

**FINAL**  
**ENVIRONMENTAL ASSESSMENT,**  
**FINAL REGULATORY IMPACT REVIEW, AND**  
**FINAL REGULATORY FLEXIBILITY ANALYSIS**  
**FOR A**  
**FINAL RULE**  
**FOR 2007 SECOND AND THIRD TRIMESTERS ATLANTIC SHARK**  
**COMMERCIAL MANAGEMENT MEASURES**

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

April 2007

## **Final Rule For 2007 Second and Third Trimesters Atlantic Shark Commercial Management Measures**

**Actions:** Establish quota levels and seasons for the 2007 second and third trimesters for the Atlantic commercial large coastal shark (LCS), small coastal shark (SCS) and pelagic shark fisheries.

**Type of Statement:** Environmental Assessment, Regulatory Impact Review, and Final Regulatory Flexibility Analysis

**Lead Agency:** National Marine Fisheries Service

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### **Abstract:**

The current regulations state that NMFS will adjust a region's LCS and SCS quotas based on over- and/or underharvests from the same season the previous year in any particular region. During the second trimester season of 2006, the South Atlantic region landed 137 percent of their LCS quota and 22.4 percent of their SCS quota, the Gulf of Mexico region landed 171 percent of their LCS quota and 206 percent of their SCS quota, while the North Atlantic region experienced underharvests for both LCS and SCS. During the third trimester season of 2006, the South Atlantic region landed 216 percent of their LCS quota and 15.2 percent of their SCS quota, the Gulf of Mexico region landed 156 percent of their LCS quota and 75 percent of their SCS quota, while the North Atlantic region experienced overharvests for LCS (176 percent of their quota) and underharvests for SCS. In 2006, NMFS also completed stock assessments for the LCS complex and sandbar, blacktip, and dusky sharks indicating that additional management measures affecting the regional and trimester quotas may be necessary.

The management measures in this rulemaking will adjust the 2007 second and third trimester regional LCS and SCS quotas based on over- and underharvests from the 2006 second and third trimester seasons. 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 FINAL RULE FOR 2007 SECOND  
AND THIRD TRIMESTERS ATLANTIC SHARK COMMERCIAL MANAGEMENT MEASURES  
NATIONAL MARINE FISHERIES SERVICE**

The Highly Migratory Species (HMS) 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 and Final Regulatory Flexibility Analysis. Copies of the EA and Regulatory Impact Review are available at the following address:

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

This action would:

- Implement quota adjustments in the commercial Atlantic LCS and SCS fisheries during the second and third trimester seasons of 2007 to address the over- and underharvests experienced in the during the second and third trimester seasons of 2006;
- Establish the season lengths and quotas for the second and third trimester seasons of 2007 for LCS and SCS; and
- Change the regional quota percentage allocation for SCS in the Gulf of Mexico and South Atlantic regions.

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?

No. The primary goals of the 1993 Shark FMP and the 1999 FMP for Atlantic Tunas, Swordfish and Sharks were to establish management measures to reduce overfishing, rebuild U.S. Atlantic shark populations, and prevent overfishing of fully fished stocks. In 2003, NMFS amended the measures enacted in the 1999 FMP for Atlantic Tunas, Swordfish and Sharks based on the 2002 LCS and SCS stock assessments, litigation, and public comments. Implementing regulations for Amendment 1 to the FMP for Atlantic Tunas, Swordfish, and Sharks 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.

On November 30, 2004, NMFS issued a final rule (69 FR 69537), which established, among other things, new regional quotas based on updated landings information from 1999-2003. This final rule did not change the overall quotas for LCS, SCS, and pelagic sharks established in Amendment 1 to the FMP for Atlantic Tunas, Swordfish, and Sharks, only the percentages allocated to each of the regions. The Final EA prepared for this rulemaking determined that the action was not expected to jeopardize the sustainability of any target species. The new regional quotas and trimester seasons for the commercial Atlantic shark fishery became effective January 1, 2005.

The final action is consistent with the overall quota for LCS and SCS, including regional and trimester quotas established in the 2003 Amendment and the November 30, 2004 final rule. The management measures address overharvests of LCS and SCS in the South Atlantic, North Atlantic, and Gulf of Mexico regions that occurred in the second and third trimester seasons of 2006. The measures are not expected to significantly increase fishing mortality of any target species beyond what has been previously analyzed in the Final EA associated with the November 30, 2004 final rule. Under the LCS modified preferred alternative, the existing mid-Atlantic shark closure, established in 2005 to reduce fishing mortality of juvenile sandbar sharks and dead discards of dusky sharks, will be open for 2 weeks at the end of July. NMFS anticipates the number of dead discards and the number of neonates and juvenile sharks affected by opening the closure for 2 weeks will be minor, especially since the entire South Atlantic region is currently closed and will remain closed through July 15. January through June is typically the time during which pregnant females and neonate sandbar sharks pup off the coast of Florida and dusky sharks start to pup between South Carolina and Maryland.

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

No. The measures maintain the same overall quotas established for LCS in the 2003 Amendment 1 to the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks. Furthermore, the 2007 reduced quotas and short seasons are likely to decrease non-target species interaction rates because there would be limited directed LCS fishing during the 2007 second and third trimester seasons. The final action is not expected to alter fishing practices or effort significantly and therefore should not have any impact on other finfish species that have not already been considered in the FMP for Atlantic Tunas, Swordfish and Sharks, Amendment 1 to the FMP for Atlantic Tunas, Swordfish and Sharks, or the Final Consolidated HMS FMP.

Furthermore, the Agency published a final rule (February 7, 2007; 72 FR 5633) to approve and update the necessary equipment and protocols that Atlantic shark fishermen with bottom longline (BLL) gear onboard must possess, maintain, and utilize for the safe handling, release, and disentanglement of sea turtles, smalltooth sawfish and other protected species. This previous rule, in combination with this one, should reduce the post release mortality of non-target 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?

No. As described in the Amendment 1 to the 1999 FMP for Atlantic Tunas, Swordfish and Sharks and the 2006 Consolidated HMS FMP, there is no evidence that physical effects caused by fishing BLL 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 BLL gear, principally targeting large coastal sharks, make contact with the bottom. If BLL 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.

The management measures in this final rulemaking are not expected to change fishing practices or effort, and therefore not expected to change the impact of BLL gear on EFH beyond those impacts considered in Amendment 1 to the 1999 FMP for Atlantic Tunas, Swordfish and Sharks. As a precautionary measure, NMFS 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 PLL, are unlikely to have any impact on EFH because they are fished in the water column not in contact with the bottom.

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

No. The preferred measures address over- and underharvests of LCS and SCS during the second and third trimester seasons of 2006; public health and safety would not be affected.

5. Can the action be reasonably expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?

No. The preferred measures are not expected to have significant impacts on endangered or threatened species, marine mammals, or critical habitat of these species because this rulemaking would ensure the fishery operates in a manner consistent with previous analysis.

On October 29, 2003, NMFS issued a BiOp pursuant to the Endangered Species Act (ESA) regarding Atlantic shark fisheries. This BiOp concluded that the level of anticipated take in the Atlantic shark fishery resulting from measures implemented in Amendment 1 to the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks (68 FR 74746) was not likely to jeopardize the continued existence of endangered green, leatherback, and Kemp's ridley sea turtles, the endangered smalltooth sawfish, or the threatened loggerhead sea turtle. All BLL and gillnet turtle interactions will be counted against the five-year BLL Incidental Take Statement (ITS) and all pelagic longline (PLL) will be counted against the three-year PLL ITS per the June 1, 2004, BiOp. The modified LCS preferred alternative in the South Atlantic region would open the mid-Atlantic shark closed area for two weeks in July. Observer data from 1994-2006 indicate that there have been interactions with sea turtles in the vicinity of, and within, the mid-Atlantic shark closure prior to its implementation in 2005. In the vicinity of the mid-Atlantic shark closed area, from 1994-2004, there have been 5 loggerhead sea turtles observed caught on BLL gear in the mid-Atlantic shark closed area, two of which were released alive. Only one of these interactions occurred during the month of July (1998). As such, re-opening the mid-Atlantic shark closure in the month of July 2007 is within the scope of the October 29, 2003, BiOp and does not meet the criteria at 50 CFR 402.16 for reinitiation of formal consultation.

Management measures in this action are not anticipated to change or increase any fishing activity and would overlap with an emergency rule in effect as of November 15, 2006 (71 FR 66469), prohibiting gillnet fishing or gillnet possession during annual restricted periods associated with the right whale calving season in the southeast U.S. restricted area and in waters within 35 nautical miles of the South Carolina coast. The emergency rule is required to meet the goals of the MMPA and the ESA, and is necessary to protect northern right whales from serious injury or mortality from entanglement in gillnet gear in their calving area in Atlantic ocean waters off the Southeast U.S. This final rule is consistent with the ALTRWP regulations at 50 CFR 229.32(g).

In addition, NMFS published a final rule (February 7, 2007; 72 FR 5633) to approve and update the necessary equipment and protocols that Atlantic shark fishermen with BLL gear onboard must possess, maintain, and utilize for the safe handling, release, and disentanglement of sea turtles and other protected species. Fishing effort is not expected to increase significantly as a result of these measures because base quotas are not being adjusted.

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.)?

No. The final action would not have a substantial impact on biodiversity and ecosystem function within the affected area because this final action reduces the 2007 fishing season lengths and available quotas and therefore, will not result in a significant increase in fishing effort or sanction the use of gears that have not already been authorized.

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

No. There are no significant natural or physical environmental effects associated with the preferred measures. Thus, there are no significant social or economic impacts interrelated with significant natural or physical environmental effects.

The combined seasons under the LCS modified alternative 2 and alternative 3, would provide for a total of just over four weeks to fish the LCS quota in the South Atlantic region versus five weeks (split into two seasons) under the no action alternative and a three week season in the Gulf of Mexico region compared to a two week season. These continuous seasons would afford more flexibility in addressing market conditions for LCS, and thus potentially allow for greater profits. Starting the season in July opens the mid-Atlantic shark closure to the South Atlantic region. This could have positive economic benefits, especially since catch rates have been historically higher in July than in August. The positive aspects of merging the two seasons include reduced operating costs since fishermen will only need to prepare the vessel once instead of twice and they are more likely to have a viable market for LCS given the season is longer.

The SCS management measures would produce significant positive social and economic impacts for the Gulf of Mexico region for 2007 and beyond. Reviewing SCS landings since 2003, it is evident that the percent quota allocations do not reflect recent regional SCS fishing activities. Over the last three years, 33 percent of all SCS landed have been landed in the Gulf of Mexico, with over half of the 2006 landings coming from this region. Redistributing the SCS quota more equally should help prevent future quota overharvests and fishery closures in the Gulf of Mexico, which in turn should reduce potential future economic and social costs associated with unexpected fishery closures.

8. Are the effects on the quality of the human environment likely to be highly controversial?

No. The preferred actions in this rulemaking try to mitigate the effects on the quality of the human environment despite the fact that there were substantial overharvests of LCS and SCS in the Gulf of Mexico and South Atlantic regions during the second and third trimesters of 2006. Opening the mid-Atlantic shark closed area for two weeks in July might help to offset some of the negative economic impacts that may occur as a result of the current 6 month closure in the South Atlantic region. Opening the mid-Atlantic shark closed area in light of the recent stock assessment for sandbar and dusky sharks might be somewhat controversial, particularly among environmental groups that are concerned about the status of these species. However, some of the potential negative ecological impacts may be offset by the fact that the entire South Atlantic region would be closed to directed LCS fishing for six months in 2007. The preferred action in the Gulf of Mexico region would avoid a potentially controversial closure during the 2007 second trimester season and would allow for a three week season starting September 1, 2007.

The North Atlantic would be open for 4 weeks in the 2007 second trimester and closed in the 2007 third trimester, however this closure was in place in the 2006 third trimester and is not expected to be highly controversial.

9. Can the action be reasonably be 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 management measures in this action occur in the coastal and open ocean environments and therefore, do not occur in unique areas such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas. Thus, the proposed action will not result in substantial impacts to the listed areas.

10. Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?

No. The effects on the human environment from the management measures are known and have been previously analyzed in the Environmental Assessment for the 2007 first trimester Atlantic shark commercial management measures, and the 2006 Final Consolidated HMS FMP and thus, the effects on the human environment are not likely to be highly uncertain or involve unique or unknown risks.

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

No. Significant cumulative impacts are not expected as a result of these LCS and SCS measures in conjunction with foreseeable actions in the future. The LCS preferred measures would only affect the commercial shark fisheries during the second and third trimesters of 2007. The SCS preferred alternative would adjust the regional quota allocations in the South Atlantic and Gulf of Mexico regions due to changes in the SCS fishery. This change reflects current landings and would avoid future overharvest of SCS in the Gulf of Mexico and would not cause overharvest in the South Atlantic. No significant cumulative ecological, social, or economic impacts are expected as a result of these LCS and SCS measures in conjunction with foreseeable actions in the future.

NMFS published a final rule (February 7, 2007; 72 FR 5633) to approve and update the necessary equipment and protocols that Atlantic shark fishermen with BLL gear onboard must possess, maintain, and utilize for the safe handling, release, and disentanglement of sea turtles and other non-target species consistent with the Fishery Management Plan (FMP) and the October 29, 2003, Biological Opinions (BiOp) for the shark fishery. The selected alternatives would require participants in the BLL fishery to possess, maintain, and utilize the same equipment that is required in the PLL fishery per 50 CFR Part 635.21. This action is related to the current rulemaking by further reducing impacts to non-target species. The required dehooking equipment will reduce post release mortality of bycatch species.

NMFS also published a Notice of Intent (November 7, 2006; 71 FR 65086) for an amendment to the Final Consolidated HMS FMP which would modify existing management measures for the Atlantic shark fisheries consistent with the recommendations of the 2006 stock assessments for the LCS complex, blacktip sharks, sandbar sharks, and dusky sharks and the 2005 assessment for porbeagle sharks. NMFS conducted scoping in January 2007 and is currently drafting the Environmental Impact Statement and rulemaking to rebuild these stocks and end or prevent overfishing of Atlantic sharks.

12. Is the 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.

No. The management measures in this action will occur in the coastal and open ocean environments and therefore do not occur in areas such as districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. The management measures in the proposed action also will not cause loss or destruction of significant, cultural, or historical resources.

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

No. Commercial shark fishing with bottom longline, pelagic longline, or gillnet gear would not result in the introduction or spread of nonindigenous species.

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

It is unlikely that this final rulemaking would establish a precedent for future actions with significant effects or otherwise influence or preclude future decisions. As mentioned previously, the LCS preferred measures would only affect the commercial shark fisheries during the second and third trimesters of 2007. The SCS preferred alternative would adjust the regional quota allocations in the South Atlantic and Gulf of Mexico regions due to changes in the SCS fishery. This change reflects current landings and would avoid future overharvest of SCS in the Gulf of Mexico and would not cause overharvest in the South Atlantic.

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

No. The action is consistent with section 304(b)(1) of the Magnuson-Stevens Fishery Conservation and Management Act, including the National Standards, and other applicable laws such as ESA as described in the 2003 BiOp which stated that the Atlantic shark fishery was not likely to jeopardize the continued existence of endangered green, leatherback, and Kemp's ridley sea turtles, the endangered smalltooth sawfish, or the threatened loggerhead sea turtle. This proposed rule is necessary for conservation and management and is consistent with the Magnuson-Stevens Act and therefore would not be expected to threaten a violation of Federal, State, or local law or requirement imposed for the protection of the environment.

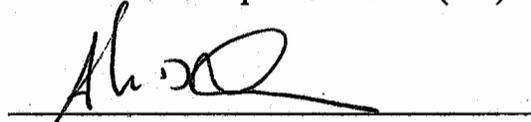
16. Can the action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target or non-target species?

No. The LCS preferred alternatives would affect the commercial shark fisheries during the second and third trimesters of 2007. The SCS preferred alternative would adjust the regional quota allocations in the South Atlantic and Gulf of Mexico regions due to changes in the SCS fishery. This change reflects current landings and should avoid future overharvest of SCS in the Gulf of Mexico region and would not cause overharvest in the South Atlantic region. These preferred alternatives seek to address the ecological and social/economic ramifications of an extensive overharvest experienced in the South Atlantic and Gulf of Mexico regions by shortening season lengths, merging the second and third trimester seasons to provide longer seasons and thereby increasing fishing opportunities consistent with available quotas. These LCS and SCS management measures are not expected to result in cumulative adverse effects that could have a substantial effect on target and non-target species.

The preferred management measures are not expected to alter fishing practices or effort significantly and therefore should not have any impact on other finfish species that have not already been considered in the 1999 FMP for Atlantic Tunas, Swordfish and Sharks, Amendment 1 to the FMP for Atlantic Tunas, Swordfish and Sharks, or the Consolidated HMS FMP. Finfish bycatch for the BLL 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. The 2006 BLL observer data indicates that teleosts made up 1.1 percent of the observed BLL catch in the South Atlantic and 5.4 percent in the Gulf of Mexico. Because the preferred measures would not result in significant changes in fishing effort or practices, NMFS does not expect that sustainability of these bycatch species would be affected by this final rulemaking.

A Biological Opinion (BiOp) for Atlantic Shark Fisheries was prepared in October 2003 in response to the proposed measures in Amendment 1 to the 1999 HMS FMP for Atlantic Tunas, Swordfish and Sharks. 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 and a subsequent rule (November 30, 2004; 69 FR 69537) which adjusted regional and trimester quotas, without increasing shark quotas, should not increase fishing effort or protected species interactions.

In view of the information presented in this document and the analysis contained in the attached Environmental Assessment prepared for quota and season length measures in the Atlantic LCS and SCS fisheries, it is hereby determined that this action would 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 Environmental Impact Statement (EIS) for this action is not necessary.



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APR 16 2007

Date

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## **1.0 PURPOSE AND NEED FOR ACTION: RULEMAKING**

NMFS is undertaking this final rulemaking pursuant to section 304(b)(1) of the Magnuson-Stevens Fishery Conservation and Management Act, including the National Standards, and other applicable law. This rule is necessary for conservation and management and is consistent with the Magnuson-Stevens Act. The LCS preferred alternatives would affect the commercial shark fisheries during the second and third trimesters of 2007. The SCS preferred alternative would adjust the regional quota allocations in the South Atlantic and Gulf of Mexico regions due to changes in the SCS fishery. This change reflects current landings and should avoid future overharvest of SCS in the Gulf of Mexico and would not cause overharvest of SCS in the South Atlantic region. These preferred alternatives seek to address the ecological and social/economic ramifications of an extensive overharvest experienced in 2006 in the South Atlantic and Gulf of Mexico regions by shortening season lengths, merging the second and third trimester seasons to provide longer seasons and thereby increasing fishing opportunities consistent with available quotas.

### **1.1 Management History**

Section 3.1 of the 2006 Final Consolidated Atlantic Highly Migratory Species (HMS) Fisheries Management Plan (FMP) provides a history of Atlantic shark management history. This section provides a summary of that history.

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

In April 1999, NMFS published the FMP for Atlantic Tunas, Swordfish and Sharks, which included numerous measures to rebuild or prevent overfishing of Atlantic sharks in commercial and recreational fisheries. The 1999 FMP for Atlantic Tunas, Swordfish and Sharks replaced the 1993 FMP and the implementing regulations were published on May 28, 1999 (64 FR 29090). The 1999 FMP for Atlantic Tunas, Swordfish and Sharks 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 1999 FMP for Atlantic Tunas, Swordfish and Sharks also partitioned the LCS complex into ridgeback and non-ridgeback categories but did not include regional quota measures.

In 2003, NMFS re-examined and amended the measures enacted in the 1999 FMP for Atlantic Tunas, Swordfish and Sharks based on the 2002 stock assessments, litigation, and public comments. Implementing regulations for Amendment 1 to the 1999 FMP for Atlantic Tunas, Swordfish and Sharks 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 base quota for LCS was established at 1,017 metric tons (mt) dressed weight (dw) and 454 mt dw for SCS.

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 regions (not including state landings). The Northeast Commercial Fisheries Database compiles dealer reports for sharks in the northeast United States. Logbook data were obtained from the Coastal Fisheries Logbook, which includes actual landings of sharks reported by federally permitted fishermen.

The data used to establish quotas in 2003 Amendment 1 (1999-2001) 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. However, on November 30, 2004, (69 FR 69537), NMFS implemented regulations that revised regional quota levels for Atlantic LCS and SCS based on additional landings data (2002-2003) and created a framework mechanism for making annual adjustments to quotas based on new landings data. This rule also included measures for distribution of quotas within regional trimester seasons, accounting for over- and underharvests during the transition from semi-annual to trimester seasons, a framework for future review and adjustment of regional and trimester quotas as necessary, and 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.

The 2004 rule established that 52, 41, and 7 percent of the base LCS quota (1,017 mt dw) be allocated to the Gulf of Mexico, South Atlantic, and North Atlantic regions, respectively. Within individual regions, trimester quotas in the Gulf of Mexico and South Atlantic regions are distributed evenly (33.3 percent/trimester), whereas trimester quotas in the North Atlantic region were based on historical landings (4 percent, 88 percent, and 9 percent for the first, second and third trimester, respectively). For SCS, the 2004 rule established that 10, 87, and 3 percent of the base SCS quota (484 mt dw) be allocated to the Gulf of Mexico, South Atlantic, and North Atlantic regions, respectively. Within individual regions, trimester quotas in the Gulf of Mexico and South Atlantic regions are distributed evenly (33.3 percent/trimester), whereas trimester quotas in the North Atlantic region were based on historical landings.

On October 2, 2006 (71 FR 58058), NMFS published the Final Consolidated HMS FMP that implemented a variety of management measures. Those specific to shark fishermen or dealers include: mandatory workshops for fishermen and dealers; two small time/area closures

to maintain consistency with closures enacted by the Gulf of Mexico Fishery Management Council; identification of criteria for modifying time/area closures; outlining activities and measures to address overfishing of finetooth sharks; requiring the second dorsal fin and anal fin remain on all sharks through landing, and further refining ways differentiate between pelagic longline (PLL) and bottom longline (BLL) gear.

On March 8, 2007, NMFS published a proposed rule and draft EA (72 FR 10480), announcing proposed quotas and season lengths for the 2007 second and third trimester seasons. This rule proposed merging the LCS second and third trimester quotas in the South Atlantic and Gulf of Mexico regions to provide longer continuous fishing seasons. This rule also proposed a reallocation of the SCS base quota percentages in the South Atlantic and Gulf of Mexico regions from 87 percent to 49 percent and from 10 percent to 48 percent, respectively. In addition, a portion of the SCS underharvest from the South Atlantic region would be transferred to the Gulf of Mexico region to cover the overharvest that occurred in this region in 2006. No changes were proposed to the pelagic shark baseline quotas

The public comment period for the proposed rule closed on March 28, 2007. During the comment period, NMFS received comments on the LCS alternatives including support for merging the 2007 second and third trimesters, the desire for a July start date for LCS in the South Atlantic rather than the proposed August 1 start date, support for the LCS no action alternative, and the desire for the 2007 second and third trimesters to remain closed with the available quota being carried over to the 2008 first trimester season. The comments received on the SCS alternatives included both support and disagreement on the preferred alternative that would reallocate the base quota percentages and transfer a portion of the South Atlantic underharvest to the Gulf of Mexico to cover their overharvest. Based on comments received regarding concerns over the August 1 opening date of the merged season in the South Atlantic region and the overlap with the August 1 opening date of the spiny lobster fishery in the South Atlantic region, the LCS preferred alternative, alternative 2, for the South Atlantic region has been modified. No comments were received on the pelagic shark quotas.

## **1.2 Need for Action and Objectives**

The objectives of this document are to describe and analyze the ecological, economic, and social impacts of alternatives that would establish season lengths and LCS and SCS quotas for the second and third trimesters of 2007. This final rulemaking should ensure that the season lengths and quotas for the second and third trimester of 2007 for LCS, SCS, and pelagic sharks are in place by the end of the first trimester of 2007. As of January 16, 2007, both the South Atlantic and Gulf of Mexico had landed LCS in excess of both their second and third trimester seasonal quotas. Additionally, the North Atlantic experienced an overharvest despite a fishery closure in that region during the third trimester of 2006 (Table 1-1). To address the overharvest in the South Atlantic and Gulf of Mexico regions during the second and third trimesters, and the North Atlantic overharvest during the third trimester, NMFS considered a variety of management measures. These measures are necessary to ensure that overharvests from 2006 are accounted for, and the associated social and economic impacts are analyzed. These management measures for handling LCS and SCS quota overharvests will not affect the overall annual baseline quotas for the Atlantic commercial shark fishery.

On March 8, 2007, NMFS published a draft EA and a proposed rule (72 FR 10480), that examined alternatives for the regional quotas and proposed season lengths for LCS and SCS for the 2007 second and third trimester seasons, to address the overharvest of LCS and SCS in the South Atlantic and Gulf of Mexico regions during the 2006 second and third trimesters, and LCS overharvest in the North Atlantic during the third trimester. The public comment period closed on March 28, 2007. NMFS considered the comments received and, consistent with the objectives described above, made some changes to the proposed alternatives. These changes are analyzed later in this document.

**Table 1** Landings in metric tons (mt dw) for the 2nd and 3rd trimester seasons of 2006. Landings in excess of the quota are presented in bold. Landings estimates are based on dealer reports received as of January 16, 2007, and are likely to change if late reports are received.

| <b>Second Trimester Season 2006</b>  |                    |  |                                  |                                   |                      |
|--|--------------------|--|----------------------------------|-----------------------------------|----------------------|
| <b>Species Group</b>   | <b>Region</b>      | <b>Season length</b>                           | <b>Quota (mt dw)</b>             | <b>Estimated Landings (mt dw)</b> | <b>% Quota Taken</b> |
| <b>Large Coastal Sharks-</b> i.e., sandbar, silky, tiger, blacktip, spinner, bull, lemon, nurse, and hammerheads | Gulf of Mexico     | July 6 – 31, 2006                              | <b>201.1</b><br>(396,828 lbs dw) | <b>343.9</b><br>(758,332 lbs dw)  | <b>171.0%</b>        |
|  | South Atlantic     | July 6 – August 16, 2006                       | <b>151.7</b><br>(334,438 lbs dw) | <b>207.4</b><br>(457,269 lbs dw)  | <b>136.7%</b>        |
|  | North Atlantic     | July 6 – August 6, 2006                        | <b>66.3</b><br>(146,165 lbs dw)  | <b>59.9</b><br>(132,158 lbs dw)   | 90.3%                |
| <b>Small Coastal Sharks-</b> i.e., Atlantic sharpnose, finetooth, blacknose, bonnethead                          | Gulf of Mexico     | May 1, 2006 –<br>To be determined as necessary | 38.9<br>(85,759 lbs dw)          | 80.1<br>(176,658 lbs dw)          | <b>205.9%</b>        |
|  | South Atlantic     |  | 333.5<br>(735,234 lbs dw)        | 74.8<br>(164,986 lbs dw)          | 22.4%                |
|  | North Atlantic     |  | 35.9<br>(53,351 lbs dw)          | 0.0<br>(0.0 lbs dw)               | 0.0%                 |
| Blue sharks  | No regional quotas | May 1, 2006 -<br>To be determined as necessary | 91.0<br>(200,619 lbs dw)         | 0.2<br>(410 lbs dw)               | 0.2%                 |
| Porbeagle sharks   |                    |  | 30.7<br>(67,681 lbs dw)          | 0.3<br>(669 lbs dw)               | 1.0%                 |
| Pelagic sharks- other than those above   |                    |  | 162.7<br>(358,688 lbs dw)        | 24.5<br>(53,998 lbs dw)           | 15.1%                |

| <b>Third Trimester Season 2006</b>   |                |                                 |                                  |                                   |                      |
|--|----------------|---------------------------------|----------------------------------|-----------------------------------|----------------------|
| <b>Species Group</b>   | <b>Region</b>  | <b>Season length</b>            | <b>Quota (mt dw)</b>             | <b>Estimated Landings (mt dw)</b> | <b>% Quota Taken</b> |
| <b>Large Coastal Sharks-</b> i.e., sandbar, silky, tiger, blacktip, spinner, bull, lemon, nurse, and hammerheads | Gulf of Mexico | September 1, – November 7, 2006 | <b>225.6</b><br>(497,358 lbs dw) | <b>351.8</b><br>(775,444 lbs dw)  | <b>155.9%</b>        |
|  | South Atlantic | September 1 – October 3, 2006   | <b>50.3</b><br>(110,891 lbs dw)  | <b>108.7</b><br>(239,519 lbs dw)  | <b>216.1%</b>        |
|  | North Atlantic | <b>CLOSED</b>                   | <b>3.3</b><br>( 0 lbs dw)        | <b>5.8</b><br>(12,747 lbs dw)     | <b>175.8%</b>        |
| <b>Small Coastal</b>   | Gulf of        | September 1,                    | 30.8                             | 23.0                              | 74.7%                |

|   |                    |   |                           |                         |       |
|---|--------------------|---|---------------------------|-------------------------|-------|
| <b>Sharks-</b> i.e., Atlantic sharpnose, finetooth, blacknose, bonnethead | Mexico             | 2006 - To be determined as necessary              | (67,902 lbs dw)           | (50,711 lbs dw)         |       |
|   | South Atlantic     |   | 263.7<br>(581,353lbs dw)  | 40.3<br>(88,941 lbs dw) | 15.3% |
|   | North Atlantic     |   | 28.2<br>(62,170 lbs dw)   | 0.0<br>(0.0 lbs dw)     | 0.0%  |
| Blue sharks   | No regional quotas | September 1, 2006 - To be determined as necessary | 91.0<br>(200,619 lbs dw)  | 0.0<br>(14 lbs dw)      | 0.0%  |
| Porbeagle sharks  |                    |   | 30.7<br>(67,681 lbs dw)   | 0.8<br>(1,775 lbs dw)   | 2.6%  |
| Pelagic sharks- other than those above                                    |                    |   | 162.7<br>(358,688 lbs dw) | 21.4<br>(47,261 lbs dw) | 13.2% |

## **References Cited in Chapter 1**

No references cited

## **2.0 SUMMARY OF ALTERNATIVES**

This section provides a summary of the alternatives considered in this final rulemaking. These alternatives describe management measures that address the overharvest of LCS in the South Atlantic and Gulf of Mexico regions during the second and third trimesters of 2006 and other relevant issues. The preferred LCS alternative, alternative 2, in this Environmental Assessment has been modified based on comments received during the public comment period of the proposed rule. These alternatives also establish the season lengths and quotas available for relevant trimesters in 2007. Information on ecological, economic, and social impacts is provided in Chapter 4, 5, 6, 7, and 8 of this document.

### *Alternatives Considered for Large Coastal Sharks*

**Alternative 1** Maintain existing procedures for addressing regional trimester over- and underharvests when establishing the regional quotas and seasons for the 2<sup>nd</sup> and 3<sup>rd</sup> trimesters of 2007; open the mid-Atlantic shark closed area in July 2007, subject to available quota for the second trimester in 2007 (No Action).

This no action alternative would maintain the existing regulations and procedures for establishing quotas within the respective regions. The current regulations state that NMFS will adjust a region's LCS quota based on over- or underharvests from the same season in any particular region. Due to extensive overharvests of LCS in the 2006 second and third trimester seasons in the South Atlantic and Gulf of Mexico regions, a limited quota would be available resulting in short seasons in the South Atlantic and Gulf of Mexico regions for the 2007 second and third trimesters. Tables 2.1 and 2.2 describe the LCS quotas and fishing seasons for the 2007 second and third seasons that would occur as a result of Alternative 1.

The Mid-Atlantic shark closed area would open in July 2007, subject to available quota for the second season in 2007, consistent with the 2007 1<sup>st</sup> trimester season rule (December 14, 2006; 71 FR 75122).

Based on the average July LCS catch rates in recent years in the South Atlantic region, NMFS calculates that approximately 70.6 percent of the available second trimester LCS quota (83.2 metric ton (mt) dressed weight (dw)) would likely be taken in two weeks, and 105.9 percent of the available LCS quota would likely be taken in three weeks. Dealer data also indicate that, on average, approximately 2.05 mt dw of LCS has been reported by dealers during Federal closures between May and August (second fishing season). This is approximately 2.3 percent of the available quota. If catch rates in 2007 are similar to average catch rates from 2003-2006 and landings after closures remain consistent, 72.9 percent (70.61 percent + 2.3 percent) of the second trimester quota could be caught in two weeks, and 108.2 percent (105.9 percent + 2.3 percent) of the quota could be caught in three weeks. Therefore to avoid overharvest in the South Atlantic region during the 2007 second trimester, the fishing season would open on July 6, 2007, and would close on July 20, 2007 (Table 2.1).

In the Gulf of Mexico region, based on daily catch rates in July, NMFS calculates that approximately 47.3 percent of the available second trimester LCS quota (33.2 mt dw) would likely be taken in two days. On average, approximately 12.27 mt dw has been reported during a closure which is 36.9 percent of the available quota. If catch rates in 2007 are similar to past average catch rates and landing after closures remain consistent, 84.2 percent (47.3 percent + 36.9 percent) of the second trimester quota would be caught in two days, and 107.9 percent (70.9 percent + 36.9 percent) of the second trimester quota would be caught in three days. Therefore NMFS estimates that the available quota for 2007 second trimester season in the Gulf of Mexico would be taken in two days. Due to concerns about safety at sea and derby fishing conditions, NMFS would not open the Gulf of Mexico region for the 2007 second trimester season.

In the North Atlantic region, based on monthly catch rates in July, NMFS calculates that approximately 52.0 percent of the available third trimester LCS quota (69.0 mt dw) would likely be taken by the end of July. On average, approximately 28.2 mt dw has been reported during a closure which is 41 percent of the available quota. If catch rates in 2007 are similar to past average catch rates and landings after closures remain consistent, 80.3 percent (52.0 percent + 41 percent) of the second trimester quota would be caught by the end of July, and 100.3 percent (59.3 percent + 41 percent) of the second trimester quota would be caught by the first week of August. Therefore, the 2007 second trimester season in the North Atlantic region would open for four weeks.

**Table 2.1 Adjusted quotas and season lengths for the 2007 2<sup>nd</sup> trimester season for LCS under Alternative 1 (No Action). All landings are in mt dw.**

| <b>Region (Regional Quota for LCS)</b> | <b>(A) 2007 base annual quota (1,017 mt dw)</b> | <b>(B) Trimester Percent</b> | <b>(C) Trimester Quota (A*B)</b> | <b>(D) 2006 2<sup>nd</sup> Trimester Quota (adjusted)</b> | <b>(E) 2006 2<sup>nd</sup> Trimester Landings</b> | <b>(F) 2006 2<sup>nd</sup> Trimester Under- or Overharvest (D-E)</b> | <b>(G) 2007 Adjusted 2<sup>nd</sup> Trimester Quota (F+C)</b> | <b>(H) Fishing Season</b> |
|--|---|------------------------------|----------------------------------|---|---|--|---|---------------------------|
| North Atlantic (7%)                    | 71.2  | 0.88                         | 62.6                             | 66.3  | 59.9  | 6.4  | 69.0  | July 6 – July 31, 2007    |
| South Atlantic (41%)                   | 417   | 0.333                        | 138.9                            | 151.7   | 207.4   | -55.7  | 83.2  | July 6 – July 20, 2007    |
| Gulf of Mexico (52%)                   | 528.8   | 0.333                        | 176.1                            | 201.1   | 344.0   | -142.9   | 33.2  | CLOSED                    |
| <b>Total</b>                           | <b>1,017</b>                                    |                              | <b>377.6</b>                     | <b>419.1</b>  | <b>611.3</b>                                      |  | <b>185.4</b>  |                           |

With regard to the LCS 2007 third trimester season, the North Atlantic would be closed during the 2007 third trimester season. The North Atlantic was closed during the 2006 third trimester with an available quota of 3.3 mt dw. Despite this closure, 5.8 mt were landed by state fishermen in the 2006 third trimester resulting in an overharvest of 2.5 mt dw, therefore the North Atlantic would be closed with a quota of 3.2 mt dw (Table 2.2).

Based on the average September LCS catch rates in the South Atlantic region, NMFS calculates that approximately 44.5 percent of the available third trimester LCS quota (80.5 mt dw) would likely be taken by the third week of September. On average, approximately 31.7 mt dw has been reported during a closure. This is approximately 39.5 percent of the available quota. Therefore, 84.0 percent (44.5 percent + 39.5 percent) of the third trimester quota would be caught in three weeks, and 98.9 percent (59.4 percent + 39.5 percent) of the quota would be taken in four weeks. The 2006 third trimester in the South Atlantic region was open for 4 weeks with a quota of 50.3 mt dw and the quota was exceeded by 116 percent. Therefore, to avoid a subsequent overharvest in the 2007 third season in the South Atlantic region, the third trimester season would be open for three weeks (Table 2.2).

In the Gulf of Mexico region, based on daily catch rates in September, NMFS calculates that approximately 61.8 percent of the available second trimester LCS quota (49.9 mt dw) would likely be taken by the second week of September. On average, approximately 9.57 mt dw has been reported during a closure, which is 19.2 percent of the available quota. If catch rates in 2007 are similar to past average catch rates and landings after a closure remain similar, 81.0 (61.8 percent + 19.2 percent) of the third trimester quota would be caught in two weeks, and 112.03 percent (92.8 percent + 19.2 percent) of the third trimester quota would be caught in three weeks. Therefore, to avoid an overharvest, the 2007 third trimester season in the Gulf of Mexico region would be open for two weeks (Table 2.2).

**Table 2.2 Adjusted quotas and season lengths for the 2007 3<sup>rd</sup> trimester season for LCS under Alternative 1 (No Action). All landings are in mt dw.**

| Region (Regional Quota for LCS) | (A) 2007 base annual quota (1,017 mt dw) | (B) Trimester Percent | (C) Trimester Quota (A*B) | (D) 2006 3 <sup>rd</sup> Trimester Quota (adjusted) | (E) 2006 3 <sup>rd</sup> Trimester Landings | (F) 2006 3 <sup>rd</sup> Trimester Under- or Overharvest (D-E) | (G) 2007 Adjusted 3 <sup>rd</sup> Trimester Quota (F+C) | (H) Fishing Season               |
|---------------------------------|--|-----------------------|---------------------------|---|---|--|---|----------------------------------|
| North Atlantic (7%)             | 71.2                                     | 0.08                  | 5.7                       | 3.3   | 5.8   | -2.5   | 3.2   | CLOSED                           |
| South Atlantic (41%)            | 417                                      | 0.333                 | 138.9                     | 50.3  | 108.7                                       | -58.4  | 80.5  | September 1 – September 22, 2007 |
| Gulf of Mexico (52%)            | 528.8                                    | 0.333                 | 176.1                     | 225.6   | 351.8                                       | -126.2   | 49.9  | September 1 – September 15, 2007 |
| <b>Total</b>                    | <b>1,017</b>                             |                       | <b>320.7</b>              | <b>279.2</b>  | <b>429.5</b>                                |  | <b>302</b>  |                                  |

**Alternative 2** Merge the 2<sup>nd</sup> trimester season quota (83.2 mt dw) in the South Atlantic region with the 3<sup>rd</sup> trimester season quota (80.5 mt dw) in the South Atlantic for a total of 163.70 mt dw and open the combined season on July 15, 2007 (*Preferred Alternative*)

Based on comments received during the public comment period regarding concerns over the proposed August 1 opening date in the South Atlantic region, this alternative has been modified. This modified alternative would combine the second trimester season quota (83.2 mt dw) in the South Atlantic region, with the third trimester season quota (80.5 mt dw) in the South Atlantic region for a total quota of 163.7 mt dw and would open the combined season on July 15, 2007 (Table 2.3). The option to open the mid-Atlantic shark closed area in July, pending available quota, was the implemented in the final rule for the 2007 first season Atlantic shark commercial management measures (December 14, 2006; 71 FR 75122). Based on the average July and August LCS catch rates in the South Atlantic region, NMFS calculates that approximately 69.6 percent of the merged second and third season quota (163.7 mt dw) would likely be taken by the second week of August. Historic Dealer data also indicate that, on average, approximately 2.3 percent of available quota is taken during a closure from May through August. If the catch rates in 2007 are similar to average catch rates in the second and third season from 2003-2006 and landings after a closure remain consistent, 71.9 percent (69.6 percent + 2.3 percent) of the merged second and third trimester quota would be caught by the second week of August, and 105.6 percent (103.3 percent + 2.3 percent) would be taken by the third week of August. Therefore, the combined second and third trimester season in the South Atlantic region would be open for just over four weeks (Table 2.3). NMFS is closing the season, on August 15 (Table 2.3), when only 71.9 percent of the available quota will likely be taken to avoid overharvest that

may occur due to potential increased effort in the South Atlantic region because of the current closure in the region.

Under this alternative, the 2007 second trimester seasons in the North Atlantic and the Gulf of Mexico regions would remain as described above in Alternative 1 (No Action) (Table 2.1) with the North Atlantic region opening for four weeks and the Gulf of Mexico region would be closed (if Alternative 3 is not preferred).

**Table 2.3** Adjusted quotas and season lengths for merging of the 2<sup>nd</sup> and 3<sup>rd</sup> trimester season for LCS in the South Atlantic under Alternative 2.

| Region (Regional Quota for LCS) | (A) 2007 base annual quota (1,017 mt dw) | (B) Trimester Percent | (C) Trimester Quota (A*B) | (D) 2007 Adjusted 2 <sup>nd</sup> Trimester Quota (G) from Table 2.1 | (E) 2007 Adjusted 3 <sup>rd</sup> Trimester Quota (G) from Table 2.2 | (F) Total Quota for 2 <sup>nd</sup> and 3 <sup>rd</sup> trimester merge (D+E) | Fishing Season            |
|---------------------------------|--|-----------------------|---------------------------|--|--|---|---------------------------|
| South Atlantic (41%)            | 417                                      | 0.333                 | 138.9                     | 83.2   | 80.5   | 163.70  | July 15 - August 15, 2007 |

**Alternative 3** Merge the 2<sup>nd</sup> trimester season quota (33.2 mt dw) in the Gulf of Mexico region with the 3<sup>rd</sup> trimester season quota (49.9 mt dw) in the Gulf of Mexico for a total of 83.1 mt dw and open the combined season on September 1, 2007 (*Preferred Alternative*)

This alternative would combine the second trimester season quota (33.2 mt dw) in the Gulf of Mexico region with the third trimester season quota (49.9 mt dw) in the Gulf of Mexico region for a total quota of 83.1 mt dw and would open the combined season on September 1, 2007 (Table 2.4). The merged second and third trimester season would open in the Gulf of Mexico on September 1, 2007, instead of July 1, 2007, due to slower catch rates in September versus July and therefore allowing for a longer season relative to Alternative 1. The September 1, 2007, open date also tries to accommodate comments received by NMFS stating the desire for the Gulf of Mexico region to be open at a different time than the South Atlantic region (if Alternative 2 is preferred).

Based on the average September LCS catch rates in the Gulf of Mexico region, NMFS calculates that approximately 55.7 percent of the merged second and third season quota (83.1 mt dw) would likely be taken by the third week of September. Dealer data also indicate that, on average, approximately 26.2 percent of available quota is taken during a closure. If the catch rates in 2007 are similar to average catch rates in the second and third season from 2003-2006 and landings after the closure remain consistent, 82 percent (55.7 percent + 26.2 percent) of the merged second and third trimester quota would be caught by the third week of September, and 100.6 percent (74.3 percent + 26.2 percent) would be taken by the end of September. Therefore, to avoid overharvest similar to that in the 2006 third trimester season in the Gulf of Mexico region, the combined second and third trimester season in the Gulf of Mexico region would open

for three weeks (Table 2.4). Under this alternative, the 2007 third trimester seasons in the North Atlantic and the South Atlantic regions would remain as described above in Alternative 1 (No Action) (Table 2.2) with the North Atlantic region closed and the South Atlantic opened for 3 weeks (if Alternative 2 is not preferred).

**Table 2.4** Adjusted quotas and season lengths for merging of the 2<sup>nd</sup> and 3<sup>rd</sup> trimester season for LCS in the Gulf of Mexico under Alternative 3.

| Region<br>(Regional<br>Quota for<br>LCS) | (A)<br>2007<br>base<br>annual<br>quota<br>(1,017<br>mt<br>dw) | (B)<br>Trimester<br>Percent | (C)<br>Trimester<br>Quota<br>(A*B) | (D)<br>2007<br>Adjusted<br>2 <sup>nd</sup><br>Trimester<br>Quota<br><br>(G) from<br>Table 2.1 | (E)<br>2007<br>Adjusted<br>3 <sup>rd</sup><br>Trimester<br>Quota<br><br>(G) from<br>Table 2.2 | (F)<br>Total Quota<br>for 2 <sup>nd</sup> and 3 <sup>rd</sup><br>trimester<br>merge<br><br>(D+E) | Fishing Season                         |
|--|---|-----------------------------|------------------------------------|---|---|--|--|
| Gulf of<br>Mexico<br>(52%)               | 528.8   | 0.333                       | 176.1                              | 33.20   | 49.90   | 83.1   | September 1 –<br>September 22,<br>2007 |

*Alternatives Considered for Small Coastal Sharks*

**Alternative 4** Maintain existing procedures for addressing regional trimester over- and underharvests for SCS when establishing regional quotas for the 2<sup>nd</sup> and 3<sup>rd</sup> trimesters of 2007 (No Action)

This no action alternative would maintain the existing regulations and procedures for establishing quotas within the respective regions. The current regulations state that NMFS will adjust a region’s SCS quota based on over- or underharvests from the same season in any particular region. Table 2.5 describes the quotas and fishing seasons that would occur as a result of Alternative 4. This alternative would keep the SCS fishery in the Gulf of Mexico region closed during the second trimester of 2007 due to extensive overharvests (206 percent of quota) in the second trimester of 2006. The North Atlantic and South Atlantic regions would open May 1, 2007, and would stay open as long as SCS quota was available in each region. With regard to the 2007 third trimester season, Table 2.6 describes the quotas and fishing season that would occur as a result of Alternative 4. Because there were no overharvests of SCS in the third trimester of 2006 in any region, the SCS 2007 third trimester season would open on September 1, 2007, in each region and would stay open as long as SCS quota was available (Table 2.6).

Under current regulations (635.27(b)(1)(vi)(1)), NMFS may transfer up to 10 percent of the underharvested quota from the South Atlantic (258.7 mt dw) to the Gulf of Mexico which had an overharvest (-41.2 mt dw). That would result in a South Atlantic quota of 364.3 (mt dw) and a Gulf of Mexico quota of -0.23 mt dw (Table 2.5). However, this transfer was not further considered because it does not address the entire overharvest in the Gulf of Mexico region.

**Table 2.5 Adjusted quotas and season lengths for the 2007 2<sup>nd</sup> trimester season for SCS under Alternative 4 (No Action). All landings are in mt dw.**

| Region (Regional Quota for SCS)  | (A) 2007 base annual quota (454mt dw) | (B) Trimester Percent | (C) Trimester Quota (A*B) | (D) 2006 2 <sup>rd</sup> Trimester Quota (adjusted) | (E) 2006 2 <sup>rd</sup> Trimester Landings | (F) 2006 2 <sup>nd</sup> Trimester Under- or Overharvest (D-E) | (G) Transfer Amount | (H) 2007 Adjusted 2 <sup>rd</sup> Trimester Quota (C+F+G) | (I) Fishing Season |
|----------------------------------|---------------------------------------|-----------------------|---------------------------|---|---|--|---------------------|---|--------------------|
| North Atlantic (3%)              | 13.6                                  | 0.88                  | 12.0                      | 24.2  | 0.0   | 24.2   | N/A                 | 36.2  | May 1, 2007- TBD   |
| South Atlantic (87%)             | 395.0                                 | 0.333                 | 131.5                     | 333.5   | 74.8  | 258.7  | N/A                 | 390.2   | May 1, 2007 - TBD  |
| Gulf of Mexico (10%)             | 45.4                                  | 0.333                 | 15.1                      | 38.9  | 80.1  | -41.2  | N/A                 | -26.1   | CLOSED             |
| <b>Total</b>                     | <b>454</b>                            |                       | <b>146.7</b>              | <b>396.6</b>  | <b>154.9</b>                                |  | <b>400.3</b>        | <b>400.3</b>  |                    |
| South Atlantic with 10% transfer | 395.0                                 | 0.333                 | 131.5                     | 333.5   | 74.8  | 258.7  | -25.87              | 364.3   | May 1, 2007 - TBD  |
| Gulf of Mexico with 10% transfer | 45.4                                  | 0.333                 | 15.1                      | 38.9  | 80.1  | -41.2  | +25.87              | -0.23   | CLOSED             |

**Table 2.6 Adjusted quotas and season lengths for the 2007 3<sup>rd</sup> trimester season for SCS under Alternative 4 (No Action). All landings are in mt dw.**

| Region (Regional Quota for SCS) | (A) 2007 base annual quota (454 mt dw) | (B) Trimester Percent | (C) Trimester Quota (A*B) | (D) 2006 3 <sup>rd</sup> Trimester Quota (adjusted) | (E) 2006 3 <sup>rd</sup> Trimester Landings | (F) 2006 3 <sup>rd</sup> Trimester Under- or Overharvest (D-E) | (G) 2007 Adjusted 3 <sup>rd</sup> Trimester Quota (F+C) | (H) Fishing Season      |
|---------------------------------|--|-----------------------|---------------------------|---|---|--|---|-------------------------|
| North Atlantic (3%)             | 13.6                                   | 0.08                  | 1.1                       | 28.2  | 0.0   | 28.2   | 29.4  | September 1, 2007 - TBD |
| South Atlantic (87%)            | 395.0                                  | 0.333                 | 131.5                     | 263.7   | 40.3  | 223.4  | 354.9   | September 1, 2007 - TBD |
| Gulf of Mexico (10%)            | 45.4                                   | 0.333                 | 15.1                      | 30.8  | 23.0  | 7.8  | 22.9  | September 1, 2007 - TBD |
| <b>Total</b>                    | <b>454</b>                             |                       | <b>147.7</b>              | <b>322.7</b>  | <b>63.3</b>                                 |  | <b>407.1</b>  |                         |

**Alternative 5** Transfer a portion of the South Atlantic’s regional 2007 2<sup>nd</sup> trimester SCS underharvest to the Gulf of Mexico region to cover the Gulf of Mexico’s regional 2006 2<sup>nd</sup> trimester SCS overharvest

Alternative 5 would transfer enough of the South Atlantic’s regional SCS underharvest in the 2006 second trimester to cover the Gulf of Mexico’s regional overharvest during 2006 second trimester (-41.2 mt dw; Table 2.7). This would provide the Gulf of Mexico region with its baseline second trimester quota (15.1 mt dw) and allow for a SCS fishery that would otherwise not be possible under Alternative 4 (Table 2.5). The South Atlantic region would still have 349 mt dw of SCS quota available during the 2007 second trimester despite reallocating 41.2 mt dw of its 2006 underharvest to the Gulf of Mexico region (Table 2.7). The SCS fishery would open on May 1, 2007, in all regions and would stay open as long as SCS quota was available in each region. This alternative would not affect the 2007 SCS third trimester season.

**Table 2.7** Adjusted quotas and season lengths for the 2007 2<sup>nd</sup> trimester season for SCS under Alternative 5. All landings are in mt dw.

| Region<br>(Regional<br>Quota for<br>SCS) | (A)<br>2007<br>base<br>annual<br>quota<br>(454 mt<br>dw) | (B)<br>Trimester<br>percent | (C)<br>Trimester<br>Quota<br>(A*B) | (D)<br>2006 2 <sup>nd</sup><br>Trimester<br>Under- or<br>Overharvest<br><br>(F) from<br>Table 2.5 | (E)<br>Transfer<br>Amount | (F)<br>Final<br>adjustment<br>from<br>Transfer | (G)<br>2007<br>Adjusted<br>2 <sup>nd</sup><br>Trimester<br>Quota<br><br>(C +F) | (H)<br>Fishing<br>Season |
|--|--|-----------------------------|------------------------------------|---|---------------------------|--|--|--------------------------|
| North<br>Atlantic<br>(3%)                | 13.6   | 0.88                        | 12.0                               | 24.2  | 0                         | 0  | <b>36.2</b>  | May 1,<br>2007- TBD      |
| South<br>Atlantic<br>(87%)               | 395.0  | 0.333                       | 131.5                              | 258.7   | -41.2                     | 217.5  | <b>349</b>   | May 1, 2007<br>- TBD     |
| Gulf of<br>Mexico<br>(10%)               | 45.4   | 0.333                       | 15.1                               | -41.2   | +41.2                     | 0  | <b>15.1</b>  | May 1, 2007<br>- TBD     |
| <b>Total</b>                             | <b>454</b>   |                             | <b>146.7</b>                       |   | <b>400.3</b>              |  |  |                          |

**Alternative 6** Transfer a portion of the South Atlantic’s regional 2007 2<sup>nd</sup> trimester SCS underharvest to the Gulf of Mexico region to cover the Gulf of Mexico’s regional 2006 2<sup>nd</sup> trimester SCS overharvest as well as give the Gulf of Mexico region additional SCS quota for the 2007 2<sup>nd</sup> trimester season.

Alternative 6 would transfer enough of the South Atlantic’s region’s SCS underharvest in the 2006 second trimester to cover the Gulf of Mexico’s regional overharvest during 2006 second trimester (-41.2 mt dw) as well as provide the Gulf of Mexico with additional quota equal to the Gulf of Mexico base quota to help ensure that such an overharvest would not occur in the second trimester in 2007 (Table 2.8). This would further reduce the

South Atlantic's regional 2007 second trimerster adjusted quota compared to Alternative 5. The South Atlantic region would still have more than 150 percent of its baseline quota after this transfer. This would provide the Gulf of Mexico region with twice its baseline second trimerster quota of 15.1 mt dw for a total of 30.2 mt dw and allow for a longer SCS season in the Gulf of Mexico. The South Atlantic region would still have 333.9 mt dw of SCS quota available during the 2007 second trimerster despite reallocating 56.3 mt dw (41.2 mt dw + 15.1 mt dw) of its 2006 underharvest to the Gulf of Mexico region (Table 2.8). The SCS fishery would open on May 1, 2007, in all regions and would stay open as long as SCS quota was available in each region. This Alternative will not affect the 2007 third trimerster season.

**Table 2.8** Adjusted quotas for the 2007 2<sup>nd</sup> trimerster season for SCS under Alternative 6. All landings are in mt dw.

| Region<br>(Regional<br>Quota for<br>SCS) | (A)<br>2007 base<br>annual<br>quota<br>(454 mt<br>dw) | (B)<br>Tri-<br>mester<br>percent | (C)<br>Tri-<br>mester<br>Quota<br>(A*B) | (D)<br>2006 2 <sup>nd</sup><br>Trimerster<br>Under-<br>Over<br>harvest | (E)<br>Transfer<br>Amount<br>Alt. 5<br><br>(E) Table<br>2.7 | (F)<br>Adjustment<br>from Alt. 5<br>Transfer<br><br>(F) Table 2.7 | (G)<br>Transfer<br>Amount<br>from<br>Alt. 6 | (H)<br>Adjustment<br>from Alt. 6<br>Transfer<br><br>(D + E +G) | (I)<br>2007<br>Adjusted<br>2 <sup>nd</sup><br>Trimerster<br>Quota<br>Alt. 6<br><br>(C + H) |
|--|---|----------------------------------|---|--|---|---|---|--|--|
| North<br>Atlantic<br>(3%)                | 13.6  | 0.88                             | 12.0                                    | 24.2   | 0   | 0   | 0   | 24.2   | <b>36.2</b>  |
| South<br>Atlantic<br>(87%)               | 395.0   | 0.333                            | 131.5                                   | 258.7  | -41.2   | 217.5   | -15.1                                       | 202.4  | <b>333.9</b>   |
| Gulf of<br>Mexico<br>(10%)               | 45.4  | 0.333                            | 15.1                                    | -41.2  | +41.2   | 0   | +15.1                                       | 15.1   | <b>30.2</b>  |
| <b>Total</b>                             | <b>454</b>  |                                  | <b>146.7</b>                            |  | <b>400.3</b>  |   |   |  |  |

**Alternative 7** Reallocate the SCS regional quota percentages in the South Atlantic region from 87 percent to 49 percent and in the Gulf of Mexico region from 10 percent to 48 percent for both 2<sup>nd</sup> and 3<sup>rd</sup> trimerster seasons; transfer underharvest in South Atlantic's regional 2007 2<sup>nd</sup> trimerster SCS quota to cover the Gulf of Mexico's regional 2006 2<sup>nd</sup> trimerster SCS overharvest (*Preferred Alternative*)

Due to recent overharvests of SCS in the Gulf of Mexico region and continued underharvests of the available quota in the South Atlantic region, this alternative would change the SCS regional base quota percentages in the South Atlantic and the Gulf of Mexico regions. This alternative would also transfer, from the 2006 second trimerster season, some of the South Atlantic underharvest to the Gulf of Mexico region to cover the overharvest from the 2006 2<sup>nd</sup> trimerster season. Currently the regional quota percentages are 87 percent in the South Atlantic and 10 percent in the Gulf of Mexico, which gives each of the regions 395 mt dw, and 45.4 mt

dw, of the base quota, respectively. These percentages are based on average landings in the regions from 1999 – 2003. The change in regional quota percentages would allocate the SCS base quota of 454 mt dw based on recent landings in both the South Atlantic and Gulf of Mexico regions and split the available quota between the two regions. This should avoid overharvest of SCS in the Gulf of Mexico region and should not cause overharvest in the South Atlantic region. Tables 2.9 and 2.10 describe the adjusted second and third trimester quotas and season lengths with the revised regional quota percentage allocations. The SCS 2007 second trimester season would open on May 1, 2007, and would stay open as long as SCS quota was available in each region (Table 2.9). The SCS third trimester season would open on September 1, 2007, in each region and would stay open as long as SCS quota was available in each region (Table 2.10). This alternative would affect the second and third seasons of 2007 and all future seasons.

**Table 2.9 Adjusted quotas and season lengths for the 2007 2<sup>nd</sup> trimester season for SCS under Alternative 7. All landings are in mt dw.**

| <b>Region<br/>(Regional<br/>Quota for<br/>SCS)</b> | <b>(A)<br/>2007<br/>base<br/>annual<br/>quota<br/>(454 mt<br/>dw)</b> | <b>(B)<br/>Trimester<br/>percent</b> | <b>(C)<br/>Trimester<br/>Quota<br/>(A*B)</b> | <b>(D)<br/>2006 2<sup>nd</sup><br/>Trimester<br/>Under- or<br/>Overharves<br/>t</b> | <b>(E)<br/>Transfer<br/>Amount<br/>Alt. 5</b> | <b>(F)<br/>Adjustment<br/>from<br/>Transfer<br/>Alt. 5<br/><br/>(D + E)</b> | <b>(G)<br/>2007<br/>Adjusted 2<sup>nd</sup><br/>Trimester<br/>Quota<br/>Alt. 7<br/>(C + F)</b> | <b>(H)<br/>Fishing<br/>Season</b> |
|--|---|--------------------------------------|--|---|---|---|--|-----------------------------------|
| North Atlantic (3%)                                | 13.6  | 0.88                                 | 12.0   | 24.2  | 0   | 24.2  | <b>36.2</b>  | May 1, 2007- TBD                  |
| South Atlantic (49%)                               | <b>222.5</b>  | 0.333                                | 74.1   | 258.7   | -41.2   | 217.5   | <b>291.6</b>   | May 1, 2007 - TBD                 |
| Gulf of Mexico (48%)                               | <b>217.9</b>  | 0.333                                | 72.6   | -41.2   | +41.2   | 0   | <b>72.6</b>  | May 1, 2007 - TBD                 |
| <b>Total</b>                                       | <b>454</b>  |                                      | <b>146.7</b>                                 |   | <b>400.3</b>                                  |   |  |                                   |

**Table 2.10 Adjusted quotas and season lengths for the 2007 3<sup>rd</sup> trimester season for SCS under Alternative 7. All landings are in mt dw.**

| <b>Region (Regional Quota for SCS)</b> | <b>(A) 2007 base annual quota (454 mt dw)</b> | <b>(B) Trimester percent</b> | <b>(C) Trimester Quota (A*B)</b> | <b>(D) 2006 3<sup>rd</sup> Trimester Under- or Overharvest</b> | <b>(E) 2007 Adjusted 3<sup>rd</sup> Trimester Quota Alt. 7 (C + D)</b> | <b>(F) Fishing Season</b> |
|--|---|------------------------------|----------------------------------|--|--|---------------------------|
| North Atlantic (3%)                    | 13.6  | 0.08                         | 1.1                              | 28.2   | <b>29.4</b>  | September 1, 2007- TBD    |
| South Atlantic (49%)                   | <b>222.5</b>                                  | 0.333                        | 74.1                             | 223.4  | <b>297.5</b>   | September 1, 2007 - TBD   |
| Gulf of Mexico (48%)                   | <b>217.9</b>                                  | 0.333                        | 72.6                             | 7.8  | <b>80.4</b>  | September 1, 2007 - TBD   |
| <b>Total</b>                           | <b>454</b>                                    |                              | <b>147.8</b>                     |  |  |                           |

### **3.0 DESCRIPTION OF AFFECTED ENVIRONMENT**

This chapter describes the affected environment of the final management measures for Atlantic sharks. 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 NMFS can be found in the 1999 HMS FMP, the 2002 LCS and SCS stock assessments, the 2006 LCS stock assessment, the 2006 Dusky shark stock assessment, annual SAFE reports, Amendment 1 to the HMS FMP, and the 2006 Final Consolidated HMS FMP. This description should provide an overview of the current conditions and serve as a baseline against which to compare impacts of the alternatives considered. This chapter provides information concerning biological status of shark stocks, shark stock assessments, interactions between protected resources and shark fisheries, the impacts that shark fisheries have on essential fish habitat, gear deployed in shark fisheries, information on the relevant Biological Opinions for shark fisheries, shark landings information, and bycatch in shark fisheries.

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 fish species of 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.

### 3.1 Status of the Stocks

NMFS is responsible for conducting stock assessments for the Large and Small Coastal Shark complexes (LCS and SCS) (Cortes, 2002; Cortes *et al.*, 2002). ICCAT and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) have recently conducted assessments of three pelagic shark species (blue sharks, shortfin mako sharks, and porbeagle sharks). Summaries of recent stock assessments and reports on several species of pelagic sharks are included in the Final Consolidated HMS FMP. During 2006, NMFS conducted stock assessments on the dusky shark (May 25, 2006, 71 FR 30123) and the LCS complex (July 24, 2006, 71 FR 41774). The LCS assessment examined sandbar sharks, Gulf of Mexico blacktips, and Atlantic blacktips as part of the complex, as well as separately. Species-specific assessments for finetooth sharks, Atlantic sharpnose sharks, blacknose sharks (*Carcharhinus acronotus*), and bonnethead sharks (*Sphyrna tiburo*) within the SCS complex, were conducted in 2002. Another assessment of the SCS complex will be conducted during 2007.

#### 3.1.1 Large Coastal Sharks

The 2006 LCS stock assessment was conducted in a manner similar to the Southeast Data, Assessment, and Review (SEDAR) process. SEDAR is a cooperative process initiated in 2002 to improve the quality and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and U.S. Caribbean regions. SEDAR emphasizes constituent and stakeholder participation in assessment development, transparency in the assessment process, and a rigorous and independent scientific review of completed stock assessments.

The first of three workshops for the LCS assessment was a Data workshop where datasets are documented, analyzed, reviewed, and compiled for conducting assessment analyses. The LCS Data workshop was held from October 31 through November 4, 2005, in Panama City, FL. The second workshop was referred to as the Assessment workshop, where quantitative population analyses are developed and refined and population parameters are estimated. The workshop was held from February 6 through February 10, 2006, in Miami, FL. The last workshop was the Review workshop, in which a panel of independent experts reviewed the data and assessments, and recommended the most appropriate values of critical population and management quantities. This workshop was held in Panama City, FL, from June 5 through June 9, 2006.

Peer reviewers of the LCS assessment concluded that the data utilized were the best available to the analysts at the time, and the assessment of the status of the complex was the best possible given the data available. However, the assessment was unable to accurately determine the status of the LCS complex because of the potential for conflicting/ mismatching information from the various individual species components in the catch and abundance index data. The continued assessment of the LCS complex with the current approach and data was considered unlikely to produce effective management advice and was not recommended. Research, data analysis, and model development for species-specific assessments for the main components of the complex was deemed a priority. As a result, NMFS has determined the status of the LCS complex to be unknown.

Due to a more thorough review at all stages of the SEDAR process, and revisions to the life history parameters, peer reviewers found that the 2006 assessment for sandbar sharks (*Carcharhinus plumbeus*) provided a reliable estimate of stock status. Stock status was determined from a range of model fits reflecting the uncertainty regarding life history parameters. All results indicated that the sandbar stock is overfished and that overfishing is occurring. The target year to rebuild the stock was estimated to be 2070. As a result, NMFS has determined that the status of sandbar sharks is overfished with overfishing occurring.

The peer reviewers found that blacktip sharks (*Carcharhinus limbatus*) in the Gulf of Mexico are not overfished and overfishing is not taking place, but were unable to identify absolute estimates of stock status. The Gulf of Mexico blacktip shark stock is thought to be relatively healthy because they are a relatively productive shark species in term of reproductive output, abundance indices have increased recently, and catch has declined over the past 10 years. However, the assessment could not provide a scientific basis for advising an increase in catches at this time. As a result, NMFS has determined that the blacktip shark population in the Gulf of Mexico region is not overfished or experiencing overfishing.

Due to uncertainty relative to whether early catch estimates adequately represented historical removals of Atlantic blacktip sharks, and catch-rate series reflected real trends in the abundance of the stock, the current status of Atlantic blacktip sharks was determined to be unknown. No reliable population projections were possible; therefore no probable values for future population condition and status were provided. Consequently, the Review Panel concluded that there was no scientific basis for advising a change in catch levels. As a result, NMFS has determined that the blacktip shark population in the South Atlantic region is unknown.

### **3.1.2 Dusky Shark Stock Assessment**

The dusky shark (*Carcharhinus obscurus*) is one of 19 species for which retention is prohibited under the 1999 HMS FMP. Due to potential identification problems and catch data originating from a variety of sources, the magnitude of dusky shark catch has been difficult to ascertain. The dusky shark has not previously been individually assessed; however, low population growth rates, coupled with declines in both the catch per unit effort and size of individuals landed since the early 1990s, generated concern that the dusky shark was being heavily exploited. Using recent biological data on the growth and reproduction of dusky sharks, landing estimates from recreational and commercial fisheries, commercial bycatch estimates, and four fishery-dependent and one fishery-independent relative abundance indices a stock assessment was recently completed for the dusky shark. Results from the models used were very similar with all models showing the stock has been heavily exploited and the majority of the runs indicating that the stock was overfished with overfishing occurring.

## **3.2 Description of Atlantic Shark Fisheries by Gear Type**

The gears primarily employed in the directed LCS and SCS fisheries in the Gulf of Mexico and South Atlantic regions are bottom longline and gillnet.

### 3.2.1 Fishery Participants

Amendment 1 to the HMS FMP (NMFS, 2003) and the Final Consolidated Atlantic HMS FMP (NMFS, 2006) provide a thorough description of the U.S. fisheries for Atlantic sharks, including sectors of the BLL fishery. For more detailed information on the participants in the Atlantic shark fisheries, please refer to these documents.

As of January 2007, there were a total of 549 commercial permit holders in the Atlantic shark fishery (235 directed and 314 incidental permit). In 2005, 138 vessels reported landings of LCS. This includes 86 vessels in the Gulf of Mexico region, 46 vessels in the South Atlantic region, 6 in the North Atlantic region, and 10 vessels that reported landings in both the South Atlantic and Gulf of Mexico regions.

### 3.2.2 Bottom Longline Fishery

Please refer to Section 3.4.5 of the Final Consolidated HMS FMP for a detailed description of the BLL fishery including domestic history and current management, recent catch and landings data, and bycatch.

**Table 1.1 Large Coastal Shark Seasons, Quotas, and Preliminary Landings from the Quota Monitoring System 2001 - 2006**

| Year | Semi-Annual/Trimester Season        | Quota | Landings (% of Quota) |
|------|-------------------------------------|-------|-----------------------|
| 2001 | Jan. 1 - Mar. 24                    | 642   | 587.5 (91 %)          |
|      | July 1 - Sept. 4                    | 697   | 603.8 (86 %)          |
| 2002 | Jan. 1 - April 15                   | 735.5 | 722.5 (98 %)          |
|      | July 1 - Sept. 15                   | 655.5 | 589 (89 %)            |
| 2003 | Jan. 1 - April 15 (Ridgeback LCS)   | 857   | 912 (106 %)           |
|      | Jan. 1 - May 15 (Non-ridgeback LCS) |       |                       |
|      | July 1 - Sept. 15 (All LCS)         | 922   | 746 (80 %)            |
| 2004 | GOM: Jan. 1 - Feb. 29               | 190.3 | 230 (120 %)           |
|      | S. Atl: Jan 1 - Feb. 15             | 244.7 | 255.8 (104 %)         |
|      | N. Atl: Jan 1 - April 15            | 18.1  | 7 (39 %)              |
|      | GOM: July 1 - Aug. 15               | 287.4 | 304.3 (105 %)         |
|      | S. Atl: July 1 - Sept. 30           | 369.5 | 272.4 (74 %)          |
|      | N. Atl: July 1 - July 15            | 39.6  | 41.5 (104 %)          |
| 2005 | GOM: Jan 1 - Feb 28                 | 156.3 | 109.6 (70 %)          |
|      | S. Atl: Jan. 1 - Feb 15             | 133.3 | 130.9 (98 %)          |
|      | N. Atl: Jan. 1 - April 30           | 6.3   | 3.8 (60 %)            |

| Year | Semi-Annual/Trimester Season              | Quota  | Landings (% of Quota) |                  |
|------|---|--------|-----------------------|------------------|
|      | GOM: July 6 - July 23                     | 182.2  | 123.4 (68 %)          |                  |
|      | S. Atl: July 6 - Aug 31                   | 148    | 169.2 (114 %)         |                  |
|      | N. Atl: July 21 - Aug 31                  | 65.2   | 61.3 (94 %)           |                  |
|      | GOM: Sept. 1 - Oct. 31                    | 167.7  | 218.3 (130 %)         |                  |
|      | S. Atl: Sept 1 - Nov. 15                  | 187.5  | 270.2 (144 %)         |                  |
|      | N. Atl: Sept 1 - Sept. 15                 | 4.9    | 7.2 (146 %)           |                  |
| 2006 | GOM: Jan 1 - April 15                     | 222.8  | 103.1 (46 %)          |                  |
|      | S. Atl: Jan 1 - Mar. 15                   | 141.3  | 326.1 (230 %)         |                  |
|      | N. Atl: Jan 1 - April 30                  | 5.3    | 0.3 (5.7 %)           |                  |
|      | GOM: July 6 – July 31                     | 201.1  | 343.9 (171 %)         |                  |
|      | S. Atl: July 6 – Aug. 16                  | 151.7  | 207.4 (136.7 %)       |                  |
|      | N. Atl: July 6 – Aug. 6                   | 66.3   | 59.9 (90.3 %)         |                  |
|      | GOM: Sept.1 – Nov. 7                      | 225.6  | 351.8 (155.9 %)       |                  |
|      | S. Atl: Sept.1 – Oct. 3                   | 50.3   | 108.7 (216.1 %)       |                  |
|      | N. Atl: Closed                            | Closed | 5.8 (175.8 %)         |                  |
|      | <b>Overall Average (N = 30)</b>           |        |                       | <b>(108.3 %)</b> |
|      | <b>Seasons with Overharvest (N = 15)</b>  |        |                       |                  |
|      | <b>Seasons with Underharvest (N = 15)</b> |        |                       |                  |

### 3.2.3 Gillnet Fishery

Please refer to Section 3.4.6 of the Final Consolidated HMS FMP for a detailed description of the shark gillnet fishery, including overview of domestic history and current management, landings, and bycatch.

### 3.3 Shark Recreational Fishery

Please refer to Section 3.4.4 of the Final Consolidated HMS FMP for a detailed description of the shark recreational fishery, including overview of history and current management, catch and landings data, and bycatch.

### 3.4 Habitat

Section 303(a)(7) of the Magnuson-Stevens Act, 16 U.S.C. §§ 1801 *et seq.*, as amended by the Sustainable Fisheries Act in 1996, requires FMPs to describe and identify essential fish habitat (EFH), minimize to the extent practicable adverse effects on such habitat caused by fishing, and identify other actions to encourage the conservation and enhancement of such habitat. A complete description of EFH for Atlantic sharks can be found in Chapter 10 and Appendix B of the Final Consolidated HMS FMP (NMFS, 2006).

### **3.5 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). A Biological Opinion for Atlantic shark fisheries was prepared in October of 2003, pursuant to Section 7 of the Endangered Species Act, 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 threatened or endangered marine mammals.

Please refer to sections 3.4.5, 3.4.6, and 3.8 of the Final Consolidated HMS FMP for additional information on protected resources interactions in the Atlantic shark fishery.

### **3.6 Mid Atlantic Time/Area Closure**

The mid-Atlantic shark closure was established in Amendment 1 to the HMS FMP (December 24, 2003, 69 FR 74746). The closure prohibits vessels in possession of a commercial shark permit from deploying bottom longline gear between January 1 and July 31, every year, approximately between Oregon Inlet, NC, (35° 41' N) offshore to 74° N 51' W, then following the 60 fathom contour south to Cape Fear, NC (33 °51 N and 76° 24 W). The closure was implemented to protect an area where neonate and juvenile dusky and sandbar sharks are abundant. Furthermore, the area is considered a Habitat Area of Particular Concern (HAPC) for sandbar sharks due to important nursery and pupping grounds in areas adjacent to Hatteras and Ocracoke Islands and offshore of these islands. Reducing fishing mortality of juvenile sandbar sharks is consistent with, and a component of, the existing rebuilding plan for sandbar sharks implemented in Amendment 1 to the Fishery Management Plan for Tunas, Swordfish, and Sharks.

### **Literature Cited**

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#### 4.0 ENVIRONMENTAL CONSEQUENCES OF ALTERNATIVES

##### Alternatives Considered for LCS

- Alternative 1            Maintain existing procedures for addressing regional trimester over- and underharvests when establishing the regional quotas and seasons for the 2<sup>nd</sup> and 3<sup>rd</sup> trimesters of 2007; open the mid-Atlantic shark closed area in July 2007, subject to available quota for the second trimester in 2007 (No Action)
- Alternative 2            *Merge the 2<sup>nd</sup> trimester season quota (83.2 mt dw) in the South Atlantic region with the 3<sup>rd</sup> trimester season quota (80.5 mt dw) in the South Atlantic for a total of 163.70 mt dw and open the combined season on July 15, 2007 (Preferred Alternative)*
- Alternative 3            *Merge the 2<sup>nd</sup> trimester season quota (33.20 mt dw) in the Gulf of Mexico region with the 3<sup>rd</sup> trimester season quota (49.90 mt dw) in the Gulf of Mexico for a total of 83.1 mt dw and open the combined season on September 1, 2007 (Preferred Alternative)*

##### Alternatives Considered for SCS

- Alternative 4            Maintain existing procedures for addressing regional trimester over- and underharvests for SCS when establishing regional quotas for the 2<sup>nd</sup> and 3<sup>rd</sup> trimesters of 2007 (No Action)
- Alternative 5            Transfer a portion of the South Atlantic's regional 2007 2<sup>nd</sup> trimester SCS underharvest to the Gulf of Mexico region to cover the Gulf of Mexico's regional 2006 2<sup>nd</sup> trimester SCS overharvest
- Alternative 6            Transfer a portion of the South Atlantic's regional 2007 2<sup>nd</sup> trimester SCS underharvest to the Gulf of Mexico region to cover the Gulf of Mexico's regional 2006 2<sup>nd</sup> trimester SCS overharvest as well as give the Gulf of Mexico region additional SCS quota for the 2007 2<sup>nd</sup> trimester season
- Alternative 7            *Reallocate the SCS regional quota percentages from 84 percent to 49 percent in the South Atlantic and from 10 percent to 48 percent in the Gulf of Mexico- preferred alternative; Transfer a portion of the South Atlantic's regional 2007 2<sup>nd</sup> trimester SCS underharvest to the Gulf of Mexico region to cover the Gulf of Mexico's regional 2006 2<sup>nd</sup> trimester SCS overharvest*

## *Ecological Impacts*

### Alternatives Considered for LCS

Alternative 1 would adjust the regional trimester quotas for the second and third trimesters of 2007 by subtracting any over- or under harvest that occurred in the second and third trimesters of 2006 from the regional trimester quotas for 2007. Due to extensive overharvest of LCS in the 2006 second and third trimester seasons in the South Atlantic and Gulf of Mexico regions, a limited quota would be available resulting in short seasons in the South Atlantic and Gulf of Mexico regions for the 2007 second and third trimesters.

#### Alternative 1 (No Action): 2007 2<sup>nd</sup> trimester season

Under Alternative 1, the Gulf of Mexico region would have approximately 33.2 mt dw of quota available for the 2007 second trimester season. Based on past catch rates (2003-2006) this amount of quota would likely be taken in two days. Therefore due to safety at sea concerns and possible derby fishing conditions, under this alternative, NMFS would close the Gulf of Mexico to LCS fishing in the 2007 second trimester season. This closure could result in neutral or slightly positive ecological impacts on sharks and other species, including incidental catch and protected species, because there would be no directed fishing effort, and possession of LCS in the Gulf of Mexico region would not be allowed between May and August 2007. The slightly negative ecological impacts associated with the overharvest of LCS in the Gulf of Mexico in the 2006 second trimester season may be offset by the slightly positive ecological impacts of not allowing fishing in the Gulf of Mexico during the 2007 second trimester. However, the LCS closure in the Gulf of Mexico could lead to increased effort in other fisheries and other regions for which BLL is a primary gear (e.g., grouper) since little gear re-configuration would be required. These fisheries are limited access; therefore, new participants would need to transfer a permit from an existing vessel subject to restrictions prior to participation. There is a possibility that LCS could be caught with BLL gear by vessels pursuing these other species, however, it is difficult to predict the quantity of dead discards that may occur as a result of this incidental catch. The 2006 BLL observer data indicates that of the observed BLL trips for species other than sharks, 6.5% of the total catch was sharks of which 79.6% were blacknose and Atlantic sharpnose sharks.

Under Alternative 1, the South Atlantic region would have 83.2 mt dw of quota available for harvest which accounts for the overharvest (-55.6 mt dw) during the 2006 second trimester. As described in Chapter 2 under this alternative, the fishery would be open for two weeks. Thus, under this alternative, the mid-Atlantic shark closed area would be open for two weeks. This closure has been effective during the months of January through July since 2005 to reduce fishing mortality on dusky and juvenile sandbar sharks. The Agency's decision (71 FR 75122, December 14, 2006) to open the mid-Atlantic shark closed area in July, depending on available quota, is based on the realization that the LCS fishery in the South Atlantic region has experienced a closure from the conclusion of the 2006 third trimester season (October 3, 2006) until July 1 2007, or nine months. Therefore, given the limited opening of the area and the amount of time the South Atlantic region has been closed (October 2006 to at least July 2007),

NMFS feels that the potential negative ecological impact of opening the mid-Atlantic shark closed area for three weeks in July 2007 would be minor.

NMFS does not anticipate that opening the closure for two weeks in July will increase dead discards of dusky and sandbar sharks compared to maintaining the closure through July. Under the existing rebuilding plan, the numbers of dead discards that may occur as a result of opening this area for two weeks are anticipated to be minor. Further, it is anticipated the number of neonates and juveniles affected by opening the closure during a portion of July will be minor, especially since no fishing in the entire South Atlantic region will occur between January through June, a time during which pregnant females and neonate sandbar sharks begin to pup off the coast of Florida and dusky sharks start to pup between South Carolina and Maryland (NMFS, 2003).

Opening the mid-Atlantic shark closed area one month early is expected to have minor ecological impacts for protected resources and bycatch. Observer data from 1994-2006 indicate that there have been limited interactions with sea turtles in the vicinity of, and within, the mid-Atlantic shark closed area prior to its implementation in 2005. In the vicinity of the mid-Atlantic shark closed area between 1994-2004, there have been 5 loggerhead sea turtles observed caught on BLL gear, two of which were released alive. Only one of these interactions occurred during the month of July (1998). Re-opening the mid-Atlantic shark closed area in the month of July would likely have minor ecological impacts because the likelihood of interactions with protected resources and other bycatch would be minimal. Any potential ecological impacts of opening the closed area are not expected to be significant because the closure would be open for only two weeks of one year. Unless action were taken to open the closure in the upcoming amendment to the HMS FMP, the closure would be closed again in 2008 and subsequent years.

The North Atlantic region would have an underharvest of 6.4 mt dw transferred to the 2007 second trimester season resulting in a quota of 69 mt dw. Under this alternative, as described in Chapter 2, this region would be open for four weeks. Based on landings data for LCS during the past three fishing seasons beginning in July, the North Atlantic region harvested approximately 96 percent of the second trimester quota. The ecological impacts of this season would be neutral and similar to impacts previously analyzed as the Agency does not anticipate an increase in fishing effort in the North Atlantic region as a result of the available quota and season length. In addition the ecological impacts to protected species would be neutral and similar to previously analyzed impacts as interactions with sea turtles are rare and the North Atlantic region is outside the current range of the smalltooth sawfish.

Alternative 1 (No Action): 2007 3<sup>rd</sup> trimester season

Under Alternative 1, the Gulf of Mexico region would have approximately 49.9 mt dw of quota available for the 2007 third trimester season. This accounts for the overharvest (-126.2 mt dw) that occurred in the 2006 third trimester. Under this alternative, as described in Chapter 2, the region would be open for two weeks, at which time they are predicted to harvest 81 percent of the available quota. Past catch rates (2005-2006) indicate that the Gulf of Mexico region has harvested an average of 143 percent of their third trimester quota during a two month season. For the Gulf of Mexico region, the negative ecological impacts of harvesting more than 130

percent in the LCS 2005 third trimester quota and 156 percent of the 2006 LCS third trimester quota could be offset by the reduced quota and a two week fishing season during the 2007 third trimester in the Gulf of Mexico.

The South Atlantic region would have 80.5 mt dw of quota available during the third trimester of 2007, which accounts for the overharvest (-58.4 mt dw) that occurred in the 2006 third trimester. Under this alternative, as described in Chapter 2, the region would be open for three weeks, at which time they are predicted to harvest 81.1 percent of the available quota. Based on past catch rates and the percentage of quota that is taken during a closure, NMFS estimates that 84 percent of the 2007 third trimester quota would be taken in three weeks. The 2006 third trimester in the South Atlantic was open for approximately 4 weeks and the quota was exceeded by 216 percent. The negative ecological impact of this overharvest could be offset by closing the fishing season after three weeks, which is when NMFS estimates that only approximately 84 percent of the quota would be taken, instead of increasing the length of the season until 100 percent of the quota would likely be harvested.

The North Atlantic region would be closed during the 2007 third trimester. Based on landings data for LCS during the past two fishing seasons (2005-2006) beginning in September, regardless of a closure, the North Atlantic region has harvested approximately 161 percent of the third trimester quota. Therefore, this closure would have neutral ecological impacts similar to those previously analyzed because possession of LCS in the North Atlantic region would not be allowed during the 2007 third trimester.

The overall ecological impacts of Alternative 1 would likely be neutral. The extensive overharvests that occurred in 2006 in both the second and third trimesters in the South Atlantic and Gulf of Mexico regions would result in significantly reduced quotas, short fishing seasons, and closures that may lead to increased effort in other fisheries that deploy BLL gear (snapper/grouper and reef fish) and/or other HMS fisheries, including but not limited to, pelagic longline (PLL) and gillnet. NMFS is unable to quantify the ecological impacts of this redistribution of fishing effort on HMS, non-HMS, or protected resources. Data from the 2006 BLL observer program indicate that, of the observed BLL fishing trips targeting grouper in the Gulf of Mexico and tilefish in the South Atlantic, seven loggerhead turtle interactions were observed in the Gulf of Mexico and no protected species interactions were encountered in the South Atlantic. Data from the Southeast Regional Office (SERO) permits division (January 2007) indicated that there were 549 vessels that possessed commercial shark permits (directed and incidental). Vessels that hold a commercial shark permit often also possess permits in several other regional commercial fisheries, including but not limited to: dolphin/wahoo (235), reef fish (150), snapper grouper (89), king mackerel (215), Spanish mackerel (221) and swordfish (284).

Alternative 2, the modified preferred alternative, would combine the 2007 South Atlantic second trimester season quota (83.2 mt dw) with the 2007 South Atlantic third trimester season quota (80.5 mt dw) for a total of 163.7 mt dw. Under this modified alternative, the fishery would open in the South Atlantic region on July 15, which would open the mid-Atlantic shark closed area for two weeks. The option to open the mid-Atlantic shark closed area in July, pending available quota, was the implemented in the final rule for the 2007 first season Atlantic shark

commercial management measures (December 14, 2006; 71 FR 75122). The ecological impacts associated with opening the mid-Atlantic shark closed area, which is usually closed until the end of July, were analyzed in the Environment Assessment prepared for that final rule. These analysis indicate that re-opening the mid-Atlantic shark closed area in the month of July would likely have slightly negative ecological impacts because the likelihood of interactions with protected resources and other bycatch would be increased due to the displacement of fishing effort to an area that had been previously closed. However, these negative impacts of opening the closed area are not expected to be significant because the closure would be open for only two weeks (July 15 through July 31) during one year. Unless action were taken to open the closure in the upcoming amendment to the Consolidated HMS FMP, the closure would be closed again in July in 2008 and subsequent years.

The Agency published a final rule on February 7, 2007 (72 FR 5633), that implements regulations to reduce post-release mortality of sea turtles and other non-target species caught by participants in the Atlantic BLL shark fishery. That rule requires vessels with BLL gear onboard to possess, maintain, and utilize the same dehooking equipment and protocols as required of the PLL fishery. While these requirements would not impact interactions with BLL gear, post-hooking survival of sea turtles and non-target species may increase as a result.

Given the limited opening of the area and the current closure in the South Atlantic region (October 2006 to July 15, 2007), NMFS feels that the potential negative ecological impact of opening the mid-Atlantic shark closed area for two weeks in July would be minor. This modified alternative also would likely reduce potential derby fishing conditions because of the longer continuous season and give the fisherman more time to fish and be effective, therefore increasing post-release survival of bycatch species.

Alternative 3, the preferred alternative, would combine the 2007 Gulf of Mexico second trimester season quota (33.20 mt dw) with the 2007 Gulf of Mexico third trimester quota (49.90 mt dw) for a total of 83.1 mt dw. Under this alternative, as described in Chapter 2, the Gulf of Mexico region would be open for 3 weeks, when approximately 82 percent of the quota would be harvested. Closing the season when only 82 percent of the available quota has been harvested may help to avoid negative ecological impacts associated with previous overharvests in this region. In addition, the ecological impacts associated with this alternative are similar to those described in Alternative 1 for the 2007 third trimester season in the Gulf of Mexico. The impacts associated with an additional week of fishing under this alternative would be minimal and similar to impacts previously analyzed. There could be slightly positive ecological impacts associated with the avoidance of derby fishing conditions due to a longer continuous season which would give fisherman more time to fish and be effective, therefore increasing post-release survival of bycatch species.

Selecting Alternatives 2 and 3 would likely have neutral ecological impacts due to opening the mid-Atlantic shark closed area for two weeks in July and the avoidance of July start dates in the Gulf of Mexico region when catch rates are significantly higher than September. Average catch rates (2003-2006) during July have been 54.9 mt dw per week in the Gulf of Mexico compared to 15.4 mt dw in September in the Gulf of Mexico. If Alternatives 2 and 3 are selected, the North Atlantic would remain as described above in Alternative 1 (No Action).

### Alternatives Considered for SCS

The existing procedures for establishing a regional/seasonal quota are to add underharvests or deduct overharvests from the baseline quota of the following year. Under Alternative 4 (No Action), the overharvest accrued in the Gulf of Mexico during the second trimester of 2006 (41.2 mt dw) would be subtracted from the baseline quota for this region during the second trimester of 2007 (15.1 mt dw). Because the overharvest was greater than the baseline quota, under alternative 4, the SCS fishery in the Gulf of Mexico would be closed during the second trimester. Additionally, since the adjusted 2007 quota for the second trimester in this region is -26.1 mt dw, there is the potential that the 2008 second trimester season SCS quota would need to be adjusted to account for the remaining overharvest.

Under alternative 4 for the 2007 third trimester, the South Atlantic and North Atlantic regions would have their entire underharvest from the second trimester of 2006 added to their baseline quota for this season, yielding total adjusted quotas of 390.2 mt dw and 36.2 mt dw, respectively. Should catch rates remain consistent with landings data from 2004-2006, the SCS fishery in these regions would remain open for the entire trimester. There were no overharvests of SCS during the third trimester of 2006; therefore, underharvests from each region would be added to the baseline quotas for the third trimester. The adjusted North and South Atlantic SCS quotas for the third trimester of 2007 would be 29.3 mt dw and 354.9 mt dw, which would allow these fisheries to stay open the entire season. The Gulf of Mexico would have an adjusted quota of 22.9 mt dw during the third trimester of 2007, which based on landings from 2004-2006 would provide for a season approximately 10 weeks long.

Alternative 4 is expected to have neutral impacts on the ecological environment. Potential ecological benefits resulting from a closure in the Gulf of Mexico during the second trimester are likely to be neutral as the sharks that would have been caught during the 2007 second trimester have already been removed from the ecosystem during the overharvest in 2006. Despite the overharvest of SCS in the Gulf of Mexico region, only 154.9 mt dw of the total 408.3 mt dw second trimester SCS quota was harvested in 2006. Because the Gulf of Mexico and South Atlantic are managed as a single stock, the overharvest of SCS in the Gulf of Mexico region is balanced by the large amount of unharvested SCS in the South Atlantic. Additionally, because the majority of shark landings in the Gulf of Mexico are usually LCS species, a SCS fishery closure, which would be implemented under alternative 4, may still result in some mortality of SCS if these species are caught incidentally in trips targeting LCS. Fishing effort, fishing mortality of shark species and bycatch, and interactions with fish habitat in the North and South Atlantic would remain consistent with that of previous fishing years.

It should be noted however, that the SCS no action alternative, if implemented in conjunction with the status quo for LCS (Alternative 1), would close the LCS and SCS commercial fishery in the Gulf of Mexico for the entire second trimester of 2007. This combination of alternatives would greatly reduce mortality of sharks as well as species that are typically caught as bycatch. Although fishing effort would likely be displaced to the snapper/grouper fishery, which is also a benthic fishery, ecological impacts in this regard would be neutral, as bottom longline gear has not been shown to significantly impact essential fish habitat.

Alternative 5 would transfer 41.2 mt dw from the South Atlantic second trimester quota to the Gulf of Mexico for that season. This quota would cover all of the Gulf of Mexico overharvest that occurred during 2006, meaning the adjusted available quota for the Gulf of Mexico during the second trimester of 2007 would be equivalent to the base quota of 15.0 mt dw. Examination of dealer landing reports from 2004-2006 indicate that the Gulf of Mexico on average harvests approximately 2.1 mt dw of SCS per week during the second trimester season, meaning the SCS fishery would be able to operate for almost two months. The South Atlantic region's total adjusted quota under alternative 5 would be 349 mt dw. The North Atlantic SCS quota would not be affected by this alternative, and would be equal to that outlined in alternative 4 (36.2 mt dw).

Alternative 5 would not result in significant ecological impacts for any of the three regions involved in the Atlantic commercial shark fishery. Although the overall SCS quota available to the South Atlantic would be reduced under this alternative, overall effort in the South Atlantic SCS fishery would not be significantly affected because 41.2 mt dw represents only 3.8 percent of the South Atlantic's adjusted 2007 SCS second trimester quota. Alternative 5 is therefore not expected to have any ecological effects on the species or habitats associated with the North and South Atlantic regions. Compared to the status quo alternative, alternative 5 would have slightly negative ecological impacts because this alternative would allow for some effort in the SCS fishery in the Gulf of Mexico during the second trimester of 2007, which compared to a seasonal closure, would result in a relative increase in mortality of SCS resources and species caught as bycatch in this fishery during 2007. Transferring SCS quota from between regions would have little ecological impact because the SCS species complex is not overfished, overfishing is not occurring, and as stated previously, are managed as a single stock. These factors in combination with the fact that the initial allocations of SCS quota were established based on historical catch rates, not species abundance or ecological thresholds of SCS harvest in these regions, warrants using the excess SCS quota in the South Atlantic to cover the 2006 overharvest of SCS in the Gulf of Mexico.

Alternative 6 would have similar actions and impacts to those outlined under alternative 5. Alternative 6 adjusts the quotas and season lengths for the Gulf of Mexico and South Atlantic during the second trimester of 2007, but does not affect the quota or seasons for the North Atlantic commercial SCS fishery. Under alternative 6, 56.3 mt dw of SCS would be transferred from the South Atlantic to the Gulf of Mexico. This transfer amount is equivalent to the Gulf of Mexico's 2006 SCS second trimester underharvest plus their baseline quota for this season. The Gulf of Mexico would thereby have an SCS quota of 30.2 mt dw during the second trimester of 2007, which would allow the fishery to operate for almost the entire season. The South Atlantic transfer of 56.3 mt dw would represent 14.4 percent of this region's 2007 second trimester adjusted SCS quota, leaving the South Atlantic with a total SCS quota of 333.9 mt dw.

Ecological impacts of alternative 6 would vary according to region, with overall ecological impacts being non-significant. Ecological impacts of alternative 6 would be neutral in the North and South Atlantic, and slightly negative in the Gulf of Mexico. Although the total quota would be reduced in the South Atlantic, it is unlikely that the South Atlantic would harvest their SCS quota in its entirety. According to the landings reports submitted to NMFS during the last three years (2004 to 2006), the South Atlantic has harvested a maximum of 79.3 mt dw of SCS during the second trimester season. Reducing the South Atlantic's quota to 333.9 mt dw is

not expected to reduce fishing effort, protected species interactions, mortality of sharks or bycatch, or interactions with essential fish habitat.

In comparison to the no action alternative described in alternative 4, a 56.3 mt dw SCS transfer to the Gulf of Mexico region would result in negative ecological impacts. These negative impacts would be related to transferring enough SCS quota for the Gulf of Mexico to allow commercial fishing for almost the entire second trimester season. It should be noted however, that the initial allocations of SCS quota were established based on historical catch rates, not species abundance or ecological thresholds of SCS harvest in these regions. Additionally, SCS in the Gulf of Mexico and South Atlantic are currently managed as a single stock, meaning that the quota transfer would have little if any impact on the SCS stocks in general.

Alternative 7, which would modify the Gulf of Mexico and South Atlantic SCS regional quota percentages, is the preferred alternative. Currently, the trimester SCS quotas are divided between the three regions with the North Atlantic receiving three percent, the South Atlantic 87 percent, and the Gulf of Mexico region receiving 10 percent of that seasons baseline quota. These regional percent allocations of SCS were established in 2003 under Amendment 1 to the Atlantic Tunas, Swordfish, and Sharks FMP, and were amended in 2004 based on additional landings data from 2002 and 2003. Alternative 7 would modify the percent allocations to more evenly distribute the SCS quota among the Gulf of Mexico and South Atlantic, as recent landings in the Gulf of Mexico indicate there is more effort in this fishery than previously determined. The new percent allocation proposed the South Atlantic and Gulf of Mexico are 49 percent and 48 percent, respectively. Changes to the percent allocations would affect all seasons and would continue to be in effect for the 2007 fishing year and beyond.

Under the new proposed regional quota percentages, the 2007 South Atlantic SCS baseline quota would be reduced from 131.5 mt dw to 74.1 mt dw, and the Gulf of Mexico SCS baseline quota would increase from 15.1 mt dw to 72.6 mt dw. Alternative 7 also includes a quota transfer, similar to that described in alternative 5, which would cover the 41.2 mt dw overharvest of SCS that occurred in the Gulf of Mexico during 2006. The 2007 second season SCS quotas for the South Atlantic, including underharvests and a 41.2 mt dw transfer to the Gulf of Mexico, would be 291.6 mt dw. The adjusted quota for the Gulf of Mexico would be equal to the new base quota of 72.6 mt dw. Quotas for the third trimester season of 2007 would be 297.5 mt dw and 80.4 mt dw for the South Atlantic and Gulf of Mexico, respectively.

Overall ecological impacts of alternative 7 would be neutral. Although the South Atlantic region has not traditionally utilized their SCS quota, a 50 percent reduction in the baseline quota would reduce the potential fishing effort in this fishery, and reduce the number of SCS that could be removed from this ecosystem in the future. The new baseline allocations are similar to the landings both regions reported during 2006. Redistributing the quota among regions would more equally allocate the total SCS quota, and is expected to have little impact on SCS mortality in each respective region. The increase in the SCS baseline quota in the Gulf of Mexico, which would be more than twice the baseline quota in 2005 and 2006, may lead to an increase in SCS fishing effort in the Gulf of Mexico as fishery participants may perceive the quota increase as enhancing SCS fishing opportunities. This may lead to negative ecological impacts if the current effort and landings in this region increase. As SCS in the Atlantic

commercial fishery are currently managed as a single stock, redistribution of quota among the commercial shark fishing regions should not significantly affect the fishing mortality or status of the SCS stocks in general. Landings information received from dealer reports during the 2006 second and third seasons indicate that the SCS species caught in the Gulf of Mexico region are about fifty percent blacknose, twenty-five percent finetooth sharks, seventeen percent sharpnose and ten percent bonnethead sharks. In the South Atlantic region, dealer reports indicated that the SCS species caught are over seventy percent sharpnose sharks, fourteen percent blacknose, eleven percent finetooth sharks and three percent bonnethead sharks. The reallocation of the quota percentages may lead to a difference in species allocation among the SCS caught in the South Atlantic and Gulf of Mexico regions. As the SCS quota has to date never been fully harvested, the impacts of a slight increase in fishing effort would not significantly affect these stocks nor would it lead to an overharvest of the SCS quota.

### ***Social and Economic Impacts***

#### **Alternatives Considered for LCS**

Alternative 1 (No Action): 2007 2<sup>nd</sup> trimester season

Alternative 1 would have localized negative social and economic impacts associated with an LCS closure in the second trimester of 2007 in the Gulf of Mexico region. Essentially, the overharvest of LCS in the Gulf of Mexico region resulted in 171 percent of the LCS quota for the region being harvested in the 2006 second trimester. Despite the fact that the overall revenues may be similar as a result of the overharvest, the timing of when those revenues occur would be altered. Under this alternative, participants in the Gulf of Mexico region would not be able to target LCS or land them incidentally for the entire 2007 second trimester season. This closure would likely result in negative economic consequences for the Gulf of Mexico region. Median prices for LCS in the Gulf of Mexico region between 2003-2005 for LCS meat and fins were \$0.44/lb (adjusted to 2006 real dollars using the Consumer Price Index (CPI-U)) and \$17.05/lb, respectively (Table 6.6). There may be additional negative economic impacts as a result of an LCS closure in the second trimester of 2007 if prices in 2007 increase significantly as a result of participants having their stream of revenue from the LCS products interrupted as a result of the closure; however, these are difficult to estimate. Fishing communities in the Gulf of Mexico region that rely heavily on shark landings would be more adversely affected than communities that rely on a variety of fish products. Economic impacts of the LCS closure in the Gulf of Mexico region may be mitigated somewhat for vessels in closer proximity (Southern Florida) to the South Atlantic region because these vessels can travel to the South Atlantic region to target LCS provided they land them in that region. Logbook data from 2005 indicates that there were 10 vessels that had landings in both regions.

Under this no action alternative, as described in Chapter 2, the mid-Atlantic shark closed area would be open for two weeks beginning July 6, 2007. This opening could offset the negative social and economic impacts associated with the closure of the 2007 first trimester season in the South Atlantic region. During 2005, with the implementation of the mid-Atlantic shark closed area, LCS landings decreased by 22 percent in the South Atlantic region, compared to 2002-2004. Assuming the difference in landings can be attributed to the implementation of

the closure, opening the mid-Atlantic shark closed area in July may result in additional revenue to participants in the South Atlantic region.

Alternative 1 would have positive economic impacts for the North Atlantic region during the 2007 second trimester due to a season that would be open for 4 weeks beginning July 6, 2007.

Alternative 1 (No Action): 2007 3<sup>rd</sup> trimester season

Alternative 1 would have negative social and economic impacts associated with the 2007 3<sup>rd</sup> trimester season in the Gulf of Mexico and the South Atlantic regions. The overharvest that occurred in the Gulf of Mexico and the South Atlantic regions in the 2006 third trimester season resulted in 156 percent and 216 percent, respectively, of the LCS quota being harvested during one trimester. Due to these overharvests, the Gulf of Mexico and the South Atlantic regions would only be able to target LCS for two and three weeks respectively, during the 2007 third trimester season. Because the 2007 third trimester season would be the shortest season in each of these regions in the past two years (2005-2006), this alternative may lead to negative social and economic consequences for participants in these regions. The North Atlantic region could experience negative social and economic impacts under this alternative due to a closure in this region during the 2007 third trimester season.

Alternative 2, the modified preferred alternative, would likely result in slightly positive social and economic impacts for the South Atlantic region relative to Alternative 1 (No Action). Alternative 2 would allow the South Atlantic region to be open for 4 weeks beginning July 15, 2007. The continuous 4 week fishing season under this alternative could provide more economic and social benefit versus the two separate seasons in Alternative 1 by increasing fishing opportunities in the South Atlantic region. Under this modified alternative the mid-Atlantic shark closed area would open for two weeks which might offset some of the economic impacts for fishermen who are unable to fish in that area during the first trimester of 2007 when the LCS fishery is closed. During 2005, with the implementation of the mid-Atlantic shark closed area, LCS landings decreased by 22 percent in the South Atlantic region, compared to 2002-2004. Assuming the difference in landings can be attributed to the implementation of the closure, opening the mid-Atlantic shark closed area for two weeks in July may result in additional revenue to participants in the South Atlantic region of \$17,095. The merged season could also avoid the need to change gears to fish for other species in the South Atlantic region if there were two separate seasons as described in Alternative 1.

Alternative 3, the preferred alternative, would result in positive social and economic impacts for the Gulf of Mexico region. The merged season proposed in Alternative 3 would allow for a continuous 3 week season versus a closure in the 2007 second trimester and a two week season in the 2007 third trimester as proposed in Alternative 1. Under Alternative 1 (No Action) and Alternative 3, the LCS season in the Gulf of Mexico region would open on September 1, 2007, however Alternative 3 could have increased social and economic benefits due to a longer continuous season and by allowing Gulf of Mexico fishermen the opportunity to fish for the small amount of quota available in the 2007 second trimester season. Under

alternatives 2 and 3, the LCS season would be open at different times in different regions, which could prevent market gluts.

### Alternatives Considered for SCS

Participants in commercial and recreational SCS fisheries located in the Gulf of Mexico would experience significant negative economic and social impacts if alternative 4 is implemented. These negative impacts are directly related to the closure of the small coastal fishery that would occur in this region during the second trimester of 2007. A closure of the SCS fishery in the Gulf of Mexico region during the 2007 second trimester, coupled with the need to account for LCS overharvests during the second and third trimesters of 2006, would greatly reduce fishing opportunities for commercial shark fishermen in this region. Additionally, under the status quo, 26.1 mt dw of SCS overharvest would have to be accounted for during the Gulf of Mexico's second trimester season in 2008. Alternative 4 would therefore result in two consecutive years of a closure during this season, which, based on ex-vessel prices, and the value of the Gulf of Mexico's annual baseline quota of 15 mt dw, has the potential to cost this region a minimum of \$29,100 (Table 6.5) over two years. Socio-economic impacts of alternative 4 are expected to be neutral in both the North and South Atlantic regions, because under the status quo both regions would continue to operate under second and third trimester SCS quotas similar to those of previous years.

Social and economic impacts of a 41.2 mt dw quota transfer, as outlined in alternative 5, would be neutral for the South and North Atlantic and positive for the Gulf of Mexico. Alternative 5 would be more economically and socially beneficial to the Gulf of Mexico region than alternative 4 because it would eliminate all of this region's SCS overharvest, would alleviate the potential need to adjust SCS quotas for the remaining overharvest balance in 2008, and would allow the SCS fishery to operate during the second trimester of 2007. The potential gross revenues of the 15 mt dw adjusted SCS quota for the Gulf of Mexico would be approximately \$14,500 (Table 6.6) under alternative 5. By transferring 41.2 mt dw of SCS quota to the Gulf of Mexico, the South Atlantic would be losing \$60,855 (Table 6.6) in potential revenue; however, given the quota transferred from the South Atlantic is such a small percentage of their total SCS quota for this season (3.8 %), and that the South Atlantic does not traditionally utilize their entire SCS quota, it is unlikely that the South Atlantic would experience negative economic impacts under alternative 5.

The social and economic impacts of alternative six are similar to those described for alternative 5, although the potential economic gains to the Gulf of Mexico would be twice as much. Alternative 6 would transfer an additional 15 mt dw from the South Atlantic to the Gulf of Mexico, bringing the Gulf of Mexico's total SCS quota up to 30 mt dw for the second trimester of 2007, which is equivalent to at least \$29,100 in potential revenue. In addition to the economic and social benefit of having an increased available quota, the longer season that established under alternative 6 may improve the market for SCS in the Gulf of Mexico, which may augment the economic benefits of this alternative by increasing the value of SCS or by allowing for more consistent consumer demand for SCS products. Although the South Atlantic may experience some economic and social costs as a result of transferring part of their SCS

quota to the Gulf of Mexico, these impacts would be minimal because a substantial portion of SCS resources in the South Atlantic has not been utilized under the current level of fishing effort.

Alternative 7 would produce significant positive social and economic impacts for the Gulf of Mexico region for 2007 and beyond. Reviewing SCS landings since 2003, it is evident that the percent quota allocations do not reflect recent regional SCS fishing activities. Over the last three years, 33 percent of all SCS landed have been landed in the Gulf of Mexico, with over half of the 2006 landings coming from this region (Table 4.1). Redistributing the SCS quota more equally should help prevent future quota overharvests and fishery closures in the Gulf of Mexico, which in turn should reduce potential future economic and social costs associated with unexpected fishery closures. Although the current levels of SCS harvest should not significantly increase as a result of this alternative, the minimum potential economic gain from a 57.6 mt dw increase in the Gulf of Mexico baseline quota would be \$55,873 (57.6 mt x GOM prices, Table 6.6). The commercial shark fishing industry in the South Atlantic may perceive the reallocation of quota percentages as both a social and economic burden. However, alternative seven would not require a reduction in fishing effort or landings of SCS in the South Atlantic relative to current fishing levels. The preferred alternative does however, prevent future potential growth of the SCS fishery in this region. The opportunity costs associated with the decrease in total quota would be \$85,080 (57.6 mt x SA prices, Table 6.6); however, should the current level of fishing effort continue, the South Atlantic would not experience economic or social costs under the preferred alternative.

**Table 4.1** Landings of small coastal sharks (SCS) in the U.S. Atlantic commercial shark fishery. Percent of total SCS harvest is shown for each region, year, and for the period from 2003-2006. All landings are shown in metric tons dressed weight. Landings data was obtained from dealer reports for 2003 through 2006.

| Year                      | Season | South Atlantic | Gulf of Mexico | North Atlantic | Total SEASONAL Landings | Total ANNUAL Landings |
|---------------------------|--------|----------------|----------------|----------------|-------------------------|-----------------------|
| 2004                      | 1      | 72.2           | 13.6           | 0.4            | 86.2                    | 134.0                 |
|                           | 2      | 44.9           | 2.8            | 0.0            | 47.7                    |                       |
| 2005                      | 1      | 60.4           | 14.2           | 0.0            | 74.6                    | 245.8                 |
|                           | 2      | 79.3           | 6.8            | 0.0            | 86.1                    |                       |
|                           | 3      | 68.8           | 16.3           | 0.0            | 85.1                    |                       |
| 2006                      | 1      | 44.5           | 78.0           | 0.0            | 122.5                   | 340.7                 |
|                           | 2      | 74.8           | 80.1           | 0.0            | 154.9                   |                       |
|                           | 3      | 40.3           | 23.0           | 0.0            | 63.3                    |                       |
| <b>Total SCS Landings</b> |        | 485.2          | 234.8          | 0.4            | 720.5                   | 720.5                 |

|  |             | South Atlantic | Gulf of Mexico | North Atlantic |
|--|-------------|----------------|----------------|----------------|
| <b>Percent of Annual Landings</b>                | <b>2004</b> | 87.41%         | 12.26%         | 0.33%          |
|  | <b>2005</b> | 84.82%         | 15.17%         | 0.00%          |
|  | <b>2006</b> | 46.84%         | 53.16%         | 0.00%          |
| <b>Percent of Total SCS Landings (2003-2006)</b> |             | <b>67.35%</b>  | <b>32.59%</b>  | <b>0.06%</b>   |

## *Summary and Conclusions*

### Alternatives Considered for LCS

Due to LCS overharvests that occurred during the second and third trimester seasons of 2006, the LCS quotas and seasons will be reduced in the Gulf of Mexico and South Atlantic regions during 2007. Of the three alternatives presented above, NMFS currently prefers Alternatives 2 and 3, which would merge the second and third trimester quotas and seasons in each region. Creating one long continuous season as opposed to two short seasons would create a longer window for fishing opportunities and would allow for more efficient use of fisheries resources in each region. Delaying the opening of the combined seasons in the LCS fishery until July 15 in the South Atlantic region and September 1 in the Gulf of Mexico would allow for longer fishing seasons in each region due to slower catch rates in August and September compared to July. Under the preferred alternatives the North Atlantic region would be open for four weeks during the 2007 second trimester and would be closed during the third trimester of 2007.

### Alternatives Considered for SCS

Reviewing the ecological, economic, and social impacts of the alternatives for SCS, NMFS prefers alternative 7, which would reallocate the SCS regional quota percentages for 2007 and beyond. Alternative 7 would also transfer 41.2 mt dw of SCS from the 2006 second trimester underharvest in the South Atlantic. This transfer would allow the Gulf of Mexico region to start the 2007 second trimester fishing season with a clean slate, with the hopes that the new quota allocations will prevent future overharvests of SCS in this region. Ecological impacts of alternative 7 would be neutral overall and not significant for any of the three regions. Economic and social benefits of establishing more equal seasonal quotas and preventing overharvests of SCS are significant for the Gulf of Mexico region, and far exceed those expected under alternatives 4, 5, or 6. Landings information received from dealer reports during the 2006 second and third seasons indicate that the SCS species caught in the Gulf of Mexico region are about fifty percent blacknose, twenty-five percent finetooth sharks, seventeen percent sharpnose and ten percent bonnethead sharks. In the South Atlantic region, dealer reports indicated that the SCS species caught are over seventy percent sharpnose sharks, fourteen percent blacknose, eleven percent finetooth sharks and three percent bonnethead sharks. The reallocation of the quota percentages may lead to a difference in species allocation among the SCS caught in the South Atlantic and Gulf of Mexico regions. Although quota transfers from the South Atlantic region would be reduced, fishermen in the South Atlantic region are not expected to experience immediate economic costs or benefits as a result of this alternative because available quota is still significantly higher than the base quota as a result of numbers underharvests in the past. The adjusted South Atlantic regional quota for the second and third seasons are 291.6 mt dw, and 297.5 mt dw which is 64.2 percent and 65.5 percent of the total annual quota for SCS, respectively.

#### **4.1 Impacts on Essential Fish Habitat**

As described in the Amendment 1 to the 1999 FMP for Atlantic Tunas, Swordfish and Sharks and the 2006 Final Consolidated HMS FMP, there is no evidence that physical effects caused by fishing BLL 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 BLL gear, principally targeting large coastal sharks, make contact with the bottom. If BLL 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 and Appendix B of the Final Consolidated HMS FMP, 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 BLL gear on benthic habitats. The principal components of the longline that can produce seabed effects are the anchors or weights, hooks, and mainline. The 1999 NMFS EFH Workshop categorized the impact of BLL gear on mud, sand, and hard-bottom as low.

Additionally, because the preferred alternatives are not expected to change fishing practices or effort, it is not expected to change the impact of BLL gear on EFH beyond those impacts considered in Amendment 1 to the 1999 FMP for Atlantic Tunas, Swordfish and Sharks. As a precautionary measure, NMFS 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 PLL, are unlikely to have any impact on EFH because they are fished in the water column and not in contact with the bottom.

On February 7, 2007 (72 FR 5633), NMFS implemented measures to complement those implemented by the Caribbean Fishery Management Council (CFMC) on October 8, 2005 (70 FR 62073). The intent of this rulemaking is to minimize adverse impacts to EFH and to reduce fishing mortality of mutton snapper, red hind, and other reef dwelling species. This rule (February 7, 2007; 72 FR 5633) would prohibit all vessels issued HMS permits with BLL gear onboard from fishing with, or deploying, any fishing gear in six distinct areas off the U.S. Virgin Islands and Puerto Rico, year-round. NMFS is also in the process of examining the need for modifications to EFH for managed species as part of the 5-year review required by the Magnuson-Stevens Act. The 2006 Final Consolidated HMS FMP began the review to the original EFH designations. Any modifications and mitigating measures should be implemented in Amendment 1 to the 2006 Consolidated HMS FMP (November 7, 2006; 71 FR 65087).

#### **4.2 Impacts on Other Finfish Species**

As described in the sections above, the final action is not expected to alter fishing practices or effort significantly and therefore should not have any impact on other finfish species that have not already been considered in the FMP for Atlantic Tunas, Swordfish and Sharks, Amendment 1 to the FMP for Atlantic Tunas, Swordfish and Sharks, or the Final Consolidated HMS FMP. Finfish bycatch for the BLL 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. The 2006 BLL observer data indicates that teleosts made up 1.1 percent of the observed BLL catch in the South Atlantic and 5.4 percent in the Gulf of Mexico. Because the preferred alternative would not result in significant changes in fishing effort or practices, NMFS does not expect that sustainability of these bycatch species would be affected by the action.

One of the preferred alternatives would result in the mid-Atlantic shark opening for two weeks in the South Atlantic region during the month of July, 2007. Because the mid-Atlantic closed area will only be open for two weeks, the resultant decrease in BLL fishing effort targeting LCS in this region in July should have a positive effect on bycatch rates in the BLL fishery. However, these positive effects could potentially be offset since there could be a redistribution of fishing effort to the Gulf of Mexico or North Atlantic as a result of the extended closure in July 2007 in the South Atlantic, and impacts to species of finfish that are commonly landed in those regions may occur as a result.

### **4.3 Impacts on Protected Species**

The management measures preferred in this quota adjustment and season length 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.

A Biological Opinion (BiOp) for Atlantic Shark Fisheries was prepared in October 2003 in response to the proposed measures in Amendment 1 to the FMP for Atlantic Tunas, Swordfish and Sharks. 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 and a subsequent rule (November 30, 2004; 69 FR 69537) which adjusted regional and trimester quotas, without increasing shark quotas, should not increase fishing effort or protected species interactions. The preferred alternatives address extensive overharvests that occurred in the South Atlantic and Gulf of Mexico regions during the second and third trimesters of 2006. The modified LCS preferred alternative in the South Atlantic region would open the mid-Atlantic shark closed area for two weeks in July. Observer data from 1994-2006 indicate that there have been interactions with sea turtles in the vicinity of, and within, the mid-Atlantic shark closure prior to its implementation in 2005. In the vicinity of the mid-Atlantic shark closed area between 1994-2004, there have been 5 loggerhead sea turtles observed caught on BLL gear, two of which were released alive. Only one of these interactions occurred during the month of July (1998). Therefore, a reinitiation of consultation under Section 7 of the ESA is not necessary at this time. Furthermore, reduced quotas and shorter seasons than in the recent past are likely to decrease protected species interactions because there would be limited directed LCS and SCS fishing in the South Atlantic and Gulf of Mexico regions during the 2007 second and third trimesters.

Furthermore, NMFS published a final rule on February 7, 2007 (72 FR 5633), that would implement regulations to reduce post-release mortality of sea turtles and other non-target species caught by participants in the Atlantic BLL shark fishery. That rule would require vessels with BLL gear onboard to possess, maintain, and utilize the same dehooking equipment and protocols

as required of the PLL fishery. While these requirements would not impact interactions with BLL gear, post-hooking survival of sea turtles may increase as a result.

#### **4.4 Coastal Zone Management**

In February 2007, NMFS sent all the coastal states in the Atlantic, Gulf of Mexico, and Caribbean a letter requesting, per 15 CFR 930.36(b), a 21-day review time frame for the consistency determination rather than a 60 day review time frame as required under 15 CFR Part 930.41(a) to ensure that NMFS would have the appropriate time needed to have the final rule in place by May 1, 2007, the beginning of the second trimester season. Updated landings reports were not available for the 2006 second and third trimester seasons until January 19, 2007. Due to the discovery of under and late dealer reporting in November 2006, considerable effort, extending into December and January, was necessary to collect accurate landings data. NMFS had to obtain, verify and document accurate landings data for the production of the landings reports that could be used to make over- and underharvest adjustments to the quotas consistent with 50 CFR 635.27(b)(1)(vi). Therefore, the landings reports were delayed, which in turn delayed the rulemaking process.

NMFS received responses from ME, NH, CT, RI, NJ, DE, PA, VA, SC, GA, FL, and PR agreeing to the shortened review time frame. NMFS received letters from NY and NC disagreeing with the shorter timeframe. NMFS stated in the February 2007 request that if no response was received by March 1, 2007, NMFS would assume that the request was acceptable. NMFS did not receive responses from MD, AL, USVI, and MS and, therefore, NMFS presumes that these states concur with NMFS's request for a shortened review time period.

On March 7, 2007, NMFS provided all the coastal states with the consistency determination letter, copies of the proposed rule and the draft Environment Assessment. In this letter, NMFS determined that this final rule is consistent to the maximum extent practicable with the enforceable policies of the approved coastal management program of coastal states on the Atlantic including the South Atlantic, Gulf of Mexico and Caribbean that have approved coastal zone management programs. NMFS received letters of concurrence with the consistency determination from the following states: AL, DE, NH, CT, NC, GA, RI, FL, USVI, LA, PA, and MS. NMFS has not yet received letters of concurrence from ME, NY, NJ, MD, SC, PR, and USVI and, therefore, NMFS presumes that these states concur with the consistency determination.

#### **4.5 Environmental Justice**

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 (NMFS, 2006). The preferred alternatives are not expected to have a

disproportionate impact on these minority or low-income populations because relatively few HMS permit holders (10–15) actually reside in Ft. Pierce.

## **4.6 Cumulative Impacts**

### **4.6.1 Past, Present and Reasonably Foreseeable Future Actions**

Cumulative impacts are the impacts on the environment, which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts could 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.

The primary goals of the 1993 Shark FMP and the 1999 FMP for Atlantic Tunas, Swordfish and Sharks were to establish management measures to reduce overfishing, rebuild U.S. Atlantic shark populations, and prevent overfishing of fully fished stocks. In 2003, NMFS amended the measures enacted in the 1999 FMP for Atlantic Tunas, Swordfish and Sharks based on the 2002 LCS and SCS stock assessments, litigation, and public comments. Implementing regulations for Amendment 1 to the FMP for Atlantic Tunas, Swordfish, and Sharks 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 to establish quotas, and implementing a new rebuilding plan, the overall annual landings quota for LCS in 2004 was established at 1,017 metric tons (mt) dressed weight (dw). The overall annual landings quota for SCS was established at 454 mt dw and the pelagic, blue, and porbeagle shark quotas were established at 488 mt dw, 273 mt dw, and 92 mt dw respectively.

On November 30, 2004, NMFS issued a final rule (69 FR 69537), which established, among other things, new regional quotas based on updated landings information from 1999-2003. This final rule did not change the overall quotas for LCS, SCS, and pelagic sharks established in Amendment 1 to the FMP for Atlantic Tunas, Swordfish, and Sharks, only the percentages allocated to each of the regions. The updated information was based on several different databases, including the canvass and quota monitoring databases, the Northeast Commercial Fisheries Database (CFDBS), and the Coastal Fisheries Logbook. The new regional quotas and trimester seasons for the commercial Atlantic shark fishery became effective January 1, 2005.

On October 2, 2006 (71 FR 58058), NMFS published the implementing regulations for the 2006 Final Consolidated HMS FMP that implemented a variety of management measures,

including: mandatory workshops for fishermen and dealers; two small time/area closures consistent with the Gulf of Mexico Fishery Management Council requirements; criteria for modifying time/area closures; measures to address rebuilding and/or overharvest of northern albacore tuna and finetooth sharks; modification of the management process for bluefin tuna; changing the management year for tunas, swordfish, and billfish; authorizing additional fishing gears, and numerous regulatory housekeeping measures.

NMFS published a Notice of Intent (November 7, 2006; 71 FR 65086) for an amendment to the Final Consolidated HMS FMP, which would enact management measures for the Atlantic shark fisheries consistent with the recommendations of the 2006 stock assessments for the LCS complex, blacktip sharks, sandbar sharks, and dusky sharks to prevent and/or end overfishing for Atlantic sharks. The Agency is in the process of preparing a proposed rule. This rule will likely have major impacts on the commercial shark fishery.

NMFS published a combined rule (December 14, 2006, 71 FR 75122) that adjusted the 2007 first season commercial quotas for LCS, SCS and pelagic sharks based on over- or underharvests from the 2006 fishing season, and that announced the season opening and closing dates for the first season 2007. During the first season of 2006, the South Atlantic region landed 278.2 percent (393.1 mt dw) of their LCS quota (141.3 mt dw) and 15.6 percent (44.5 mt dw) of their SCS quota (284.6). The Gulf of Mexico also landed 151.1 percent (336.6 mt dw) of their LCS quota (222.8 mt dw) and 527 percent (78 mt dw) of the SCS quota (14.8 mt dw). The North Atlantic region experienced underharvests for both their LCS and SCS quotas (landing approximately 3.8 percent and 0 percent, respectively). As a result of these extensive over- and underharvests in 2006, NMFS closed the South Atlantic region to directed LCS fishing during the 2007 first season. NMFS transferred 63.2 mt dw of the South Atlantic's regional SCS underharvest in the 2006 first season to the Gulf of Mexico, allowing a first season SCS fishery in both regions. This afforded the Gulf of Mexico region its baseline SCS quota of 15.1 mt dw in the 2007 first season. NMFS will also open the mid-Atlantic shark closed area during the month of July in 2007, pending available quota. Although the South Atlantic region is closed to LCS fishing in the first season of 2007 there is still LCS overharvest from the first season in 2006 that needs to be addressed.

NMFS published a final rule (February 7, 2007; 72 FR 5633) to approve and update the necessary equipment and protocols that Atlantic shark fishermen with BLL gear onboard must possess, maintain, and utilize for the safe handling, release, and disentanglement of sea turtles and other non-target species consistent with the Final Consolidated HMS FMP and the October 29, 2003, Biological Opinions (BiOp) for the shark fishery. The rule would require participants in the BLL fishery to possess, maintain, and utilize the same equipment that is required in the PLL fishery per 50 CFR Part 635.21.

Management measures in this action are not anticipated to change or increase any fishing activity and would overlap with an emergency rule in affect as of November 15, 2006 (71 FR 66469), prohibiting gillnet fishing or gillnet possession during annual restricted periods associated with the right whale calving season in the southeast U.S. restricted area and in waters within 35 nautical miles of the South Carolina coast. The emergency rule is required to meet the goals of the MMPA and the ESA, and is necessary to protect northern right whales from serious

injury or mortality from entanglement in gillnet gear in their calving area in Atlantic ocean waters off the Southeast U.S. This final rule is consistent with the ALTRWP regulations at 50 CFR 229.32(g).

#### **4.6.2 Cumulative Ecological, Social, and Economic Impacts**

The LCS preferred alternatives would affect the commercial shark fisheries during the second and third trimesters of 2007. The SCS preferred alternative would adjust the regional quota allocations in the South Atlantic and Gulf of Mexico regions due to changes in the SCS fishery. This change reflects current landings and should avoid future overharvest of SCS in the Gulf of Mexico and would not cause overharvest in the South Atlantic region. These preferred alternatives seek to address the ecological and social/economic ramifications of an extensive overharvest experienced in the South Atlantic and Gulf of Mexico regions by merging the second and third trimester seasons to provide longer seasons and thereby increasing fishing opportunities consistent with available quotas.

NMFS published a combined rule (December 14, 2006, 71 FR 75122) that adjusted the 2007 first season commercial quotas for LCS, SCS and pelagic sharks based on over- or underharvests from the 2006 fishing season, and that announced the season opening and closing dates for the first season 2007. As a result of these extensive over- and underharvests in 2006, NMFS closed the South Atlantic region to directed LCS fishing during the 2007 first season.

The negative economic impacts of this LCS closure that occurred during the first six months of 2007 may be offset somewhat by providing these participants with a merged LCS 2007 second and third trimester season in the South Atlantic region that would remain open for just over 4 weeks. No significant cumulative ecological, social, or economic impacts are expected as a result of these LCS and SCS measures in conjunction with foreseeable actions in the future because the LCS preferred alternatives would only affect the commercial shark fisheries during the second and third trimesters of 2007 and the SCS preferred alternative would adjust the regional quota allocations in the South Atlantic and Gulf of Mexico regions due to changes in the SCS fishery. Vessels that hold a commercial shark permit often also possess permits in several other regional commercial fisheries, including but not limited to: dolphin/wahoo (235), reef fish (150), snapper grouper (89), king mackerel (215), Spanish mackerel (221) and swordfish (284). There is a possibility that LCS could be caught with BLL gear by vessels pursuing these other species, however, it is difficult to predict the quantity of dead discards that may occur as a result of this incidental catch. The 2006 BLL observer data indicates that of the observed BLL trips for species other than sharks, 6.5% of the total catch was sharks of which 79.6% were blacknose and Atlantic sharpnose sharks.

Modification of existing shark management measures may occur as a result of the upcoming amendment to the Consolidated HMS FMP per the results of the 2006 stock assessments for LCS, sandbar sharks, blacktip sharks, and dusky sharks; however, this final rulemaking is not expected to have any adverse cumulative social, ecological, or economic impacts in conjunction with the upcoming amendment.

## 4.7 Comparison of the Alternatives

The ecological, social, and economic impacts compared in Table are for the foreseeable short-term future and represent a summary of impacts associated with each of the alternatives; however, referencing specific alternatives and their impacts in Chapters 4, 6, 7, and 8 provides a more comprehensive overview of the ecological, social, and economic impacts.

**Table 4.2** Comparison of alternatives considered for modification of regional trimester quotas for LCS and SCS in the second and third trimester of 2007. Impacts are described by region. 0 indicates neutral impacts, + indicates positive impacts, and – indicates negative impacts.

| Alternative  | Description of Alternative   | Ecological Impacts              | Socio Economic Impacts          |
|--|--|---------------------------------|---------------------------------|
| 1. LCS No Action: 2007 2 <sup>nd</sup> season  | Close GOM; open mid-Atlantic closure for 2 weeks in SA; open NA for 4 weeks  | 0/+ (GOM)<br>0/- (SA)<br>0 (NA) | - (GOM)<br>0/- (SA)<br>0/- (NA) |
| LCS No Action: 2007 3 <sup>rd</sup> season   | Close NA; open SA for 3 weeks; open GOM for 2 weeks  | 0 (GOM)<br>0 (SA)<br>0/+ (NA)   | 0/- (GOM)<br>0/- (SA)<br>- (NA) |
| 2. Merge 2 <sup>nd</sup> and 3 <sup>rd</sup> seasons in the SA ( <i>Preferred Alternative</i> )          | Merge 2 <sup>nd</sup> season SA quota (83.2 mt dw) with 3 <sup>rd</sup> season SA quota (80.5 mt dw)                                   | 0 (SA)                          | + (SA)                          |
| 3. Merge the 2 <sup>nd</sup> and the 3 <sup>rd</sup> seasons in the GOM ( <i>Preferred Alternative</i> ) | Merge the 2 <sup>nd</sup> season GOM quota (33.2 mt dw) with 3 <sup>rd</sup> season GOM quota (49.9 mt dw)                             | 0 (GOM)                         | + (GOM)                         |
| 4. SCS No Action: 2007 2 <sup>nd</sup> season  | Close GOM; open SA and NA on May 1, 2007   | 0/+ (GOM)<br>0 (SA)<br>0 (NA)   | - (GOM)<br>0 (SA)<br>0 (NA)     |
| Status Quo 2007 3 <sup>rd</sup> Season SCS   | Open GOM, SA and NA September 1, 2007  | 0 (GOM)<br>0 (SA)<br>0 (NA)     | 0 (GOM)<br>0 (SA)<br>0 (NA)     |
| 5. Transfer SCS SA underharvest to cover GOM overharvest   | Transfer GOM overharvest (41.2 mt dw) from SA to GOM to cover GOM baseline quota (15.1 mt dw)  | 0/- (GOM)<br>0 (SA)<br>0 (NA)   | + (GOM)<br>0/- (SA)<br>0 (NA)   |
| 6. Transfer SCS SA underharvest to GOM to cover overharvest, and give GOM additional quota               | Transfer GOM overharvest plus additional quota (41.2 mt dw + 15.1 mt dw) from SA to GOM to cover twice GOM baseline quota (30.2 mt dw) | 0/- (GOM)<br>0 (SA)<br>0 (NA)   | + (GOM)<br>0/- (SA)<br>0 (NA)   |

| <b>Alternative</b>   | <b>Description of Alternative</b>                                   | <b>Ecological Impacts</b>     | <b>Socio Economic Impacts</b> |
|--|---|-------------------------------|-------------------------------|
| 7. Reallocate SCS regional quota percentages and transfer SCS quota from SA to GOM<br><i>(Preferred Alternative)</i> | Change SCS quota % in SA from 87% to 49% and in GOM from 10% to 48% | 0/- (GOM)<br>0 (SA)<br>0 (NA) | + (GOM)<br>0/- (SA)<br>0 (NA) |

## **Literature Cited**

NMFS. 2006. Final Consolidated Atlantic Highly Migratory Species Fishery Management Plan. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Spring Spring, MD. Public Document. pp. 1600.

## **5.0 MITIGATION AND UNAVOIDABLE IMPACTS**

### **5.1 MITIGATING MEASURES**

The LCS preferred alternatives would mitigate adverse social and economic impacts associated with limited quota and short seasons. These alternatives merge the LCS 2007 second and third trimester seasons in the South Atlantic and Gulf of Mexico regions. This will allow for a continuous three week season beginning September 1, 2007 in the Gulf of Mexico region. The South Atlantic region would have a continuous season for just over four weeks, beginning July 15, 2007, that would help mitigate potential negative social and economic impacts of having two separate seasons lasting two and three weeks, respectively.

The SCS preferred alternative would mitigate potential negative social and economic impacts in the Gulf of Mexico associated with overharvest of their allocated quota. The change in regional quota percentages would allocate the SCS base quota of 454 mt dw based on recent landings in both the South Atlantic and Gulf of Mexico regions and split the available quota between the two regions. This should avoid overharvest of SCS in the Gulf of Mexico region and should not cause overharvest in the South Atlantic region.

### **5.2 Unavoidable Adverse Impacts**

As described above, the preferred alternatives are expected to have minimal ecological, economic, and/or social impacts. The reasons for selecting the preferred alternatives are outlined in the previous sections of this document. In considering the alternatives, NMFS preferred alternatives that would balance the economic and social impacts of reduced quotas and shortened seasons with the ecological impacts of reopening the mid-Atlantic shark closed area.

### **5.3 Irreversible and Irretrievable Commitment of Resources**

The preferred alternatives would not result in any irreversible or irretrievable commitments of resources. The preferred alternatives are not expected to have significant negative impacts on sea turtles or other protected resources.

## 6.0 ECONOMIC EVALUATION

This section assesses the economic impacts of the alternatives presented in this document. Additional economic and social considerations and information are discussed in Chapters 3, 4, 7, 8, and 9 of this document.

### 6.1 Number of Vessel and Dealer Permit Holders

In order to examine the baseline universe of entities potentially affected by the preferred alternatives, NMFS analyzed the number of permits that were issued as of January 2007 in conjunction with HMS fishing activities.

As of January 2007, there were a total of 549 commercial permit holders in the Atlantic shark fishery (235 directed and 314 incidental permits). Table 6.1 provides a summary of these permit holders by region. Further detail regarding commercial permit holders is provided in the HMS FMP.

**Table 6.1 Distribution of Shark Limited Access Permits (by address of permit) holder Between 2001 and 2007. Data for 2001-2005 are as of October 1 for each year. (NAT: North Atlantic, SAT: South Atlantic, FL: Florida, GOM: Gulf of Mexico)**

| Region/State  | # Directed Shark | # Incidental Shark |
|---------------|------------------|--------------------|
| NAT           | 49               | 72                 |
| SAT           | 28               | 31                 |
| FL            | 137              | 145                |
| GOM           | 16               | 53                 |
| No Vessel ID  | 5                | 13                 |
| <b>2007**</b> | <b>235</b>       | <b>314</b>         |
| <b>2006</b>   | <b>240</b>       | <b>312</b>         |
| <b>2005</b>   | <b>235</b>       | <b>320</b>         |
| <b>2004</b>   | <b>241</b>       | <b>348</b>         |
| <b>2003</b>   | <b>251</b>       | <b>359</b>         |
| <b>2002</b>   | <b>251</b>       | <b>376</b>         |

\* Number of permit holders in each category, and state, is subject to change as permits are renewed or expire.

\*\* Totals for 2007 are as of January, 2007

As of January 2007, there were a total of 253 Atlantic shark dealer permit holders. Table 6.2 provides a summary of shark dealer permit holders by region. Further detail regarding shark dealer permits holders is provided in the Final Consolidated HMS FMP. All dealer permit holders are required to submit reports detailing the nature of their business. For shark permit holders, dealers must submit bi-weekly dealer reports on all HMS they purchase. To facilitate quota monitoring “negative reports” for shark are also required from dealers when no purchases are made (*i.e.*, NMFS can determine who has not purchased fish versus who has neglected to report).

**Table 6.2** Number of shark and swordfish dealer permits issued in each state or country as of October 2001-2005. Permits for 2006 are as of February 1, 2006 and permits for 2007 are as of January 19, 2007. The actual number of permits per region may change as permit holders move or sell their businesses.

| Region/State/Country | Atlantic sharks |
|----------------------|-----------------|
| NAT                  | 60              |
| SAT                  | 40              |
| FL                   | 97              |
| GOM                  | 37              |
| Other                | 19              |
| <b>Totals 2007</b>   | <b>253</b>      |
| <b>2006</b>          | <b>336</b>      |
| <b>2005</b>          | <b>228</b>      |
| <b>2004</b>          | <b>230</b>      |
| <b>2003</b>          | <b>254</b>      |
| <b>2002</b>          | <b>267</b>      |

## 6.2 Gross Revenue of the Commercial Shark Fishermen

NMFS calculates gross revenues by combining current federal permit holders with their reported logbook landings for 2004. These landings are then multiplied by average prices (by region) for LCS flesh, LCS fins, and SCS flesh obtained from dealer reporting.

**Table 6.3** Estimates of the total ex-vessel annual revenues of Atlantic Shark HMS fisheries. Sources: Pelagic Dealer Compliance database.

| <b>Species</b>                                |                        | <b>1996</b>        | <b>1999</b>        | <b>2000</b>        | <b>2001</b>        | <b>2002</b>        | <b>2003</b>        | <b>2004</b>        | <b>2005</b> |
|---|------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------|
| Large coastal sharks                          | Ex-vessel \$/lb dw     | \$0.67             | \$0.76             | \$0.68             | \$0.91             | \$0.99             | \$0.78             | \$0.86             | \$0.40      |
|   | Weight lb dw           | 5,262,314          | 3,919,570          | 3,762,000          | 3,562,546          | 4,097,363          | 4,421,249          | 3,206,377          | N/A         |
|   | Fishery Revenue        | \$3,525,750        | \$2,950,102        | \$2,560,307        | \$3,256,955        | \$4,040,977        | \$3,437,521        | \$2,757,484        | N/A         |
| Pelagic sharks                                | Ex-vessel \$/lb dw     | \$1.05             | \$1.06             | \$1.09             | \$1.11             | \$0.99             | \$1.04             | \$1.12             | \$1.20      |
|   | Weight lb dw           | 695,531            | 400,821            | 215,005            | 362,925            | 303,666            | 616,967            | 450,833            | N/A         |
|   | Fishery Revenue        | \$730,308          | \$424,273          | \$233,650          | \$401,430          | \$299,487          | \$643,188          | \$504,933          | N/A         |
| Small coastal sharks                          | Ex-vessel \$/lb dw     | \$0.25             | \$0.51             | \$0.46             | \$0.79             | \$0.52             | \$0.43             | \$0.50             | \$0.55      |
|   | Weight lb dw           | 460,667            | 672,245            | 672,245            | 719,484            | 579,441            | 549,799            | 677,305            | 608,000     |
|   | Fishery Revenue        | \$115,167          | \$340,890          | \$309,926          | \$568,441          | \$299,023          | \$236,414          | \$338,653          | \$334,400   |
| Shark fins (weight = 5% of all sharks landed) | Ex-vessel \$/lb dw     | \$6.01             | \$7.43             | \$10.47            | \$19.67            | \$19.87            | \$17.09            | \$16.25            | \$15.00     |
|   | Weight lb dw           | 320,926            | 249,632            | 232,462            | 232,248            | 249,024            | 279,401            | 216,726            | N/A         |
|   | Fishery Revenue        | \$218,561          | \$1,854,313        | \$2,434,344        | \$4,568,937        | \$4,949,056        | \$4,774,959        | \$3,521,793        | N/A         |
| <b>Total sharks</b>                           | <b>Fishery Revenue</b> | <b>\$4,589,786</b> | <b>\$5,569,578</b> | <b>\$5,538,227</b> | <b>\$8,795,763</b> | <b>\$9,588,545</b> | <b>\$9,092,082</b> | <b>\$7,112,863</b> | <b>N/A</b>  |

N/A Not available yet.

Of all Atlantic HMS, sharks bring in the lowest total gross revenues (~\$7.1 million total in 2004). If gross revenues for directed permit holders is averaged across the approximately 138 active directed shark permit holders, then the average annual gross revenues per shark fishing vessel is just over \$50,000.

Tables 6.4 through 6.6 provide data on the prices shark fishermen received at the dock. Median values for ex-vessel prices from the HMS Dealer reporting forms submitted to the NMFS Southeast Regional Office (SERO) were used to avoid biases introduced by outliers associated with data reporting and entry errors. Table 6.4 reports ex-vessel prices by region, shark complex, and year. Table 6.5 provides a further breakdown by season, and finally Table 6.6 provides a summary of the overall median ex-vessel price adjusted for inflation (reported December 2006 real dollars using the Consumer Price Index) for the entire period from 2002 to 2006.

The ex-vessel price data indicates fairly stable ex-vessel prices since 2003, except for a temporary decline in 2004 in both the South Atlantic and Gulf of Mexico regions. Shark fin ex-vessel prices have steadily climbed in the Gulf of Mexico region from 2002 to 2006, but the same steady increase has not occurred in the South Atlantic region. Ex-vessel prices for both LCS and shark fins do not appear to display a strong seasonal pattern. Comparing real ex-vessel prices per pound dress weight (\$/lb dw) from 2003 to 2006 to the second trimester of 2006, South Atlantic regional LCS median ex-vessel prices were \$0.48 and \$0.40, respectively and shark fin ex-vessel prices were \$12.28 and \$10.00, respectively. In the Gulf of Mexico region, the 2003 to 2006 median real LCS ex-vessel price was \$0.44 and, for the second trimester of 2006, it was \$0.40, while the 2002 to 2005 median price for shark fins was \$17.05 and, for the second trimester of 2006, it was \$13.00. Based on these observations, it appears reasonable to use the average real prices for 2003 through 2006 to analyze potential changes to the fishery in 2007, since those prices are consistent with prices from 2006 and the three year median smoothes out temporary fluctuations in market prices.

**Table 6.4 Ex-vessel prices per pound dw by region, shark complex and year. Source: HMS Dealer reports submitted to the South East Regional Office (SERO).**

|                       |                             | <b>Year</b> |         |         |         |         |
|-----------------------|-----------------------------|-------------|---------|---------|---------|---------|
| <b>Region</b>         | <b>Shark Complex</b>        | 2002        | 2003    | 2004    | 2005    | 2006    |
| <b>South Atlantic</b> | <b>Large coastal sharks</b> | \$0.50      | \$0.48  | \$0.40  | \$0.50  | \$0.40  |
|                       | <b>Pelagic sharks</b>       | \$1.35      | \$1.25  | \$1.25  | \$1.28  | \$1.50  |
|                       | <b>Shark fins</b>           | \$12.00     | \$12.00 | \$10.00 | \$12.00 | \$12.00 |
|                       | <b>Small coastal sharks</b> | \$0.50      | \$0.50  | \$0.68  | \$0.70  | \$0.70  |
| <b>Gulf of Mexico</b> | <b>Large coastal sharks</b> | \$0.40      | \$0.40  | \$0.30  | \$0.48  | \$0.40  |
|                       | <b>Pelagic sharks</b>       | \$1.00      | \$1.00  | \$1.05  | \$1.00  | \$1.13  |
|                       | <b>Shark fins</b>           | \$14.50     | \$15.00 | \$16.00 | \$17.00 | \$17.00 |
|                       | <b>Small coastal sharks</b> | \$0.30      | \$0.40  | \$0.37  | \$0.45  | \$0.50  |

**Table 6.5 Ex-vessel prices per pound dw by season. Source: HMS Dealer reports submitted to SERO.**

|             |                | <b>Region</b>         |            |                   |                       |            |                   |
|-------------|----------------|-----------------------|------------|-------------------|-----------------------|------------|-------------------|
|             |                | <b>South Atlantic</b> |            |                   | <b>Gulf of Mexico</b> |            |                   |
| <b>Year</b> | <b>Season*</b> | <b>LCS</b>            | <b>SCS</b> | <b>Shark fins</b> | <b>LCS</b>            | <b>SCS</b> | <b>Shark fins</b> |
| 2003        | 1              | \$0.50                | 0.50       | \$14.00           | \$0.45                | 0.40       | \$15.00           |
|             | 2              | \$0.40                | 0.50       | \$13.00           | \$0.35                | 0.30       | \$14.51           |
| 2004        | 1              | \$0.40                | 0.70       | \$10.00           | \$0.31                | 0.39       | \$16.55           |
|             | 2              | \$0.40                | 0.60       | \$11.00           | \$0.25                | 0.37       | \$16.00           |
| 2005        | 1              | \$0.60                | 0.75       | \$12.00           | \$0.40                | 0.50       | \$17.00           |
|             | 2              | \$0.50                | 0.75       | \$12.00           | \$0.50                | 0.40       | \$17.00           |
|             | 3              | \$0.50                | 0.65       | \$12.00           | \$0.49                | 0.50       | \$17.00           |
| 2006        | 1              | \$0.45                | 0.75       | \$14.00           | \$0.45                | 0.55       | \$17.25           |
|             | 2              | \$0.40                | 0.75       | \$10.00           | \$0.40                | 0.50       | \$13.00           |
|             | 3              | \$0.45                | 0.60       | \$8.00            | \$0.40                | 0.50       | \$17.00           |

\*There were only 2 semiannual seasons in years prior to 2005. Starting in 2005, trimester seasons were established.

**Table 6.6 Median price per pound dw (2003-2006 in real Dec. 2006 dollars adjusted by the CPI-U) Source: HMS Dealer Reports submitted to SERO and Bureau of Labor Statistics CPI data.**

| <b>Species complex</b> | <b>South Atlantic</b> | <b>Gulf of Mexico</b> |
|------------------------|-----------------------|-----------------------|
| <b>LCS</b>             | \$0.48                | \$0.44                |
| <b>Shark fins</b>      | \$12.28               | \$17.05               |
| <b>Pelagic sharks</b>  | \$1.36                | \$1.10                |
| <b>SCS</b>             | \$0.67                | \$0.44                |

### **6.3 Variable Costs and Net Revenues of Commercial Shark Fishermen**

In 2003, NMFS initiated mandatory cost-earnings reporting for selected vessels to improve the economic data available for all HMS fisheries. In the past, most of the studies regarding PLL variable costs and net revenues available to NMFS analyzed dated data from 1996 and 1997. The HMS FMP provides a summary of several past studies on the variable costs and net revenues of longline fleets.

An analysis of the 2004 HMS logbook cost-earnings data provides updated information regarding the costs and revenue of a cross section of vessels operating in the HMS fisheries. The data contains a total of 579 trips taken by 51 different vessels. As described in Larkin *et al.* (2000), median values are reported. Median gross revenues per trip for 2004 were approximately \$12,112. Median total costs per trip were \$4,345 (compared to \$3,320 in the Larkin *et al.* (2000) study), with fuel costs making up \$567 (13 percent) of those costs. Median net revenue in this sample was \$6,728 per trip (compared to \$8,624 in the Larkin *et al.* (2000) study). The typical trip was nine days long and involved six sets. The median number of crew was three and the average share paid to crew was 11 percent of net revenue (\$740 per trip). The captain share of net revenue was 20 percent (\$1,346) and the owner share was reported to be 50 percent (\$3,364). The 2004 cost earnings information is similar to the findings of the 1996 study, but gross revenues appear to be lower than the Porter *et al.* (2001) study of 1997 operations.

### **6.4 Expected Economic Impacts of Quota Adjustment Alternatives to Address the Overharvest of LCS and SCS**

For the final rule, NMFS considered seven alternatives to address the overharvest of LCS and SCS in the South Atlantic and Gulf of Mexico regions during the second and third trimesters of 2006 and other relevant issues. The expected economic impacts of the three LCS quota adjustment alternatives and the four SCS quota adjustment alternatives are discussed below.

#### Alternatives Considered for LCS

Alternative 1 is considered the no action alternative since it would maintain existing procedures for addressing regional trimester over- and underharvests of LCS when establishing the regional quotas and seasons for the second and third trimesters of 2007 and it would also open the mid-Atlantic shark closed area in July, subject to available quota for the second trimester in 2007. This alternative is not preferred in part because it would result in negative economic impacts for the South Atlantic region and Gulf of Mexico region, compared to the preferred alternative.

The no action alternative does not create any new economic burdens on the shark commercial industry that was not included in previous rulemaking. Regardless, the unexpected magnitude of the 2006 second trimester overharvest would result in no commercial fishing for LCS in the entire Gulf of Mexico region during the second trimester of 2007 since the available adjusted quota would be taken in approximately two days. Furthermore, overharvest during the second trimester in 2006 in the South Atlantic region would result in a reduced second trimester

quota of 83.2 mt dw and therefore the fishing season would be adjusted and shortened to last only from July 6 to July 20, 2007.

If not for the overharvest in 2006, the second trimester quota allocation would have been 138.9 mt of LCS in the South Atlantic region. Instead, the adjusted quota under this alternative would be 83.2 mt dw, which is 55.7 mt dw less than it would have been under the base quota allocation. To estimate the value of changes in revenues from the 2007 available quota, the median ex-vessel prices from 2003 to 2006 for each region were used to forecast 2007 shark prices since this multi-year average smoothes out temporary market fluctuations. Using a median ex-vessel price of \$0.48 per pound dressed weight of LCS and \$12.28 per pound for shark fin reported HMS dealer reports from 2003 to 2006 for the South Atlantic region and adjusted for inflation, the value of the 55.7 mt dw reduction from the baseline quote allocation would have been approximately \$55,996 for LCS flesh (95 percent of the quota weight) and \$75,398 for shark fins (based on the 5 percent shark fin to carcass regulation). Therefore, the 2006 overharvest is estimated to have a direct revenue impact on South Atlantic regional commercial shark fishing activity of approximately \$131,393. The 2006 overharvest resulted in fishermen receiving more revenue in the 2006 second trimester than previously expected. Since the actual prices received for the 2006 second trimester are available, those prices were used to calculate the "extra" revenues generated from the overharvest in the second trimester of 2006. Using the median ex-vessel prices for the second trimester of 2006 of \$0.40 and \$10.00 for LCS flesh and shark fins, respectively, for the South Atlantic region, the estimated revenue for the second trimester in 2006 from the 55.7 mt dw in overharvest was \$108,162. Due to the extra landings in 2006, a shortened second trimester for 2007 would result in disrupted revenue flows and result in negative economic impacts.

If not for the overharvest in the second trimester of 2006 in the Gulf of Mexico region, the second trimester quota available would have been 176.1 mt of LCS in the Gulf of Mexico region. However, due to the overharvest, the adjusted quota is 33.2 mt for LCS. Because of the small size of this quota, no fishing season is feasible due to safety at sea concerns and potential derby fishing conditions. Using a median ex-vessel price of \$0.44 for LCS and \$17.05 for shark fin reported HMS dealer reports from 2003 to 2006 for the Gulf of Mexico region and adjusted for inflation, the value of the 176.1 mt dw baseline quota for the second trimester of 2007 is approximately \$162,282 for LCS fresh (95 percent of the quota weight) and \$330,969 for shark fins (based on the 5 percent shark fin to carcass regulation). Therefore, the 2006 overharvest is estimated to have a direct revenue impact on Gulf of Mexico regional commercial shark fishing activity of approximately \$493,251. Using the median ex-vessel prices for the second trimester of 2006 of \$0.40 and \$13.00 for LCS flesh and shark fins, respectively, for the Gulf of Mexico region, the estimated revenue for the second trimester in 2006 from the 142.9 mt dw (176.1 - 33.2 mt dw) in overharvest was \$324,491. However, a closure during the second trimester of 2007 would result in disrupted revenue flows and result in negative economic impacts.

The quota for the second trimester of 2007 is not impacted by overharvests in the North Atlantic region. However, in the 2007 third trimester, the North Atlantic region would be closed to fishing because of overharvest in the third trimester of 2006. The base quota allocation for the third trimester would have been 5.7 mt dw if not for the overharvest. Using an average between the median ex-vessel price in the South Atlantic and the Gulf of Mexico regions from 2003 to

2006 adjusted for inflation, the approximate value of this quota allocation would have been \$14,709. This minor economic impact is offset by the revenue received from the 2.5 mt dw overharvest in the 2006 third trimester worth \$6,451. However, it should also be noted that the third season was closed in 2006.

During the third trimester of 2006, there was also an overharvest in the South Atlantic region. This resulted in the base quota allocation being reduced from 138.9 mt dw to an adjusted quota of 80.5 mt dw for the third trimester. Using a similar calculation as before, the economic impact of the overharvest would be a reduced third quarter value of revenues of approximately \$137,762. The 2006 overharvest resulted in fishermen receiving more revenue in the 2006 second trimester than previously expected. Using the median ex-vessel prices for the third trimester of 2006 of \$0.45 and \$8.00 for LCS flesh and shark fins, respectively, for the South Atlantic region, the estimated revenue for the third trimester in 2006 from the 58.4 mt dw in overharvest was \$100,425.

During the third trimester of 2006, there was also an overharvest in the Gulf of Mexico region. This resulted in the base quota allocation being reduced from 176.1 mt dw to an adjusted quota of 49.9 mt dw for the third trimester. Using a similar calculation as above, the economic impact of the overharvest would be a reduced third quarter value of revenues of approximately \$353,482. The 2006 overharvest resulted in fishermen receiving more revenue in the 2006 second trimester than previously expected. Using the median ex-vessel prices for the third trimester of 2006 of \$0.40 and \$17.00 for LCS flesh and shark fins, respectively for the Gulf of Mexico region, the estimated revenue for the third trimester in 2006 from the 126.2 mt dw in overharvest was \$342,214. Despite this extra revenue in 2006, a shortened third trimester for 2007 would result in disrupted revenue flows and result in negative economic impacts.

Overall, the economic impact of reduced 2007 LCS quota for the South Atlantic, Gulf of Mexico, and North Atlantic regions for the second and third trimesters of 2007 would result in a total economic impact of \$1,130,597 in reduced revenues. However, this is partially offset by the extra revenues, estimated to be worth \$881,644, generated in the second and third trimesters of 2006 as a result of the extensive LCS overharvest. Some of the impacts from these reduced revenues might be mitigated somewhat for vessels that can fish in other regions or fisheries. However, these opportunities will likely be limited and result in additional costs associated with adjusting current fishing practices.

Alternative 2, the modified preferred alternative, which would merge the second trimester season in the South Atlantic region with the third trimester season quota in the South Atlantic region, could minimize the economic costs associated with the South Atlantic regional overharvest. The 83.2 mt dw adjusted quota for the second trimester would be combined with the 80.5 mt dw adjusted quota for the third trimester in the South Atlantic to provide a combined 163.7 mt dw season starting on July 15, 2007, that is would remain open until August 15, 2007.

There does not appear to be any significant seasonality to LCS and shark fin ex-vessel prices. Therefore, revenues under this alternative would likely be at least the same as having two separate seasons. The combined seasons under the modified alternative 2, would provide for a total of just over four weeks to fish the LCS quota in the South Atlantic region versus five weeks

(split into two seasons) under the no action alternative. This continuous season would afford more flexibility in addressing market conditions for LCS, and thus potentially allow for greater profits. Starting the season in July opens the mid-Atlantic shark closure to the South Atlantic region. This could have positive economic benefits, especially since catch rates have been historically higher in July than in August. The positive aspects of merging the two seasons include reduced operating costs since fishermen will only need to prepare the vessel once instead of twice and they are more likely to have a viable market for LCS given the season is longer.

Alternative 3 is similar to Alternative 2 in that it merges the second trimester season with the third trimester season quota, but is instead for the Gulf of Mexico region. The merged season would combine the second trimester season quota of 33.2 mt dw with the third trimester season quota of 49.9 mt dw to create a three week long season starting September 1, 2007, that would have 83.1 mt dw of quota. This preferred alternative would have the benefit of extending the third season by one week versus under Alternative 1. Since Alternative 3 has the same start date as Alternative 1, there would not be any impact on that portion of the Gulf of Mexico region. Alternative 3 also allows the 33.2 mt dw quota of the second season to be fished. Under Alternative 1, the season for that 33.2 mt dw of quota would have been closed. Using a median ex-vessel price of \$0.44 for LCS and \$17.05 for shark fin reported HMS Dealer reports from 2003 to 2006 for the Gulf of Mexico region and adjusted for inflation, the value of harvesting this 33.2 mt dw of quota would be approximately \$92,992 in revenue. In addition, by providing for a three week combined fishing season, this alternative would afford more flexibility in addressing market conditions for LCS.

#### Alternatives Considered for SCS

Alternative 4 is considered the no action alternative since it would maintain existing procedures for addressing regional trimester over- and underharvests for SCS when establishing the regional quotas and seasons for the second and third trimesters of 2007. No change in economic impacts would be realized in the North Atlantic and South Atlantic regions since that region would be open, with ample quota, throughout the entire second and third trimesters of 2007 under the status quo. This alternative is not preferred, as it would result in greater negative economic impacts for the Gulf of Mexico region, compared to the preferred alternative.

The no action alternative would not create any new economic burdens on the SCS commercial industry that were not included in previous rulemaking. Regardless, the size of the 2006 second trimester overharvest in the Gulf of Mexico region would result in no commercial fishing for SCS in the entire Gulf of Mexico region during the second trimester of 2007. Even after a ten percent quota transfer from the South Atlantic second season underharvest, the 25.87 mt dw of transferred quota is not sufficient to address the 41.2 mt dw of overharvest in the Gulf of Mexico region during the second trimester season of 2006.

If not for the overharvest in 2006, the 2007 second trimester quota allocation would have been 15.1 mt dw of SCS in the Gulf of Mexico region. Instead, the adjusted quota under Alternative 4 would be negative 26.1 mt dw resulting in a closed fishing season. Using a median ex-vessel price of \$0.44 per pound dw for SCS and \$17.05 per pound for shark fin reported HMS dealer reports from 2003 to 2006 for the Gulf of Mexico region and adjusted for inflation, the

value of this harvest (15.1 mt dw) would have been approximately \$13,915 for SCS flesh (95 percent of the quota weight) and \$28,380 for shark fins (based on the 5 percent shark fin to carcass regulation). Therefore, the 2006 overharvest is estimated to have a direct revenue impact on the 2007 second and third trimesters in the Gulf of Mexico regional commercial shark fishing activity of approximately \$42,295. The 2006 overharvest resulted in fishermen receiving more revenue in the 2006 second trimester than previously expected.

Alternative 5 would transfer a portion of the South Atlantic's regional 2007 second trimester SCS underharvest (41.2 mt dw) to the Gulf of Mexico region to cover the Gulf of Mexico's regional 2006 second trimester overharvest. The Gulf of Mexico would then have the equivalent of their base quota of 15.1 mt dw for the 2007 second trimester. This would eliminate the economic impact of a closure in the Gulf of Mexico region in 2007 unlike under the no action alternative. This additional quota transfer would likely not provide enough quota to prevent an overharvest during the 2007 second trimester. The South Atlantic region would still have an adjusted third trimester quota of 349 mt dw, which is much greater than the amount that region actually harvested in the second season of 2006. The only economic impacts would come from potential future impacts to the South Atlantic region as a result of the 41.2 mt dw transfer of their underharvest to the Gulf of Mexico region if, in the future, the South Atlantic harvests more SCS than is accommodated by their lowered adjusted quota.

Alternative 6 would transfer a portion of the South Atlantic's regional 2007 second trimester SCS underharvest (41.2 mt dw) to the Gulf of Mexico region to cover the Gulf of Mexico's regional 2006 second trimester SCS overharvest as well as give the Gulf of Mexico region additional SCS quota of 15.1 mt dw from the South Atlantic region for a total of 30.2 mt dw for the 2007 second trimester. This additional quota transfer would likely not provide enough quota to prevent an overharvest during the 2007 second trimester. However, this additional quota (15.1 mt dw) would provide the Gulf of Mexico region with an additional \$42,294 in potential revenue from SCS. It would also further reduce the underharvest carry forward of SCS in the South Atlantic as a result of the larger transfer. There could be future economic impacts in the South Atlantic region if SCS catches increase in that region in the future.

Alternative 7 would take a different approach. Under Alternative 7, NMFS would reallocate the SCS regional quota percentages in the South Atlantic region from 87 percent to 49 percent and in the Gulf of Mexico region from 10 percent to 48 percent for both the 2007 second and third trimester seasons and in the future. In addition, there would also be transfer of underharvest in the South Atlantic regional 2007 second trimester quota to cover the Gulf of Mexico's regional second trimester overharvest. This alternative is the preferred alternative.

There would be no change in the total base quota available for all regions in the second and third trimester season under this alternative. The adjusted 2007 second and third trimester regional quota would stay the same for the North Atlantic region. The key change would involve the quota amounts for South Atlantic and Gulf of Mexico regions. The 2007 second trimester quota in the South Atlantic region would decrease from 390.2 mt dw (Alternative 4) to 291.6 mt dw of SCS and the 2007 third trimester quota would decrease from 354.9 mt dw (Alternative 4) to 297.5 mt dw. Using the 2003 to 2006 median ex-vessel prices of \$0.67 lbs dw for flesh and

the 2003 to 2006 median ex-vessel prices for shark fin of \$12.28 for SCS in the South Atlantic region, there would be a decrease of \$200,425 in potential revenues for the 2007 second trimester season and a \$158,245 decrease in potential revenues in the 2007 third trimester season. However, it should be noted that the South Atlantic region has not harvested SCS in amounts approaching even these lowered trimester quota levels in the past few years. Under this alternative, the regional quotas for the South Atlantic region for the 2007 second and third seasons are 291.6 mt dw, and 297.5 mt dw which is 64.2 percent and 65.5 percent of the total annual quota for SCS, respectively.

The 2007 second trimester quota in the Gulf of Mexico region would go from closed under the Alternative 4 (No Action) scenario in the second trimester season to 72.6 mt dw of SCS under this alternative. In addition, the 2007 third trimester quota would increase from 22.9 mt dw to 80.4 mt dw. Using the 2003 to 2006 median ex-vessel prices of \$0.44 lbs dw and the 2003 to 2006 median ex-vessel prices for shark fin of \$17.05 for SCS in the Gulf of Mexico region, there would be an increase of \$203,350 in potential revenues for the second trimester season and \$161,506 increase in potential revenues in the third trimester season for the Gulf of Mexico region. This reallocation of quota would allow the SCS fishery to remain open in the Gulf of Mexico region and would prevent future overharvest of quota in that region while not leading to an overharvest in the South Atlantic region.

Overall, Alternative 7 would increase revenues for SCS by transferring quota from a region of underharvest to a region that is currently overharvesting their SCS quota. The reallocation of regional quota percentages would provide greater regional equity in future base quota allocations. This would help mitigate overharvesting of the quota in the Gulf of Mexico region. However, there could be future impacts to the South Atlantic region as a result of the reallocation of the SCS regional quota percentage to the Gulf of Mexico region if in the future the South Atlantic harvests more than this lower regional quota allocation percentage.

### **Literature Cited**

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## **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 impact statement (EIS). 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 these management actions.

## **7.2 Description of the Fishery**

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

## **7.3 Statement of the Problem**

Please see Chapter 1 for a description of the problem and need for these management actions.

## **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. Chapter 6 and 8 provide additional information related to the impacts of the alternatives.

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

**Table 7.1** Net Economic Benefits and Costs of Alternatives

| Alternatives   | Net Economic Benefits   | Net Economic Costs  |
|--|---|---|
| <p>Alternative 1<br/>Maintain existing procedures for addressing regional trimester over- and underharvests when establishing the regional quotas and seasons for the 2nd and 3rd trimesters of 2007; open the mid-Atlantic shark closed area in July 2007, subject to available quota for the second trimester in 2007 (No Action).</p> | <p>The 2<sup>nd</sup> trimester season for the North Atlantic is open as usual. The South Atlantic is open as expected in July and the Mid-Atlantic shark area is open.</p> <p>In the 3<sup>rd</sup> trimester season, both the South Atlantic and Gulf of Mexico regions are open for short seasons.</p> | <p>During the 2<sup>nd</sup> trimester, the South Atlantic would only be open for two weeks in July and the Gulf of Mexico would be closed to LCS fishing. Normally expected revenues from the base quota allocation would be reduced by approximately \$131,393 in the South Atlantic and \$493,251 in the North Atlantic due to quota adjustment associated with 2006 overharvest of LCS.</p> <p>During the 3<sup>rd</sup> trimester, the North Atlantic will be closed, the South Atlantic would have a three week fishing season and the Gulf of Mexico would have a two week fishing season. Normally expected revenues from the base quota allocation would be reduced by approximately \$14,709 in the North Atlantic, 137,762 in the South Atlantic, and \$353,482 in the Gulf of Mexico due to quota adjustment associated with 2006 overharvest of LCS.</p> <p>These reduced revenues for 2007 are offset somewhat by the increased revenues from the 2006 overharvest.</p> |
| <p>Alternative 2<br/><i>Merge the 2nd trimester season quota (83.2 mt dw) in the South Atlantic region with the 3rd trimester season quota (80.5 mt dw) in the South Atlantic for a total of 163.70 mt dw and open the combined season on July 15, 2007 (Preferred Alternative).</i></p>   | <p>The combined seasons would provide for a total of 4 weeks to fish the LCS quota in the South Atlantic from July 15 – September 15, 2007 versus five weeks under the status quo. This would afford more flexibility in addressing market conditions for LCS.</p>  | <p>There could be impacts on business planning as result in the season starting July 15 versus the expected July 6 start date.</p>  |

| Alternatives   | Net Economic Benefits   | Net Economic Costs  |
|--|---|---|
| <p>Alternative 3<br/> <i>Merge the 2nd trimester season quota (33.20 mt dw) in the Gulf of Mexico region with the 3rd trimester season quota (49.90 mt dw) in the Gulf of Mexico for a total of 83.1 mt dw and open the combined season on September 1, 2007 (Preferred Alternative).</i></p>                              | <p>The combined seasons would provide for a total of three weeks to fish the LCS quota in the Gulf of Mexico from September 1 – September 22, 2007, versus two weeks under the status quo. This would afford more flexibility in addressing market conditions for LCS. In addition, the ability to fish the small 33.2 mt dw quota from the 2<sup>nd</sup> trimester season under the combined season adds a potential increase in revenue of approximately \$92,992 in the Gulf of Mexico.</p> | <p>None</p>   |
| <p>Alternative 4<br/> Maintain existing procedures for addressing regional trimester over- and underharvests for SCS when establishing regional quotas for the 2nd and 3rd trimesters of 2007 (No Action).</p>   | <p>The South Atlantic region retains their entire underharvest providing for future opportunities for increased effort.</p>   | <p>No commercial fishing for SCS would be allowed for the Gulf of Mexico in the 2<sup>nd</sup> trimester. Normally expected revenues from the base quota allocation would be reduced by approximately \$42,294 in the Gulf of Mexico.</p> <p>Ten percent of the South Atlantic underharvest could be transferred to the Gulf of Mexico.</p> |
| <p>Alternative 5<br/> Transfer a portion of the South Atlantic's regional 2007 2nd trimester SCS underharvest to the Gulf of Mexico region to cover the Gulf of Mexico's regional 2006 2nd trimester SCS overharvest.</p>  | <p>Would allow for a 2<sup>nd</sup> trimester season for the Gulf of Mexico at their baseline quota.</p>  | <p>There could be future impacts to the South Atlantic region as a result of the transfer of 41.2 mt dw of their underharvest to the Gulf of Mexico if in the future the South Atlantic harvests more SCS than is accommodated by their lowered final adjusted quota.</p>   |
| <p>Alternative 6<br/> Transfer a portion of the South Atlantic's regional 2007 2nd trimester SCS underharvest to the Gulf of Mexico region to cover the Gulf of Mexico's regional 2006 2nd trimester SCS overharvest as well as give the Gulf of Mexico region additional SCS quota for the 2007 2nd trimester season.</p> | <p>Would allow for a 2<sup>nd</sup> trimester season for the Gulf of Mexico of 30.2 mt dw and thus provide an additional \$42,294 in potential revenues from SCS.</p>   | <p>There could be future impacts to the South Atlantic region as a result of the transfer of 56.3 mt dw of their underharvest to the Gulf of Mexico if in the future the South Atlantic harvests more SCS than is accommodated by the lowered final adjusted quota..</p>  |

| <b>Alternatives</b>   | <b>Net Economic Benefits</b>  | <b>Net Economic Costs</b>   |
|---|---|---|
| <p>Alternative 7<br/> <i>Reallocate the SCS regional quota percentages in the South Atlantic region from 87% to 49% and in the Gulf of Mexico region from 10% to 48%; transfer a portion of the South Atlantic's regional 2007 2nd trimester SCS underharvest to the Gulf of Mexico region to cover the Gulf of Mexico's regional 2006 2nd trimester SCS overharvest (Preferred Alternative).</i></p> | <p>The reallocation of regional quota percentages would provide greater regional equity in future base quota allocations. This would help mitigate overharvesting of the quota in the Gulf of Mexico.</p> <p>The opening of the 2007 second trimester for the Gulf of Mexico would generate a potential \$203,250 in SCS revenues in the 2<sup>nd</sup> trimester. The increase in quota for the 3<sup>rd</sup> trimester would result in approximately \$161,506 increase in potential revenues in the Gulf of Mexico.</p> | <p>There could be future impacts to the South Atlantic region as a result of the reallocation of the SCS regional quota percentage to the Gulf of Mexico if in the future the South Atlantic harvests more SCS than this proposed lower regional quota allocation percentage. The potential revenue value of the reduced quota for the South Atlantic would be \$358,670 for both the 2<sup>nd</sup> and 3<sup>rd</sup> trimesters.</p> |

## **7.6 Conclusions**

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; and (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the legal mandates, the President’s priorities, or the principles set forth in the Executive Order. The preferred alternatives described in this document do not meet the above criteria. Therefore, under E.O. 12866, the preferred alternatives 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, which are based on supporting text in Chapters 4 and 6, can be found in Table 7.1.

## **8.0 FINAL REGULATORY FLEXIBILITY ANALYSIS**

The Final Regulatory Flexibility Analysis (FRFA) is conducted to comply with the Regulatory Flexibility Act (5 USC 601 et. seq.) and provides analysis of the economic impacts of the various alternatives on small entities. Certain elements required in a FRFA are also required as part of an environmental impact statement (EIS). Therefore, the FRFA incorporates the economic impacts identified in the EA.

### **8.1 Statement of the Need for and Objectives for this Final Rule**

Please see Chapter 1 for a description of the need and objectives for the final rule.

### **8.2 A Summary of the Significant Issues Raised by the Public Comments in Response to the Initial Regulatory Flexibility Analysis, a Summary of the Assessment of the**

## **Agency of Such Issues, and a Statement of Any Changes Made in the Rule as a Result of Such Comments**

NMFS received several comments on the proposed rule and draft EA during the public comment period. A summary of these comments and the Agency's responses are included in an appendix to this document and will be included in the final rule. NMFS did not receive any comments specific to the Initial Regulatory Flexibility Analysis (IRFA). NMFS received an economic comment regarding the overlap of the shark fishery with the lobster fishery in the South Atlantic region, that stated that the July 6<sup>th</sup> opening in the South Atlantic region would be better than the August 1<sup>st</sup> opening because the spiny lobster fishery opens August 1<sup>st</sup>. Specifically these commenters felt that a July opening would avoid gear conflicts with spiny lobster traps and would allow spiny lobster fishermen to fish for sharks even if it was a two week season.

As a result of comments received regarding concerns over the August 1<sup>st</sup> opening date in the South Atlantic region as proposed in the preferred LCS alternative 2, NMFS will modify the opening date for the preferred LCS alternative in the South Atlantic region in the final rule. Based on the average July and August LCS catch rates in the South Atlantic region, NMFS calculates that approximately 69.6 percent of the merged second and third season quota (163.7 mt dw) would likely be taken by the second week of August. Historic Dealer data also indicate that, on average, approximately 2.3 percent of available quota is taken during a closure from May through August. If the catch rates in 2007 are similar to average catch rates in the second and third season from 2003-2006 and landings after a closure remain consistent, 71.9 percent (69.6 percent + 2.3 percent) of the merged second and third trimester quota would be caught by the second week of August, and 105.6 percent (103.3 percent + 2.3 percent) would be taken by the third week of August. Therefore, the combined second and third trimester season in the South Atlantic region would be open for four and a half weeks. NMFS is closing the merged season on August 15, when only 71.9 percent of the available quota will likely be taken to avoid overharvest that may occur due to potential increased effort in the South Atlantic region because this region is currently closed.

### **8.3 Description and Estimate of the Number of Small Entities to Which the Final Rule Will Apply**

NMFS considers all HMS permit holders to be small entities because they either had gross receipts less than \$3.5 million for fish-harvesting, gross receipts less than \$6.0 million for charter/party boats, or 100 or fewer employees for wholesale dealers. These are the SBA size standards for defining a small versus large business entity in this industry. A description of the fisheries affected and the categories and number of permit holders can be found in Chapter 6.

#### **8.4 Description of the Projected Reporting, Record-Keeping, and Other Compliance Requirements of the Final 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 alternatives considered for this proposed rule would result in additional reporting, record-keeping, and compliance requirements that would require new Paperwork Reduction Act filings.

#### **8.5 Description of the Steps the Agency Has Taken to Minimize the Significant Economic Impact on Small Entities Consistent with the Stated Objectives of Applicable Statutes, Including a Statement of the Factual, Policy, and Legal Reasons for Selecting the Alternative Adopted in the Final Rule and the Reason That Each One of the Other Significant Alternatives to the Rule Considered by the Agency Which Affect Small Entities Was Rejected**

One of the requirements of an FRFA is to describe any alternatives to the final rule which accomplish the stated objectives and which minimize any significant economic impacts. These impacts are discussed below and in Chapters 4 and 6 of this document. Additionally, the Regulatory Flexibility Act (5 U.S.C. § 603 (c) (1)-(4)) lists four general categories of “significant” alternatives that would assist an agency in the development of significant alternatives. These categories of alternatives 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; and,
4. Exemptions from coverage of the rule for small entities.

As noted earlier, NMFS considers all permit holders in this fishery to be small entities. In order to meet the objectives of this final rule, consistent with Magunson-Stevens Act and the Endangered Species Act (ESA), NMFS cannot exempt small entities or change the reporting requirements only for small entities. Thus, there are no alternatives discussed that fall under the first and fourth categories described above. In addition, none of the alternatives considered would result in additional reporting or compliance requirements (category two above). NMFS does not know of any performance or design standards that would satisfy the aforementioned objectives of this rulemaking while, concurrently, complying with the Magnuson-Stevens Act. As described below, NMFS analyzed seven different alternatives in this final rulemaking and provides justification for selection of the preferred alternatives to achieve the desired objective.

The alternatives included: maintain existing procedures for LCS quota management (alternative 1, No Action), merge the second trimester season quota with the third trimester season quota in the South Atlantic and open the combined season July 15, 2007 (modified

alternative 2), merge the second trimester season quota with the third trimester season quota in the Gulf of Mexico region and open the combined season September 1, 2007 (alternative 3), maintain the existing procedures for SCS quota management (alternative 4, No Action), transfer a portion of the South Atlantic's regional 2007 second trimester SCS underharvest to the Gulf of Mexico region (alternative 5), transfer a portion of the South Atlantic's regional 2007 second trimester SCS underharvest to the Gulf of Mexico region as well as give the Gulf of Mexico region additional SCS quota for the 2007 second trimester season (alternative 6), and reallocate the SCS regional quota percentages in the South Atlantic region from 87 percent to 49 percent and in the Gulf of Mexico region from 10 percent to 48 percent and transfer a portion of the South Atlantic's regional 2007 second trimester SCS underharvest to the Gulf of Mexico region (alternative 7). Merging the second and third trimester seasons for LCS for both the South Atlantic (alternative 2) and the Gulf of Mexico (alternative 3) regions and also reallocating the SCS regional quota percentages between the South Atlantic and Gulf of Mexico regions for the second and third trimesters while also transferring a portion of the South Atlantic's regional second trimester underharvest to the Gulf of Mexico (alternative 7) are the preferred alternatives.

#### Alternatives Considered for LCS

Alternative 1 is considered the no action alternative since it would maintain existing procedures for addressing regional trimester over- and underharvests of LCS when establishing the regional quotas and seasons for the second and third trimesters of 2007 and it would also open the mid-Atlantic shark closed area in July, subject to available quota for the second trimester in 2007. This alternative is not preferred in part because it would result in negative economic impacts for the South Atlantic region and Gulf of Mexico region, compared to the preferred alternative.

The no action alternative does not create any new economic burdens on the shark commercial industry that was not included in previous rulemaking. Regardless, the unexpected magnitude of the 2006 second trimester overharvest would result in no commercial fishing for LCS in the entire Gulf of Mexico region during the second trimester of 2007 since the available adjusted quota would be taken in approximately two days. Furthermore, overharvest during the second trimester in 2006 in the South Atlantic region would result in a reduced second trimester quota of 83.2 mt dw and therefore the fishing season would be adjusted and shortened to last only from July 6 to July 20, 2007.

If not for the overharvest in 2006, the second trimester quota allocation would have been 138.9 mt of LCS in the South Atlantic region. Instead, the adjusted quota under this alternative would be 83.2 mt dw, which is 55.7 mt dw less than it would have been under the base quota allocation. To estimate the value of changes in revenues from the 2007 available quota, the median ex-vessel prices from 2003 to 2006 for each region were used to forecast 2007 shark prices since this multi-year average smoothes out temporary market fluctuations. Using a median ex-vessel price of \$0.48 per pound dressed weight of LCS and \$12.28 per pound for shark fin reported HMS dealer reports from 2003 to 2006 for the South Atlantic region and adjusted for inflation, the value of the 55.7 mt dw reduction from the baseline quote allocation would have been approximately \$55,996 for LCS flesh (95 percent of the quota weight) and \$75,398 for shark fins (based on the 5 percent shark fin to carcass regulation). Therefore, the

2006 overharvest is estimated to have a direct revenue impact on South Atlantic regional commercial shark fishing activity of approximately \$131,393. The 2006 overharvest resulted in fishermen receiving more revenue in the 2006 second trimester than previously expected. Since the actual prices received for the 2006 second trimester are available, those prices were used to calculate the "extra" revenues generated from the overharvest in the second trimester of 2006. Using the median ex-vessel prices for the second trimester of 2006 of \$0.40 and \$10.00 for LCS flesh and shark fins, respectively, for the South Atlantic region, the estimated revenue for the second trimester in 2006 from the 55.7 mt dw in overharvest was \$108,162. Due to the extra landings in 2006, a shortened second trimester for 2007 would result in disrupted revenue flows and result in negative economic impacts.

If not for the overharvest in the second trimester of 2006 in the Gulf of Mexico region, the second trimester quota available would have been 176.1 mt of LCS in the Gulf of Mexico region. However, due to the overharvest, the adjusted quota is 33.2 mt for LCS. Because of the small size of this quota, no fishing season is feasible due to safety at sea concerns and potential derby fishing conditions. Using a median ex-vessel price of \$0.44 for LCS and \$17.05 for shark fin reported HMS dealer reports from 2003 to 2006 for the Gulf of Mexico region and adjusted for inflation, the value of the 176.1 mt dw baseline quota for the second trimester of 2007 is approximately \$162,282 for LCS fresh (95 percent of the quota weight) and \$330,969 for shark fins (based on the 5 percent shark fin to carcass regulation). Therefore, the 2006 overharvest is estimated to have a direct revenue impact on Gulf of Mexico regional commercial shark fishing activity of approximately \$493,251. Using the median ex-vessel prices for the second trimester of 2006 of \$0.40 and \$13.00 for LCS flesh and shark fins, respectively, for the Gulf of Mexico region, the estimated revenue for the second trimester in 2006 from the 142.9 mt dw (176.1 - 33.2 mt dw) in overharvest was \$324,491. However, a closure during the second trimester of 2007 would result in disrupted revenue flows and result in negative economic impacts.

The quota for the second trimester of 2007 is not impacted by overharvests in the North Atlantic region. However, in the 2007 third trimester, the North Atlantic region would be closed to fishing because of overharvest in the third trimester of 2006. The base quota allocation for the third trimester would have been 5.7 mt dw if not for the overharvest. Using an average between the median ex-vessel price in the South Atlantic and the Gulf of Mexico regions from 2003 to 2006 adjusted for inflation, the approximate value of this quota allocation would have been \$14,709. This minor economic impact is offset by the revenue received from the 2.5 mt dw overharvest in the 2006 third trimester worth \$6,451. However, it should also be noted that the third season was closed in 2006.

During the third trimester of 2006, there was also an overharvest in the South Atlantic region. This resulted in the base quota allocation being reduced from 138.9 mt dw to an adjusted quota of 80.5 mt dw for the third trimester. Using a similar calculation as before, the economic impact of the overharvest would be a reduced third quarter value of revenues of approximately \$137,762. The 2006 overharvest resulted in fishermen receiving more revenue in the 2006 second trimester than previously expected. Using the median ex-vessel prices for the third trimester of 2006 of \$0.45 and \$8.00 for LCS flesh and shark fins, respectively, for the South Atlantic region, the estimated revenue for the third trimester in 2006 from the 58.4 mt dw in overharvest was \$100,425.

During the third trimester of 2006, there was also an overharvest in the Gulf of Mexico region. This resulted in the base quota allocation being reduced from 176.1 mt dw to an adjusted quota of 49.9 mt dw for the third trimester. Using a similar calculation as above, the economic impact of the overharvest would be a reduced third quarter value of revenues of approximately \$353,482. The 2006 overharvest resulted in fishermen receiving more revenue in the 2006 second trimester than previously expected. Using the median ex-vessel prices for the third trimester of 2006 of \$0.40 and \$17.00 for LCS flesh and shark fins, respectively for the Gulf of Mexico region, the estimated revenue for the third trimester in 2006 from the 126.2 mt dw in overharvest was \$342,214. Despite this extra revenue in 2006, a shortened third trimester for 2007 would result in disrupted revenue flows and result in negative economic impacts.

Overall, the economic impact of reduced 2007 LCS quota for the South Atlantic, Gulf of Mexico, and North Atlantic regions for the second and third trimesters of 2007 would result in a total economic impact of \$1,130,597 in reduced revenues. However, this is partially offset by the extra revenues, estimated to be worth \$881,644, generated in the second and third trimesters of 2006 as a result of the extensive LCS overharvest. Some of the impacts from these reduced revenues might be mitigated somewhat for vessels that can fish in other regions or fisheries. However, these opportunities will likely be limited and result in additional costs associated with adjusting current fishing practices.

Alternative 2, the modified preferred alternative, which would merge the second trimester season in the South Atlantic region with the third trimester season quota in the South Atlantic region, could minimize the economic costs associated with the South Atlantic regional overharvest. The 83.2 mt dw adjusted quota for the second trimester would be combined with the 80.5 mt dw adjusted quota for the third trimester in the South Atlantic to provide a combined 163.7 mt dw season starting on July 15, 2007, that is would remain open until August 15, 2007.

There does not appear to be any significant seasonality to LCS and shark fin ex-vessel prices. Therefore, revenues under this alternative would likely be at least the same as having two separate seasons. The combined seasons under the modified alternative 2, would provide for a total of just over four weeks to fish the LCS quota in the South Atlantic region versus five weeks (split into two seasons) under the no action alternative. This continuous season would afford more flexibility in addressing market conditions for LCS, and thus potentially allow for greater profits. Starting the season in July opens the mid-Atlantic shark closure to the South Atlantic region. This could have positive economic benefits, especially since catch rates have been historically higher in July than in August. The positive aspects of merging the two seasons include reduced operating costs since fishermen will only need to prepare the vessel once instead of twice and they are more likely to have a viable market for LCS given the season is longer.

Alternative 3 is similar to Alternative 2 in that it merges the second trimester season with the third trimester season quota, but is instead for the Gulf of Mexico region. The merged season would combine the second trimester season quota of 33.2 mt dw with the third trimester season quota of 49.9 mt dw to create a three week long season starting September 1, 2007, that would have 83.1 mt dw of quota. This preferred alternative would have the benefit of extending the third season by one week versus under Alternative 1. Since Alternative 3 has the same start date

as Alternative 1, there would not be any impact on that portion of the Gulf of Mexico region. Alternative 3 also allows the 33.2 mt dw quota of the second season to be fished. Under Alternative 1, the season for that 33.2 mt dw of quota would have been closed. Using a median ex-vessel price of \$0.44 for LCS and \$17.05 for shark fin reported HMS Dealer reports from 2003 to 2006 for the Gulf of Mexico region and adjusted for inflation, the value of harvesting this 33.2 mt dw of quota would be approximately \$92,992 in revenue. In addition, by providing for a three week combined fishing season, this alternative would afford more flexibility in addressing market conditions for LCS.

### Alternatives Considered for SCS

Alternative 4 is considered the no action alternative since it would maintain existing procedures for addressing regional trimester over- and underharvests for SCS when establishing the regional quotas and seasons for the second and third trimesters of 2007. No change in economic impacts would be realized in the North Atlantic and South Atlantic regions since that region would be open, with ample quota, throughout the entire second and third trimesters of 2007 under the status quo. This alternative is not preferred, as it would result in greater negative economic impacts for the Gulf of Mexico region, compared to the preferred alternative.

The no action alternative would not create any new economic burdens on the SCS commercial industry that were not included in previous rulemaking. Regardless, the size of the 2006 second trimester overharvest in the Gulf of Mexico region would result in no commercial fishing for SCS in the entire Gulf of Mexico region during the second trimester of 2007. Even after a ten percent quota transfer from the South Atlantic second season underharvest, the 25.87 mt dw of transferred quota is not sufficient to address the 41.2 mt dw of overharvest in the Gulf of Mexico region during the second trimester season of 2006.

If not for the overharvest in 2006, the 2007 second trimester quota allocation would have been 15.1 mt dw of SCS in the Gulf of Mexico region. Instead, the adjusted quota under Alternative 4 would be negative 26.1 mt dw resulting in a closed fishing season. Using a median ex-vessel price of \$0.44 per pound dw for SCS and \$17.05 per pound for shark fin reported HMS dealer reports from 2003 to 2006 for the Gulf of Mexico region and adjusted for inflation, the value of this harvest (15.1 mt dw) would have been approximately \$13,915 for SCS flesh (95 percent of the quota weight) and \$28,380 for shark fins (based on the 5 percent shark fin to carcass regulation). Therefore, the 2006 overharvest is estimated to have a direct revenue impact on the 2007 second and third trimesters in the Gulf of Mexico regional commercial shark fishing activity of approximately \$42,295. The 2006 overharvest resulted in fishermen receiving more revenue in the 2006 second trimester than previously expected.

Alternative 5 would transfer a portion of the South Atlantic's regional 2007 second trimester SCS underharvest (41.2 mt dw) to the Gulf of Mexico region to cover the Gulf of Mexico's regional 2006 second trimester overharvest. The Gulf of Mexico would then have the equivalent of their base quota of 15.1 mt dw for the 2007 second trimester. This would eliminate the economic impact of a closure in the Gulf of Mexico region in 2007 unlike under the no action alternative. This additional quota transfer would likely not provide enough quota to prevent an overharvest during the 2007 second trimester. The South Atlantic region would still have an

adjusted third trimester quota of 349 mt dw, which is much greater than the amount that region actually harvested in the second season of 2006. The only economic impacts would come from potential future impacts to the South Atlantic region as a result of the 41.2 mt dw transfer of their underharvest to the Gulf of Mexico region if, in the future, the South Atlantic harvests more SCS than is accommodated by their lowered adjusted quota.

Alternative 6 would transfer a portion of the South Atlantic's regional 2007 second trimester SCS underharvest (41.2 mt dw) to the Gulf of Mexico region to cover the Gulf of Mexico's regional 2006 second trimester SCS overharvest as well as give the Gulf of Mexico region additional SCS quota of 15.1 mt dw from the South Atlantic region for a total of 30.2 mt dw for the 2007 second trimester. This additional quota transfer would likely not provide enough quota to prevent an overharvest during the 2007 second trimester. However, this additional quota (15.1 mt dw) would provide the Gulf of Mexico region with an additional \$42,294 in potential revenue from SCS. It would also further reduce the underharvest carry forward of SCS in the South Atlantic as a result of the larger transfer. There could be future economic impacts in the South Atlantic region if SCS catches increase in that region in the future.

Alternative 7 would take a different approach. Under Alternative 7, NMFS would reallocate the SCS regional quota percentages in the South Atlantic region from 87 percent to 49 percent and in the Gulf of Mexico region from 10 percent to 48 percent for both the 2007 second and third trimester seasons and in the future. In addition, there would also be transfer of underharvest in the South Atlantic regional 2007 second trimester quota to cover the Gulf of Mexico's regional second trimester overharvest. This alternative is the preferred alternative.

There would be no change in the total base quota available for all regions in the second and third trimester season under this alternative. The adjusted 2007 second and third trimester regional quota would stay the same for the North Atlantic region. The key change would involve the quota amounts for South Atlantic and Gulf of Mexico regions. The 2007 second trimester quota in the South Atlantic region would decrease from 390.2 mt dw (Alternative 4) to 291.6 mt dw of SCS and the 2007 third trimester quota would decrease from 354.9 mt dw (Alternative 4) to 297.5 mt dw. Using the 2003 to 2006 median ex-vessel prices of \$0.67 lbs dw for flesh and the 2003 to 2006 median ex-vessel prices for shark fin of \$12.28 for SCS in the South Atlantic region, there would be a decrease of \$200,425 in potential revenues for the 2007 second trimester season and a \$158,245 decrease in potential revenues in the 2007 third trimester season. However, it should be noted that the South Atlantic region has not harvested SCS in amounts approaching even these lowered trimester quota levels in the past few years. Under this alternative, the regional quotas for the South Atlantic region for the 2007 second and third seasons are 291.6 mt dw, and 297.5 mt dw which is 64.2 percent and 65.5 percent of the total annual quota for SCS, respectively.

The 2007 second trimester quota in the Gulf of Mexico region would go from closed under the Alternative 4 (No Action) scenario in the second trimester season to 72.6 mt dw of SCS under this alternative. In addition, the 2007 third trimester quota would increase from 22.9 mt dw to 80.4 mt dw. Using the 2003 to 2006 median ex-vessel prices of \$0.44 lbs dw and the 2003 to 2006 median ex-vessel prices for shark fin of \$17.05 for SCS in the Gulf of Mexico

region, there would be an increase of \$203,350 in potential revenues for the second trimester season and \$161,506 increase in potential revenues in the third trimester season for the Gulf of Mexico region. This reallocation of quota would allow the SCS fishery to remain open in the Gulf of Mexico region and would prevent future overharvest of quota in that region while not leading to an overharvest in the South Atlantic region.

Overall, Alternative 7 would increase revenues for SCS by transferring quota from a region of underharvest to a region that is currently overharvesting their SCS quota. The reallocation of regional quota percentages would provide greater regional equity in future base quota allocations. This would help mitigate overharvesting of the quota in the Gulf of Mexico region. However, there could be future impacts to the South Atlantic region as a result of the reallocation of the SCS regional quota percentage to the Gulf of Mexico region if in the future the South Atlantic harvests more than this lower regional quota allocation percentage.

## **9.0 COMMUNITY PROFILES**

This chapter serves as a brief overview and determination of the social impacts associated with the establishment of quotas and seasons for the 2007 second and third trimesters for the Atlantic commercial LCS, and SCS fisheries. A more comprehensive review of community profiles for all HMS fisheries can be found in Section 9 of the Final Consolidated HMS FMP (NMFS, 2006).

### **9.1 Introduction**

Mandates to conduct social impact assessments come from both the 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 would ensure the integrated use of the natural and social sciences in planning and decision-making” (§102(2)(A)). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects, which may be direct, indirect, or cumulative. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. 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.

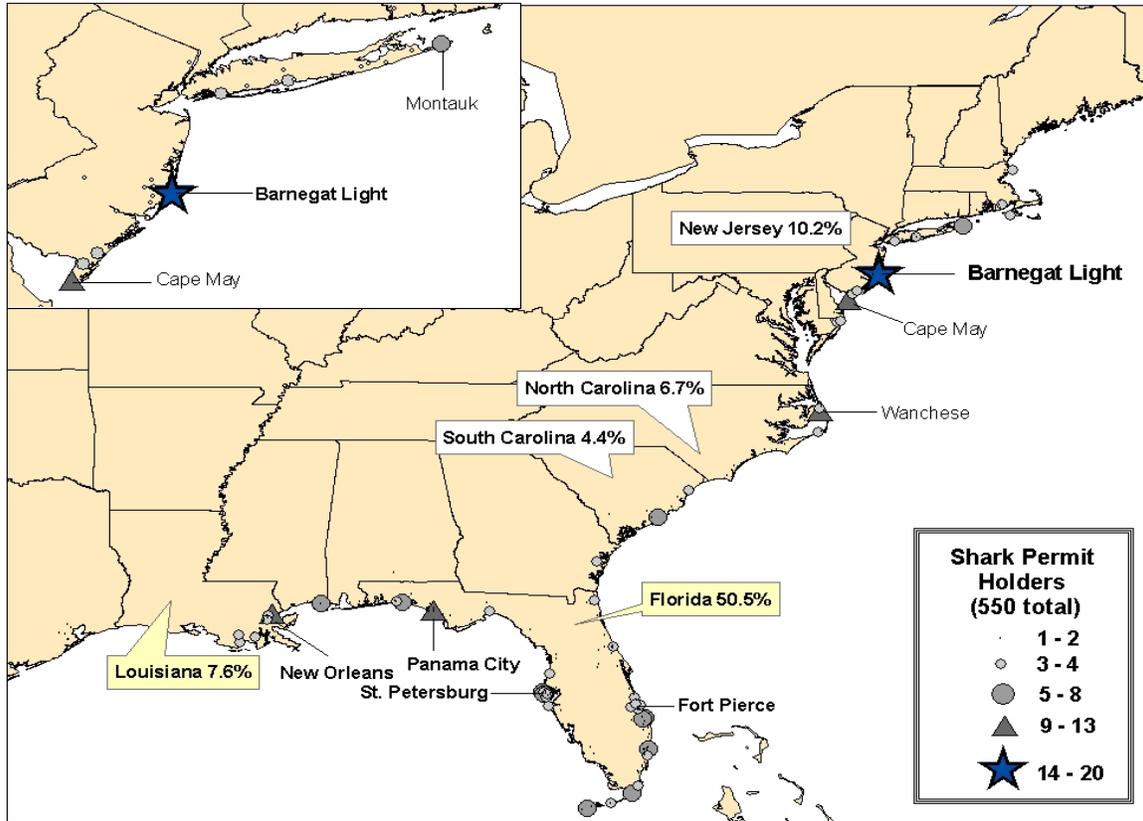
Social impacts are generally the consequences to human populations that follow from some type of public or private action. They may include alterations to the ways people live, work or play, relate to one another, and organize to meet their needs. In addition, cultural impacts, which may involve changes 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 impacts analyses help determine the consequences of policy action in advance by comparing the no action alternative 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.

NMFS anticipates that this final action will result in minimal social impacts. Due to LCS overharvests that occurred in both the Gulf of Mexico and South Atlantic regions during the

second and third trimesters of 2006, the 2007 quotas for these regions and seasons have been significantly reduced. NMFS will merge the second and third season in both regions, to maximize fishery resources and provide a larger window for fishery participants to utilize the available LCS quota. With regards to SCS, NMFS will implement a quota transfer from the South Atlantic region to the Gulf of Mexico region, which will cover all of the 2006 second trimester overharvest in the Gulf of Mexico. Additionally, the SCS management measures will redistribute the seasonal percent quota allocations to more equitably distribute SCS quota among the South Atlantic and Gulf of Mexico regions. While commercial fishery participants in the Gulf of Mexico will benefit from the redistribution of SCS quota, the South Atlantic participants could experience slightly negative social impacts as their total annual SCS quota will be reduced. Social and economic impacts that would result from implementing the SCS management measures are not expected to significantly affect the South Atlantic because this region has consistently underharvested their available SCS quota. The adjusted South Atlantic regional quota for the 2007 second and third seasons are 291.6 mt dw, and 297.5 mt dw which is 64.2 percent and 65.5 percent of the total annual quota for SCS, respectively. Any long term negative impacts could be addressed in future rulemaking in the South Atlantic region if catches increase. None of the management measures in this final rulemaking drastically modify the shark BLL fishery, as it currently exists. Generally, all of the management measures are solutions to allow the Atlantic commercial shark fishery to operate as efficiently as possible during 2007. The management measures in this final rulemaking will not modify the overall annual quota for LCS or SCS. Thus, this regulation would comply with the National Standards of the Magnuson-Stevens Act (see Chapter 10). NMFS is implementing management measures that will minimize economic impacts associated with the adjustment of quotas and seasons compared to the no action alternative.

## **9.2 State and Community Profiles**

Section 9.4 of the Consolidated HMS FMP provides a comprehensive summary of the states and communities that participate in HMS fisheries and are affected by HMS regulations.



**Figure 9.1** Location of the Shark Directed and Incidental Permit Holders as of April 2005 and percentage of shark permit holders for the top five states.

### 9.3 References

NMFS. 2006. Final Consolidated Atlantic Highly Migratory Species Management Plan. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Management Division, Silver Spring, MD. Public Document. 1600 pp.

## 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 described in this Environmental Assessment and associated final rule are consistent with NS 1 in that they would not implement measures that exacerbate overfishing or prevent overfished species of sharks in the Atlantic Ocean from rebuilding (NS1). The alternatives 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 preferred alternatives do not discriminate against fishermen in any state (NS 4) nor does it negatively impact the efficiency in utilizing the resource (NS 5). Merging the second and third seasons to allow for a longer season could improve efficiency because fishermen would only need to rig their vessels once rather than twice in a relatively short time period. With regard to (NS 6), the preferred alternatives take into account any variations that may occur in the fishery and the fishery resources. Additionally, NMFS 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 preferred measures are consistent with regional and trimester quotas and does not increase fishing effort for Atlantic sharks, therefore, impacts to bycatch species and protected species are similar to those previously analyzed in Amendment 1 to the FMP for Atlantic Tunas, Swordfish and Sharks (NS 9). Finally, this final rule would not require fishermen to fish in an unsafe manner (NS 10). Merging the 2007 second and third trimester seasons in the South Atlantic and Gulf of Mexico regions will lengthen the seasons thus, helping to prevent derby fishing conditions and possibly improving safety at sea.

## **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 (HMS), Office of Sustainable Fisheries (F/SF1), NMFS, including:

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