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## **8.0 INITIAL REGULATORY FLEXIBILITY ANALYSIS**

The Initial Regulatory Flexibility Analysis (IRFA) is conducted to comply with the Regulatory Flexibility Act (5 USC 601 et. seq.) (RFA). The goal of the RFA is to minimize the economic burden of federal regulations on small entities. To that end, the RFA directs federal agencies to assess whether the proposed regulation is likely to result in significant economic impacts to a substantial number of small entities, and identify and analyze any significant alternatives to the proposed rule that accomplish the objectives of applicable statutes and minimize any significant effects on small entities. Certain data and analysis required in an IRFA are also included in other Chapters 6 of this DEIS. Therefore, the IRFA incorporates the economic impacts identified in the DEIS by reference as supporting data for this analysis.

### **8.1 Description of the Reasons Why Action is Being Considered**

Please see Chapter 1 for a description of the need for action for these management actions. The proposed regulations are designed to address the following problems. The blacknose shark has been determined to be in an overfished condition with overfishing occurring. The Secretary is responsible for ensuring that he takes action to end overfishing of the stock and rebuild it to its maximum sustained yield. The shortfin mako has been determined to be subject to overfishing and approaching an overfished condition. The Secretary has a responsibility to take action to end and prevent overfishing of the stock. The smooth dogfish is not presently under federal management. The Secretary has determined that the species needs conservation and management and thus has a statutory responsibility to exercise his authority to include the species in the 2006 Consolidated HMS FMP.

### **8.2 Statement of the Objectives of, and Legal Basis for, the Proposed Rule**

Please see Chapter 1 for a full description of the objective of the proposed rule amendments to the 2006 Consolidated HMS FMP and implementing regulations including proposed fishery management actions. The management goals and objectives of the proposed regulation are to provide for the sustainable management of shark species under authority of the Secretary consistent with the requirements of the Magnuson-Stevens Act and other statutes which may apply to such management, including the ESA, MMPA and ATCA. The primary mandate of the Magnuson-Stevens Act is for the Secretary to provide for the conservation and management of HMS through development of an FMP for species identified for management and to implement the FMP with necessary regulations. In addition, the Magnuson-Stevens Act directs the Secretary, in managing HMS to prevent overfishing of species while providing for their OY on a continuing basis and to rebuild fish stocks that are considered overfished. The management objectives of the proposed regulations will be to amend the 2006 Consolidated HMS FMP to ensure that it ends overfishing of both the blacknose shark and short fin mako, rebuild the blacknose shark, and bring the smooth dogfish under management jurisdiction of the Secretary.

### **8.3 Description and Estimate of the Number of Small Entities to Which the Proposed Rule Would Apply**

NMFS considers all HMS permit holders to be small entities because they either had average annual receipts less than \$4.0 million for fish-harvesting, average annual receipts less than \$6.5 million for charter/party vessels, 100 or fewer employees for wholesale dealers, or 500 or fewer employees for seafood processors. These are the Small Business Administration (SBA) size standards for defining a small versus large business entity in this industry.

The proposed rule would apply to the 502 commercial shark permit holders in the Atlantic shark fishery based on an analysis of permit holders on March 18, 2009. Of these permit holders, 223 have directed shark permits and 279 hold incidental shark permits. Not all permit holders are active in the fishery in any given year. NMFS estimates that between 2004 and 2007, approximately 85 vessels with directed shark permits and 31 vessels with incidental shark permits landed SCS. A further breakdown of these permit holders is provided in Table 3.32.

The recreational measures proposed would also impact HMS Angling category and HMS Charter/Headboat category permit holders. In general, the HMS Charter/Headboat category permit holders can be regarded as small businesses, while HMS Angling category permits are typically obtained by individuals who are not considered small entities for purposes of the RFA. In 2008, 4,837 vessels obtained HMS Charter/Headboat category permits. Table 3.33 provides the geographic distribution of these permit holders by state and the overall historic trend in the number of permit holders since 2006. It is unknown what portion of these permit holders actively participate in shark fishing or market shark fishing services for recreational anglers.

Finally, the preferred alternatives to add smooth dogfish under NMFS management and develop management measures, such as a federal permit requirement, would impact an additional group of small entities. The number of entities impacted by this preferred alternative cannot be precisely measured at this time, since there is currently no federal permit requirement for smooth dogfish fishing. Utilizing VTR and Coastal Logbook data, an estimate of the number of participants in the commercial smooth dogfish fishery can be calculated. Within the VTR data, a primarily Northeast U.S. reporting system, an average of 213 vessels reported smooth dogfish landings per year between 2004 and 2007. Within the Coastal Logbooks data, a primarily Southeast U.S. reporting system, an average of 10 vessels reported smooth dogfish landings per year between 2004 and 2007. From these data, an estimated 223 commercial vessels would require a smooth dogfish permit.

To estimate the number of recreational participants in the smooth dogfish fishery, NMFS examined MRFSS data. Based on MRFSS data from 2004 to 2007, an average of 58,161 smooth dogfish were retained per year by private anglers and CHBs in the recreational fishery. This number is the upper limit of participants in the federal recreational fishery of the species, and is likely much lower since multiple individual fish are expected to have been caught by one fisherman. Furthermore, based on the life

history of the species and the fact the most recreational fisherman are shore-based, the vast majority of smooth dogfish caught recreationally are in coastal, state waters and would not require a federal HMS angling permit.

NMFS has determined that the proposed rule would not likely affect any small governmental jurisdictions. More information regarding the description of the fisheries affected, and the categories and number of permit holders can be found in Chapter 3.

#### **8.4 Description of the Projected Reporting, Record-keeping, and Other Compliance Requirements of the Proposed Rule, Including an Estimate of the Classes of Small Entities Which Would Be Subject to the Requirements of the Report or Record**

The commercial and recreational measures for SCS and pelagic sharks would not introduce any new reporting and record-keeping requirements. However, alternative F2, would implement federal management of smooth dogfish and establish a permit for commercial and recreational retention of smooth dogfish in federal waters.

The proposed federal permit requirement for smooth dogfish would allow NMFS to collect data regarding participants in the fishery and landings through federal shark dealer reports. The federal dogfish permit requirement would require a similar permit application to the other current HMS permits. The information collected on the application would include vessel information and owner identification and contact information. A modest fee to process the application and annual renewal would also likely be required. The cost would likely be similar to the current fee associated with the Atlantic Tunas General Category and Atlantic HMS Angling permits, which both cost \$16 in 2009 to obtain.

#### **8.5 Identification of All Relevant Federal Rules Which May Duplicate, Overlap, or Conflict with the Proposed Rule**

Fishermen, dealers, and managers in these fisheries must comply with a number of international agreements, domestic laws, and other FMPs. These include, but are not limited to, the Magnuson-Stevens Act, ATCA, the High Seas Fishing Compliance Act, MMPA, ESA, the National Environmental Policy Act, the Paperwork Reduction Act, and the Coastal Zone Management Act. NMFS does not believe that the new regulations proposed to be implemented would conflict with any relevant regulations, federal or otherwise.

#### **8.6 Description of Any Significant Alternatives to the Proposed Rule That Accomplish the Stated Objectives of Applicable Statutes and That Minimize Any Significant Economic Impact of the Proposed Rule on Small Entities**

One of the requirements of an IRFA is to describe any alternatives to the proposed rule which accomplish the stated objectives and which minimize any significant economic impacts. These impacts are discussed 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.

In order to meet the objectives of this proposed rule, consistent with Magnuson-Stevens Act and ESA, NMFS cannot exempt small entities or change the reporting requirements only for small entities because all the entities affected are considered small entities. Thus, there are no alternatives discussed that fall under the first and fourth categories described 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. Thus, there are no alternatives considered under the third category. As described below, NMFS analyzed several different alternatives in this proposed rulemaking and provides rationale for identifying the preferred alternative to achieve the desired objective.

The alternatives considered and analyzed have been grouped into three major categories. These categories include commercial measures, recreational measures, and smooth dogfish. Under commercial measures, alternatives for SCS commercial quotas, gear restrictions, and pelagic shark effort controls were considered and analyzed. The SCS commercial quota alternatives include: (A1) maintain the existing SCS quota; (A2) establish a new SCS quota of 392.5 mt dw and a blacknose commercial quota of 13.5 mt dw; (A3) establish a new SCS quota of 42.7 mt dw and a blacknose commercial quota of 16.6 mt dw; allow all current authorized gears for sharks; (A4) establish a new SCS quota of 56.9 mt dw and a blacknose commercial quota of 14.9 mt dw; remove shark gillnet gear as an authorized gear for sharks; and (A5) close the SCS fishery. The commercial gear restrictions alternatives include: (B1) maintain current authorized gears for commercial shark fishing; (B2) close shark gillnet fishery; remove gillnet gear as an authorized gear type for commercial shark fishing; and (B3) close the gillnet fishery to commercial shark fishing from South Carolina south, including the Gulf of Mexico and the Caribbean Sea. The pelagic shark effort controls alternatives include: (C1) keep shortfin mako sharks in the pelagic shark species complex and do not change the quota; (C2) remove shortfin mako sharks from pelagic shark species quota and establish a shortfin mako quota; (C3) remove shortfin mako sharks from pelagic shark species complex and place this species on the prohibited shark species list; (C4a) establish a minimum size limit for shortfin mako sharks that is based on the size at which 50 percent of female shortfin mako sharks reach the sexual maturity or 32 inches interdorsal length (IDL); (C4b) establish a minimum size limit for shortfin makos that is based on the size at which 50 percent of male shortfin mako sharks reach the sexual maturity or 22 inches IDL; (C5) take action at the international level to end overfishing of shortfin mako

sharks; and (C6) promote the release of shortfin mako sharks brought to fishing vessels alive.

Under recreational measures, NMFS considered alternatives for both SCS and pelagic sharks. The recreational measures considered for SCS include: (D1) maintain the current recreational retention and size limit for SCS; (D2) modify the minimum recreational size for blacknose sharks based on their biology, (D3) increase the retention limit for Atlantic sharpnose sharks based on current catches; and (D4) prohibit retention of blacknose sharks in recreational fisheries. The recreational measures considered for pelagic sharks include: (E1) maintain the current recreational measures for shortfin mako sharks; (E2a) establish a minimum size limit for shortfin makos that is based on the size at which 50 percent of female shortfin mako sharks reach sexual maturity or 108 in FL; (E2b) establish a minimum size limit for shortfin makos that is based on the size at which 50 percent of male shortfin mako sharks reach sexual maturity or 73 inches FL; (E3) take action at the international level to end overfishing of shortfin mako sharks; (E4) promote the release of shortfin mako sharks brought to fishing vessels alive; and (E5) prohibit retention of shortfin mako sharks in recreational fisheries (catch and release only).

Finally, NMFS also considered alternatives for managing smooth dogfish. These alternatives include: (F1) do not add smooth dogfish under NMFS management, (F2) add smooth dogfish under NMFS management and establish a federal permit requirement, and (F3) add smooth dogfish under NMFS management and mirror management measures implemented in the ASMFC Interstate Shark FMP. NMFS considered several alternatives for adding smooth dogfish under NMFS management. These alternatives include: (F2 a1) Establish a smooth dogfish quota that is equal to the average annual landings from 1998-2007 (950,859 lb dw); (F2 a2) establish a smooth dogfish quota equal to the maximum annual landing between 1998-2007 (1,270,137 lb dw); (F2 a3) establish a smooth dogfish quota equal to the maximum annual landing between 1998-2007 plus one standard deviation (1,423,727 lb dw); (F2 b1) establish a separate smooth dogfish set-aside quota for the exempted fishing program of 6 mt ww; and (F2 b2) establish a smooth dogfish set-aside quota for the exempted fishing program and add it to the current 60 mt ww set aside quota for the exempted fishing program.

The potential impacts these alternatives may have on small entities have been analyzed and are discussed in the following sections. The preferred alternatives include: A4, B3, C5, C6, D4, E3, E4, F2, and preferred sub-alternatives F2 a3 and F2 b1. The economic impacts that would occur under these preferred alternatives were compared with the other alternatives to determine if economic impacts to small entities could be minimized while still accomplishing the stated objectives of this rule.

## **8.6.1 Commercial Measures**

### ***8.6.1.1 SCS Commercial Quotas***

Under the No Action alternative, A1, there would be no additional economic impacts to directed and incidental shark permit holders as the average annual gross revenues from SCS landings, including blacknose shark landings, would be the same as

the status quo. The average annual gross revenues from 2004 through 2007 from all SCS meat and fins was \$833,634.

Based on data from 2004 to 2007 for directed and incidental shark permit holders that landed non-blacknose SCS, the average directed shark permit holder earned \$9,427 in average annual gross revenues, and the average incidental shark permit holder earned \$707 in average annual gross revenues from non-blacknose SCS landings. For those permit holders that actually landed blacknose shark during that same time period, the average directed shark permit holder earned \$3,640 in average annual gross revenues, and the average incidental shark permit holder earned \$1,722 in average annual gross revenues from blacknose shark landings. These revenues are not expected to be impacted by alternative A1. However, since alternative A1 would not reduce blacknose shark mortality to the level needed to rebuild blacknose sharks (or 44,853.8 lb dw), NMFS does not prefer this alternative at this time.

Under alternative A2, NMFS would remove blacknose sharks from the SCS quota and create a blacknose shark-specific quota and a separate “non-blacknose SCS” quota, which would apply to finetooth, Atlantic sharpnose, and bonnethead sharks. NMFS anticipates that non-blacknose SCS landings should not decrease as the non-blacknose SCS quota would only be reduced by the average blacknose shark landings. Therefore, the 68 directed and 29 incidental shark permit holders that had non-blacknose SCS landings would not be affected by the new non-blacknose SCS quota. However, the blacknose shark quota would be a 78-percent reduction based on average landings from 2004-2007. Average annual gross revenues for the blacknose shark landings for the entire fishery would decrease from \$172,197 under the No Action alternative down to \$37,500 under alternative A2, which is a 78-percent reduction in average annual gross revenues for blacknose sharks. Thus, the 44 directed and 7 incidental shark permit holders that had blacknose shark landings would be affected by the new blacknose shark quota. As directed permit holders landed the majority of blacknose shark under the No Action alternative, it is anticipated that directed permit holders would experience the largest impacts under alternative A2. The decrease in average annual gross revenues for directed and incidental permit holders would depend on the specific trip limit associated with the blacknose quota established under A2 (see Appendix A). However, because discards would continue as fishermen directed on non-blacknose SCS, regardless of the retention limits, overall mortality for blacknose sharks would still be above the commercial allowance of 44,853.8 lb dw/year (7,094 blacknose sharks/year), even if the retention of blacknose sharks was prohibited (see Appendix A). Therefore, NMFS does not prefer this alternative at this time.

Under alternative A3, NMFS would remove blacknose sharks from the SCS quota and create a blacknose shark-specific quota and a separate “non-blacknose SCS” quota equal to 42.7 mt dw (94,115 lb dw), which would apply to finetooth, Atlantic sharpnose, and bonnethead sharks. NMFS determined that by reducing the overall SCS fishery, NMFS would reduce the level of blacknose shark discards such that the total blacknose shark mortality would stay below the commercial allowance (see Appendix A). NMFS would establish a blacknose-specific quota of 16.6 mt dw (36,526 lb dw), which is the

amount of blacknose sharks that would be harvested while the non-blacknose SCS quota is harvested (see Appendix A); however, incidental fishermen would not be allowed to retain any blacknose sharks under alternative A3.

While trip limits would not change for non-blacknose SCS for directed and incidental permit holders (*i.e.*, no trip limit for directed fishermen and a 16 non-blacknose SCS/pelagic sharks combined trip limit for incidental fishermen), given the reduction in the non-blacknose SCS quota, NMFS anticipates that the 68 directed and 29 incidental permit holders that had non-blacknose SCS landings would be affected by the new non-blacknose SCS quota. Average annual gross revenues for non-blacknose SCS landings for the entire fishery are anticipated to be \$119,526. This is an 82-percent reduction in average annual gross revenues compared to average annual gross revenues expected under the No Action alternative, A1. Since directed permit holders land approximately 97 percent of the non-blacknose SCS landings as explained in alternative A1, NMFS anticipates that directed permit holders would lose more in average annual gross revenues from non-blacknose SCS landings compared to incidental permit holders under alternative A3. Average annual gross revenues for directed shark permit holders of non-blacknose SCS under alternative A3 would be \$115,821, which is a loss of \$525,185 in average annual gross revenues or an 82-percent reduction in average annual gross revenues from the average annual gross revenues expected under the No Action alternative, A1. Spread amongst the directed shark permit holders that land non-blacknose SCS, this is an anticipated loss of \$7,723 in average annual gross revenues from non-blacknose SCS landings per permit holder. Incidental permit holders land approximately 3 percent of the non-blacknose SCS. Average annual gross revenues for incidental shark permit holders of non-blacknose SCS under alternative A3 would be \$3,705, which is a loss of \$16,802 in average annual gross revenues or also an 82-percent reduction in average annual gross revenues from the average annual gross revenues expected under the No Action alternative, A1. Spread amongst the incidental shark permit holders that land non-blacknose SCS, this is an anticipated loss of \$579 in average annual gross revenues from non-blacknose SCS landings per permit holder.

The blacknose shark quota would be a 73-percent reduction based on average landings from 2004-2007. In addition, in order to keep the total mortality of blacknose sharks below the commercial allowance for the HMS Atlantic shark fishery (see Appendix A), incidental shark permit holders would not be allowed to retain blacknose sharks under alternative A3. Thus, the 44 directed and 7 incidental shark permit holders that had blacknose shark landings would be affected by the new blacknose shark quota. Since incidental permit holders would not be able to retain blacknose sharks, the total blacknose shark quota would be available only to directed shark permit holders. Average annual gross revenues for the blacknose shark landings for the directed fishery would decrease from \$172,197 under the No Action alternative down to \$46,023 under alternative A3, which is a loss of \$126,174 or a 73-percent reduction in average annual gross revenues for blacknose sharks for directed shark fishermen. Spread amongst the directed shark permit holders that land blacknose sharks, there would be an anticipated loss of \$2,868 in average annual gross revenues from blacknose landings per permit holder. However, since incidental shark permit holders would not be able to retain

blacknose sharks, they would lose an estimated \$12,054 in average annual gross revenues from blacknose shark landings. Spread amongst the incidental permit holders that land blacknose sharks, there would be an anticipated loss of \$1,722 in average annual gross revenues from blacknose landings per permit holder.

Given the large reduction in the non-blacknose SCS quota under alternative A3, which would affect more directed and incidental permit holders compared to the smaller reduction in the non-blacknose SCS quota under alternative A4, NMFS does not prefer alternative A3 at this time.

Under alternative A4, the preferred alternative, NMFS would remove blacknose sharks from the SCS quota and create a blacknose shark-specific quota and a separate “non-blacknose SCS” quota equal to 56.9 mt dw (125,487 lb dw), which would apply to finetooth, Atlantic sharpnose, and bonnethead sharks. NMFS determined that by reducing the overall SCS fishery, NMFS could reduce the level of blacknose shark discards such that the total blacknose shark mortality would stay below the commercial allowance (see Appendix A). NMFS would establish a blacknose-specific quota of 14.9 mt dw (32,753 lb dw), which is the amount of blacknose sharks that would be landed while the non-blacknose SCS quota is taken (see Appendix A); however, incidental fishermen would not be allowed to retain any blacknose sharks under alternative A4. In addition, this alternative assumes that gillnet gear would not be used to harvest sharks as explained under alternatives B2 and B3.

While trip limits would not change for non-blacknose SCS for directed and incidental permit holders (*i.e.*, no trip limit for directed fishermen and a 16 non-blacknose SCS/pelagic sharks combined trip limit for incidental fishermen), given the reduction in the non-blacknose SCS quota, NMFS anticipates that the 41 directed and 22 incidental shark permit holders that did not use gillnet gear to land non-blacknose SCS would be affected by the new non-blacknose SCS quota. Average annual gross revenues for non-blacknose SCS landings for the entire fishery are anticipated to be \$159,368. This is a 76-percent reduction in average annual gross revenues compared to the average annual gross revenues expected under the No Action alternative, A1. Since directed shark permit holders land approximately 97 percent of the non-blacknose SCS landings as explained in alternative A1, NMFS anticipates that directed shark permit holders would lose more in average annual gross revenues from non-blacknose SCS landings compared to incidental shark permit holders under alternative A4. Average annual gross revenues for directed shark permit holders of non-blacknose SCS under alternative A4 would be \$153,841, which is a loss of \$487,165 in average annual gross revenues or a 76-percent reduction in average annual gross revenues from the average annual gross revenues expected under the No Action alternative, A1. Spread amongst the directed shark permit holders that did not use gillnet gear to land non-blacknose SCS, there could be an anticipated loss of \$11,882 in average annual gross revenues from non-blacknose SCS landings per permit holder. Incidental shark permit holders land approximately 3 percent of the non-blacknose SCS landings as explained in alternative A1. Average annual gross revenues for incidental shark permit holders of non-blacknose SCS under alternative A4 would be \$4,922, which is a loss of \$15,585 in average annual gross revenues or a 76-

percent reduction in average annual gross revenues from the average annual gross revenues expected under the No Action alternative, A1. Spread amongst the incidental shark permit holders that did not use gillnet gear to land non-blacknose SCS, there could be an anticipated loss of \$708 in average annual gross revenues from non-blacknose SCS landings per permit holder.

The blacknose shark quota would also be a 76-percent reduction based on average landings from 2004-2007. In addition, in order to keep the total mortality of blacknose sharks below the commercial allowance for the HMS Atlantic shark fishery (see Appendix A), incidental shark permit holders would not be allowed to retain blacknose sharks under alternative A4. Thus, the 15 directed and 5 incidental shark permit holders that did not use gillnet gear to land blacknose sharks would be affected by the new blacknose shark quota. Since incidental shark permit holders would not be able to retain blacknose sharks, the total blacknose shark quota would be available only to directed shark permit holders. Average annual gross revenues for the blacknose shark landings for the directed fishery would decrease from \$172,197 under the No Action alternative down to \$41,269 under alternative A4, which is a loss of \$130,928 or a 76-percent reduction in average annual gross revenues from blacknose sharks for directed shark permit holders. Spread amongst the directed shark permit holders that did not use gillnet gear to land blacknose sharks, there could be an anticipated loss of \$8,729 in average annual gross revenues from blacknose landings per vessel. However, since incidental shark permit holders would not be able to retain blacknose sharks, they would lose an estimated \$12,054 in average annual gross revenues from blacknose shark landings. Spread amongst the incidental shark permit holders that did not use gillnet gear to land blacknose sharks, there could be an anticipated loss of \$2,411 in average annual gross revenues from blacknose landings per permit holder.

NMFS prefers alternative A4 at this time because by reducing effort in the overall SCS fishery, NMFS could reduce the level of blacknose shark discards such that the total blacknose shark mortality would stay below the commercial allowance needed to rebuild the stock. While gillnet fishermen would be affected the most by alternative A4 in combination with alternative B2 or B3, with estimated gross revenue losses between \$377,928 and \$365,067 from lost non-blacknose SCS and blacknose landings, alternative A4 would allow for a higher non-blacknose SCS quota (56.9 mt dw) compared to alternative A3 (42.7 mt dw). This higher quota would benefit the larger SCS fishery, while the prohibition of gillnet gear would affect a small number of directed gillnet fishermen. Therefore, NMFS prefers alternative A4 at this time.

Alternative A5 would close the entire SCS commercial shark fishery, prohibiting the landing of any SCS, including blacknose sharks. Thus, this alternative would eliminate landings of all SCS, including finetooth, Atlantic sharpnose, bonnethead, and blacknose sharks. This would have negative economic impacts on the average 85 directed shark permit holders, and the average 31 incidental shark permit holders that had SCS landings during 2004-2007. This would result in a loss of average annual gross revenues of \$661,513 for non-blacknose SCS and \$172,197 from blacknose shark landings for a total loss of \$833,710 in average annual gross revenues from SCS landings.

Directed shark permit holders would lose \$641,006 in average annual gross revenues from non-blacknose SCS landings and \$160,143 in average annual gross revenues from blacknose shark landings for a total of \$801,149 in average annual gross revenues. Spread among the 85 directed shark permit holders that landed SCS, this could result in a loss in average annual gross revenues of \$9,426 per permit holder.

Incidental shark permit holders would lose \$20,507 in average annual gross revenues from non-blacknose SCS landings and \$12,054 in average annual gross revenues from blacknose shark landings for a total of \$32,561 in average annual gross revenues under alternative A5. Spread among the 31 incidental shark permit holders that landed SCS, this could result in a loss in average annual gross revenues of \$1,050 per permit holder.

In addition, as gillnet gear is the primary gear used to target SCS, it is assumed that directed shark gillnet fishing would end, except for fishermen that use gillnet gear to strikenet for blacktip sharks. Approximately 11 directed shark permit holders use gillnet gear to land LCS. This would result in a decrease in LCS landings of 102,171 lb dw and a decrease in average annual gross revenues of \$107,280. Spread among the 11 directed shark permit holders that land LCS with gillnet gear, this alternative would result in a loss in average annual gross revenues of \$9,753 per permit holder.

While this alternative could reduce blacknose mortality below the commercial allowance of 44,853.8 lb dw, it would also completely eliminate the fishery for all SCS. Of the alternatives analyzed, alternative A5 would result in the most significant economic impacts to small entities. In addition, this alternative would severely curtail data collection on all SCS that could be used for future stock assessments. Thus, NMFS does not prefer this alternative at this time.

#### **8.6.1.2 SCS Commercial Gear Restrictions**

Under alternative B1, the No Action alternative, NMFS would maintain the current gear restrictions for rod and reel, gillnet, and BLL gear. Therefore, the economic impacts of alternative B1 would be the same as the status quo, and no negative economic impacts would be anticipated under alternative B1. On average from 2004-2007, the directed and incidental shark permit holders earned average annual gross revenues from SCS landings of \$833,634, while the directed and incidental permit holders that landed LCS earned larger gross revenues of \$3,328,663. The smooth dogfish fishery is smaller than the other fisheries and only has average annual gross revenues of \$371,786 for state and federally permitted fishermen reporting to the ACCSP. Based on this alternative, the average annual gross revenues of these fisheries would remain the same as the status quo. The average number of directed and incidental shark permit holders that reported SCS landings in the Coastal Fisheries logbook from 2004-2007 were 116 (85 directed and 31 incidental shark permit holders), and the LCS fishery had an annual average of 162 permit holders (129 directed and 33 incidental shark permit holders) reporting LCS landings in the Coastal Fisheries logbook from 2004-2007. The number of permit holders would not be impacted by the No Action alternative.

Under alternative B2, NMFS would remove gillnet gear as an authorized gear type for commercial shark fishing. This alternative would have significant negative economic impacts by potentially affecting 30 directed and 7 incidental shark permit holders. On average, directed shark permit holders landed 289,546 lb dw of SCS with gillnet gear. This is equivalent to \$365,955 in lost average annual gross revenues from SCS landings for directed shark permit holders. Based on average ex-vessel prices per pound from 2004-2007, directed shark permit holders made \$807,792 in average annual gross revenues from SCS landings. On average, incidental shark permit holders landed 9,465 lb dw of SCS with gillnet gear. This is equivalent to \$11,973 in lost average annual gross revenues from SCS landings for incidental shark fishermen due to the prohibition of gillnet gear. Based on average ex-vessel prices per pound from 2004-2007, incidental shark permit holders made \$25,843 from SCS landings under the status quo. This represents a 45 percent reduction in SCS revenues for directed shark permit holders and a 46 percent reduction in SCS revenues for incidental shark permit holders compared to the No Action alternative, alternative B1.

This alternative would have a minimal negative economic impact on the LCS fishery. Only 11 directed and 5 incidental shark permit holders out of the 162 total shark permit holders would be affected. On average, directed shark permit holders landed 102,171 lb dw of LCS with gillnet gear. This is equivalent to \$107,280 in lost average annual gross revenues from LCS landings (3 percent reduction). On average, incidental shark permit holders landed 1,961 lb dw of LCS with gillnet gear. This is equivalent to \$2,059 in lost average annual gross revenues from LCS landings for incidental shark permit holders due to the prohibition of gillnet gear. In total (\$109,339), this is approximately 3 percent of the gross revenues for the entire LCS fishery under the status quo (*i.e.*, \$3,328,663).

Gillnets are also the primary gear type used to catch smooth dogfish. Within the VTR data, a primarily Northeast U.S. reporting system, an average of 213 vessels reported smooth dogfish landings per year between 2004 and 2007. Within the Coastal Fisheries Logbooks data, a primarily Southeast U.S. reporting system, an average of 10 vessels reported smooth dogfish landings per year between 2004 and 2007. From these data, an estimate of 223 vessels would require a smooth dogfish permit; however, as fishermen are currently not required to have a permit to retain smooth dogfish, this could be an underestimate of the number of fishermen that would require a federal commercial permit for smooth dogfish in the future. The average total annual landings from 1998-2007 was 950,859 lb dw (by state and federally permitted fishermen reporting to the ACCSP, however, since fishermen do not have to currently report smooth dogfish landings, this could be an underestimate of total landings, and thus, an underestimate of average annual gross revenues for this fishery). Based on average ex-vessel prices per pound from 2004-2007, average annual gross revenues for the entire smooth dogfish fishery totaled \$371,786 from smooth dogfish landings. Based on the preferred alternative F2, which would require fishermen who fish for smooth dogfish in federal waters to obtain a federal smooth dogfish permit, then under alternative B2, those fishermen would not be able to use gillnet gear to land smooth dogfish. This would have a negative economic impacts on fishermen who previously used gillnet gear in federal

waters to land smooth dogfish. However, as fishermen do not have to have a federal permit currently to land smooth dogfish, NMFS is uncertain the universe of fishermen who might be affected by alternatives B2 and F2 at this time. However, given the potential large negative economic impacts of this alternative to the SCS, LCS, and smooth dogfish fisheries, NMFS does not prefer this alternative at this time.

Under alternative B3, the preferred alternative, NMFS would close the commercial gillnet fishery from South Carolina south, including the Gulf of Mexico and the Caribbean Sea. This would have a negative economic impact on federally permitted directed and incidental fishermen. In the SCS fishery, this alternative would affect an average of 27 directed and 5 incidental shark permit holders out of the average 116 total shark permit holders that landed SCS from 2004-2007. The SCS gillnet fishery from South Carolina south accounts for 44 percent of the total directed shark permit holder landings, and 26 percent of landings in the incidental fishery. On average, directed shark permit holders landed 283,462 lb dw (\$358,261) of SCS with the gillnet gear from South Carolina south. Thus, directed shark fishermen would lose \$358,261 in average annual gross revenues from SCS landings from the gillnet prohibition under alternative B3. Based on average ex-vessel prices from 2004-2007, directed shark permit holders made \$807,792 in average annual gross revenues from SCS landings. On average, incidental shark permit holders landed 5,381 lb dw (\$6,807) of SCS with gillnet gear from South Carolina south. Thus, incidental shark permit holders would lose \$6,807 in average annual gross revenues from non-blacknose SCS landings under alternative B3. The directed and incidental shark permit holders would lose average annual gross revenues of \$365,068 from their current gross revenues of \$833,634.

This alternative would have minor economic impacts on the LCS fishery. It would only affect 12 directed and incidental shark permit holders. The directed shark permit holders would lose \$106,189 in average annual gross revenues from lost LCS landings in gillnet gear from South Carolina south under alternative B3. Incidental shark permit holders would lose \$290 from lost LCS landings in gillnet gear from South Carolina south. In total (\$106,479), this is only 3 percent of the average annual gross revenues (*i.e.*, \$3,328,663) from LCS landings compared to the LCS fishery under the status quo.

Alternative B3, in combination with the preferred alternative F2, would not affect the economics impacts of the smooth dogfish fishery. Smooth dogfish are primarily caught from North Carolina north. The average total landings/year is 950,859 lb dw/year (by state and federally permitted fishermen reporting to the ACCSP, however, since fishermen do not have to currently report smooth dogfish landings, this could be an underestimate of total landings, and thus, an underestimate of average annual gross revenues for this fishery), which translates into average annual gross revenues of \$371,786 lb dw/year from smooth dogfish landings. Given smooth dogfish are not typically landed with gillnet gear from South Carolina south, NMFS anticipates that this alternative, in combination with the preferred alternative F2, would not cause any loss in average annual gross revenues from smooth dogfish landings. Since this alternative would assist NMFS in reaching commercial allowance for blacknose sharks for the

commercial shark fishery, and has minimal economic impacts to LCS and smooth dogfish shark fishermen, NMFS prefers this alternative at this time.

### **8.6.1.3 Pelagic Shark Effort Controls**

The No Action alternative, C1, would not modify or alter commercial fishing practices for shortfin mako sharks or other shark species. There would be no additional economic impacts to directed and incidental fishermen as the average annual gross revenues from shortfin mako sharks or other shark species would be the same as the status quo. On average, 72.5 mt dw of shortfin mako sharks were commercially landed between 2004 and 2007, which is equivalent to \$350,039 in annual revenues. On average between 2004 and 2007, approximately 90 vessels had shortfin mako shark landings. Directed shark permit holders made up 39 of these vessels. However, since shortfin mako is typically incidentally caught, the average landings value per vessel was estimated by dividing annual revenues amongst all the vessels that have landed shortfin mako. Therefore, the vessels that landed shortfin mako generated an average of \$3,889 in gross revenues per year from shortfin mako sharks.

Alternative C2 would implement a species-specific quota for shortfin mako at the level of the average annual commercial landings for this species. This alternative is expected to have neutral or slightly negative economic impacts. On average, 72.5 mt dw (159,834 lb dw) of shortfin mako sharks were commercially landed between 2004 and 2007, which is equivalent to \$350,039 in average annual gross revenues. Spread amongst the vessels that landed shortfin mako sharks, the average vessel earned \$3,889 in annual gross revenues from shortfin mako sharks. While fishermen would be able to maintain current fishing effort under this alternative, any increase in effort would be restricted by the species-specific quota of 72.5 mt dw. Under the No Action alternative, commercial fishermen currently have a 488 mt dw quota, which could potentially be filled entirely by shortfin mako landings. This could result in maximum annual revenues equal to \$2,356,106. Thus, there is the potential loss of the option to fish up to the maximum level under this alternative. This difference is \$2,006,067 in annual gross revenues from shortfin mako sharks. Spread amongst the 90 vessels that, on average, have landed shortfin mako sharks from 2004 to 2007, that difference would be \$22,289 annually per vessel. However, given shortfin mako sharks are incidentally caught in the PLL fishery, it is unlikely that the entire pelagic shark quota would be entirely filled with shortfin mako landings. NMFS does not prefer this alternative at this time because the United States contributes a small portion of shortfin mako mortality due the lack of a directed fishery compared to shortfin mako mortality resulting from the fishing of foreign vessels outside of the U.S. EEZ. In addition, this alternative does not minimize the potential economic impacts on small entities.

Alternative C3 would remove shortfin mako sharks from the pelagic shark species complex and add them to the prohibited species list. This alternative is not expected to have negative economic impacts for commercial fishermen because it is not a species that is targeted by commercial fishermen. Shortfin mako sharks are predominately caught incidentally in the PLL fishery and, on average, the commercial landings for shortfin mako sharks, from 2004 to 2007 were 72.5 mt dw with an estimated gross ex-vessel

value of \$350,039. However, since shortfin makos would be placed on the prohibited species list under alternative C3, there could be an estimated reduction in average annual gross revenues of \$350,039 to the commercial fishermen. Based on the average number of vessels that have landed shortfin mako from 2004 to 2007, the revenue reductions would be approximately \$3,889 per vessel annually. In addition, this alternative could lead to increased operation time if commercial fishermen have to release and discard all shortfin makos that are caught on the PLL gear. In addition, if the commercial PLL fleet expands in the future, placing shortfin mako sharks on the prohibited species list could result in a loss of future revenues for the commercial PLL fishery. Thus, NMFS does not prefer this alternative at this time.

Alternative C4a would establish a minimum size limit for shortfin makos that is based on the size at which 50 percent of female shortfin mako sharks reach sexual maturity or 32 inches IDL. The summed dressed weight of all shortfin mako sharks kept under the 32 inches IDL size limit made up 1.4 percent of total dressed weight landings of shortfin mako sharks based on POP data. NMFS estimated this would reduce shortfin mako harvests by 2,061.1 lb dw. The economic impacts of this restriction would be an average annual gross revenues loss of \$4,513 for this fishery. Spread amongst the 90 vessels that have landed shortfin mako sharks from 2004 to 2007, the per vessel losses would be approximately \$50 annually.

Alternative C4b would establish a minimum size limit for shortfin makos that is based on the size at which 50 percent of male shortfin mako sharks reach sexual maturity or 22 inches IDL. The summed dressed weight of all kept shortfin mako sharks under the 22 inches IDL size limit made up 0.02 percent of dressed weight landings of shortfin mako based on POP data. NMFS estimated this would reduce shortfin mako harvests by 34.3 lb dw. The economic impacts of this restriction would be an average annual gross revenues loss of \$75 for this fishery.

Alternatives C4a and C4b would have minimal economic impacts because only a small percentage of commercial landings would be affected by the size restrictions. Of the two alternatives, the negative economic impact of C4a would be greater, as commercial landings by weight are 2,026.8 lb dw greater than in alternative C4b. Despite these minimum economic impacts, since the size limits would not reduce fishing mortality of shortfin mako sharks in the commercial sector, NMFS does not prefer these alternatives at this time.

Under alternative C5, the preferred alternative, NMFS would, take action at the international level through international fishery management organizations to establish management measures to end overfishing of shortfin mako sharks. In the short term, this alternative would not result in any negative economic impacts on commercial fishermen as it would not restrict commercial harvest of shortfin mako sharks, nor alter the pelagic shark quota. Therefore, the economic impacts of alternative C5 would be the same as described in the No Action alternative C1. However, this alternative could have negative economic impacts in the long term if directed management measures were adopted at an appropriate international forum that would require the reduction of landings domestically

for shortfin mako sharks. Recommended reductions in landings, if implemented by multiple nations, would ultimately end overfishing of shortfin mako. Therefore, NMFS prefers alternative C5 at this time.

Alternative C6, the preferred alternative, would promote the release of shortfin mako sharks brought to fishing vessels alive. This alternative would likely not result in any negative economic impacts on commercial fishermen as it does not restrict commercial harvest of shortfin mako sharks that are alive at haulback, and quotas and retention limits would remain as described in the No Action alternative C1. However, as this alternative could result in the reduction of fishing mortality of shortfin mako sharks by encouraging fishermen to release shortfin mako sharks brought to the fishing vessel alive, NMFS prefers this alternative at this time.

## **8.6.2 Recreational Measures**

### **8.6.1.4 *Small Coastal Sharks***

Under alternative D1, the No Action alternative, NMFS would maintain the current recreational management measures, including the current retention limits and size limits for SCS. Therefore, the economic impacts of alternative D1 would be the same as the status quo, and no negative economic impacts would be anticipated under alternative D1. However, as this alternative would not help rebuild blacknose sharks, as explained in the ecological impacts in Chapter 4, NMFS does not prefer this alternative at this time.

Alternative D2 would modify the minimum recreational size for blacknose sharks based on the biology of blacknose sharks. This would lower the current size limit from 54 inches FL to 36 inches FL, the size at which 50 percent of the female blacknose sharks reach sexual maturity. This could increase the landings of recreationally harvested blacknose sharks and, therefore, have positive economic impacts for small business entities supporting recreational fishermen. The potential for increased landings associated with the lower size limit could marginally increase demand for charter/headboat services and for products and service provided by shoreside businesses that support recreational fishermen. Since this alternative could result in the increase of blacknose shark recreational landings, and NMFS needs to reduce the number of blacknose shark landings in order to rebuild the stock, NMFS does not prefer this alternative at this time.

Alternative D3 would increase the retention limit for Atlantic sharpnose sharks based on their current catches and stock status. Any increase in the retention limit for Atlantic sharpnose sharks would provide positive economic impacts for recreational fishermen, especially if this resulted in more charter trips for charter/headboats. However, since the latest stock assessment suggests that increased fishing efforts could result in an overfished status and/or cause overfishing to occur in the future (NMFS, 2007), NMFS does not prefer this alternative at this time.

Under alternative D4, the preferred alternative, NMFS would prohibit the retention of blacknose sharks in the recreational fishery. While recreational fishermen

could still catch blacknose sharks, they would not be permitted to retain blacknose sharks and would have to release them. This could have negative economic impacts on recreational fishermen, including tournaments and charter/headboats if the prohibition of blacknose sharks resulted in fewer charters and reduced tournament participation. However, since blacknose sharks are not one of the primary species targeted by recreational anglers, in tournaments, or on charters, NMFS does not anticipate large negative economic impacts from this alternative on tournaments or charter/headboat businesses. Therefore, NMFS prefers this alternative at this time since it meets the objectives of this draft amendment of reducing overfishing of blacknose sharks while also minimizing economic impacts on small entities.

#### **8.6.1.5 Pelagic Sharks**

Maintaining the current recreational measures for shortfin mako sharks under alternative E1 would likely not result in any adverse economic impacts on small entities since the No Action alternative would not modify or alter recreational fishing practices for shortfin mako sharks or other shark species. However, this alternative would not meet the objective of this rule in reducing overfishing of shortfin mako sharks, thus, NMFS does not prefer this alternative at this time.

Alternative E2a would set a minimum size limit for shortfin mako sharks of 108 inches FL in the recreational fishery. This would have the most severe economic impacts of all the alternatives considered, as almost all of the reported shortfin mako sharks landed (99.5 percent) were smaller than the proposed 108 inch FL size limit and would have to be released. This alternative would basically create a catch-and-release fishery for shortfin mako sharks. The impacts of alternative E2b would be less severe than alternative E2a, as it would set a minimum size limit for shortfin mako sharks of 73 inches FL in the recreational fishery. This would result in a 60.3 percent overall reduction in recreational shortfin mako shark landings. Under this alternative, economic impacts would be greater on the non-tournament recreational mako shark fishery, as 81 percent of those landings would fall below the 73 inch FL size limit. The percentage of recreational landings during tournaments that would be released under alternative E2b would be less than the non-tournament recreational landings (51.7 percent to 81 percent, respectively). According to LPS data, 41 percent of shortfin mako sharks caught are kept; therefore, size limits in alternatives E2 may have a substantial economic impact on the recreational fishery. Thus, NMFS does not prefer E2a or E2b at this time.

Under alternative E3, NMFS would take action at the international level to end overfishing of shortfin mako sharks through participation in international fisheries organizations such as ICCAT. This alternative would not result in any changes in the current recreational regulations regarding bag or size limits for shortfin mako sharks. Therefore, this alternative would likely not result in any negative economic impacts for recreational fishermen and the small businesses that support those recreational fishing activities in the short term as compared to the No Action alternative, E1. In addition, this alternative could help end overfishing of shortfin mako sharks in the long term through an international plan to conserve shortfin mako sharks. Therefore, NMFS prefers this alternative at this time.

Under alternative E4, NMFS would promote the live release of shortfin mako sharks in the recreational shark fishery, but this alternative would not result in any changes in the current recreational regulations regarding bag or size limits for shortfin mako sharks. Therefore, this alternative would likely not result in any economic impacts compared to the No Action alternative, alternative E1. However, it would encourage the live release of shortfin mako sharks, and could help reduce fishing pressure on this species. Therefore, NMFS prefers this alternative at this time.

Under alternative E5, NMFS would remove shortfin mako sharks from the authorized species list and add them to the prohibited species list. Placing shortfin mako sharks on the prohibited species list would make the recreational fishery for shortfin mako sharks a catch-and-release fishery. Although a small number of shortfin mako sharks were landed in the recreational fishery from 2004 to 2007, it is also an important fishing tournament species. Fishing tournaments are an important component of HMS recreational fisheries. In 2008, there were 42 shark tournaments throughout the U.S. Atlantic Coast, including the Gulf of Mexico and the Caribbean Sea. Therefore, adding this species to the prohibited species list could lead to negative economic impacts for tournament operators since they may have to modify their tournament rules and could face reduced demand for participation, and thus reduce revenues from entry fees. A recreational catch-and-release fishery for shortfin mako may also reduce demand for CHB trips that target shortfin mako sharks. In addition, since the United States only contributes to a small portion of the overall mortality for shortfin mako sharks, prohibiting them in the recreational fishery would not end overfishing for this species. Given these reasons and the economic impacts of this alternative are estimated to be higher than that of the preferred alternatives, NMFS does not prefer this alternative at this time.

### **8.6.3 Smooth Dogfish**

NMFS also considered alternatives regarding the potential inclusion of smooth dogfish under NMFS management. Smooth dogfish are currently not managed by NMFS, and stock data are sparse. Therefore, there is limited stock status information, participant information, and effort data for this fishery.

Under alternative F1, the no action alternative, NMFS estimates that there would not be any economic impacts to small entities beyond the status quo. This alternative would have the lowest costs alternative to small entities. However, applying the No Action alternative would not meet the objectives of this rule since it would preclude gathering fishery participant information. Therefore, NMFS does not prefer this alternative at this time.

Implementing federal management of smooth dogfish through alternative F2 would focus on characterizing the fishery and stock status, but would not actively change catch levels or rates. Therefore, this alternative would likely have minor economic impacts on small entities. Business entities that fish commercially for smooth dogfish would have to purchase an open access smooth dogfish commercial fishing permit, and

dealers would have to report smooth dogfish landings. The costs to small entities would include the costs of obtaining the permit, the time involved in completing the permit form, and the administrative costs associated with reporting landings. In addition, recreational anglers that would want to retain smooth dogfish in federal waters would need to purchase an HMS Angling category permit. While this alternative results in more costs to small entities than alternative F1, it helps meet the objectives of this rule of gathering more information on participation in this fishery, and therefore is preferred at this time.

Sub-alternatives F2 a1, which would establish a smooth dogfish quota that is equal to the average annual landings from 1998-2007, and F2 a2, which would establish a smooth dogfish quota equal to the maximum annual landing between 1998-2007, could potentially have negative economic impacts on fishermen if the associated quotas reflect a significantly underreported fishery. If the actual landings are higher than these two quotas, fishermen would be prevented from fishing at status quo levels, and thus experience negative economic impacts. Thus, NMFS does not prefer these two sub-alternatives at this time.

Sub-alternative F2 a3, which would establish a smooth dogfish quota above the maximum annual landing between 1998-2007, is anticipated to have neutral economic impacts. Establishing a quota of maximum historical annual landings plus one standard deviation between the years 1998 and 2007 would allow a buffer for potential unreported landings during that time. This would allow the fishery to continue in the future without having to be shut down prematurely, which may not be warranted given smooth dogfish sharks have not been assessed. Thus, NMFS prefers sub-alternative F2 a3 at this time.

There are no negative economic impacts anticipated with alternative F2 b1. There is no charge associated with fishermen and researchers obtaining an EFP, SRP, display permit, or LOA for research or the collection for public display. In addition, NMFS would establish a smooth dogfish set aside that would accommodate current and future research activities. Thus, NMFS does not anticipate any negative economic impacts associated with alternative F2 b1, and NMFS prefers sub-alternative F2 b1 at this time.

As with sub-alternative F2 b1, there are no negative economic impacts anticipated with sub-alternative F2 b2. There is no charge associated with fishermen and researchers obtaining an EFP, SRP, display permit, or LOA for research or for the collection for public display. In addition, NMFS would establish a smooth dogfish set-aside that would accommodate current and future research activities. Thus, NMFS does not anticipate any negative economic impacts associated with sub-alternative F2 b1.

Alternative F3, which would implement management measures for smooth dogfish that complement the ASMFC plan, would likely have neutral to slightly positive economic impacts. Most of the ASMFC regulations would not change the smooth dogfish fishery, and would therefore, would have neutral impacts on fishermen. In addition, the ASMFC's consideration of removing the two hour-net check provision and allowing fishermen to process smooth dogfish while at sea would allow fishermen to

conduct the fishery as they have in the past, and therefore, result in neutral or slightly positive economic impacts. However, since NMFS considers the requirements for gillnet checks and maintaining shark fins naturally attached through offloading necessary conservation tools for protected resources and to prevent shark finning, NMFS does not prefer this alternative at this time.

## **Chapter 8 References**

NMFS. 2007. SEDAR 13 Stock Assessment Report: Small Coastal Sharks, Atlantic Sharpnose, Blacknose, Bonnethead, and Finetooth Shark. Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD 20910. 375 pp.