quota for LCS would be reduced by three and increased by 13 percent for LCS and SCS, respectively compared to 2003 logbook landings.

6.1.5 EXPECTED ECONOMIC IMPACTS OF THE TRIMESTER SEASON QUOTA DISTRIBUTION

The baseline from which economic impacts for the trimester season quota distribution alternatives was derived by calculating the monthly landings for LCS and SCS by directed permit holders using 2003 logbook data, grouping these landings into trimesters (January-April, May-August, September-December), and then determining the percentage of the total landings caught in each trimester. The percentage of total landings per trimester in the three regions were

then compared to the three alternatives (Table 6.3). Regional quotas would not be affected by this proposed action, only the distribution of quota between trimester seasons.

Alternative B1 would divide equal percentages of a regional quota to the three trimesters (33 percent/trimester). Compared to 2003 landings data, this alternative would adversely affect the timing of shark fisheries in the South Atlantic and Gulf of Mexico as at least 50 percent of the landings occur during the first season in these regions. However, increased quotas during the third trimester may distribute some of the fishing effort to that trimester season.

Alternative B2 and B3 would distribute regional quota between trimester seasons based on historical fishing effort. This alternative would reduce harvests of SCS in the South Atlantic by 64.4 percent in the first trimester, however, this decrease would be compensated for increased harvests in the second and third trimester. Similarly, LCS quotas in the North Atlantic would be significantly increased in the first trimester (33.9 percent) with corresponding decreases in the second and third trimesters. Alternative B3 is the preferred alternative as it bases trimester seasons on historical catch data and allows for the bulk of harvests to take place during January and July which are the two months when harvests had been the greatest in the past.

6.1.6 EXPECTED ECONOMIC IMPACTS OF ACCOUNTING FOR OVER- AND UNDERHARVEST IN THE TRANSITION FROM SEMI-ANNUAL TO TRIMESTER SEASONS

Each of the alternatives may have varying degrees of either positive or negative social and economic impacts. These alternatives are not expected to alter historic fishing practices, beyond the addition of the third season, or the capability of fishermen to harvest the quota. Alternative C1 would be of greatest economic benefit to the Gulf of Mexico because this region had a significant overharvest of SCS and a modest overharvest of LCS during the first 2004 semi-annual season. The economic impact on other regions which had underharvests during the first 2004 semi-annual season is expected to be minor, but positive. Those underharvests would be spread out evenly among the three seasons.

Table 6.1 **Economic Summary of Federal Commercial Shark Fishing by Region in 2003**. Directed and Incidental reported landings and estimated revenues are combined by region and species group. Flesh and fin prices were obtained from the 2004 SAFE report Table 5.2.

	Gulf of Mexico		**South Atlantic**		**North Atlantic**	
	LCS	SCS	LCS	SCS	LCS	SCS
Landings, mt dw (*vessel mean*, lbs)	553.3 *14,696.57 lbs*	57.39 *5,061.2 lbs*	507.94 *15,772.19 lbs*	28.21 *2,591.25 lbs*	81.1 *5,960.51 lbs*	0
Revenues (*vessel mean*)	$1,785,809 *$21,515.00*	$60,734 *$2,429.37*	$2,307,960 *$32,506.48*	$33,000 *$1,375.01*	$308,367 *$10,278.91*	0
Fin Prices ($/lb)	$22.63	N/A	$17.09	N/A	$19.86	N/A
Flesh Prices	$0.35	$0.48	$1.27	$0.53	$0.77	$0.58

Table 6.2. Economic Impacts of the Regional Quota Adjustment Alternatives Considered. Sources: 2003 logbooks (pelagic longline, North East Multi Species, shark permit, and snapper grouper(Coastal Fisheries Database)), 2002 ex-vessel prices for shark products from 2004 SAFE Report.

		Gulf of Mexico		South Atlantic		North Atlantic	
		LCS	SCS	LCS	SCS	LCS	SCS
2003 Log book Data (Baseline)	Landings (mt dw)	553.3	57.4	507.9	28.2	81.1	0
	Percent of total	48.00 percent	67.00 percent	44.00 percent	33.00 percent	7.00 percent	0
	Revenues $$	$1,785,809	$60,734	$2,307,960	$33,000	$308,367	0
A1 - Maintain Status Quo	Proposed Quota (percent)	42.00 percent	4.00 percent	54.00 percent	83.00 percent	4.00 percent	13.00 percent
	Net Impact (percent)	-6.00 percent	-63.00 percent	10.00 percent	50.00 percent	-3.00 percent	13.00 percent
	Estimated Revenues $ (net impact, $)	$1,678,660 (-$107,149)	$22,471 (-$38,263)	$2,538,756 (+$230,796)	$49,500 (+$16,500)	$299,115 (-$9,252)	N/A

		Gulf of Mexico		South Atlantic		North Atlantic	
		LCS	SCS	LCS	SCS	LCS	SCS
A2/A3 - Revise quotas/updated landings (preferred)	Proposed Quota percent	49.00 percent	10.00 percent	38.00 percent	87.00 percent	13.00 percent	3.00 percent
	Net Impact percent	1.00 percent	-57.00 percent	-6.00 percent	54.00 percent	6.00 percent	3.00 percent
	Estimated Revenues $ (net impact, $)	$1,803,667 (+$18,036)	$26,115 (-$14,885)	$2,169,488 (-$130,169)	$50,820 (+$27,443)	$326,869 (+$19,612)	0
A4 - Single quota LCS/SCS	Proposed Quota percent	48.00 percent	67.00 percent	44.00 percent	33.00 percent	7.00 percent	0.00 percent
	Net Impact percent	0.00 percent	0.00 percent	0.00 percent	0.00 percent	0.00 percent	0.00 percent
	Estimated Revenues $ (net impact, $)	0	0	0	0	0	0

		Gulf of Mexico		South Atlantic		North Atlantic	
		LCS	SCS	LCS	SCS	LCS	SCS
A5 - Single quota SCS, Regional quota LCS	Proposed Quota percent	49.00 percent	67.00 percent	38.00 percent	33.00 percent	13.00 percent	0.00 percent
	Net Impact percent	1.00 percent	0.00 percent	-6.00 percent	0.00 percent	6.00 percent	0.00 percent
	Estimated Revenues $ (net impact, $)	$1,803,667 (+$17,858)	$60,734 (0)	$2,169,488 (-$138,477)	$33,000 (0)	$326,869 (+$18,502)	0
A6 - Combine Gulf and So.Atl	Proposed Quota percent	48.00 percent	43.50 percent	48.00 percent	43.50 percent	4.00 percent	13.00 percent
	Net Impact percent	0.00 percent	-23.5 percent	4.00 percent	10.50 percent	-3.00 percent	13.00 percent
	Estimated Revenues $$	$1,785,809 (0)	$46,461 (-$14,272)	$2,400,278 (+$92,318)	$36,465 (+$3,465)	$299,116 (-$9,251)	N/A

Table 6.3. Expected Economic Impacts of the Trimester Season Distribution Alternatives Compared to Regional Trimester Landings for LCS and SCS in 2003. Sources: 2003 logbooks (pelagic longline, North East Multi Species, shark permit, and snapper grouper(Coastal Fisheries Database)), 2002 ex-vessel prices for shark products from 2004 SAFE Report.

		Gulf of Mexico		**South Atlantic**		**North Atlantic**	
Alt.	Trimester Season	**LCS**	**SCS**	**LCS**	**SCS**	**LCS**	**SCS**
2003 percent of Landings by Trimester - *Baseline*	1) 2) 3)	50.4 percent 42.4 percent 7.3 percent	52.2 percent 38.4 percent 9.4 percent	70.3 percent 28.3 percent 1.4 percent	84.6 percent 14.7 percent 0.7 percent	0.4 percent 77.9 percent 21.6 percent	0.00
B1 - Equal quotas for each trimester 33 percent/trimester	1)Proposed Quota percent *(net change percent)*	33 percent *-17 percent*	33 percent *-19.2 percent*	33 percent *-37.3 percent*	33 percent -51.6 percent	33 percent *+ 32.6 percent*	*33 percent +33 percent*
	2)	33 percent *-9.4 percent*	33 percent *-5.4*	33 percent *+4.7 percent*	33 percent *+18.6 percent*	33 percent *-44.9 percent*	33 percent *+33 percent*
	3)	33 percent +26 percent	33 percent *+23.6 percent*	33 percent *+31.6 percent*	33 percent *+32.3 percent*	33 percent *+11.4 percent*	*33 percent +33 percent*

		Gulf of Mexico		South Atlantic		North Atlantic	
Alt.	Trimester Season	**LCS**	**SCS**	**LCS**	**SCS**	**LCS**	**SCS**
B2/B3 - Revise quotas based on updated landings (*B3 Preferred*)	1) Proposed Quota percent *(net change percent)*	47.2 percent *-3.2 percent*	58.8 percent *+6.6 percent*	63.3 percent *-7.0 percent*	20.2 percent *-64.4 percent*	34.3 percent *+33.9 percent*	6.1 percent *+6.1* percent
	2)	43.8 percent *+1.4 percent*	28.80 percent *-9.6 percent*	28.1 percent *-0.2 percent*	52.6 percent *+37.9 percent*	57.7 percent *-20.2 percent*	17 percent *+17 percent*
	3)	9.0 percent *+1.7 percent*	12.4 percent *+3 percent*	9.0 percent *+7.6 percent*	27.2 percent *+26.5 percent*	8.0 percent *-13.6 percent*	76.9 percent *+76.9* percent

References Cited in Chapter 6

McHugh, R. J. and T. J. Murry. 1997. An analysis of the demand for, and supply of shark. MARFIN Grant No., NA 57FF0052, University of South Florida and Georgia State University.

7.0 REGULATORY IMPACT REVIEW

The Regulatory Impact Review (RIR) is conducted to comply with Executive Order 12866 (E.O. 12866) and provides analyses of the economic benefits and costs of each alternative to the nation and the fishery as a whole. Certain elements required in an RIR are also required as part of an environmental assessment (EA). Thus, this section should be considered only part of the RIR, the rest of the RIR can be found throughout this document.

7.1 DESCRIPTION OF THE MANAGEMENT OBJECTIVES

Please see Chapter 1 for a description of the management objectives associated with this Amendment.

7.2 DESCRIPTION OF THE FISHERY

Please see Chapter 3 for a description of the fisheries that could be affected by this Amendment.

7.3 STATEMENT OF THE PROBLEM

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

7.4 DESCRIPTION OF EACH ALTERNATIVE

Please see Chapter 2 for a summary of each alternative and Chapter 4 for a complete description of each alternative and its expected ecological, social, and economic impacts. Chapters 6 and 8 provides additional information related to the alternatives.

7.5 ECONOMIC ANALYSIS OF EXPECTED EFFECTS OF EACH ALTERNATIVE RELATIVE TO THE BASELINE

NOAA Fisheries does not believe that the national net benefits and costs would change significantly in the long term as a result of implementation of the proposed actions. The total amount of sharks landed and available for consumption are not expected to change. Table 7.1 indicates the possible net economic benefits and costs of each alternative.

7.6 CONCLUSION

Under E.O. 12866, a regulation is a "significant regulatory action" if it is likely to: (1) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights, and obligation of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order. The

proposed actions described in this document and in the proposed rule do not meet the above criteria. Therefore, under E.O. 12866, the proposed actions described in this document have been determined to be not significant for the purposes of E.O. 12866. A summary of the expected net economic benefits and costs of each alternative can be found in Table 7.1.

Table 7.1 Summary of the Net Benefits and Costs for Each Alternative.

Alternative	Net Economic Benefits	Net Economic Costs
LCS and SCS Regional Quotas		
A1	Minimal, but positive for regions that may receive a larger quota than landings indicate	In the short term, some shark fishermen in the Gulf of Mexico may be affected by not being able to fish in the first season of January 2005. Future closures may be unavoidable
A2	In the short term, shark fishermen in the Gulf of Mexico will benefit from being able to fish in January 2005. Basing regional quotas on updated landing information may provide shark fishermen in all regions with more accurate quotas.	Minimal. Some shark fishermen in South Atlantic may no longer be able to harvest LCS at previous harvest levels
A3 - Preferred	Same as A2 with the additional benefit of providing a framework for annual adjustment allowing participants to harvest regional shark quotas.	Minimal. Some shark fishermen in South Atlantic may no longer be able to harvest LCS at previous harvest levels
A4	None	For geographic reasons, fishermen in the North Atlantic are unable to fish until later in the year putting them at a disadvantage to fulfill their portion of the quota. Furthermore, not updating quotas based on historical landing may result in future overages and closures. This alternative could not allow the SCS Gulf of Mexico to open January 2005.
A5	None	Similar to A4 for SCS and in terms of preventing future overages. For LCS this alternative may not allow the Gulf of Mexico to open in January 2005
A6	Minimal	This alternative would allow the Gulf of Mexico to open in January 2005 but does not base quotas on updated landings information.

Alternative	Net Economic Benefits	Net Economic Costs
Trimester Season Quota Distribution		
B1	None	In the long term overages may result in future closures as these distributions are not based on historical landings.
B2	Quotas would be distributed based on landing which would result in less likelihood of closures in the future. Allow more fishing year-round providing better marketing opportunities.	Minimal
B3 - Preferred	Same as B2 but allows for annual adjustment of quota that may result due to changes in fishing effort.	None
Accounting for Over- and Underharvet in the transition from semi-annual to trimester seasons		
C1	None	None
C2	None	None
C3 - Preferred	None	None
C4	None	None

References Cited in Chapter 7

No references cited

8.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS (IRFA)

The Initial Regulatory Flexibility Analysis (IRFA) is conducted to comply with the Regulatory Flexibility Act and provides analyses of the economic benefits and costs of the preferred alternatives on small entities. Certain elements required in an IRFA are also required as part of an environmental assessment (EA). Thus, this section should be considered only part of the IRFA, the rest of the IRFA can be found throughout this document.

Consistent with the Regulatory Flexibility Act, NOAA Fisheries will consider any comments received during the public comment period of this proposed rule that relate to the economic impacts of the preferred alternatives before amending the proposed rule.

8.1 DESCRIPTION OF THE REASONS WHY ACTION IS BEING CONSIDERED

Please see Chapter 1 for a description of the need for action.

8.2 STATEMENT OF THE OBJECTIVES OF, AND LEGAL BASIS FOR, THE PROPOSED RULE

Please see Chapter 1 for a description of the objectives of the proposed rule.

8.3 DESCRIPTION AND ESTIMATE OF THE NUMBER OF SMALL ENTITIES TO WHICH THE PROPOSED RULE WILL APPLY

NOAA Fisheries considers all permit holders to be small entities. A description of the fisheries affected can be found in Chapter 3 of this document.

As of September 2003, there were approximately 253 directed shark permit holders and 358 incidental shark permit holders for a total of 611 permit holders who are authorized to fish for sharks (only about 20 percent of all permit holders are actually active in the fishery) and could be affected by the preferred alternatives outlined in the proposed rule. Currently, 141 vessels (i.e., number of vessels that reported landings of shark during 2003) would be affected by changes (i.e., increases/decreases) in regional quotas. Additionally, while there were 253 directed shark permit holders in September 2003, NOAA Fisheries knows of fewer than 6 shark fishermen who have used drift gillnet gear at some point in the past and only 6 in recent years. These 6 vessels could be affected by the re-distribution of quota to the different regions.

Other sectors of HMS fisheries such as dealers, processors, bait houses, and gear manufacturers might be affected by the proposed regulations, particularly the shift to trimester seasons for commercial fisheries, and increase or reduction in commercial LCS or SCS regional quotas. However, the proposed rule does not apply directly to them. Rather it applies only to permit holders and fishermen. As such, economic impacts on these other sectors are discussed in Chapter 4, 6, and 7.

8.4 DESCRIPTION OF THE PROJECTED REPORTING, RECORD-KEEPING, AND OTHER COMPLIANCE REQUIREMENTS OF THE PROPOSED RULE, INCLUDING AN ESTIMATE OF THE CLASSES OF SMALL ENTITIES WHICH WILL BE SUBJECT TO THE REQUIREMENTS OF THE REPORT OR RECORD

None of the preferred alternatives in this document will result in additional reporting, record-keeping, and compliance requirements.

8.5 IDENTIFICATION OF ALL RELEVANT FEDERAL RULES WHICH MAY DUPLICATE, OVERLAP, OR CONFLICT WITH THE PROPOSED RULE

Fishermen, dealers, and managers in these fisheries must comply with a number of international agreements, domestic laws, and other FMPs. These include, but are not limited to, the Magnuson-Stevens Act, the Atlantic Tunas Convention Act, the High Seas Fishing Compliance Act, the Marine Mammal Protection Act, the Endangered Species Act, the National Environmental Policy Act, the Paperwork Reduction Act, and the Coastal Zone Management Act. NOAA Fisheries strives to ensure consistency among the regulations with Fishery Management Councils and other relevant agencies. NOAA Fisheries does not believe that the new regulations proposed to be implemented would conflict with any relevant regulations, federal or otherwise.

8.6 DESCRIPTION OF ANY SIGNIFICANT ALTERNATIVES TO THE PROPOSED RULE THAT ACCOMPLISH THE STATED OBJECTIVES OF APPLICABLE STATUTES AND THAT MINIMIZE ANY SIGNIFICANT ECONOMIC IMPACT OF THE PROPOSED RULE ON SMALL ENTITIES

One of the requirements of an IRFA is to describe any alternatives to the proposed rule which accomplish the stated objectives and which minimize any significant economic impacts. These impacts are discussed in Chapters 4 and 6 of this document. Additionally, the Reg Flex Act (5 U.S.C. § 603 (c) (1)-(4)) lists four categories which should be discussed. These categories (all of which assume the proposed action could impact small entities differently than large entities) are:

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

As noted earlier, NOAA Fisheries considers all permit holders to be small entities and in order to meet the objectives of this proposed rule and the Magnuson-Stevens Act, NOAA Fisheries cannot change the requirements only for small entities. Additionally, all of the proposed measures in this rule would not be effective with exemptions for small entities. Thus, there are

no alternatives available to satisfy the stipulations of the first and fourth categories listed above. NOAA Fisheries is proposing these measures to modify regional and trimester quotas based on updated landings information and as such, the use of performance rather than design standards and the simplification of compliance and reporting requirements under this proposed rule are not practicable. Alternatives under the second category are discussed below.

The preferred measures for updating regional and trimester quotas were selected because the other proposed alternatives do not allow NOAA Fisheries to update the quotas based on the most up-to-date landings data available while installing a provision for the adjustment of these quotas to better adapt to future changes in regional and trimester fishing effort. For example, maintaining the current quotas may not allow the SCS fishery to open in the Gulf of Mexico in January 2005 and may reduce the LCS quota, resulting in negative economic impacts. Furthermore, although they may consolidate, clarify, and/or simplify compliance, proposed alternatives that do not maintain regional and trimester quotas will incite regional inequality as fishermen in the North Atlantic would be at a disadvantage due to their geographic location and may also have negative impacts on shark pupping, both of which would conflict with National Standards (NS) of the Magnusen-Stevens Act by inhibiting or discriminating against fishermen in a given state or region and delaying the rebuilding plan for LCS (NS4 and NS 1). Regional and trimester quotas may also promote market stability, ensuring the availability of shark products year round and in all locales.

The proposed alternatives for the transition between semi-annual and trimester season are not expected to have adverse economic or ecological impacts, however, they were not preferred because they would reduce quotas for the third trimester season resulting in reduced revenues and temporal shortages of shark products, particularly for fishermen in the South Atlantic region who are already impacted by the Mid-Atlantic closure area. NOAA Fisheries does not know of any performance or design standards that would satisfy the aforementioned objectives of this rulemaking while, concurrently, upholding the Magnuson-Stevens Act.

Removing the requirement to publish commercial shark season length at least 30 days in advance looked at two alternatives, the preferred alternative which removes the requirement to give the public more access and opportunities for comment or not removing the requirement. NOAA Fisheries believes it is in the public's best interests to not require NOAA Fisheries to publish the season length at least 30 days in advance to maintain adequate time for commentary in the proposed rule phase of future rulemaking.

References Cited in Chapter 8

No references cited

9.0 COMMUNITY PROFILES

Mandates to conduct social impact assessments come from both the National Environmental Policy Act (NEPA) and the Magnuson-Stevens Act. NEPA requires federal agencies to consider the interactions of natural and human environments by using a "systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences...in planning and decision-making" [NEPA section 102(2)(a)]. Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects which may be direct, indirect, or cumulative. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. With an increasing need for management action, the consequences of these actions need to be examined in order to mitigate the negative impacts experienced by the populations concerned.

Social impacts are generally the consequences to human populations that follow from some type of public or private action. They may include alterations to the ways people live, work or play, relate to one another, and organize to meet their needs. In addition, cultural impacts, which may involve changes in values and beliefs that affect people's way of identifying themselves within their occupation, communities, and society in general, are included under this interpretation. Social impact analyses help determine the consequences of policy action in advance by comparing the status quo with the projected impacts. Although public hearings and scoping meetings provide input from those concerned with a particular action, they do not constitute a full overview of the affected constituents.

Amendment 1 to the HMS FMP originally analyzed and laid the groundwork for implementation of regional quotas and trimester seasons which are the basis of this proposed rule. The FSEIS completed for Amendment 1 required collecting social information from principal states involved in the fishery. Of the 255 communities identified between Maine and Texas as being involved in the 2001 commercial shark fishery, nine communities were selected to determine the relationship between the fishing fleets and the community. These communities can also be used to determine sociological impacts of commercial shark management at the community level. The nine communities include: Barnegat Light, NJ; Wanchese, NC; Hatteras, NC; Pompano Beach, FL; Fort Pierce, FL; Madeira Beach, FL; Panama City, FL; Dulac, LA; and Venice, FL. Detailed information regarding each location can be found in Amendment 1 to the HMS FMP and will not be repeated here. The anticipated impacts of all the selected actions will be minor in all of these communities.

As mentioned in previous sections, the selected alternatives are expected to have little economic or social impact on the fishery and the dependent communities. Additionally, the selected alternatives are not expected to have significant social impacts. None of the alternatives drastically modify the current fishery. For example the LCS and SCS overall quotas will not be changed simply distributed to regions based on updated landings information to prevent future overages and fishery closures. Trimester seasons, as implemented in Amendment 1 to the HMS FMP, do not affect the overall quotas and will consider historical landings in establishing appropriate quotas. The framework for annual adjustment of regional quotas based on future landings will prevent future overages and seasonal closures which may have a negative impact

on communities. Season opening dates are not expected to have adverse social or economic impacts. Removing the requirement to publish expected season duration at least 30 days prior to the opening of seasons is not expected to have significant impacts.

References Cited in Chapter 9

No references cited

10.0 OTHER CONSIDERATIONS

10.1 NATIONAL STANDARDS

The analyses in this document are consistent with the National Standards (NS) set forth in the 50 C.F.R. part 600 regulations.

The actions being proposed in this Environmental Assessment and associated proposed rule are consistent with NS 1 in that they would implement measures that were considered in Amendment 1 to the HMS FMP and are designed to prevent overfishing and allow overfished species of sharks in the Atlantic Ocean to rebuild (NS1). The alternatives are based on the management recommendations that were implemented in conjunction with Amendment 1 to the HMS FMP and are based on the best scientific information available (NS 2), including self-reported, observer, and stock assessment data which provide for the management of affected species (NS 3). The proposed alternative does not discriminate against fishermen in any state (NS 4) nor does it alter the efficiency in utilizing the resource (NS 5). With regard to (NS 6), the proposed alternative takes into account any variations that may occur in the fishery and the fishery resources. Additionally, NOAA Fisheries considered the costs and benefits of these management measures economically and socially (NS 7 and 8) in sections 6, 7, 8, and 9 of this document. The proposed measures do not directly change fishing effort for Atlantic sharks, therefore, impacts to bycatch species and protected species are similar to those previously analyzed in Amendment 1 to the HMS FMP (NS 9). Finally, this proposed rule would not require fishermen to fish in an unsafe manner (NS 10).

10.2 PAPERWORK REDUCTION ACT

This action does not contain a collection-of-information requirement for purposes of the Paperwork Reduction Act.

10.3 FEDERALISM

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

11.0 LIST OF PREPARERS

This document was prepared by a team of individuals from the Highly Migratory Species Management Division, Office of Sustainable Fisheries (F/SF1), NOAA Fisheries, including:

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