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OCT 29, 2003 F/SER3: JLL

MEMORANDUM FOR: F/SF - Jack Dunnigan

FROM: F/SER3 - Roy E. Crabtree, Ph.D.

SUBJECT: Biological Opinion (Opinion) on the continued operation of Atlantic shark fisheries (commercial shark bottom longline and drift gillnet fisheries and recreational shark fisheries) under the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (HMS FMP) and the Proposed Rule for Draft Amendment 1 to the HMS FMP, July 2003.

The attached document constitutes the National Marine Fisheries Service's (NOAA Fisheries) Opinion based on our review of the Proposed Rule for Draft Amendment 1 to the HMS FMP, and its effects on listed species in accordance with section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*). A complete review of the consultation history is provided in the Opinion. This Opinion is based on information provided in Amendment One to the HMS FMP; observer and logbook data (and associated analyses) of fishery effort and protected species interactions within the U.S. Atlantic, Gulf of Mexico, and Caribbean shark fisheries; ESA recovery plans; and the most current sea turtle stock assessment reports. A complete administrative record of this consultation is on file at this office.

In the attached Opinion, we conclude that the proposed action is not likely to jeopardize the continued existence of any listed species under NOAA Fisheries' purview. Incidental takes of sea turtles (primarily loggerhead and leatherback sea turtles) and smalltooth sawfish are anticipated. An incidental take statement is included which specifies the extent of anticipated take and the reasonable and prudent measures necessary to minimize the impacts of the take.

Attachment

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Endangered Species Act - Section 7 Consultation

Biological Opinion

Agency:	National Marine Fisheries Service, Office of Sustainable Fisheries, Highly Migratory Species Division
Activity:	The continued operation of Atlantic shark fisheries (commercial shark bottom longline and drift gillnet fisheries and recreational shark fisheries) under the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (HMS FMP) and the Proposed Rule for Draft Amendment 1 to the HMS FMP, July 2003.
Consultation Conducted by:	National Marine Fisheries Service, Southeast Region, Protected Resources Division; I.D. No. F/SER/2003/00953
Approved by:	_____ Roy E. Crabtree, Ph.D., Regional Administrator National Marine Fisheries Service, Southeast Region St. Petersburg, Florida
Date Issued:	

This document represents the National Marine Fisheries Service's (NOAA Fisheries) biological opinion (Opinion) based on our review of the Proposed Rule for Draft Amendment 1 to the Fishery Management Plan for Tunas, Swordfish, and Sharks, and its effects on listed species. This Opinion has been prepared in accordance with section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Introduction

Section 7(a)(2) of the ESA requires that each federal agency shall ensure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of critical habitat of such species. When the action of a federal agency may affect a protected species, that agency is required to consult with either NOAA Fisheries or the U.S. Fish and Wildlife Service, depending upon the protected species that may be affected. For actions described in this document, NOAA Fisheries has dual responsibilities, under the Magnuson-Stevens Fishery Conservation and Management Act (MSA)(16 U.S.C. 1801 *et seq.*) and the ESA; therefore, the agency must conduct intra-service consultation. For the purposes of this Opinion, the action agency is NOAA Fisheries' Highly Migratory Species Division of the Office

of Sustainable Fisheries (F/SF1) and the consulting agency is NOAA Fisheries' Protected Resources Division of the Southeast Regional Office (F/SER3).

This Opinion is based on information provided in the ESA recovery plans, the most current stock assessment reports, observer and logbook data (and associated analyses) of fishery effort and protected species interactions within the U.S. Atlantic, Gulf of Mexico, and Caribbean shark fisheries.

Consultation History

Previous consultations

For two decades, fisheries targeting Highly Migratory Species (HMS) have undergone many formal and informal section 7 consultations. These consultations are summarized in the June 30, 2000, and June 14, 2001, Opinions and have collectively covered all components of the Atlantic HMS fisheries, including the pelagic driftnet, drift gillnet, pelagic longline, bottom longline, purse seine, and hand gear (hook-and-line, handline, and harpoon) fisheries in the western Atlantic, Caribbean, and Gulf of Mexico. Consultations that have specifically addressed shark fisheries include:

- A September 7, 1989, informal consultation on the initial draft Secretarial Shark FMP.
- A September 23, 1991, formal consultation on fishing conducted under the Final Secretarial Shark FMP of 1991, which concluded with a "no jeopardy" Biological Opinion.
- A February 2, 1996, reinitiated formal consultation on the drift gillnet component of the directed swordfish fishery and the drift gillnet component of the shark fishery, which concluded with a "no jeopardy" Biological Opinion.
- A May 29, 1997, formal consultation on all components of the pelagic fishery (except billfish), which concluded with a "jeopardy" Biological Opinion and included reasonable and prudent alternatives to avoid jeopardy. That jeopardy conclusion was primarily based on concerns regarding future lethal take of right whales in the northeast swordfish driftnet fishery, as well as the Southeast shark gillnet fishery.
- A July 10, 1998, informal consultation amending the May 29, 1997, Biological Opinion to revise the incidental take statement, clarifying the percent observer coverage needed in the shark gillnet fishery outside of right whale season in the Southeast.
- An April 23, 1999, formal consultation on the proposed rule to implement the HMS FMP. The resulting Opinion concluded that the continued operation of HMS fisheries was not likely to jeopardize the continued existence of any species under NOAA Fisheries' purview, including right whales, assuming that the reasonable and prudent alternative to avoid jeopardizing the continued existence of the right whale in the previous (May 29, 1997) jeopardy Opinion was fully implemented. This Opinion also concluded that HMS fisheries were likely to lethally and non-lethally take large numbers of threatened and endangered sea turtles and identified several reasonable and prudent measures with terms and conditions to minimize the effects of the anticipated take of those listed sea turtles.
- A formal consultation completed on June 30, 2000. That Opinion analyzed a regulatory amendment to the HMS FMP intended to reduce bycatch, and data indicating that the

fishery exceeded its levels for leatherback and loggerhead sea turtle takes authorized for the pelagic longline component of the fishery in the April 23, 1999, Biological Opinion. The resulting Opinion concluded "jeopardy" for the Atlantic pelagic longline component of the fishery due its high level of leatherback and loggerhead takes, both lethal and non-lethal. All other fishery components, including the Atlantic bottom longline and gillnet fisheries for sharks, were found not likely to jeopardize the continued existence of any ESA-listed species.

- A June 14, 2001, formal consultation on the effects of the continued authorization of fisheries under the HMS FMP and the Billfish FMP. In addition to new information on sea turtle interactions and sea turtle status, the consultation considered the effects of several regulatory changes: implementation of the bycatch reduction regulatory amendment with an August 1, 2000, final rule; the October 13, 2000, emergency rule on the pelagic longline fishery that temporarily closed an area off the Grand Banks; and the interim final rule requiring pelagic longline vessels to carry and use line clippers and dipnets. The resulting Opinion concluded that the continued prosecution of the pelagic longline fishery in the manner described in the HMS FMP was likely to jeopardize the continued existence of loggerhead and leatherback sea turtles. All other fishery components, including the Atlantic bottom longline and gillnet fisheries, were found not to jeopardize the continued existence of any ESA-listed species. This Opinion specified a reasonable and prudent alternative (RPA) which would allow the continuation of the pelagic longline fishery without jeopardizing the continued existence of loggerhead and leatherback sea turtles.
- A December 19, 2002, informal consultation on an emergency rule to implement management measures in the Atlantic shark fisheries consistent with the 2002 stock assessments.

Consultations on Atlantic shark fisheries have primarily been concerned with the impact of drift gillnet gear on endangered large whales (particularly right whales), offshore cetaceans, and sea turtles. Terms and conditions have included gear regulations, monitoring requirements, implementation of observer programs to document incidental take, regulations to reduce/eliminate mortalities in areas and season where the takes of threatened or endangered species are likely to occur, and outreach efforts including workshops with shark gillnet fishermen to provide information on sea turtle handling and resuscitation guidelines.

The Atlantic Large Whale Take Reduction Team (ALWTRT) was formed on August 6, 1996, because of interaction between strategic stocks of large whales and pot and gillnet fisheries in the western Atlantic. The gillnet segment of the HMS shark fishery was considered by the ALWTRT. The February 1999 rule implementing the Atlantic Large Whale Take Reduction Plan (ALWTRP) includes: closure of the Southeast U.S. right whale critical habitat and adjacent area (approximately Savannah, GA to Sebastian Inlet, FL) to drift gillnet gear during the calving season (November 15 - March 31) when whale distribution may coincide with the fishery; allowing strike gillnet fishing for sharks in the right whale critical habitat during the calving season (under certain specified conditions); requiring observers aboard 100 percent of shark gillnet trips (drift or strike) from November 15 to March 31 between Savannah, GA and approximately West Palm Beach, FL; and gear marking requirements. These requirements were

first implemented under the Marine Mammal Protection Act (MMPA), and later also adopted in the April 1999 HMS FMP under the authority of the MSA to ensure regulatory consistency.

The June 30, 2000, and June 14, 2001, Opinions both discussed the need to update and improve observer information and take estimates in the bottom longline fishery. From 1994 through 2000, the observer program was a voluntary program and the observers only went on vessels that agreed to take them. Thus, the data for 1994-2000 was not based on a random selection process and did not cover the entire range of the fishery. However, it did cover vessels operating in the major fishing grounds off of Florida and North Carolina, and it is the only observer data available for the fleet. Since 2001, the observer program has switched to a mandatory program with vessels selected randomly across areas based on historic participation patterns.

Present Consultation

The emergency rule subject to the last consultation, and under which large and small coastal shark quotas and other management measures are presently in place, will expire on December 29, 2003. That emergency rule was intended as an interim measure to maintain the status quo of large coastal shark (LCS) and small coastal shark (SCS) management, pending the re-evaluation of new data and management measures in the context of the rebuilding plan through an FMP amendment. NOAA Fisheries announced its intent to conduct an Environmental Impact Statement and prepare an amendment to the HMS FMP to address the Atlantic shark fisheries on November 15, 2002 (67 FR 69180). The proposed rule for Draft Amendment 1 to the HMS FMP and the notice of availability of the Draft Amendment were published on August 1, 2003.

On July 16, 2003, F/SF1 requested that NOAA Fisheries' Office of Protected Resources (F/PR) consider the proposed rule for Draft Amendment 1 to the HMS FMP with respect to the consultations previously concluded on HMS fisheries under Section 7 of the ESA. F/SF1 sought concurrence with their determination that the measures in the proposed rule were not expected to have adverse affects on protected species or to alter fishing practices or fishing effort in any way not previously considered in the June 14, 2001, Opinion. F/PR conferred with the Protected Resources Division of the Northeast Regional Office and F/SER3 and decided that the consultation would be conducted by F/SER3. F/PR forwarded the consultation to the Southeast Region's Protected Resources Division for action. On August 28, 2003, F/SER3 responded via e-mail that they did not concur with F/SF1's determination that the and requested additional information regarding sea turtle and smalltooth sawfish take estimates. The smalltooth sawfish had been listed as an endangered species on April 1, 2003. Impacts on this species from the shark fisheries had not been considered in previous Opinions or in a conference, and observer information indicates that they are occasionally taken incidentally in the shark bottom longline fishery and the shark drift gillnet fishery. There is also new information on sea turtle interactions in the shark bottom longline fishery. The HMS Draft Amendment 1 included reports of takes, but no estimates of fishery-wide interactions. On September 26, F/SF1 provided F/SER3 with draft take estimates for sea turtles, as well as smalltooth sawfish, based on observer data in the shark bottom longline fishery from 1994 through 2001. The final estimates were received on October 2, 2003, and subsequently supplemented on October 10, 2003 and October 15, 2003. On October 10, 2003, the NOAA Fisheries Southeast Fisheries Science

Center provided estimates of fishery-wide interaction estimates for the shark gillnet fisheries, based on observer data from 1999 through 2002.

On October 15, 2003, the Deputy Director of the Office of Sustainable Fisheries informed F/SER3 via e-mail of possible changes to the shark proposed rule based on public comments, and requested they be analyzed in the current consultation as part of the proposed action. These changes include:

> 1) An increase in the large coastal shark quota reduction from 40 percent to 45 percent, resulting in a commercial LCS quota of 1,017 metric tons (mt) dressed weight (dw) instead of the 1,109 mt dw proposed.
>
> 2) A reduction in the proposed time/area closure. The rule proposed to close an area from Virginia to the northern part of South Carolina. The revised closure would encompass an area from approximately Oregon Inlet, North Carolina, to Cape Fear, North Carolina, out to around the 60 fathom line.
>
> (3) The continuation of the drift gillnet fishery. The rule proposed allowing only strikenet gear and removing drift gillnet gear from the authorized gear types.
>
> (4) A requirement for workshops for commercial and recreational fishermen. At these workshops, fishermen would learn species-identification, how to use release equipment (including line cutters, dipnets, and dehooking devices), and more about current regulations.

In that same e-mail, it was noted that not all the regulations in the final rule would be effective at the same time. Management measures, such as trimester commercial fishing seasons, the time/area closure, and the workshops would likely not be effective until the 2005 fishing season. The vessel monitoring requirement would likely be effective by November 2004 for the start of right whale calving season.

This Opinion will consider the effects of implementation of the proposed rule, as subsequently modified by F/SF1 (as described above). In the remainder of this Opinion, this modified proposed rule will simply be referred to as the proposed rule or the proposed action.

I. Description of the Proposed Action

NOAA Fisheries proposes to amend its commercial and recreational regulations governing shark fisheries in the Atlantic, Gulf of Mexico, and Caribbean Sea. The Atlantic shark fisheries are managed under the authority of the Magnuson Stevens Fishery Management and Conservation Act, as amended by the Sustainable Fisheries Act (MSA). The MSA is the principle federal statute governing the management of U.S. marine fisheries. The proposed rule for Draft Amendment 1 to the HMS FMP and the notice of availability of the Draft Amendment were published on August 1, 2003. The purpose of the proposed Amendment is to rebuild overfished stocks and prevent overfishing on Atlantic sharks consistent with the National Standards of the

MSA, based on the results of the 2002 small coastal shark (SCS) and large coastal shark (LCS) stock assessments. These stock assessments are the best available science and, in some cases, have resulted in a change in status of some shark species from previous stock assessments. Based on the new stock assessments, NOAA Fisheries F/SF1 has decided that many of the shark management measures in the HMS FMP should be re-examined and amended. Additionally, because of the change in status of some species, some essential fish habitat identifications need to be updated. Amendment 1 examines numerous alternatives to revise commercial and recreational shark management measures; reduce bycatch and bycatch mortality; update, as appropriate, Essential Fish Habitat; and update and present a plan to rebuild LCS and to prevent overfishing of LCS, sandbar sharks, and finetooth sharks.

This Opinion considers the effects of NOAA Fisheries' F/SF1's continued authorization of directed Atlantic shark fisheries regulated under the HMS FMP, as proposed to be amended. The management unit covered under the Atlantic HMS FMP consists of populations of tunas, swordfish, and sharks. Amendment 1 to the HMS FMP, however, pertains only to the management of Atlantic sharks. There are no changes proposed to the pelagic longline fishery regulations; therefore, implementation of the Amendment would not change pelagic longline fishing effort or fishing patterns previously analyzed in the June 14, 2001, Opinion for their effects on listed species. For this reason, this consultation will only address other components of Atlantic shark fisheries, namely, the commercial bottom longline and gillnet shark fisheries and the recreational shark fishery, as well as the proposed measures in the draft Amendment.

The FMP does authorize the retention of a limited number of incidentally-caught LCS and SCS by fishing vessels targeting other species. The Draft Amendment does not propose any changes to these incidental catch allowances, and, therefore, is not expected to affect fishing effort or fishing patterns in other, non-shark fisheries. Those fisheries are not considered part of the proposed action--they are not interrelated to nor interdependent on the HMS authorization--as they would still occur but for the HMS FMP.

A summary description of current Atlantic shark fisheries and the proposed management changes is provided below. Further detail can be found in the Draft Amendment and associated proposed rule.

A. Description of Shark Fisheries and Management Measures

F/SF1 prepared a summary of the management measures for commercial and recreational shark fisheries, highlighting the proposed new measures or changes in Draft Amendment 1. The summary is contained in Table 1.

Table 1. Summary of Atlantic shark fishery management regime. *Changes proposed in Amendment 1 are in italics.*

PROHIBITED SPECIES

The following sharks cannot be kept commercially or recreationally: Whale, basking, sand tiger, bigeye sand tiger, white, dusky, night, bignose, Galapagos, Caribbean reef, narrowtooth, longfin mako, bigeye thresher, sevengill, sixgill, bigeye sixgill, Caribbean sharpnose, smalltail, and Atlantic angel sharks. *There is a mechanism proposed to add or remove species, as needed, via rulemaking.*

COMMERCIAL REGULATIONS

Management Unit	**Species that can be retained**	**Quota (mt dw)**	***Regional Quotas***	**Authorized Gears**
Large Coastal Sharks - directed commercial retention limit of 4,000 lb dw per trip - incidental retention limit	Sandbar, silky, tiger, blacktip, bull, spinner, lemon, nurse, smooth hammerhead, scalloped hammerhead, great hammerhead	1,017	*NA = 4%* *SA = 54%* *GM = 42%*	Pelagic or Bottom Longline; *Strikenet;* Rod and Reel; Handline; Bandit Gear
Pelagic Sharks - no directed retention limit - incidental retention limit	Shortfin mako, thresher, oceanic whitetip	488	*None*	
	Porbeagle	92		
	Blue	273		
Small Coastal Sharks - no directed retention limit - incidental retention limit	Atlantic sharpnose, blacknose, finetooth, bonnethead	*454*	*NA = 13%* *SA = 83%* *GM = 4%*	

Additional remarks:
- All sharks not retained must be released in a manner that ensures the maximum probability of survival
- Finning is prohibited for all sharks regardless of species
- *Fishing seasons January 1 to April 30; May 1 to August 30; September 1 to December 31*
- *Fishing regions: NA = Maine through Virginia; SA = N. Carolina through East Florida and Caribbean; GM = Gulf of Mexico*
- Quota overharvest and underharvest adjustments will be made for the same season the following year; on reopening that season
- *Time/area closure for bottom longline January through July* from approximately Oregon Inlet to Cape Fear out to around the 60 fathom line
- *Vessel Monitoring Systems required for all vessels during right whale calving season and during time/area closure for all permit holders with bottom longline gear between* 33 and 36.30 degrees north latitude.
- Limited access; Exempted Fishing Permit (EFP) requirements; *Display permits*
- Observer and reporting requirements
- *Count state landing after federal closure against federal quota*
- For incidental limited access permit holders: 5 large coastal sharks per trip; a total of 16 pelagic or small coastal sharks (all species combined) per vessel per trip
- Vessel with bottom longline must: *(1) have non-stainless steel corrodible hooks; (2) have a dehooking device (when approved), linecutters, and a dipnet on board; (3) move 1 nmi after an interaction with a protected species;* and (4) post sea turtle handling and release guidelines in the wheelhouse

RECREATIONAL REGULATIONS

Management Unit	**Species that can be kept**	**Retention Limit**	***Authorized Gear***
Large Coastal, Pelagic, and Small Coastal Sharks	LCS: Sandbar, silky, tiger, blacktip, bull, spinner, lemon, nurse, smooth hammerhead, scalloped hammerhead, great hammerhead Pelagic: shortfin mako, thresher, oceanic whiteip, porbeagle, blue SCS: Atlantic sharpnose, blacknose, finetooth, bonnethead	1 shark per vessel per trip (all species) with a 4.5 feet fork length minimum size; allowance for 1 Atlantic sharpnose and *1 bonnethead* per person per trip (no minimum size)	*Rod and Reel; Handline*

Additional remarks:
Harvested sharks must have fins, head, and tail attached (can be bled and gutted if tail is still attached).

B. Description of Commercial Shark Fisheries

An estimated 1,684 mt dw of U.S. Atlantic LCS were landed in 2000 and 1,616 mt dw were landed in 2001 Approximately 84 to 91 percent of LCS landings came from the Southeast Region, mainly Louisiana, Florida, and North Carolina (Cortes and Neer 2002). An estimated 159 and 165 mt dw of U.S. Atlantic pelagic sharks were landed in 2000 and 2001, respectively. From 56 to 64 percent of pelagic shark landings occurred in the southeast region during 1998 - 2001 (Cortes and Neer 2002). An estimated 269 and 326 mt dw of U.S. Atlantic SCS were landed in 2000 and 2001, respectively (Cortes and Neer 2002). Of the small coastal sharks caught during 1995 - 2000, the majority were caught in the South Atlantic region. In those years, gillnets were the dominant type of gear catching small coastal sharks. Commercial landings of small coastal sharks peaked in 1999 at 330 mt (Cortes 2002). Data from the shark bottom longline fishery observer program indicates that SCS caught on longlines are generally not landed (1.6 percent), but are used for bait (98.3 percent) (Burgess and Morgan 2003). Commercial landings of SCS represent only a small fraction of all catches, because they are also caught as bycatch and discarded in a variety of fisheries.

Fishing Seasons
Since 1997, the LCS fishing season has generally been open for three months (January-March) in the first fishing season and a few weeks (July-August) in the second season. The seasons are closed to keep the LCS fishery within the annual quota. While the LCS fishing season has generally been open for only a few months a year, the SCS and pelagic shark fisheries have never closed, as their quotas have not been reached.

Number of Participants/Permit Holders
Given the short, directed fishing season for sharks, fishermen have had to diversify in order to maintain their financial viability, either into other fisheries or other occupations. Many participants in the commercial shark fishery are engaged in the longline fishery for swordfish and tuna, the hook-and-line fisheries, or the snapper-grouper or reef fish fisheries. The NOAA Fisheries permit databases indicate that approximately 98 percent of permitted shark fishermen hold fishing permits in other fisheries.

Fishermen who wish to sell sharks caught in federal waters must possess a federal shark permit (directed or incidental). As part of the HMS FMP, NOAA Fisheries implemented a limited access system for the commercial fishery so permits can only be obtained through transfer or sale, subject to upgrading restrictions. The purpose of limited access was to reduce latent effort in the shark fishery and prevent further overcapitalization. Based on current and historical participation, implementation of limited access reduced the number of shark permit holders from over 2,200 permit holders before limited access, to 607 in October of 2003. As of October 17, 2003, approximately 351 fishermen had active incidental commercial shark limited access permits and 256 had active directed commercial shark limited access permits.

In the directed fishery, vessels range in length from 14 to 87 feet, with an average length of 45.5 feet. Vessels range in length from 15 to 125 feet in the incidental category, with an average length of 50.6 feet. The addresses of these permit holders range from Texas through Maine with nearly half of the permit holders located in Florida.

Monitoring and Reporting

Commercial fisheries for Atlantic sharks are monitored through a combination of vessel logbooks, dealer reports, port sampling, cooperative agreements with states, and scientific observer coverage. NOAA Fisheries collects shark data through reports from owners/operators of permitted vessels under a mandatory commercial logbook program, the Commercial Shark Fishery Observer Program (CSFOP), the Pelagic Observer Program (POP), and the shark gillnet observer program. Logbooks contain information on fishing vessel activity, including dates of trips; number of sets; area fished; number of fish; and other marine species caught, released, and retained. Observer data contains additional information such as gear information and biological data for individual animals. Observer data can be used to verify logbook data. In 2003, NOAA Fisheries began to collect economic data such as volume and cost of fishing inputs from 20 percent of the fleet. Commercial landings data for sharks are also collected by seafood dealers and port agents who routinely record the weight and average ex-vessel price of sharks. Dealer reports must be submitted to NOAA Fisheries twice a month for all sharks.

The University of Florida and the Florida Museum of Natural History are continuing an observer program of the directed bottom longline shark fishery in the Atlantic and Gulf of Mexico – the CFSOP – to enhance the reliability of management strategies for the shark fishery. Since 1994, the CSFOP has been monitoring and reporting on commercial bottom longline shark fishery catches. This program has been funded by the U.S. Department of Commerce through the MARFIN and S-K granting programs and more recently with contracts through NOAA Fisheries (Burgess and Morgan 2003). The CSFOP provides baseline characterization information, by region, on the species composition, relative abundance, and size composition within species for the large coastal and small coastal bottom longline shark fisheries. As of January 2002, the observer coverage requirements in the bottom longline fishery for sharks changed from voluntary participation to mandatory participation if selected. Vessels are selected, on a random basis, if they have a current directed shark permit and if they have reported fishing for sharks in the past. Selections are also made to ensure that areas with more fishing effort will have more vessels selected. NOAA Fisheries has selected over 30 vessels each season since January 2002.

The shark gillnet fishery observer program is coordinated by the NOAA Fisheries Southeast Fisheries Science Center (SEFSC). Observers are deployed on vessels participating in the shark gillnet fishery and collect information specific to shark gillnet gear set in both the driftnet and strikenet fashion. For each set and haul back, observers record beginning and end times of setting and hauling; estimated length of net set; sea and wind states; latitude and longitude coordinates; and water depth. As the nets are retrieved, observers record species caught, estimate lengths and weights, and disposition (kept, discarded alive, or discarded dead) (Carlson and Lee 1999).

Bottom Longline Fishery

The Atlantic bottom longline fishery targets LCS, with landings dominated by sandbar and blacktip sharks. Bottom longlines were the primary commercial gear-type used to catch LCS from 1987-2001 in all regions (Cortes and Neer 2002). Gear characteristics vary by region, but in general, a ten-mile long monofilament bottom longline, containing about 750 hooks, is fished overnight. Skates, sharks, or various finfishes are used as bait (GSAFDF 1997). The gear typically consists of a heavy monofilament mainline with lighter weight monofilament gangions. Some fishermen may occasionally use a flexible 1/16 inch wire rope as gangion material or as a short leader above the hook. According to the most recent observer data report, Carolina region fishermen set more hooks (1288.5 hooks/set) and fished longer (24.5 hr/set) than Florida Gulf fishermen (599 hooks/set, 11.25 hr/set) and Florida East Coast fishermen (382 hooks/set, 9.0 hrs/set) (Burgess and Morgan 2003).

Gillnet Fisheries

Gillnets are the dominant gear type for catching SCS. The Southeast shark drift gillnet fishery is comprised of about six vessels that use nets typically 456 to 2,280 meters long and 6.1 to 15.2 meters deep, with stretched mesh from 12.7 to 22.9 cm. The entire fishing process for a set (time net was first set through time the haulback was completed) averaged 8.9 hours in 2002 (Carlson and Baremore 2002a).

Shark fishermen also use gillnet gear in a "strikenet" fashion. Generally, a "strike" means to make a short set, directed on a known concentration of sharks. Concentrations of sharks are sometimes located through cooperation with a spotter plane or by actively setting the net in the wake of a shrimp vessel, whose discarded bycatch attracts sharks. In the regulatory definition in the ALWTRP and the proposed regulatory definition in draft Amendment 1, strikenetting is specified to be a deployment that encircles or encloses an area of water with the net. This sometimes involves fishing with a small second vessel actively setting the net around a school of sharks or the drift. Vessels fishing in a strikenet fashion used shorter, deeper nets than for regular drift gillnetting: 364.8 meters long, 30.4 meters deep, and with mesh size 22.9 cm (Carlson and Baremore 2002a). To clarify our terminology, strikenets are a category of drift gillnets, fished in a particular way. In this Opinion, however, we will use "strikenets" or "strike gillnets" to refer to this gear and the manner of fishing, as differentiated from "drift nets" or "drift gillnets" by which we mean drift gillnet gear fished in the usual manner involving longer sets and non-encircling deployment of the gear.

Legislation in South Carolina, Georgia, and Florida has prohibited the use of commercial gillnets in state waters, thereby forcing some of these vessels into deeper waters under federal jurisdiction, where gillnets are less effective. To reduce the risk of bycatch of right whales, NOAA Fisheries implemented a restricted area along parts of the Georgia and Florida coast from November 15 through March 31, where only strikenets can operate. Operation in this area and time requires 100 percent observer coverage. NOAA Fisheries also designated an area to the south – from about Sebastian Inlet, Florida to about West Palm Beach, Florida – open to shark drift gillnet fishing, but also only with 100 percent observer coverage during right whale calving season. Outside of the right whale calving season, observer coverage is currently not sufficient

to produce reliable estimates of bycatch in both the strikenet and driftnet fisheries (the observer converge for this portion of the fishery is below 5%).

A total of 69 drift gillnet sets were observed in 2002. During non-right whale season (28 sets), the observed drift gillnet catch consisted of 12 shark species (84.9 percent of total catch), 26 bony fish and rays, and one species of marine mammal (Carlson and Baremore, 2002a). During right whale season (41 sets), the observed driftnet catch consisted of 10 species of shark (90.7 percent of total catch), 26 species of teleosts and rays and two species of sea turtle (Carlson and Baremore, 2002b). A total of 38 strikenet sets were observed in 2002 in the shark gillnet fishery observer program.

C. Description of Recreational Shark Fisheries

Recreational fishing for Atlantic sharks occurs in federal and state waters from New England to the Gulf of Mexico and Caribbean Sea. In the past, sharks were often called "the poor man's marlin." Recreational shark fishing with rod and reel is now a popular sport at all social and economic levels, largely because of accessibility to the resource. Sharks can be caught virtually anywhere in salt water, with even large specimens available in the nearshore area to surf anglers or small boaters. Most recreational shark fishing takes place from small to medium-size vessels. Makos, white sharks, and large pelagic sharks are generally accessible only to those aboard ocean-going vessels. Recreational shark fisheries are exploited primarily by private vessels and charter/headboats although there are some shore-based fishermen active in the Florida Keys. Charter vessel fishing for sharks is becoming increasingly popular. In most U.S. waters, this type of fishing occurs from May to September. In some regions, certain species are heavily targeted, e.g., sharpnose and blacktip in the Carolinas, and makos and large white sharks at Montauk, New York. Many charter vessels also fish for sharks out of ports in Ocean City, Maryland and Wachapreague, Virginia. Headboats may land the smaller shark species, but they usually do not target sharks specifically, except for a headboat fishery for sharpnose sharks based in Port Aransas, Texas.

Recreational Landings

U.S. recreational shark harvests of LCS have declined by 80 percent from the peak recorded catch in 1983 of 746,600 fish to 142,000 in 2001 (Cortes and Neer 2002). Blacktip and sandbar sharks dominate the catches of LCS at 36 and 27 percent, respectively. Recreational harvests of SCS have fluctuated between 34,000 and 190,000 fish per year since the mid 1980s, with Atlantic sharpnose comprising about 60 percent of the catch in recent years. For pelagic species, some of which are considered prized game fish (e.g., makos), recreational harvests have fluctuated from a peak of approximately 93,000 fish in 1985 to a low of about 6,000 fish in 1994. Recreational harvests of blue sharks accounted for 47 and 53 percent of the total catches of pelagic sharks in 1999 and 2000. From 1991 through 2001, the Marine Recreational Fishing Statistics Survey (MRFSS) intercept survey sampled 13,056 shore- and vessel-based fishing trips which reported catching a shark in the management unit. These sampled trips caught a total of 40,960 sharks. The number of sharks caught per total trips sampled shows no trend, but the percentage of sharks released by private and party boats has increased as trip limits have been

reduced. The percentage of sharks released from shore-based fishing trips has remained constant (Babcock and Pikitch 2002).

Number of Participants/ Permits
NOAA Fisheries has recently implemented an Atlantic HMS recreational fishing permit (67 FR 77437). The HMS angling permit became effective March 2003. NOAA Fisheries now requires the owners of vessels that target, retain, or possess any HMS in federal waters of the Atlantic, Gulf of Mexico, and U.S. Caribbean to obtain this federal vessel permit. The HMS angling permit allows all anglers aboard permitted vessels to fish for HMS and is required to fish for, retain or possess, including catch and release fishing, any federally-regulated HMS, sharks, swordfish, white and blue marlin, sailfish, spearfish, and federally-regulated Atlantic tunas (bluefin, yellowfin, bigeye, skipjack, and albacore). As of September 30, 2003, 18,249 HMS angling permits had been issued.

Monitoring and Reporting
By definition, recreational landings of Atlantic HMS are those that are not marketed through commercial channels; therefore, it is not possible to monitor anglers' catches through ex-vessel transactions as in the commercial fishery. Instead, NOAA Fisheries conducts statistical sampling surveys of the recreational fisheries. These survey programs have been used for well over a decade. The two primary survey vehicles of the recreational sector conducted by NOAA Fisheries are the MRFSS and the Large Pelagic Survey.

In April 1998, NOAA Fisheries implemented a mandatory registration system for tournaments involving any billfish, with mandatory reporting if selected. The HMS FMP extended the requirement to tournaments directed at any Atlantic HMS, in order to improve estimates of HMS catches and landings by tournament participants. Tournament registration allows NOAA Fisheries to establish a universe in order to expedite outreach to recreational fishermen who participate in tournaments. The reporting forms also provide NOAA Fisheries with catch, release, and fishing effort statistics that are useful in characterizing the fishery. Because the Large Pelagic Survey does not collect recreational fishing data in the southeastern United States or the Gulf of Mexico, tournament data can provide information on which species are targeted in these areas, as well as release rates for each species.

D. Proposed Preferred Management Measures in Draft Amendment 1

Table 1 provides a summary of overall management measures in place and proposed for Atlantic shark fisheries. This section gives greater detail of the proposed measures in draft Amendment 1.

The draft Amendment examines numerous alternatives to revise commercial and recreational shark management measures; update and present a plan to rebuild LCS and prevent overfishing of LCS, sandbar sharks, and finetooth sharks; and update, as appropriate, Essential Fish Habitat, consistent with the MSA, National Environmental Policy Act, ESA, Marine Mammal Protection Act (MMPA), the Coastal Zone Management Act, the Regulatory Flexibility Act, and other domestic laws.

Proposed commercial management measures address LCS classification, shark quota administration, shark quota basis, and minimum size restrictions. The preferred alternative would:

- Aggregate LCS and establish one commercial quota for the complex.
- Establish regional quotas for the Gulf of Mexico (Texas-West Florida), South Atlantic (East coast Florida - North Carolina and the Caribbean), and North Atlantic (Virginia - Maine) commercial shark fisheries.
- Implement trimester fishing season quotas (January 1 - April 30, May 1- August 31, and September 1 - December 31).
- Implement commercial quota levels based upon percentage of maximum sustainable yield.
- Eliminate minimum size for any commercially caught sharks.

Proposed recreational management measures address retention limits, minimum size restrictions, and authorized gears. The preferred alternatives would:

- Maintain the current recreational retention limits of one shark per vessel per trip (inclusive of LCS, SCS, and pelagic sharks) and the allowance for one Atlantic sharpnose shark per person per trip to accommodate charter and headboat operations, but also allow the retention of one bonnethead shark per person per trip.
- Maintain the existing minimum size limit of 4.5 feet (137 cm) fork length for all sharks and no minimum size limit for Atlantic sharpnose sharks, plus allow the retention of bonnethead sharks with no minimum size.
- Allow only handline and rod and reel gear in the recreational shark fishery.

Proposed bycatch reduction management measures address gear restrictions and time area closures. The preferred alternatives would:

- Maintain the existing observer, net check, and LWTRP requirements on vessels participating in the shark gillnet fishery and the requirement for bottom longline vessels to post sea turtle handling and release guidelines.
- Implement voluntary fishermen workshops on species-identification, how to use release equipment (including line cutters, dipnets, and dehooking devices), and more about current regulations.
- Require vessel monitoring systems on shark bottom longline and gillnet vessels to enforce time/area closures and to monitor vessel locations in relation to protected species.
- Require the use of non-stainless steel hooks and the possession of clippers, dipnets, and dehooking devices on vessels with shark bottom longline gear.
- Require bottom longline vessels to move one nautical mile (nmi) after an interaction with a protected species.
- Implement a time/area closure for bottom longline fishing encompassing an area from approximately Oregon Inlet to Cape Fear out to around the 60 fathom line from January through July to protect sandbar and dusky shark nursery and pupping areas.

Other proposed management measures address deep water and other sharks, prohibited species, and exempted fishing permits. The preferred management alternative would:

- Remove the current deepwater/other species group from the management unit and require data collection only.

- Retain established prohibited species group and establish criteria for the addition and removal of species to/from the prohibited species group.
- Update and revise essential fish habitat identifications for species whose stock status has changed (sandbar, blacktip, finetooth, dusky, and nurse sharks).
- Provide criteria to increase or decrease essential fish habitat for individual species based on special needs.
- Develop a separate display permitting system for sharks apart from research or exempted fishing permits.

E. Other Actions and Regulations Affecting the Proposed Action

In addition to the previously mentioned measures in the FMP, there are a number of other actions that affect the prosecution of this fishery and are therefore, part of the proposed action. There is a regulatory amendment to the FMP to reduce bycatch and bycatch mortality from the longline fishery. The ALWTRP, which was implemented via a rule published February 16, 1999 (64 FR 7529), and the reasonable and prudent measures and the reasonable and prudent alternatives of previous biological opinions also include measures specifically to reduce the risk of protected species interactions with the shark fisheries.

The ALWTRP is a plan to reduce serious injury and mortality to four large whale stocks that occur incidental to certain fisheries. The target whale stocks are the North Atlantic right whale western North Atlantic stock, humpback whale western North Atlantic stock, fin whale western North Atlantic stock, and minke whale Canadian East Coast stock. Covered by the plan are fisheries for: Multiple groundfish species, including monkfish and dogfish, in the New England Multispecies sink gillnet fishery; multiple species in the U.S. mid-Atlantic coastal gillnet fisheries; lobster in the Gulf of Maine and U.S. mid-Atlantic trap/pot fisheries; and sharks in the Southeastern U.S. Atlantic gillnet fishery. The final rule includes time and area closures for the lobster, anchored gillnet and shark gillnet fisheries; gear requirements, including a general prohibition on having line floating at the surface in these fisheries; a prohibition on storing inactive gear at sea; and restrictions on setting shark gillnets off the coasts of Georgia and Florida and drift gillnets in the mid-Atlantic. The plan also contains non-regulatory aspects, including gear research, public outreach, scientific research, a network to inform mariners when right whales are in an area, and increasing efforts to disentangle whales caught in fishing gear.

The HMS FMP addresses the ALWTRP for the shark drift gillnet component of the HMS fisheries. Measures under the FMP to prevent potential interaction between whales and this fishery include: closure of the Southeast U.S. right whale critical habitat and adjacent area (approximately Savannah, GA to Sebastian, FL) to all gillnet gear during the calving season (November 15 - March 31) when whale distribution may coincide with the fishery (with exemption for strike gillnet gear under certain specified conditions); a 100 percent observer requirement from November 15 to March 31 for anyone fishing outside (to the east or south) of the closed area (i.e., between Savannah, Georgia and approximately West Palm Beach, Florida) or fishing with strikenet gear inside the closed area; and gear marking requirements. These requirements were previously implemented under the MMPA regulations establishing the

ALWTRP. The HMS FMP adopted these regulations under authority of the MSA to ensure regulatory consistency.

The HMS FMP prohibits shark drift gillnet fishing without an observer onboard, which is believed to strengthen the provisions of the ALWTRP. Since issuance of the June 30, 2000, Opinion, 100 percent observer coverage of the shark gillnet fishery has been maintained during right whale calving season, as required in lieu of a vessel monitoring system (VMS).

Other Biological Opinions
The consultation history section of this Opinion lists the previous biological opinions for the HMS fishery. Many of these opinions resulted in incidental take statements (ITSs) that authorize take of listed species. These ITSs contain reasonable and prudent measures (RPAs) and their implementing terms and conditions meant to limit the take's effects on listed species. Some of these Opinions determined that the fishery was likely to jeopardize the continued existence of listed species and issued RPAs to avoid jeopardy. These RPAs have provisions that limit the fishery. The May 29, 1997, Opinion found that the prosecution of the Southeast shark gillnet fishery was likely to jeopardize the continued existence of right whales, while the June 14, 2001, Opinion found that the prosecution of the HMS pelagic longline fishery was likely to jeopardize the continued existence of leatherback and loggerhead sea turtles. The provisions of the RPAs for these Opinions are incorporated by reference as part of the proposed action and can be found in Appendix I.

F. Action Area

Atlantic shark fisheries are managed under the HMS FMP throughout the U.S. EEZ in the Atlantic Ocean, the Gulf of Mexico, and the Caribbean Sea. Throughout this range of operation, Atlantic shark fisheries may affect one or more listed species, therefore the action area for this Opinion is the U.S. Atlantic, Gulf of Mexico, and Caribbean EEZ. For the directed commercial bottom longline and gillnet fisheries, the distribution of observed sets in the observer programs gives a useful picture of areas of concentration of commercial fishing effort (see Appendix II). The range of most bottom longline sets runs from the Panhandle of Florida in the Gulf of Mexico to southern Virginia in the Atlantic, with concentrations of activity around the Florida Keys, Cape Canaveral, and North Carolina. Gillnet fishery effort has concentrations northwest of the Florida Keys and along the central, east coast of Florida.

II. Status of the Species

The following endangered (E) and threatened (T) marine mammal, sea turtle, fish, and marine plant species and designated critical habitat under the jurisdiction of NOAA Fisheries are known to occur in or near the action area:

Common Name	Scientific Name	Status
Marine Mammals		
Blue whale	*Balaenoptera musculus*	E
Humpback whale	*Megaptera novaeangliae*	E
Fin whale	*Balaenoptera physalus*	E
Northern right whale	*Eubalaena glacialis*	E
Sei whale	*Balaenoptera borealis*	E
Sperm whale	*Physeter macrocephalus*	E
Sea Turtles		
Leatherback sea turtle	*Dermochelys coriacea*	E
Hawksbill sea turtle	*Eretmochelys imbricata*	E
Kemp's ridley sea turtle	*Lepidochelys kempii*	E
Green sea turtle	*Chelonia mydas**	E/T
Olive ridley sea turtle	*Lepidochelys olivacea*	T
Loggerhead sea turtle	*Caretta caretta*	T
Fish		
Smalltooth sawfish	*Pristis pectinata*	E
Shortnose sturgeon	*Acipenser brevirostrum*	E
Gulf sturgeon	*Acipenser oxyrinchus desotoi*	T
Gulf of Maine Atlantic salmon	*Salmo samar***	E

Critical Habitat

Northern Right Whale	*Eubalaena glacialis*

**Green sea turtles in U.S. waters are listed as threatened except for the Florida breeding population, which is listed as endangered. Due to the inability to distinguish between the populations away from the nesting beaches, green sea turtles are considered endangered wherever they occur in U.S. waters.*
***Only the wild Gulf of Maine Distinct Population Segment (DPS) is listed as endangered.*

A. Analysis of the Species and Critical Habitat Not Likely to be Affected

NOAA Fisheries has determined that the action being considered in this Opinion is not expected to affect the following listed species or critical habitat under the ESA: shortnose sturgeon, Gulf sturgeon, Gulf of Maine Distinct Population Segment (DPS) of Atlantic salmon, blue whale, sei whale, humpback whale, fin whale, Northern right whale, sperm whale, or right whale critical habitat. These species and critical habitat are therefore excluded from further analysis in this

Opinion. The following discussion summarizes NOAA Fisheries' rationale for these determinations.

i. Marine Mammals

Blue, sei, and sperm whales are predominantly found seaward of the continental shelf. Their numbers are not well known in the area seaward of the continental shelf adjacent to the shark gillnet and bottom longline fishing grounds; however, their concentrations in these areas are thought to be low compared to more northern latitudes. The gillnet portion of this fishery primarily takes place in water depths ranging from 5 to 21 meters (Trent et al. 1997), while the longline portion of this fishery takes place in water depths ranging from 5 to 155 meters, with the vast majority of the effort concentrated in water depths ranging from 10 to 55 meters (Cutis, pers. comm.); therefore, based on the depth at which Atlantic shark fishing occurs, these species of whales are expected to be rare in the action area. Based on observer information there have been no interactions between large whales and this fishery in the southeast (the observer effort and information is detailed in the Effects of the Action section of this Opinion). Based on the rarity of these species in the action area and the lack of interactions between large whales and the fishery, NOAA Fisheries believes the chances of a blue, sei, or sperm whale being affected by the proposed action are discountable.

Northern right whales, fin, and humpback whales are coastal animals and have been sighted in the nearshore environment in the Atlantic along the southeastern United States from November through March on their migration south. The Atlantic shark fisheries are subject to the rules and provisions resulting from the ALWTRP. The proposed action is also subject to the provisions of the RPA of the May 29, 1997 jeopardy Opinion. The RPA of that Opinion requires actions by the HMS fishery to protect right whales (see Appendix I). Based on the protections afforded these species by the ALWTRP, and the RPA of the May 29, 1997, Opinion and the lack of interactions between large whales and the Atlantic shark fishery since these measures have been in place, NOAA Fisheries believes that the effects of the proposed action on right, fin, and humpback whales will be insignificant. Listed large whale species will not be discussed further in this Opinion.

ii. Turtles

Olive ridley turtles in the United States are mainly found in the Pacific Ocean and rarely found in the southeastern United States. In the past two years, only three confirmed strandings of olive ridleys have been recorded in South Florida. Based on this information, NOAA Fisheries believes that this species is rare in the action area and the chances of an olive ridley turtle being affected by the proposed action are discountable. Therefore, olive ridley turtles will not be discussed further in this Opinion.

iii. Fish

Gulf of Maine Atlantic salmon DPS
The endangered Gulf of Maine Atlantic salmon DPS includes the wild population of Atlantic salmon found in rivers and streams from the lower Kennebec River north to the U.S.-Canada border. These include the Dennys, East Machias, Machias, Pleasant, Narraguagus, Ducktrap, and Sheepscot Rivers and Cove Brook. Atlantic salmon are an anadromous species and spawning and juvenile rearing occur in freshwater rivers followed by migration to the marine environment. Juvenile salmon in New England rivers typically migrate to sea in May after a two to three year period of development in freshwater streams, and remain at sea for two winters before returning to their U.S. natal rivers to spawn from mid October through early November. While at sea, salmon generally undergo extensive migrations in the Northwest Atlantic to waters off Canada and Greenland, where they are widely distributed seasonally over much of the region. The areas of the Atlantic EEZ where the Gulf of Maine Atlantic salmon DPS generally occur are north of where shark fishing occurs. Additionally, captures of Atlantic salmon in U.S. commercial fishing or by research/survey operations are relatively rare, with only a few reported in the Gulf of Maine and southern New England in trawls. Based on this information, it is highly unlikely that the action being considered in this Opinion will affect the Gulf of Maine DPS of Atlantic salmon.

Shortnose sturgeon
Endangered shortnose sturgeon are benthic fish found in large rivers and their associated estuaries along the western Atlantic coast from St. Johns River, Florida (possibly extirpated from this system), to the Saint John River in New Brunswick, Canada. The species is anadromous in the southern portion of its range (i.e., south of Chesapeake Bay), while some northern populations are freshwater amphidromous (NMFS 1998b). Some adult shortnose sturgeon have been reported as being captured in the nearshore marine habitat (Dadswell *et al.* 1984); however, it is not well documented. NOAA Fisheries has no reports of shortnose sturgeon in federal waters. Since the activities proposed to be authorized by the HMS FMP will be conducted in federal waters beyond where concentrations of shortnose sturgeon are most likely to be found, it is highly unlikely that the action will affect shortnose sturgeon.

Gulf sturgeon
Gulf sturgeon are an anadromous fish, inhabiting coastal rivers from Louisiana to Florida during the warmer months and over wintering in estuaries, bays, and the Gulf of Mexico. Available data indicates that Gulf sturgeon in the marine environment spread along the coast in nearshore waters in depths less than 10 meters (mainly state waters). There have been no recorded takes of Gulf sturgeon in fisheries occurring in federal waters (shrimp, snapper grouper). Since the activities proposed to be authorized by the HMS FMP, will be conducted in federal waters beyond where concentrations of Gulf sturgeon are most likely to be found, the chances of the proposed action affecting Gulf sturgeon are discountable.

iv. Critical Habitat

Northern Right Whale Critical Habitat

Northern right whale critical habitat (50 FR 28793) has been designated in the action area in the following general areas: (1) coastal Florida and Georgia, (2) the Great South Channel, east of Cape Cod, (3) Cape Cod and Massachusetts bays. Of these, only the first designated area (coastal Florida and Georgia) overlaps with where Atlantic shark fishing regularly occurs. The unit is defined from the mouth of the Altamaha River, Georgia, to Jacksonville, Florida, out 15 nmi and from Jacksonville, Florida, to Sebastian Inlet, Florida, out five nmi. The area was designated because of its importance as a calving area. Although sightings off Georgia and Florida primarily include adult females and calves, juveniles and adult males have also been observed. Northern right whales are most abundant in this area from mid-November through March (Slay et al. 1996).

Vessel traffic and fisheries are the major activities identified in the southeastern critical habitat area as potentially adversely affecting critical habitat through ship strikes or entanglements. However, regulations currently in place already address concerns regarding right whale entanglements and mortality risks from Atlantic shark fisheries (see right whale discussion above). The environmental features (typically referred to as the primary constituent elements) of the southeastern critical habitat area relate to water depth, water temperature, and bathymetry. The gears used to fish for Atlantic sharks, (bottom longline, gillnet, rod and reel) will have no impact on these features. Thus, the proposed action will not destroy or adversely affect the constituent elements of designated critical habitat for the North Atlantic right whale. Consequently, critical habitat will not be discussed further in this Opinion.

B. Analysis of the Species Likely to be Affected

The remainder of the species listed above in section II (sea turtles and smalltooth sawfish) are likely to be adversely affected by the proposed action. These species are found throughout all or a portion of the action area and have been documented as taken incidentally in one or more components of the Atlantic shark fishery. The remaining sections of this Opinion will focus solely on these species.

i. Species Descriptions

This section presents the biological and ecological information to provide background for analyses in later sections of the Opinion. Additional background information on the range-wide status of these species can be found in a number of published documents, including: recovery plans for loggerhead sea turtle (NOAA Fisheries and USFWS 1991a), Kemp's ridley sea turtle (USFWS and NOAA Fisheries 1992), green sea turtle (NOAA Fisheries and USFWS 1991b) and leatherback sea turtle (NOAA Fisheries and USFWS 1992); sea turtle status reviews and biological reports (NOAA Fisheries and USFWS 1995; Marine Turtle Expert Working Group (TEWG) 1998 & 2000, NOAA Fisheries 2001), and the smalltooth sawfish status review (available online at http://www.nmfs.noaa.gov/prot_res/PR3/status_reviews.html).

a. Loggerhead Sea Turtle

The loggerhead sea turtle was listed as a threatened species on July 28, 1978. This species inhabits the continental shelves and estuarine environments along the margins of the Atlantic, Pacific, and Indian Oceans, and within the continental United States it nests from Louisiana to Virginia. The major nesting areas include coastal islands of Georgia, South Carolina, and North Carolina, and the Atlantic and Gulf coasts of Florida, with the bulk of the nesting occurring on the Atlantic coast of Florida. Developmental habitat for small juveniles is the pelagic waters of the North Atlantic and the Mediterranean Sea (NMFS and USFWS 1991).

Life history

In the western Atlantic, most loggerhead sea turtles nest from North Carolina to Florida and along the Gulf coast of Florida. There are five western Atlantic subpopulations, divided geographically as follows: (1) a northern nesting subpopulation, occurring from North Carolina to northeast Florida at about 29° N; (2) a south Florida nesting subpopulation, occurring from 29° N on the east coast to Sarasota on the west coast; (3) a Florida Panhandle nesting subpopulation, occurring at Eglin Air Force Base and the beaches near Panama City, Florida; (4) a Yucatán nesting subpopulation, occurring on the eastern Yucatán Peninsula, Mexico (Márquez 1990 and TEWG 2000); and (5) a Dry Tortugas nesting subpopulation, occurring in the islands of the Dry Tortugas, near Key West, Florida (NMFS SEFSC 2001). The fidelity of nesting females to their nesting beach is the reason these subpopulations can be differentiated from one another. This nest beach fidelity will prevent recolonization of nesting beaches with turtles from other subpopulations.

Mating takes place in late March-early June, and eggs are laid throughout the summer, with a mean clutch size of 100-126 eggs in the southeastern United States Individual females nest multiple times during a nesting season, with a mean of 4.1 nests/individual (Murphy and Hopkins 1984). Nesting migrations for an individual female loggerhead are usually on an interval of 2-3 years, but can vary from 1-7 years (Dodd 1988). Generally, loggerhead sea turtles originating from the western Atlantic nesting aggregations are believed to lead a pelagic existence in the North Atlantic Gyre for as long as 7-12 years or more. Stranding records indicate that when pelagic immature loggerheads reach 40-60 cm straight-line carapace length they begin to live in coastal inshore and nearshore waters of the continental shelf throughout the U. S. Atlantic and Gulf of Mexico. Benthic immature loggerheads (sea turtles that have come back to inshore and near shore waters), the life stage following the pelagic immature stage, have been found from Cape Cod, Massachusetts, to southern Texas, and occasionally strand on beaches in Northeastern Mexico.

Past literature gave an estimated age at maturity of 21-35 years (Frazer and Ehrhart 1985, Frazer et al. 1994) with the benthic immature stage lasting at least 10-25 years. However, based on new data from tag returns, strandings, and nesting surveys NMFS SEFSC (2001) estimates ages of maturity ranging from 20-38 years and a benthic immature stage lasting from 14-32 years.

Pelagic and benthic juveniles are omnivorous and forage on crabs, mollusks, jellyfish, and vegetation at or near the surface (Dodd 1988). Sub-adult and adult loggerheads are primarily coastal and typically prey on benthic invertebrates such as mollusks and decapod crustaceans in hard bottom habitats.

Population dynamics and status

A number of stock assessments (TEWG 1998, TEWG 2000, and NMFS SEFSC 2001) have examined the stock status of loggerheads in the waters of the United States, but have been unable to develop any reliable estimates of absolute population size. Based on nesting data of the five western Atlantic subpopulations, the south Florida-nesting and the northern-nesting subpopulations are the most abundant (TEWG 2000 and NMFS SEFSC 2001). The Turtle Expert Working Group (TEWG) (2000) was able to assess the status of these two better-studied populations and concluded that the south Florida subpopulation is increasing, while no trend is evident (maybe stable but possibly declining) for the northern subpopulation. Another consideration adding to the vulnerability of the northern subpopulation is that NOAA Fisheries' scientists estimate that the northern subpopulation produces 65 percent males (NMFS SEFSC 2001).

The latest and most extensive stock assessment (NMFS SEFSC 2001) was successful in assembling the best available information on loggerhead sea turtle life history and developing population models that can be used to predict the response of the loggerhead populations to changes in their mortality and survival. The new turtle excluder device rule (68 FR 8456, February 21, 2003) requiring larger openings is expected to reduce trawl related loggerhead mortality by 94 percent (Epperly et al. 2002). Based on the loggerhead population models in NMFS SEFSC (2001), this change in the mortality rate is expected to move the northern nesting population from stable to increasing.

The southeast U. S. nesting aggregation is second in size only to the nesting aggregation on islands in the Arabian Sea off Oman (Ross 1979, Ehrhart 1989, NMFS and USFWS 1993). The southeast U. S. nesting aggregation is especially important because the status of the Oman colony has not been evaluated recently. It is located in an area of the world where it is highly vulnerable to disruptive events such as political upheavals, wars, catastrophic oil spills, and lack of strong protections (Meylan et al. 1995).

Ongoing threats to the western Atlantic populations include incidental takes from dredging, commercial trawling, longline fisheries, and gill net fisheries; loss or degradation of nesting habitat from coastal development and beach armoring; disorientation of hatchlings by beachfront lighting; nest predation by native and non-native predators; degradation of foraging habitat; marine pollution and debris; watercraft strikes; and disease.

b. Green Sea Turtle

Federal listing of the green sea turtle occurred on July 28, 1978, with all populations listed as threatened except for the Florida and Pacific coast of Mexico breeding populations, which are

endangered. The complete nesting range of the green sea turtle within the NOAA Fisheries' Southeast Region includes sandy beaches of mainland shores, barrier islands, coral islands, and volcanic islands between Texas and North Carolina and the U. S. Virgin Islands (U.S.V.I.) and Puerto Rico (NMFS and USFWS 1991a). Principal U. S. nesting areas for green sea turtles are in eastern Florida, predominantly Brevard through Broward counties (Ehrhart and Witherington 1992). Green sea turtle nesting also occurs regularly on St. Croix, U.S.V.I., and on Vieques, Culebra, Mona, and the main island of Puerto Rico (Mackay and Rebholz 1996).

Life history

Green sea turtle mating occurs in the waters off the nesting beaches. Each female deposits 1-7 clutches (usually 2-3) during the breeding season at 12-14 day intervals. Mean clutch size is highly variable among populations, but averages 110-115 eggs/nest. Females usually have 2-4 or more years between breeding seasons, while males may mate every year (Balazs 1983). After hatching, green sea turtles go through a post-hatchling pelagic stage where they are associated with drift lines of algae and other debris.

Green sea turtle foraging areas in the southeastern United States include any coastal shallow waters having macroalgae or sea grasses near mainland coastlines, islands, reefs, or shelves, and any open-ocean surface waters, especially where advection from wind and currents concentrates pelagic organisms (Hirth 1997, NMFS and USFWS 1991a). Principal benthic foraging areas in the southeastern United States include Aransas Bay, Matagorda Bay, Laguna Madre, and the Gulf inlets of Texas (Doughty 1984, Hildebrand 1982, Shaver 1994), the Gulf of Mexico off Florida from Yankeetown to Tarpon Springs (Caldwell and Carr 1957, Carr 1984), Florida Bay and the Florida Keys (Schroeder and Foley 1995), the Indian River Lagoon System, Florida (Ehrhart 1983), and the Atlantic Ocean off Florida from Brevard through Broward counties (Wershoven and Wershoven 1992, Guseman and Ehrhart 1992). Adults of both sexes are presumed to migrate between nesting and foraging habitats along corridors adjacent to coastlines and reefs. Age at sexual maturity is estimated to be between 20-50 years (Balazs 1982, Frazer and Ehrhart 1985).

Green sea turtles are primarily herbivorous, feeding on algae and sea grasses, but also occasionally consume jellyfish and sponges. The post-hatchling, pelagic-stage individuals are assumed to be omnivorous, but little data are available.

Population dynamics and status

The vast majority of green sea turtle nesting within the southeastern United States occurs in Florida (Meylan et al. 1995, Johnson and Ehrhart 1994). It is unclear how greatly green sea turtle nesting in the whole of Florida has been reduced from historical levels (Dodd 1981). However, based on 1989-2002 nesting information, green sea turtle nesting in Florida has been increasing (Florida Marine Research Institute Statewide 2002 Nesting Database). Total nest counts and trends at index beach sites during the past decade suggest that green sea turtles that nest within the southeastern United States are recovering.

There are no reliable estimates of the number of immature green sea turtles that inhabit coastal areas (where they come to forage) of the southeastern United States. However, information on

incidental captures of immature green sea turtles at the St. Lucie Power Plant (they have averaged 215 green sea turtle captures per year since 1977) in St. Lucie County, Florida (on the Atlantic coast of Florida) show that the annual number of immature green turtles captured has increased significantly in the past 26 years (FPL 2002). It is not known whether or not this increase is indicative of the whole east coast of Florida or just a local increase.

It is likely that immature green sea turtles foraging in the southeastern United States come from multiple genetic stocks; therefore, the status of immature green sea turtles in the southeastern United States might also be assessed from trends at all of the main regional nesting beaches, principally Florida, Yucatán, and Tortuguero. Trends at Florida beaches were previously discussed. Trends in nesting at Yucatán beaches cannot be assessed because of a lack of consistent beach surveys over time. Trends at Tortuguero (ca. 20,000-50,000 nests/year) show a significant increase in nesting during the period 1971-1996 (Bjorndal et al. 1999). Therefore, it seems reasonable to assume an increase in immature green sea turtles inhabiting coastal areas of the southeastern United States; however, the magnitude of this increase is unknown.

The principal cause of past declines and extirpations of green sea turtle assemblages has been the over-exploitation of green sea turtles for food and other products. Although intentional take of green sea turtles and their eggs is not extensive within the southeastern United States, green sea turtles that nest and forage in the region may spend large portions of their life history outside the region and outside U. S. jurisdiction, where exploitation is still a threat. However, there are still significant and ongoing threats to green sea turtles from human-related causes in the United States. These threats include beach armoring, erosion control, artificial lighting, beach disturbance (e.g., driving on the beach), pollution, foraging habitat loss as a result of direct destruction by dredging, siltation, boat damage, and other human activities and with fishing gear. There is also the increasing threats from occurrences of green sea turtle fibropapillomatosis disease. Presently, this disease is cosmopolitan and has been found to affect large numbers of animals in some areas, including Hawaii and Florida (Herbst 1994, Jacobson 1990, Jacobson et al. 1991).

c. Kemp's Ridley Sea Turtle

The Kemp's ridley was listed as endangered on December 2, 1970. Internationally, the Kemp's ridley is considered the most endangered sea turtle (Zwinenberg 1977, Groombridge 1982, TEWG 2000). Kemp's ridleys nest primarily at Rancho Nuevo, a stretch of beach in Mexico, Tamaulipas State. The species occurs mainly in coastal areas of the Gulf of Mexico and the northwestern Atlantic Ocean. Occasional individuals reach European waters (Brongersma 1972). Adults of this species are usually confined to the Gulf of Mexico, although adult-sized individuals sometimes are found on the east coast of the United States.

Life history

Females return to their nesting beach about every 2 years (TEWG 1998). Nesting occurs from April into July and is essentially limited to the beaches of the western Gulf of Mexico, near Rancho Nuevo in southern Tamaulipas, Mexico. The mean clutch size for Kemp's ridleys is 100 eggs/nest, with an average of 2.5 nests/female/season.

Benthic immature Kemp's ridleys have been found along the east coast seaboard of the United States and in the Gulf of Mexico. Atlantic benthic immature sea turtles travel northward as the water warms to feed in the productive, coastal waters off Georgia through New England, returning southward with the onset of winter (Lutcavage and Musick 1985, Henwood and Ogren 1987, Ogren 1989). Studies suggest that benthic immature Kemp's ridleys stay in shallow, warm, nearshore waters in the northern Gulf of Mexico until cooling waters force them offshore or south along the Florida coast (Renaud 1995). Little is known of the movements of the post-hatching stage (pelagic stage) within the Gulf. Studies have shown the post-hatchling pelagic stage varies from 1-4 or more years, and the benthic immature stage lasts 7-9 years (Schmid and Witzell 1997). The TEWG (1998) estimates age at maturity from 7-15 years.

Stomach contents of Kemp's ridleys along the lower Texas coast consisted of mainly nearshore crabs and mollusks, as well as fish, shrimp, and other foods considered to be shrimp fishery discards (Shaver 1991). Pelagic stage Kemp's ridleys presumably feed on the available sargassum and associated infauna or other epipelagic species found in the Gulf of Mexico.

Population dynamics and status

Of the seven extant species of sea turtles in the world, the Kemp's ridley has declined to the lowest population level. Most of the population of adult females nest on the Rancho Nuevo beaches (Pritchard 1969). When nesting aggregations at Rancho Nuevo were discovered in 1947, adult female populations were estimated to be in excess of 40,000 individuals (Hildebrand 1963). By the mid-1980s nesting numbers were below 1,000 (with a low of 702 nests in 1985). However, recent observations of increased nesting (with 6,277 nests recorded in 2000) suggest that the decline in the ridley population has stopped and the population is now increasing (USFWS 2000).

A period of steady increase in benthic immature ridleys has been occurring since 1990 and appears to be due to increased hatchling production and an apparent increase in survival rates of immature sea turtles beginning in 1990. The increased survivorship of immature sea turtles is due in part to the introduction of turtle excluder devices (TEDs) in the United States and Mexican shrimping fleets. As demonstrated by nesting increases at the main nesting sites in Mexico, adult ridley numbers have grown. The population model used by TEWG (2000) projected that Kemp's ridleys could reach the Recovery Plan's intermediate recovery goal of 10,000 nesters, by the year 2015.

The largest contributor to the decline of the ridley in the past was commercial and local exploitation, especially poaching of nests at the Rancho Nuevo site, as well as the Gulf of Mexico trawl fisheries. The advent of TED regulations for trawlers and protections for the nesting beaches have allowed the species to begin to rebound. Many threats to the future of the species remain, including interactions with fishery gear, marine pollution, foraging habitat destruction, illegal poaching of nests and potential threats to the nesting beaches from such sources as global climate change, development, and tourism pressures.

d. Leatherback Sea Turtle

The leatherback was listed as endangered on June 2, 1970. Leatherbacks are widely distributed throughout the oceans of the world, and are found in waters of the Atlantic, Pacific, and Indian oceans; the Caribbean Sea; and the Gulf of Mexico (Ernst and Barbour 1972). Adult leatherbacks forage in temperate and subpolar regions from 71˚N to 47˚S latitude in all oceans and undergo extensive migrations between 30˚N and 20˚S, to and from the tropical nesting beaches. In the Atlantic Ocean, leatherbacks have been recorded as far north as Newfoundland, Canada, and Norway, and as far south as Uruguay, Argentina, and South Africa (NMFS SEFSC 2001). Female leatherbacks nest from the southeastern United States to southern Brazil in the western Atlantic and from Mauritania to Angola in the eastern Atlantic. The most significant nesting beaches in the Atlantic, and perhaps in the world, are in French Guiana and Suriname (NMFS SEFSC 2001).

Life History

Genetic analyses of leatherbacks to date indicate that within the Atlantic basin there are genetically different nesting populations; the St. Croix nesting population (U.S. Virgin Islands), the mainland nesting Caribbean population (Florida, Costa Rica, Suriname/French Guiana) and the Trinidad nesting population (Dutton et al. 1999). When the hatchlings leave the nesting beaches, they move offshore but eventually utilize both coastal and pelagic waters. Very little is known about the pelagic habits of the hatchlings and juveniles, and they have not been documented to be associated with the sargassum areas as are other species. Leatherbacks are deep divers, with recorded dives to depths in excess of 1,000 m (Eckert et al. 1989).

Leatherbacks are a long-lived species, living for over 30 years. They reach sexually maturity somewhat faster than other sea turtles, with an estimated range from 3-6 years (Rhodin 1985) to 13-14 years (Zug and Parham 1996). They nest frequently (up to 7 nests per year) during a nesting season and nest about every 2-3 years. During each nesting, they produce 100 eggs or more in each clutch and, thus, can produce 700 eggs or more per nesting season (Schultz 1975).

Leatherbacks are the most pelagic of the sea turtles, but enter coastal waters on a seasonal basis to feed in areas where jellyfish are concentrated. Leatherback sea turtles feed primarily on cnidarians (medusae, siphonophores) and tunicates.

Population Dynamics, Status, and Distribution

The Pacific population is in a critical state of decline, estimated by Spotila et al. (2000) to number less than 3,000 total adult and subadult animals. The status of the Atlantic population is less clear. In 1996, it was reported to be stable, at best (Spotila et al. 1996), with numbers of nesting females in the western Atlantic reported to be on the order of 18,800. However, according to Spotila (pers. comm.), the western Atlantic population currently numbers about 15,000 nesting females. According to NMFS SEFSC (2001) the nesting aggregation in French Guiana has been declining at about 15 percent per year since 1987. However from 1979-1986, the number of nests was increasing at about 15 percent annually which could mean that this current 15 percent decline could be part of a nesting cycle which coincides with the erosion cycle of Guiana beaches described by Schultz (1975). The number of nests in Florida and the U.S. Caribbean has been increasing at about 10.3 percent and 7.5 percent, respectively, per year since the early 1980s but the magnitude of nesting is much smaller than that along the French Guiana coast (NMFS SEFSC 2001). In summary, the conflicting information regarding the

status of Atlantic leatherbacks makes it difficult to conclude whether or not the population is currently in decline.

Zug and Parham (1996) pointed out that the main threat to leatherback populations in the Atlantic are the combination of fishery-related mortality (especially entanglement in gear and drowning in trawls) and the intense egg harvesting on the main nesting beaches. Other important ongoing threats to the population include pollution, loss of nesting habitat, and boat strikes.

e. Hawksbill Sea Turtle

The hawksbill turtle was listed as endangered under the ESA (1973) on June 2, 1970, and is considered Critically Endangered by the International Union for the Conservation of Nature (IUCN). The hawksbill is a medium-sized sea turtle with adults in the Caribbean ranging in size from approximately 62.5 to 94.0 cm straight carapace length. The species occurs in all ocean basins although it is relatively rare in the Eastern Atlantic and Eastern Pacific, and absent from the Mediterranean Sea. Hawksbills are the most tropical of the marine turtles, ranging from approximately 30°N to 30° S. They are closely associated with coral reefs and other hard-bottom habitats, but they are also found in other habitats including inlets, bays and coastal lagoons (NMFS and USFWS 1993).

Life History

There are five regional nesting populations with more than 1,000 females nesting annually. These populations are in the Seychelles, Mexico, Indonesia, and two in Australia (Meylan and Donnelly 1999). Reproductive females undertake periodic (usually non-annual) migrations to their natal beach to nest. Movements of reproductive males are less well known, but are presumed to involve migrations to the nesting beach or to courtship stations along the migratory corridor (Meylan 1999b). Females nest an average of 3-5 times per season (Meylan and Donnelly 1999, Richardson et al. 1999). Clutch size is higher on average (up to 250 eggs) than that of other turtles (Hirth 1980). Reproductive females may exhibit a high degree of fidelity to their nest sites.

The life history of hawksbills consists of a pelagic stage that lasts from the time they leave the nesting beach as hatchlings until they are approximately 22 - 25 cm in straight carapace length (Meylan 1988, Meylan and Donnelly 1999), followed by residency in developmental habitats (foraging areas where immatures reside and grow) in coastal waters. Adult foraging habitat, which may or may not overlap with developmental habitat, is typically coral reefs, although other hard-bottom communities and occasionally mangrove-fringed bays may be occupied. Hawksbills show fidelity to their foraging areas over periods of time as great as several years (van Dam and Diez 1998).

Their diet is highly specialized and consists primarily of sponges (Meylan 1988) although other food items, notably corallimorphs and zooanthids, have been documented to be important in some areas of the Caribbean (van Dam and Diez 1997, Mayor et al. 1998, Leon and Diez 2000).

Population Dynamics, Status, and Distribution

There has been a global population decline of over 80 percent in hawksbill populations during the last three generations (105 years) (Meylan and Donnelly 1999).

In the Western Atlantic, the largest hawksbill nesting population occurs in the Yucatán Península of Mexico, where several thousand nests are recorded annually in the states of Campeche, Yucatán, and Quintana Roo (Garduño-Andrade et al. 1999). Important but significantly smaller nesting aggregations are documented elsewhere in the region in Puerto Rico, the U.S. Virgin Islands, Antigua, Barbados, Costa Rica, Cuba, and Jamaica (Meylan 1999a). Estimates of the annual number of nests for each of these areas are of the order of hundreds to a few thousand. Nesting within the southeastern U.S. and U.S. Caribbean is restricted to Puerto Rico (>650 nests/yr), the U.S. Virgin Islands (~400 nests/yr), and, rarely, Florida (0-4 nests/yr)(Eckert 1995, Meylan 1999a, Florida Statewide Nesting Beach Survey database 2002). At the two principal nesting beaches in the U.S. Caribbean where long-term monitoring has been carried out, populations appear to be increasing (Mona Island, Puerto Rico) or stable (Buck Island Reef National Monument, St. Croix, USVI) (Meylan 1999a).

f. Smalltooth sawfish

The U.S. smalltooth sawfish DPS was listed as endangered under the ESA on April 1, 2003 (68 FR 15674). The smalltooth sawfish is the first marine fish to be listed in the United States. Critical habitat has not been designated for the U.S. DPS of smalltooth sawfish. Historically smalltooth sawfish occurred commonly in the shallow waters of the Gulf of Mexico and eastern seaboard up to North Carolina, and more rarely as far north as New York. The smalltooth sawfish range has subsequently contracted essentially to peninsular Florida and, within that area, the species can only be found with any regularity off the extreme southern portion of the state. Smalltooth sawfish are most common within the boundaries of the National Everglades National Park and the Florida Keys (Simpfendorfer 2002).

All extant sawfish belong to the Suborder Pristoidea, Family Pristidae, Genus *Pristis*. Although they are rays, sawfish appear to be more shark-like than ray-like, with only the trunk and especially the head ventrally flattened. The snout of all sawfish is extended as a long narrow flattened rostral blade with a series of transverse teeth along either edge, and commonly referred to as a saw.

Life History

Smalltooth sawfish are euryhaline, occurring in waters with a broad range of salinites from freshwater to full seawater (Simpfendorfer 2001). The literature indicates that smalltooth sawfish are most common in shallow coastal waters less than 25 m (Bigelow & Schroeder 1953, Adams and Wilson 1995); however, recent data from sawfish encounter reports and from satellite tagging indicate that mature animals are regularly found in waters in excess of 50 meters (Simpfendorfer 2002). Shallow estuarine and sometimes freshwater areas appear especially important for juvenile sawfish, found near inshore bars, mangrove edges, and seagrass beds.

Bigelow and Schroeder (1953) concluded that the U.S. smalltooth sawfish population included a migratory segment that moved north along the east coast as temperatures warmed and south as temperatures cooled. Historic records indicate that some mature individuals migrate north along

the Atlantic coast during the summer. Little is known about migrations or movements in other parts of their range, but it is hypothesized that similar temperature driven migrations occur in the Gulf of Mexico (Simpfendorfer 2002)

As in all elasmobranchs, fertilization is internal. Development in sawfish is believed to be ovoviviparous. Gravid smalltooth sawfish females have been found with 15 to 20 embryos (Bigelow and Schroeder 1953). The gestation period for smalltooth sawfish is not known, but may be inferred based on that of the largetooth sawfish, sharing the same genus and similarities in size and habitat. Thorson (1976) reported the gestation period for largetooth sawfish was approximately 5 months and females likely produce litters every second year.

Smalltooth sawfish are generally about 2 feet long at birth and may grow to a length of 18 feet or greater (Bigelow and Schroeder 1953). Males mature at approximately 270 cm and females approximately 360 cm (Simpfendorfer 2002). Individuals have been maintained in public aquaria for up to 20 years (Cerkleski, pers. comm., 2000). Although no formal studies on the age and growth of the smalltooth sawfish have been conducted to date, growth studies of largetooth sawfish suggest slow growth, late maturity (10 years) and long lifespan (30 years) (Thorson 1982a; Simpfendorfer 2000). These characteristics suggest very low intrinsic rate of increase (Simpfendorfer 2000).

Smalltooth sawfish feed primarily on fish, with mullet, jacks, and ladyfish believed to be their primary food resources (Simpfendorfer 2001). By moving their saw rapidly side to side through the water, the relatively slow moving sawfish is able to strike at these fish. Norman and Frase (1937) suggested that the saw was mostly used to slash through schooling fish; however Breder (1952) also demonstrated that sawfish are capable of using their saw to strike accurately at individual fish. The teeth on the saw stun, impale, injure or kill the fish. The fish are then consumed after being rubbed off the saw on the bottom (if necessary). In addition to fish, small smalltooth sawfish also consume crustaceans (mostly shrimp and crabs) that they locate by disturbing bottom sediment with their saw. The saw may also be used by small sawfish to disturb the bottom sediment and uncover crustaceans such as shrimp and crabs (Norman & Fraser 1937, Bigelow and Schroeder 1953).

Status and trends

The Mote Marine laboratory sawfish reporting database was established in 2000 to compile information on the distribution and abundance of sawfish. The records in the database extend back to the 1950's, but are mostly from 1999 to the present. The Mote Marine Laboratory sawfish sightings reporting database contains 387 reports of sawfish sightings. The majority of these reports are from the southwest coast of Florida between Goodland and Florida Bay, but cover much of the Florida coast. The majority of the reports have been from fishing (72.3%), research (15.7%), boating (2.3 %), and diving (4.1%), which have been reported between 1999 and 2003 (Simpfendorfer 2003).

Historically, smalltooth sawfish were abundant in the inshore waters of the Gulf of Mexico and western North Atlantic to New York. Today smalltooth sawfish are only regularly observed in the waters of south Florida. Smalltooth were reported as abundant and large numbers were caught as bycatch in the early part of this century. They continued to be common throughout

their range up until the middle of the 20th century. The decline in the population of smalltooth sawfish is attributed to fishing (both commercial and recreational), habitat modification, and sawfish life history. The magnitude of the decline in the population is difficult to estimate. The species was not well studied before incidental bycatch severely reduced its numbers because of its limited importance in commercial and recreational fisheries and its large size and toothed rostrum which made it difficult to handle. The U.S. DPS of smalltooth sawfish has been extirpated from ninety percent of its range and has experienced severe declines in abundance based on present and historical reports of the smalltooth sawfish. Simpfendorfer (2002) estimates, based on the contraction in the range and anecdotal data, that the population is currently at less than 5 percent of the size it was at the time of European settlement.

There are no data available to estimate the present population size. Dr. Simpfendorfer offers a rough estimate of 2, 000 individuals based on his four years of field experience and data collected from the public, but cautions that actual numbers may be plus or minus at least 50 percent. Encounters with neonates (young of the year), juveniles and sexually mature sawfish indicate, however, that a reproducing population exists at least in southern Florida. The recent capture of a smalltooth sawfish off Georgia is the first record north of Florida since 1963 and suggests that some smalltooth sawfish may be undergoing seasonal northern migrations and/or expanding their range. Data from recreational fishing catch rates within the Everglades National Park indicate that there may have been little change in the size of the population during the 1990s. Simpfendorfer (2002) suggests that the population decline that occurred during most of the last century may be slowing or stopping.

Fishing regulations implemented over the past decade in the southeast, such as the Florida net ban in 1994, have started to reduce threats to the species over parts of its range. Issues such as habitat modification remain to be addressed. Due to the K-selected strategy of the smalltooth sawfish, recovery of the population is expected to be very slow; thus the smalltooth sawfish is vulnerable to even small changes to the population. Species with low intrinsic rates of increase are particularly vulnerable to excessive mortalities and rapid stock collapse, after which recovery may take decades (Musick et al. 2000). For example, rapid stock collapses have been documented for many elasmobranchs shown to have low intrinsic rates of increase, particularly larger species (Musick et al. 2000)

Present threats to the smalltooth sawfish include loss of coastal habitat resulting from increased urbanization of the southeastern coastal states from development, commercial activities, dredge and fill operations, recreational boating, erosion, and diversions of freshwater run-off. Loss and/or degradation of habitat has contributed to the decline of many marine species, and is unknown, but fully expected, to have impacted the distribution and abundance of smalltooth sawfish. Smalltooth sawfish may be especially vulnerable to coastal habitat degradation due to their affinity to shallow, estuarine systems. Smalltooth sawfish are also still occasionally incidentally caught in commercial shrimp trawls, bottom longlines, and recreational rod and reel.

Smalltooth sawfish have historically been caught as bycatch in various fishing gears throughout their historic range, including gillnet, otter trawl, trammel net, seine, and to a lesser degree, hand line. Frequent accounts in earlier literature of smalltooth sawfish being entangled in fishing nets from areas where smalltooth sawfish were once common, but are now rare (Everman and Bean,

1898). Today, smalltooth sawfish are occasionally incidentally caught in commercial shrimp trawls and bottom longlines and recreational rod and reel.

III. Environmental Baseline

This section contains an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, their habitat (including designated critical habitat), and ecosystem, within the action area. The environmental baseline is a snapshot of a species' health at a specified point in time and includes state, tribal, local, and private actions already affecting the species, or that will occur contemporaneously with the consultation in progress. Unrelated federal actions affecting the same species or critical habitat that have completed formal or informal consultation are also part of the environmental baseline, as are federal and other actions within the action area that may benefit listed species or critical habitat.

The environmental baseline for this Opinion includes the effects of several activities that affect the survival and recovery of threatened and endangered species in the action area. The activities that shape the environmental baseline in the action area of this consultation generally fall into the following three categories: vessel operations, fisheries, and recovery activities associated with reducing those impacts. Other environmental impacts include effects of discharges, dredging, military activities, oil and gas development activities, industrial cooling water intake, aquaculture, recreational fishing, and marine debris.

A. Status of the Species Within the Action Area

The species of sea turtles that are expected to be affected by the proposed action are all highly migratory. NOAA Fisheries believes that no individual members of any of the species are likely to be year-round residents of the action area. Individual animals will make migrations into nearshore waters as well as other areas of the North Atlantic Ocean, Gulf of Mexico, and the Caribbean Sea. Therefore, the range-wide status of the affected species of sea turtles, given above, most accurately reflects the species' status within the action area.

Smalltooth sawfish are not highly migratory species, although some large mature individuals may engage in seasonal north/south movement. The U.S. DPS of smalltooth sawfish is confined to only a small portion of the action area, mainly waters off Florida and possibly occasionally off Georgia. Only large, mature individuals are known to occur in the action area. Information is not available regarding how much time smalltooth sawfish of different sizes spend at different depths. Generally, however, smaller (younger) animals are restricted to shallower waters, whereas large animals are believed to roam over a larger depth range. Smalltooth sawfish may only be present in the U.S. EEZ intermittently, spending the rest of their time in shallower waters. Based on this information, the range-wide status of smalltooth sawfish described in the preceding section most accurately reflects the species' status within the action area.

B. Factors Affecting the Species' Environments Within the Action Area.

As noted above, sea turtles found in the action area are not year-round residents of the area, and may travel widely throughout the Atlantic, Gulf of Mexico, and Caribbean Sea. Therefore,

individuals found in the action area can potentially be affected by activities anywhere else within this wide range. Smalltooth sawfish may be found in the southern portion (primarily off Florida) of the action area throughout the year but intermittently, spending the rest of their time in state waters. Individuals found in the action area, therefore, can potentially be affected by activities both within the southeast portion of the action area and adjacent state waters.

i. Federal Actions

Sea Turtles
In recent years, NOAA Fisheries has undertaken several ESA section 7 consultations to address the effects of federally-permitted fisheries and other federal actions on threatened and endangered species. Each of those consultations sought to develop ways of reducing the probability of adverse effects of the action on sea turtles and/or cetaceans. Similarly, recovery actions NOAA Fisheries has undertaken under the ESA and the MMPA are addressing the problem of take of sea turtles and cetaceans in the fishing and shipping industries and other activities such as Army Corps of Engineers (COE) dredging operations. A summary of anticipated sources of incidental take of sea turtles includes only those federal actions that have undergone formal section 7 consultation.

Adverse effects on threatened and endangered species from several types of fishing gear occur in the action area. Gillnet, longline, trawl gear, and pot fisheries have all been documented as interacting with sea turtles. For all fisheries for which there is a fishery management plan (FMP) or for which any federal action is taken to manage that fishery, impacts have been evaluated under section 7. Several formal consultations have been conducted on the following fisheries that NOAA Fisheries has determined are likely to adversely affect threatened and endangered species: American lobster, monkfish, dogfish, southeastern shrimp trawl fishery, Northeast multispecies, Atlantic pelagic swordfish/tuna/shark, and summer flounder/scup/black sea bass fisheries. Additional formal consultations are listed in Table 2.

The Southeast shrimp trawl fishery affects more sea turtles than all other activities combined (NRC 1990). On December 2, 2002, NOAA Fisheries completed the Opinion for shrimp trawling in the southeastern United States under proposed revisions to the TED regulations (68 FR 8456, February 21, 2003). This Opinion determined that the shrimp trawl fishery under the revised TED regulations would not jeopardize the continued existence of any sea turtle species. This determination is based, in part, on the Opinion's analysis that shows the revised TED regulations are expected to reduce shrimp trawl related mortality by 94 percent for loggerheads and 97 percent for leatherbacks. Further, even under the old TED regulations, with the exception of the northern nesting population of loggerhead sea turtles, nesting for all species of sea turtles in the southeastern United States (and Rancho Nuevo, Mexico in the case of Kemp's ridleys) has been increasing. NMFS (SEFSC 2001) used population models that indicate that the northern nesting population of loggerhead sea turtles is expected to increase, with a 30 percent reduction in total mortality. The shrimp trawling Opinion is incorporated by reference and can be found at the following Web site:

http://www.nmfs.noaa.gov/prot_res/readingrm/ESAsec7/Biop_shrimp_trawling.PDF

On June 14, 2001, NOAA Fisheries issued a jeopardy opinion for the highly migratory species (HMS) fisheries off the eastern United States. The HMS Opinion found that the continued prosecution of the pelagic longline fishery in the manner described in the HMS FMP was likely to jeopardize the continued existence of loggerhead and leatherback sea turtles. This determination was made by analyzing the effects of the fishery on sea turtles in conjunction with the environmental baseline and cumulative effects (for loggerheads this determination was based on the effects on the northern nesting population). The environmental baseline section of the HMS Opinion is incorporated herein by reference and can be found at the following NOAA Fisheries Web site:

http://www.nmfs.noaa.gov/prot_res/readingrm/ESAsec7/HMS060801final.pdf

The environmental baseline for the June 14, 2001, HMS Opinion also considered the impacts from the North Carolina offshore spring monkfish gillnet fishery and the inshore fall southern flounder gillnet fishery, both of which were responsible for large numbers of sea turtle mortalities in 1999 and 2000, especially loggerhead sea turtles. However, during the 2001 season NOAA Fisheries implemented an observer program that observed 100 percent of the effort in the monkfish fishery. Then in 2002, a rule was enacted creating a seasonal monkfish gillnet closure along the Atlantic coast based upon sea surface temperature data and sea turtle migration patterns. In 2001, NOAA Fisheries also issued an ESA section 10 permit to North Carolina with mitigative measures for the southern flounder fishery. Subsequently, the sea turtle mortalities in these fisheries were drastically reduced. The reduction of sea turtle mortalities in these fisheries reduces the negative effects these fisheries have on the environmental baseline. Reinitiation of consultation for the summer flounder fishery has also begun.

NOAA Fisheries has implemented a reasonable and prudent alternative (RPA) in the HMS fishery which would allow the continuation of the pelagic longline fishery without jeopardizing the continued existence of loggerhead and leatherback sea turtles. The provisions of this RPA include the closure of the Grand Banks region off the northeastern United States and gear restrictions that are expected to reduce the bycatch of loggerheads by as much as 76 percent and of leatherbacks by as much as 65 percent. Further, NOAA Fisheries is implementing a major research project to develop measures aimed at further reducing longline bycatch. The implementation of this RPA reduces the negative effects that the HMS fishery has on the environmental baseline. The conclusions of the June 14, 2001, HMS Opinion and the subsequent implementation of the RPA are hereby incorporated into the environmental baseline section of this Opinion.

Potential adverse effects from federal vessel operations in the action area and throughout the range of sea turtles include operations of the Navy (USN) and Coast Guard (USCG), the Environmental Protection Agency, the National Oceanic and Atmospheric Administration (NOAA), and the COE. NOAA Fisheries has conducted formal consultations with the USCG, the USN, and NOAA on their vessel operations. Through the section 7 process, where applicable, NOAA Fisheries will continue to establish conservation measures for all these agency vessel operations to avoid or minimize adverse effects to listed species. At the present time, however, they present the potential for some level of interaction.

In addition to vessel operations, other military activities including training exercises and ordnance detonation also affect sea turtles and cetaceans. Consultations on individual activities have been completed, but no formal consultation on overall USCG or USN activities in any region has been completed at this time.

The construction and maintenance of federal navigation channels has also been identified as a source of sea turtle mortality. Hopper dredges move relatively rapidly (compared to sea turtle swimming speeds) and can entrain and kill sea turtles, presumably as the drag arm of the moving dredge overtakes the slower moving sea turtle. A regional biological opinion (RBO) with the COE's South Atlantic Division has been completed for the southeastern Atlantic waters. Consultation on a new RBO for the COE's Gulf of Mexico hopper dredging operations is currently underway.

The COE and the Minerals Management Service (MMS) authorize oil and gas exploration, well development, production, and abandonment/rig removal activities that also may adversely affect sea turtles. Both of these agencies have consulted with NOAA Fisheries on these types of activities. These activities include the use of seismic arrays for oil and gas exploration in the Gulf of Mexico, the impacts of which have been addressed in Opinions for individual and multi-lease sales. These impacts are expected to result from vessel strikes, noise, marine debris, and the use of explosives to remove oil and gas structures.

Another action with federal oversight (the Federal Energy Regulatory Commission and the Nuclear Regulatory Agency) which has impacts on sea turtles is the operation of electrical generating plants. Sea turtles entering coastal or inshore areas have been affected by entrainment in the cooling-water systems of electrical generating plants. Biological opinions have already been written for a number of electrical generating plants, and others are currently undergoing section 7 consultation.

Below is a table summarizing formal ESA section 7 consultations completed for federal actions taking place in the southeastern United States that affect sea turtles:

Table 2. Summary of annual incidental take levels anticipated under the incidental take statements associated with NOAA Fisheries' existing biological opinions in the US Atlantic and Gulf of Mexico.

Federal Action	**Annual Anticipated Incidental Take Level (lethal)**[1]				
	Loggerhead	**Leatherback**	**Green**	**Kemp's**	**Hawksbill**
Coast Guard Vessel Operation	1(1)[2]	1(1)[2]	1(1)[2]	1(1)[2]	1(1)[2]
Navy – SE Ops Area[3]	91(91)	17(17)[2]	16(16)[2]	16(16)[2]	4(4)[2]
Navy-NE Ops Area	10(10)	0	1(1)[2]	1(1)[2]	0

Shipshock – Seawolf/Winston Churchhill[4]	276(58)[2]	276(58)[2]	276(58)[2]	276(58)[2]	276(58)[2]
COE Dredging-NE Atlantic	27(27)	1(1)	6(6)[2]	5(5)[2]	0
COE Dredging – S. Atlantic	35(35)	0	7(7)	7(7)	2(2)
COE Dredging - N & W Gulf of Mexico	30(30)	0	8(8)	14(14)	2(2)
COE Dredging - E Gulf of Mexico	8 (8) [5]	5(5)[5]	5(5)[5]	5(5)[5]	5(5)[5]
COE Rig Removal, Gulf of Mexico	1(1)[2]	1(1)[2]	1(1)[2]	1(1)[2]	1(1)[2]
MMS Destin Dome Lease Sales	1(1)[2;6]	1(1)[2;6]	1(1)[2;6]	1(1)[2;6]	1(1)[2;6]
MMS Rig Removal, Gulf of Mexico	10(10)[7]	5(5)[2;7]	5(5)[2;7]	5(5)[2;7]	5(5)[2;7]
Dolphin/Wahoo	16[2](2)[2]	16[2](1)	2[2](1)	2[2](1)	2[2](1)
NE Multispecies Sink Gillnet Fishery	10(10)	4(4)	4(4)	2(2)	0
ASMFC Lobster Plan	10 (10)	4(4)	0	0	0
Bluefish	6(3)	0	0	6(6)	
Herring	6(3)	1(1)	1(1)	1(1)	0
Mackerel, Squid, Butterfish	6(3)	1(1)	2(2)	2(2)	0
Monkfish Fishery[7]	6(3)	1(1)	1(1)	1(1)	0
Dogfish Fishery	6(3)	1(1)	1(1)	1(1)	0
Sargassum	15(15)[8]	1(1)[2]	1(1)[2]	1(1)[2]	1(1)[2]
Summer Flounder, Scup & Black Sea Bass	15(5)	3(3)[2]	3(3)[2]	3(3)[2]	3(3)[2]
Shrimp Fishery[9]	163,160 (3,948)	3,090 (80)	18,757 (514)	155,503 (4,208)	NA(640) [13]
Weakfish	20(20)	0	0	2(2)	0
HMS - Pelagic Longline Fishery [10]	468(7)	358(6)	46(2)	23(1)	46(2)
HMS - Shark gillnet Fishery [11]	20(20)	2(2)	2(2)	2(2)	2(2)
HMS - Bottom Longline Fishery [11]	12(12)	2(2)	2(2)	2(2)	2(2)
NRC – St. Lucie, FL [12]	1000[2] (10)[2]	1000[2] (1)	1000[2] (10)[2]	1000[2] (1)	1000[2] (1)
NRC – Brunswick, NC	50[2] (6)[2]	50 [2]	50[2] (3)[2]	50[2] (2)[2]	50[2]
NRC – Crystal River, FL	55[2] (1)[2]	55[2] (1)[2]	55[2] (1)[2]	55[2] (1)[2]	55[2] (1)[2]
Total	**165,386(4,348)**	**4,896(198)**	**20,254(657)**	**156,987(4,349)**	**1,457(836)**

[1]Anticipated Take level represents '**observed**' unless otherwise noted. Number in parenthesis represents lethal take and is a subset of the total anticipated take; numbers less than whole are rounded up.
[2] The anticipated take level may represent any combination of species and thus is tallied under each column.
[3] Includes Navy Operations along the Atlantic Coasts and Gulf of Mexico, Mine warfare center, Eglin AFB, Moody AFB
[4] Total **estimated** take includes acoustic harassment
[5]Up to 8 sea turtles total, of which, no more than 5 may be leatherbacks, greens, Kemp's or hawksbill, in combination.
[6]Total anticipated take is 3 sea turtles of any combination over a 30-year period
[7] Not to exceed 25 sea turtles, in total.
[8] Anticipated take for post-hatchlings over a 5-year period
[9]Represents **estimated** take (interactions between sea turtles and trawls). Lethal take in parentheses.
[10] Represents **estimated** total take and **observed** lethal take in parentheses
[11] Represents **estimated** total and lethal take
[12] Annual incidental capture of up to 1,000 sea turtles, in any combination of the five species found in the action area. NOAA Fisheries anticipates 1 percent of the total number of green and loggerhead sea turtles (combined) captured (i.e., if there are 900 total green and loggerhead sea turtles captured in one year, then 9 sea turtles in any combination of greens and loggerheads are expected to be injured or killed as a result. In cases where 1 percent of the total is not a whole number, then the total allowable incidental take due to injury or death will be rounded to the next higher whole number) will be injured or killed each year over the next 10 years as a result of this incidental capture. NOAA Fisheries also anticipates two Kemp's ridley sea turtles will be killed each year and one hawksbill or leatherback sea turtle will be injured or killed every 2 years for the next 10 years.
[13] Actual mortalities of hawksbills, as a result of sea turtle/trawl interactions, is expected to be much lower than this number. This number represents the estimated total number of mortalities of hawksbill sea turtles from all sources in areas where shrimp fishing takes place.

Smalltooth Sawfish
Regulations developed under the ESA allow for the taking of ESA-listed species for the purposes of scientific research. Prior to issuance of these authorizations for taking, the proposal must be reviewed for compliance with section 7 of the ESA. There is presently one active research permit issued for the smalltooth sawfish. The proposed permit allow researchers to capture, handle, collect tissue samples, and tag up to 60 smalltooth sawfish per year. Although the research may result in disturbance and injury of smalltooth sawfish, the activities are not expected to affect the reproduction of the individuals that are caught, nor result in mortality.

Smalltooth sawfish may infrequently be taken in various other federal fisheries involving trawl, gillnet, or bottom longline gear. Since the sawfish was only listed as endangered on April 1, 2003, NOAA Fisheries is in the process of collecting data to analyze the impacts of these fisheries and will conduct section 7 consultations as appropriate.

ii. State or Private Actions

Sea turtles
Commercial traffic and recreational pursuits can have an adverse effect on sea turtles through propeller and boat strike damage. Private vessels participate in high speed marine events concentrated in the southeastern United States and are a particular threat to sea turtles. The magnitude of these marine events is not currently known. NOAA Fisheries and the USCG (who permits these events) are in early consultation on these events, but a thorough analysis has not been completed.

Various fishing methods used in state fisheries, including trawling, pot fisheries, fly nets, and gillnets are known to cause interactions with sea turtles Georgia and South Carolina prohibit gillnets for all but the shad fishery. Florida and Texas have banned all but very small nets in state waters. Louisiana, Mississippi, and Alabama have also placed restrictions on gillnet fisheries within state waters such that very little commercial gillnetting takes place in southeastern waters, with the exception of North Carolina. Most pot fisheries in the Southeast are prosecuted in areas frequented by sea turtles.

Smalltooth sawfish
A significant proportion of the Florida coast has been degraded by inland hydrological projects, urbanization, agricultural activities, and other anthropogenic activities such as dredging, canal development, sea wall construction, and mangrove clearing. These activities have led to the loss and degradation of smalltooth sawfish habitat and may adversely affect their recovery.

Smalltooth sawfish are known to be taken incidental to state recreational fisheries, particularly those that occur in the vicinity of the Everglades National Park. NOAA Fisheries has initiated discussions with Florida Fish and Wildlife Commission regarding the issuance of an ESA section 10 incidental take permit for such fisheries.

iii. Other Potential Sources of Impacts in the Environmental Baseline

A number of activities that may indirectly affect listed species include discharges from wastewater systems, dredging, ocean dumping and disposal, and aquaculture. The impacts from these activities are difficult to measure. Where possible, however, conservation actions are being implemented to monitor or study impacts from these elusive sources.

NOAA Fisheries and the USN have been working cooperatively to establish a policy for monitoring and managing acoustic impacts from anthropogenic sound sources in the marine environment. Acoustic impacts to sea turtles can include temporary or permanent injury, habitat exclusion, habituation, and disruption of other normal behavior patterns.

iv. Conservation and Recovery Actions Shaping the Environmental Baseline

Sea turtles
NOAA Fisheries has implemented a series of regulations aimed at reducing potential for incidental mortality of sea turtles in commercial fisheries. In particular, NOAA Fisheries has required the use of TEDs in southeast U.S. shrimp trawls since 1989 and in summer flounder trawls in the mid-Atlantic area (south of Cape Charles, Virginia) since 1992. It has been estimated that TEDs exclude 97 percent of the sea turtles caught in such trawls. These regulations have been refined over the years to ensure that TED effectiveness is maximized through proper placement and installation, configuration (*e.g.*, width of bar spacing), floatation, and more widespread use. Analyses by Epperly and Teas (2002) indicate that the minimum requirements for the escape opening dimensions were too small, and that as many as 47 percent of the loggerheads stranding annually along the Atlantic Seaboard and Gulf of Mexico were too large to fit through existing openings. On February 21, 2003, NOAA Fisheries published a final

rule to require larger escape openings in TEDs used in the southeast shrimp trawl fishery (68 FR 8456, February 21, 2003). Based upon the analyses in Epperly et al. (2002), leatherback and loggerhead sea turtles will greatly benefit from the new regulations, with expected reductions of 97 percent and 94 percent, respectively, in mortality from shrimp trawling.

In 1993 (with a final rule implemented in 1995), NOAA Fisheries established a Leatherback Conservation Zone to restrict shrimp trawl activities from the coast of Cape Canaveral, Florida, to the North Carolina/Virginia border. This provided for short-term closures when high concentrations of normally pelagically-distributed leatherbacks are recorded in near coastal waters where the shrimp fleet operates. This measure was necessary because, due to their size, adult leatherbacks were larger than the escape openings of most NOAA Fisheries-approved TEDs. With the implementation of the new TED rule requiring larger opening sizes on all TEDs, the reactive emergency closures within the Leatherback Conservation Zone are no longer necessary.

NOAA Fisheries is also working to develop a TED which can be effectively used in a type of trawl known as a fly net, which is sometimes used in the mid-Atlantic and Northeast fisheries to target sciaenids and bluefish. Limited observer data indicate that takes can be quite high in this fishery. A prototype design has been developed, and testing has been underway as of December 2002 and is still continuing as of June 2003.

In addition, NOAA Fisheries has been active in public outreach efforts to educate fishermen regarding sea turtle handling and resuscitation techniques. As well as making this information widely available to all fishermen, NOAA Fisheries recently conducted a number of workshops with longline fishermen to discuss bycatch issues including protected species, and to educate them regarding handling and release guidelines. NOAA Fisheries intends to continue these outreach efforts and hopes to reach all fishermen participating in the pelagic longline fishery over the next one to two years. There is also an extensive network of Sea Turtle Stranding and Salvage Network participants along the Atlantic and Gulf of Mexico who not only collect data on dead sea turtles, but also rescue and rehabilitate any live stranded sea turtles.

Smalltooth sawfish

State regulations restricting the use of gear known to incidentally catch smalltooth sawfish may benefit the species by reducing their incidental capture and/or mortality in these gear types. In 1994, entangling nets (including gillnets, trammel nets, and purse seines) were banned in Florida state waters. Although intended to restore the populations of inshore gamefish, this action removed possibly the greatest source of fishing mortality on smalltooth sawfish (Simpfendorfer 2002). Florida's ban of the use of shrimp trawls within three miles of the Gulf of Mexico coast and within one mile of the coast of the Atlantic Ocean may also aid recovery of this species.

Under section 4(f)(1) of the ESA, NOAA Fisheries is required to develop and implement a recovery plan for the conservation and survival of endangered and threatened species. NOAA fisheries recently convened a recovery team for smalltooth sawfish and is in the initial stages of developing a recovery plan for the species.

Mote Marine Laboratory began a research project on the conservation biology of smalltooth sawfish in 1999. Funded in part by NOAA Fisheries, the project's aim is to provide data on the current status of smalltooth sawfish and to provide scientific information on which to base effective conservation measures. The project has several components including: surveys conducted using a variety of gears, a public sightings database, acoustic tagging and tracking, and genetic analysis. Data collected are providing new information on the species' current distribution and abundance, habitat use patterns, and the impact of population decline. Computer models of smalltooth sawfish populations are also being developed to investigate the rate of change in the population and how the population will recover under different conservation strategies. In addition to these benefits, public outreach efforts to increase awareness of the database are helping to also educate the public regarding smalltooth sawfish status and handling techniques.

IV. Effects of the Action

Sea turtles can be captured as a result of the use of bottom longlines, gillnets and rod and reel/hand line fishing gear. Captured sea turtles can be released alive uninjured or can be killed as a result of the interaction. Some sea turtles that are released alive from these gears may die later as a result of the ingestion of a hook, entanglement in the gear, of the trailing of monofilament gear that was not cut away prior to release. There are detailed descriptions of effects of hooking, entanglement, and forced submergence on sea turtles, including a detailed discussion on post release mortality in the June 19, 2001, Opinion on the Reinitiation of Consultation on the Atlantic Highly Migratory Species Fishery Management Plan and its Associated Fisheries. This information is incorporated herein by reference.

Smalltooth sawfish can also be captured as a result of the use of bottom longlines, gillnets, and rod and reel/handline. This Opinion represents the first formal consultation for this species on a federal fishery.

A. Effects of Gillnets (Drift and Strikenet)

Effects on sea turtles
Sea turtles are vulnerable to entanglement and drowning in gillnets, especially when the gear is left untended. The main risk to sea turtles from capture in gillnets is forced submergence. Entanglement in gillnets can also result in severe abrasions on entangled turtles. In 2001, NOAA Fisheries was notified by the Florida Fish and Wildlife Conservation Commission of three leatherback strandings in the area of the shark drift gillnet fishery. One stranding was an adult male with abrasions around the shoulders, consistent with entanglement in gillnet gear. A necropsy concluded that the abrasions occurred prior to death.

Effects on smalltooth sawfish
Shark drift gillnets are best described as entanglement nets rather than gillnets, since the objective is to "entangle" rather than to "gill" sharks. The long, toothed rostrum of the smalltooth sawfish causes this species to be particularly vulnerable to such gear. The saw penetrates easily through nets, causing the animal to become entangled when it attempts to

escape. Such nets are believed to be the primary reason for the decline of the smalltooth sawfish. Bigelow and Schroeder (1953), who described smalltooth sawfish as "plentiful in Florida waters," noted that they were of "considerable concern to fishermen as nuisances because of the damage they do to drift-and turtle-nets, to seines, and to shrimp trawls in which they often become entangled and because of the difficulty of disentangling them without being injured by their saws." The toothed saw makes it very difficult to easily remove the saw with out causing mortal damage to the animal, or damaging gear. Entangled specimens frequently had to be cut free, causing extensive damage to nets and presenting a substantial hazzard if brought on board. For these reasons, smalltooth sawfish were typically killed out right or released only after removal of their saws.

Estimate of Sea Turtle Take
Estimates for sea turtle takes in the drift gillnet fishery are based upon the analysis of observer data from the NOAA Fisheries' Southeast Fisheries Science Center. These analyses are presented in Appendix II.

Observer data gathered by the SEFSC observer program from 1999-2002 were used to estimate takes in the drift gillnet fishery. Prior to 1999, observer coverage was limited and inconsistent, but since 1999, a much higher degree of observer coverage has occurred, including very high coverage in the southern Florida area during the right whale calving season (November 15 - March 30) when sea turtle takes are known to be much more likely (Table 3, Appendix III).

Methods Used/Selected for Estimating Takes
The shark drift gillnet fishery is typically prosecuted at night with each vessel making one set per fishing day. The average soak times range between 6-10 hours, but vary widely and are often not well reported, so the unit of effort used in the analysis is individual fishing trips and not soak time or length of net. This effort data, along with observed bycatch, mortality data, and other information was then used to calculate the estimated mortality and live take for the fishery, with the exception of southern Florida data in 2001. For 2001, in the southern Florida area, the number of observed trips exceeded the reported effort. Therefore, it was assumed that observer coverage accounted for 100 percent of the fishing effort, and thus the observed takes were recorded as the total take for that time period in that region.

Results/Extrapolated Estimates/Evaluation/Discussion
Incidental takes and mortality estimates for each year are detailed in Table 4 of Appendix III. Combining the takes from each season and area for each year, the estimated takes were as follows:

Leatherback sea turtles-

1999 and 2000, no takes
2001, 2 mortalities, 12 live takes (observed takes as explained above)
(14 total takes)
2002, 3.4 live takes (calculated estimate)

Loggerhead sea turtles-

1999, no takes

2000, 1 mortality, 4.4 live takes (calculated estimate)
(5.4 total takes)
2001, 1 live take (observed take)
2002, 1.7 live takes (calculated estimate)

Because of the high degree of variability in takes which is associated with variability in water temperatures, sea turtle abundances, and other factors that cannot be predicted, a 5-year estimated take will be utilized for the incidental take statement (ITS) and jeopardy analysis of this Opinion instead of a 1-year average estimated take. Over a 5-year period the expected take from the drift gillnet fishery would be as follows:

Leatherback sea turtles: 22 total captures of which 3 would be expected to be killed.

Loggerhead sea turtles: 10 total captures of which 1 would be expected to be killed.

Estimate of Smalltooth Sawfish Take

To date, only one smalltooth sawfish has been observed incidentally caught in the Atlantic shark drift gillnet fishery. On June 25, 2003, a female smalltooth sawfish, estimated to be 400 cm in total length, was incidentally caught in an observed set off southeast Florida. The set was characteristic of a typical drift gillnet set, with gear extending 30 to 40 feet deep in 50 to 60 feet of water (Carlson, pers. comm.). Prior to this event it was speculated by some that the depth at which drift gillnets are set above the sea floor may exclude smalltooth sawfish from being caught. Although sometimes described as a lethargic demersal species, smalltooth sawfish feed mostly on schooling fish and thus would occur higher in the water column during feeding activity. In fact, smalltooth sawfish and Atlantic sharks may be attracted to the same schools of fish, potentially making smalltooth sawfish quite vulnerable if present in the area fished. The previous absence of smalltooth sawfish incidental capture records is more likely attributable to the relatively low effort in this fishery and the rarity of smalltooth sawfish (especially in federal waters) resulting in little overlap of the species with the gillnet gear.

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

As discussed in the proposed action, gillnets are also used to “strikenet” by targeting and encircling specific schools of sharks after visually detecting them, usually by a spotter pilot. Given the large and/or distinct morphology of smalltooth sawfish, this species would likely be detected visually, as well as distinguished from shark species, and thus avoided. This fishing method has been shown to also reduce potential encounters by limiting the time that gear is in the water. Strike gillnet sets are typically only one to two hours in contrast to six to ten hours for each drift gillnet set. There are no observed takes of smalltooth sawfish, sea turtles, or marine mammals in strike sets.

Given the high rate of observer coverage in the shark gillnet fishery, NOAA Fisheries believes that smalltooth sawfish takes in this fishery are very rare. The fact that there were no smalltooth sawfish caught during 2001, when observer coverage reached 100 percent of the fishing effort,

indicated that smalltooth sawfish takes (observed or total) most likely do not occur on an annual basis. Based on this information, NOAA Fisheries believes that one incidental capture of a smalltooth sawfish (released alive) over the next five years, will occur as a result of the use of gillnets in this fishery.

B. Bottom Longline

Effects on smalltooth sawfish
Bottom longline fisheries affect smalltooth sawfish by hooking and entanglement. Hooking location data are not available for smalltooth sawfish caught on shark bottom longlines. Based on data from hooking events in other fisheries and research surveys, however, the vast majority of smalltooth sawfish are hooked in the mouth (Simpfendorfer, pers. comm; Burgess, pers. comm; Seitz and Poulakis, pers. comm). Foul hooking (i.e., hooking in fin, near eye, etc.) reports are not nearly as frequent, but do occur occasionally. There are no reports, however, of smalltooth sawfish being deeply hooked. Once hooked, the gangion frequently becomes wrapped around the animals' saw (Burgess, pers. comm; Seitz and Poulakis, pers. comm). This may be due to slashing during the fight, from spinning on the line (like sharks sometimes do), or any other action that brings the rostrum in contact with the line.

All individuals observed in the bottom longline fishery have been very active when reaching the water's surface, and were released in apparent good health, without any noticeable damage to their rostrums. Additional information stems from research surveys conducted by Dr. Simpfendorfer of Mote Marine Laboratory, who has been undertaking surveys for smalltooth sawfish since 2000, using bottom longlines as his primary gear. He has caught and handled at least nine individuals ranging in size from 140 cm to 350 cm. All the animals were alive upon capture and released in good condition. Soak times do not seem to be a factor for smalltooth sawfish. Simpfendorfer speculates that the animal's natural habit consists of laying on the seafloor, using its spiracles to breath (Simpfendorfer, pers.comm). Thorson (1982) reports that when largetooth sawfish were caught by fishermen at night or when no one was present to tag them, they were left tethered in the water with a line tied around the rostrum for several hours with no apparent harmful effects. There are no studies on the post-release mortality of smalltooth sawfish. Based on their lively condition at capture and tagging recapture data, however, NOAA Fisheries believes post-release mortality would be extremely low.

There are no observed reports of smalltooth sawfish caught in the shark bottom longline fishery damaging their rostra while fishermen are preparing to release the fish. There are reports from recreational hooking encounters where this has occurred. Smalltooth sawfish caught incidental to recreational fishing have damaged their rostra by hitting it against the vessel or other nearby objects (e.g., piling, bridge) Reported damage ranges from broken rostral teeth (which are not replaced) to broken rostrums. Since smalltooth sawfish have been caught missing their entire rostrum, but otherwise appearing healthy, smalltooth sawfish appear to be able to survive without their rostra. Given the use of their rostra in feeding activities, however, it is expected that damage to their rostra, depending on the extent, would hinder their ability to feed and thus ultimately may impact the affected animal's growth.

Effects on sea turtles

Atlantic shark bottom longline and gillnet fisheries are known to take sea turtles. Based on NOAA Fisheries' knowledge of sea turtle life history and the location of these sharks fisheries, the majority of sea turtles that would interact with Atlantic shark fisheries are juvenile, large benthic immature loggerhead and adult leatherback sea turtles. Loggerhead and leatherback sea turtles are the only species observed incidentally caught in the shark bottom longline and drift gillnet fisheries. Available size data on incidentally caught loggerhead sea turtles indicates, most of these are large benthic immatures, with recorded sizes 75cm CL and greater. Based on our knowledge of the life history of leatherback sea turtles, we anticipate most to be subadult and adult individuals. Green, hawksbill, and Kemp's ridley sea turtles may also occur in the action area and in areas where Atlantic shark fisheries are concentrated and may also be exposed to Atlantic shark gear. Since not all sea turtles caught incidentally have been identified at the species level, it is possible that these other species have also occasionally been taken. The effects of these takes can range from being released alive to being found dead as a result of forced submergence. Some turtles released alive my subsequently die from hook ingestion, trailing gear, or injuries suffered when entangled in gear.

Estimated Sea Turtle and Smalltooth Sawfish Takes

Data Sets Available for Analysis of Takes

Several different data sets from 1994 through 2002 were used in analyzing the number of takes in the bottom longline fishery (see bycatch maps in Appendix III). The first data set was the Bottom Longline Observer data from 1994 through 2002. These data are collected and maintained by George Burgess and his staff at the University of Florida and the Museum of Natural History Observer Program. From 1994 through 2000, the observer program was a voluntary program and the observers only went on vessels that agreed to take them. Thus, the data for this time period, while the only observer data available for the fleet, was not based on a random selection process and did not cover the entire range of the fishery. However, it did cover vessels operating in the major fishing grounds off Florida and North Carolina. In 2001, the observer program became mandatory, with vessels selected randomly across areas based on historic participation patterns. The observed sea turtle and smalltooth sawfish takes reported by the observer coverage appear to be relatively low. Thus, use of these data in expanded take estimates must take into account its increased level of uncertainty because of the low number of observed takes and the overall low percentage of observer coverage (see Results section).

The second data set was self-reported data from the Gulf of Mexico reef fish, South Atlantic snapper-grouper, king and Spanish mackerel, and shark logbook. Data in this logbook are maintained in the Southeast Fisheries Science Center and are reported by fishermen for each trip. Fishermen report the gear used, the average number of hooks used for each set, the area fished (based on a grid system), and the number of days spent away from port. In order to calculate the number of hooks used per trip, we assumed fishermen would take half a day to travel to the fishing grounds and half a day to return. Thus, if fishermen were away from port for 5 days, we estimated that they made 4 sets (5 days away from port - 1 day for steaming). The number of sets was multiplied by the average number of hooks to give the total number of hooks per trip. Only trips that used bottom longline and reported landing sharks were used in the calculations below to estimate sea turtle and smalltooth sawfish takes.

The third data set was self-reported data from the HMS logbook. These data are also maintained by the Southeast Fisheries Science Center. Fishermen report the gear used, the number of hooks, the date fished, and the latitude and longitude for each set. Only sets that used bottom longline and reported keeping sharks were used in the following calculations to estimate sea turtle and smalltooth sawfish takes.

Methods Used/Selected for Estimating Takes

Estimates of take were calculated using fishery effort (i.e., number of hooks) split into two seasons (1 = January through June; 2 = July through December); this was a natural split based on the current fishing seasons. This method combines areas where there was no observed effort with areas where there was reported effort, and, thus, provides estimates for the entire fishery. The level and spatial distribution of observer coverage precluded any estimates by region (Gulf vs. Atlantic) without extrapolation to areas with no observer coverage. These extrapolations would assume sea turtles and smalltooth sawfish are distributed in the same way in areas with and without observer coverage, a questionable assumption.

Based on discussions with Dr. G. Scott of the Southeast Fisheries Science Center, the following equation was used to estimate takes in the bottom longline fishery:

Observed takes * (Number of hooks reported in logbooks/Number of observed hooks)

Confidence intervals (95 % CI) were then calculated by putting the number of sets in which takes were observed and the total number of sets observed into a worksheet found at: http://www.swogstat.org/stat/public/binomial_conf.htm). The limit number derived in this worksheet was divided into the ratio of sets with observed takes to number of sets observed. The resulting number was then multiplied by the estimated take to give a lower or an upper confidence limit:

(Number of sets with observed take/Number of sets observed)/limit number*Estimated takes

Low observed takes of sea turtles and smalltooth sawfish did not allow takes to be broken out into live or dead releases. As a result, the following take estimates reflect total take.

Results/Extrapolate Estimates

The observer program covered approximately 598,384 hooks or 1.6 percent of all hooks set in the shark bottom longline fleet between 1994 and 2002. Over that time period, four leatherback sea turtles, 31 loggerhead sea turtles, eight unidentified sea turtles, and seven smalltooth sawfish were observed caught. Table 3 contains the estimates of take each season by year for the period 1994 to 2002, along with the associated 95 percent confidence intervals.

Between 1994 and 2002, sea turtle estimated takes were: 269 leatherback sea turtles, 2003 loggerhead sea turtles, and 503 unidentified sea turtles. Annual average takes were: 30 leatherback sea turtles, 222 loggerhead sea turtles, and 56 unidentified sea turtles (Table 4).

Between 1994 and 2002, an estimated 466 smalltooth sawfish were caught, yielding an average of 52 smalltooth sawfish takes per year (Table 4). It is important to note that all the smalltooth sawfish takes observed, except for one with missing data, were released alive.

Evaluation/Discussion of Accuracy of Take Estimates

The majority of takes occur in Season 1 for all species of sea turtles. Additionally, there were no observed takes of leatherback sea turtles in Season 2. This may result in an underestimate of leatherback interactions with the fishery as leatherbacks were taken during all other seasons. In general, the small number of observed takes creates a large amount of variability around the take estimates and they should be viewed with caution.

Furthermore, this analysis only estimates takes without discriminating between live and dead releases. Of the observed sea turtle takes here, 23 percent were lethal. Precision of estimates is likely to improve with greater observer coverage. Based on this information and the numbers in Table 3, it is estimated that 51 loggerhead sea turtles (222 x 23 percent) will be killed annually as a result of an interaction with a bottom longline. The highest percentage of post-release mortality is 42 percent (NMFS 2001). This is for sea turtles that ingested the hook (the percent mortality is lower depending on how the animal was hooked). Assuming all animals ingest the hook, we estimate that 42 percent of the animals released alive will die as a result of their interaction with the bottom longline fishery which means another 72 loggerhead sea turtles (222-51=171 then 171 x 42 percent) will be killed each year. This results in a total of 123 loggerheads killed (72 + 51) per year as a result of the proposed action. Applying the same calculations for leatherbacks predicts the total number of leatherbacks killed as a result of the proposed action as 17 per year. The leatherback mortality is very conservative because it is known that leatherbacks, rarely ingest or bite hooks, but are usually foul hooked on their flippers or carapaces, reducing the likelihood of post-hooking release mortality. However, leatherback-specific data for this fishery is not available and therefore the most conservative estimate is used to be protective of the species in evaluating the effects of the fishery. The data provides an estimate of 56 unidentified sea turtles captured per year. Given the relative abundances of the sea turtle species in the action area in documented interactions with the fishery, most of these unidentified turtles are probably loggerheads, with small numbers of greens and Kemp's ridleys. Some of these sea turtles may be hawksbills but NOAA Fisheries believes this would be rare. The June 14, 2002, Opinion included an observed incidental take of two hawksbills, two greens, and two Kemp's ridleys, and since there is no new information that would lead us to change this conclusion, the ITS of this Opinion will reflect those numbers. The rest of the unknown turtles are expected to be loggerhead turtles.

As with sea turtles, most sawfish takes occurred in Season 1 (Table 4). The high estimated takes for smalltooth sawfish appear to be the result of one set in 1997 and may not be typical of the entire fleet or fishery. Smalltooth sawfish are known to be most common within the vicinity of Everglades National Park and the Florida Keys, and become less common with increasing distance from this area. The northern limit of their current range was thought to be Florida; however the recent incidental catch of a smalltooth sawfish off Georgia indicates they may now occur slightly further north as well. The range of most bottom longline sets runs from the federal waters off the Panhandle of Florida in the Gulf of Mexico to southern Virginia in the Atlantic, with concentrations of activity off the Florida Keys, Cape Canaveral, and North

Carolina. Six of the eight sawfish captures were all located off the Florida Keys, including the four caught during one set. One was reported in the Gulf of Mexico fishing grounds off Madeira Beach, and the remaining one was caught off Georgia. Because of the foregoing factors, we may be overestimating current take. Sawfish take estimates are conservative and thus protective of the species when used in a jeopardy analysis. These estimates should be revisited in the future when additional data are available.

Under current observer coverage, an observed interaction with a smalltooth sawfish is a rare event. The observer data, in combination with anecdotal information collected in databases, indicate that lethal takes may be extremely rare, but more data is needed to confirm such a finding. The estimates of lethal and non-lethal takes would be greatly improved with more observer coverage. NOAA Fisheries presently has no data to indicate that lethal takes occur. Based on this information, NOAA Fisheries expects that no smalltooth sawfish will be killed as a result of the proposed action over the next five years.

Table 3. Seasonal Take Estimates with 95 percent Confidence Interval Limits.

YEAR	SEASON	TAKE ESTIMATE	LOWER LIMIT	UPPER LIMIT
Leatherback				
1994	1	66	12	2500
	2	0	0	0
1995	1	0	0	0
	2	0	0	0
1996	1	71	13	2611
	2	0	0	0
1997	1	81	15	3117
	2	0	0	0
1998	1	0	0	0
	2	0	0	0
1999	1	0	0	0
	2	0	0	0
2000	1	0	0	0
	2	0	0	0
2001	1	51	9	2021
	2	0	0	0
2002	1	0	0	0
	2	0	0	0

Loggerhead				
1994	1	199	58	1630
	2	145	43	1194
1995	1	117	33	962
	2	82	23	685
1996	1	356	126	1703
	2	76	14	2862
1997	1	327	133	1173
	2	98	20	3762
1998	1	58	11	2263
	2	76	15	3119
1999	1	190	55	1558
	2	0	0	0
2000	1	0	0	0
	2	0	0	0
2001	1	102	29	829
	2	0	0	0
2002	1	88	17	3326
	2	92	37	329
Unidentified Sea Turtles				
1994	1	331	120	1589
	2	73	14	2686
1995	1	0	0	0
	2	41	8	1540
1996	1	0	0	0
	2	0	0	0
1997	1	0	0	0
	2	0		0
1998	1	58	11	2263
	2	0	0	0
1999	1	0	0	0

	2	0	0	0
2000	1	0	0	0
	2	0	0	0
2001	1	0	0	0
	2	0	0	0
2002	1	0	0	0
	2	0	0	0

Table 4. Average Seasonal Take From Bottom Longline Gear

Species	Season 1	Season 2	Total
Leatherback	30	0	30
Loggerhead	159	63	222
Unidentified Sea Turtles	43	13	56
Sawfish	44	8	52

C. Effects of Rod and Reel/Handline

Sea Turtles

Recreational fishermen targeting sharks generally use bait and hook. Sea turtles are known to take baited hooks. Hooked sea turtles have been reported by the public fishing from boats, piers, the beach, banks, and jetties (TEWG 2000). NOAA Fisheries has no data specifically showing, however, that sea turtles are taken by recreational anglers fishing for sharks. Most recorded sea turtle captures by recreational fishermen occur off fishing piers where sea turtles are known to congregate due to lighting and the concentration of bait. The proposed action pertains to recreational shark fishing in federal waters not from fishing piers. Based on the information above NOAA Fisheries believes that chances of a recreational shark fishermen catching a sea turtle in federal waters is discountable.

Smalltooth Sawfish

Smalltooth sawfish are known to be occasionally hooked with rod and reel and/or handline during recreational fishing. These captures occur most frequently in state waters in the vicinity of the Everglades National Park and Florida Bay, where the current population is concentrated. North of this area, the number of reported captures declines greatly. The National Park Service, Everglades National Park, monitors fishing activity and harvest in this area in part by conducting interviews with anglers and fishing guides at local boat ramps. These interviews indicate that the majority of anglers do not try to catch any particular kind of fish. Target species of the minority group that did try to catch a particular type, however, included snook, spotted sea trout, red drum, and tarpon. Thus, the vast majority of incidental smalltooth sawfish captures are not from shark fishing.

The only indication that smalltooth sawfish may be occasionally hooked by a fishermen targeting sharks stems from the Gulf Coast Shark Census (operating out of Sarasota, Florida). Between 1991 and 1999, five smalltooth sawfish were captured and released in 20,000 line hours of recreational fishing effort. The captures, however, were all from either inside the barrier islands or just offshore of barrier islands, along the southwest Florida coast between Cape Romano and Saint Petersburg, thus all within state waters.

Given the overall scarcity of smalltooth sawfish encounters in state waters where smalltooth sawfish are believed to occur in greater abundances and density, the chance of a smalltooth sawfish being encountered during recreational shark fishing in federal waters is extremely rare. The MRFFS database has no records of smalltooth sawfish capture in federal waters, let alone one during fishing targeting sharks. Therefore, NOAA Fisheries believes that the chances of a recreational shark fisherman catching a smalltooth sawfish in federal waters are discountable.

D. Effects of the Proposed Measures

The proposed regulations to reduce the LCS commercial quota from 1997-2002 levels, resulting in a 45 percent reduction, is expected to reduce fishing effort for the shark bottom longline fishery. Effort reductions are not expected in the shark gillnet fishery because it primarily targets SCS and drift gillnet fishing is no longer proposed to be eliminated. The reduction in bottom longline effort could result in a reduction in the number of sea turtle interactions. However, based on available information it is equally plausible that take levels may remain the same. Therefore, to be conservative NOAA Fisheries assumes no reduction in take of sea turtles when making its jeopardy determination. Any effort reductions will only reduce smalltooth sawfish interactions if they specifically occur in the southern fishing areas where smalltooth sawfish are known to be most abundant. Currently NOAA Fisheries cannot predict where fishing effort will be reduced; therefore, NOAA Fisheries cannot assume a reduction in sawfish take.

NOAA Fisheries F/SF1 is also proposing to implement a time/area closure in the Atlantic shark fishery off North Carolina, and require vessel monitoring systems on gillnet and bottom longline vessels. Although the time/area closure is primarily proposed to reduce the bycatch of prohibited species such as the dusky shark, it may have the added benefit of reducing sea turtle interactions. This depends, however, on how much effort reduction actually results from this action. Most bottom longline fishermen tend to fish close to their home port, so if redistribution of effort occurs as a result of the closure, the effort could be expected to stay the same and to redistribute to areas adjacent to or seaward of the closure. Sea turtle interactions may occur in these areas as well; thus, reduced sea turtle interactions may not be realized if effort merely redistributes. The proposed time/area closure occurs north of where smalltooth sawfish occur, thus it will provide no benefit to smalltooth sawfish. Conversely, should effort redistribute to the southern fishing grounds, smalltooth sawfish interactions could potentially increase as a result of the time/area closure. Based on the expected area of any effort redistributions, however, NOAA Fisheries believes the time area closure will have no effects on smalltooth sawfish interactions.

A requirement to have VMS on directed shark gillnet and bottom longlining vessels is proposed as a measure to aid NOAA in enforcing the time/area closure. Additionally, this proposed measure could lead to improvements in effort data in this area that is used in estimating takes.

NOAA Fisheries is not proposing to reduce the recreational bag limit on sharks but is proposing to increase compliance with the existing regulations. Because NOAA Fisheries implemented an HMS angling permit in March 2003, NOAA Fisheries is proposing to restrict the authorized gear in the recreational fishery to handline and rod and reel. Post-release mortality of these gear types is lower than that of traditional commercial gears such as bottom longline or gillnet. However, since these gears are presently not used in recreational fishing, little benefit to sea turtles and smalltooth sawfish is expected.

Some of the proposed regulations were specifically designed with the intent to reduce, to the extent practicable, bycatch and bycatch mortality of sea turtles and marine mammals. These alternatives include; requiring the use of corrodible hooks, dehooking devices (once a dehooking device is approved), dipnets, and line cutters on bottom longline vessels (similar to the requirements for pelagic longline vessels); and requiring bottom longline vessels to move 1 nm after an interaction with a protected species (also similar to the requirement for pelagic longliners). These measures proposed in the FMP amendment are expected to have a positive impact on protected species. Non-stainless steel corrodible hooks are proposed for the directed shark bottom longline fishery which will minimize impacts to sea turtles and smalltooth sawfish if they are accidentally hooked. Dehooking equipment designed to safely release incidentally caught sea turtles is also being proposed.

V. Cumulative Effects

Cumulative effects are the effects of future state, local, or private activities that are reasonably certain to occur within the action area considered in this Opinion. Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Within the action area, major future changes are not anticipated in the ongoing human activities described in the environmental baseline. The present, major human uses of the action area–commercial and recreational fishing (that affect sea turtles and smalltooth sawfish) and recreational beach use and boating (that affect sea turtles)–are expected to continue at the present levels of intensity in the near future.

State-regulated commercial and recreational fishing activities in Atlantic Ocean and Gulf of Mexico waters currently result in the incidental take of threatened and endangered species. It is expected that states will continue to license/permit large vessel and thrill-craft operations which do not fall under the purview of a federal agency, and issue regulations that will affect fishery activities. Any increase in recreational vessel activity to include fishing in inshore and offshore waters of the Gulf of Mexico and Atlantic Ocean will likely increase the number of sea turtles and smalltooth sawfish taken by injury or mortality in vessel collisions (in the case of sea turtles). Recreational hook-and-line fisheries have been known to target and lethally take sea turtles and smalltooth sawfish in state waters. Future cooperation between NOAA Fisheries and the states on these issues should help decrease take of sea turtles and smalltooth sawfish caused by recreational activities. NOAA Fisheries will continue to work with coastal states to develop and refine ESA section 6 agreements and section 10 permits to enhance programs to quantify and mitigate these takes.

Beachfront development, lighting, and beach erosion control are ongoing activities along the Atlantic and Gulf coasts. These activities potentially reduce or degrade sea turtle nesting habitats or interfere with hatchling movement to sea. Nocturnal human activities along nesting beaches may also discourage sea turtles from nesting sites. The extent to which these activities reduce sea turtle nesting and hatchling production is unknown. However, as conservation awareness spreads, more and more coastal cities and counties are adopting more stringent measures to protect hatchling sea turtles from the disorienting effects of beach lighting.

VI. Conclusion

Sea Turtles

The number of sea turtles estimated to be taken over the next 5 years as a result of the proposed action are listed in the tables below in the ITS. These represent a small increase in the total numbers of turtles taken by federal actions detailed in Table 2 in the Environmental Baseline section of this Opinion.

With the exception of the northern nesting population of loggerheads, nesting for loggerheads, Kemp's ridley, green, and leatherback sea turtles has been increasing or remaining stable in the southeastern United States and Rancho Nuevo, Mexico (in the case of Kemp's ridleys). These population increases have occurred despite the take levels associated with this fishery. Amendment 1 is not expected to significantly change this fishery's effects on sea turtles (it most likely will decrease the number of lethal takes to an undetermined level as described above). Based on information presented in the Environmental Baseline section of this Opinion and the analysis in the December 2, 2002, Opinion on the shrimp fishery (for which the entire HMS fishery was part of the baseline) the increase in TED opening sizes associated with the final TED rule, published in the *Federal Register* on February 21, 2003 (68 FR 8456), is expected to allow the northern nesting population of loggerheads, as well as the other sea turtle populations to increase given a large decrease expected in loggerhead mortality. Therefore, NOAA Fisheries believes that the effects of the proposed action are not likely to appreciably reduce either the survival or recovery of loggerheads, Kemp's ridley, green, hawksbill or leatherback sea turtles in the wild by reducing their reproduction, numbers, or distribution. In particular, NOAA Fisheries determined that it does not expect activities associated with the proposed action, when added to ongoing activities affecting these species in the action area (see Table 2) and the cumulative effects (Section V), to affect sea turtles in a way that reduces the number of animals born in a particular year (i.e., a specific age-class), the reproductive success of adult sea turtles, or the number of young sea turtles that annually recruit into the adult breeding population, because as stated above, turtle populations in the area affected by the proposed action have been or are expected to begin increasing even with take levels in the shark fishery. Based on these facts, NOAA Fisheries believes that the proposed action is not likely to jeopardize the continued existence of the endangered Kemp's ridley, green, hawksbill, and leatherback sea turtles, and the threatened loggerhead sea turtle. Critical habitat has not been designated for these species in the action area; therefore, none will be affected.

Smalltooth sawfish

The number of smalltooth sawfish estimated to be taken over the next 5 years as a result of the proposed action are listed in the tables below in the ITS (which includes no lethal take).

Although Atlantic shark fisheries would result in the temporary disturbance of behavior and short term injury in the case of bottom longline hooking of smalltooth sawfish, based on available information, the activities are not expected to affect the reproduction of the individuals that are caught, nor result in mortality. Based on this information, Atlantic Shark fisheries would not affect the reproduction, numbers, or distribution of wild populations of smalltooth sawfish. Therefore, the proposed action will not reduce the smalltooth sawfish population's likelihood of surviving and recovering in the wild. Thus, NOAA Fisheries believes that the proposed action is not likely to jeopardize the continued existence of smalltooth sawfish.

VII. Incidental Take Statement

Anticipated Amount or Extent of Incidental Take

Based on observer data, observed and self-reported effort data, and the distribution and density of sea turtles in the action area, NOAA Fisheries anticipates that the continued prosecution of the Atlantic shark fisheries under the HMS FMP, including implementation of Amendment 1 as proposed may result in take. Currently available information on the relationship between sea turtles and smalltooth sawfish and the Atlantic shark fishery indicates that capture, injury and/or death of sea turtles and smalltooth sawfish is likely to occur. Therefore, pursuant to section 7(b)(4) of the ESA, NOAA Fisheries anticipates an actual 5-year total incidental take for the Atlantic shark fishery of:

- **172 leatherback sea turtles of which 88 will be lethal.**
- **1370 (1120 + 250 of the expected 280 unidentified, which are most likely loggerhead sea turtles) loggerhead sea turtles of which 755 will be lethal.**
- **30 total in any combination of hawksbill, green, and Kemp's ridley sea turtles (remaining 30 of the expected 280 unidentified), with 5 lethal takes per species.**
- **261 smalltooth sawfish, of which no lethal takes are expected.**

The above take estimates can be further broken down by gear type. These limits represent the number of total estimated takes, based on observed takes, extrapolated across total effort levels for this fishery. Each gear type must be considered independently, and **if the actual calculated incidental captures or mortalities exceed the amount estimated below for a gear type, NOAA Fisheries F/SF1 must immediately reinitiate formal consultation for that gear type.** The take estimates by gear type are as follows:

Bottom Longline Gear

Species	Total Takes (5-year)	Mortalities (5-year)
loggerhead sea turtle	1360	754
leatherback sea turtle	150	85
other sea turtle species (green, Kemp's ridley, or hawksbill)	30 (combined for all species)	5 (5 per species)
smalltooth sawfish	260	0

Drift Gillnet Gear

Species	Total Takes (5-year)	Mortalities (5-year)
loggerhead sea turtle	10	1
leatherback sea turtle	22	3
smalltooth sawfish	1	0

Effect of the Take

In the accompanying Opinion, NOAA Fisheries determined that this level of anticipated take is not likely to jeopardize the continued existence of the endangered green, leatherback, and Kemp's ridley sea turtles, the endangered smalltooth sawfish or the threatened loggerhead sea turtle.

Reasonable and Prudent Measures (RPM)

F/SF1 must implement the proposed action as described or reinitiation of consultation will be necessary (see section VIII, Reinitiation of Consultation). Takings of listed species are only exempt from the prohibitions of the ESA if they are consistent with legal implementation of the HMS FMP as proposed and the terms and conditions specified below.

In addition to the proposed and existing bycatch reduction measures contained in the proposed action, NOAA Fisheries F/PR has determined that the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of sea turtles and smalltooth sawfish in the Atlantic shark fishery:

1. NOAA Fisheries F/SF1 shall implement or fund outreach programs for shark fishers aimed at reducing the potential for serious injury or mortality of hooked sea turtles and smalltooth sawfish.

2. NOAA Fisheries F/SF1 shall ensure that monitoring of Atlantic shark fisheries will: (1) estimate the total effort levels in this fishery in order to provide accurate estimates of sea turtle and smalltooth sawfish bycatch; (2) detect adverse effects resulting from these fisheries; (3) assess the actual level of incidental take in comparison with the anticipated incidental take specified in this opinion; (4) detect when the level of anticipated incidental take is exceeded; (5) collect improved data from each protected species encountered; and (6) determine the effectiveness of reasonable and prudent measures and their implementing terms and conditions.

3. NOAA Fisheries F/SF1 shall require fishermen to handle protected species taken during fishing in such a way as to increase their chances of survival.

Terms and Conditions

In order to be exempt from liability for take prohibited by section 9 of the ESA, NOAA Fisheries F/SF1 must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

Terms and Conditions Relating to RPM 1

1. *Fisherman Outreach*. The June 2001 Opinion required that NOAA Fisheries F/SF1 must finance, and work with the Northeast and Southeast Regions and F/PR in developing and supporting an outreach program to be implemented by a Protected Species Outreach Coordinator. Outreach efforts were to include dockside fisher education patterned after the Northeast Region's ALWTRP outreach program, including production and distribution of outreach materials, staff assistance/expertise as needed in development of outreach materials, and education. Development of an approach was to be conducted, in consultation with F/PR and the Northeast and Southeast Regions, by December 31, 2001. Because smalltooth sawfish were just listed on April 1, 2003, these outreach efforts must be changed to include information on smalltooth sawfish.

    a. For the Atlantic shark fisheries, NOAA Fisheries F/SF1 must implement a series of workshops or other training programs that at a minimum provide information regarding gear handling techniques and protocols that deal with entanglements and protected species in general, information on smalltooth sawfish, and information on the requirements of Amendment 1. These workshops should concentrate on ways to reduce the potential for serious injury or mortality should incidental capture via hooking or entanglement occur. Recommendations from the ALWTRP should be followed in the development of these programs. F/SF1 must notify F/SER3, by April 1, 2004 of its intended approach and provide a timetable. The outreach program must be operational by December 1, 2004.

Terms and Conditions Relating to RPM 2

1. NOAA Fisheries F/SF1 must continue to implement an observer program at current or higher levels, or ensure that financial support is provided to fund an external program such as the one in existence currently, to monitor incidental takes of listed species in the Atlantic shark fisheries.

    a. Observer coverage is required and shall be sufficient to produce statistically reliable results to evaluate the impact of the fishery on sea turtles and smalltooth sawfish, including appropriate seasonal and area coverage. Observers will collect information to: (i) facilitate the understanding of the dynamics of the interaction with sea turtles and smalltooth sawfish; (ii) evaluate possible relationships between gear type/fishing strategies and sea turtle and smalltooth sawfish interactions; (iii) better understand the population structure, status, and life history of sea turtles and smalltooth sawfish incidentally taken by the fishery, and (iv) to better determine actual effort levels.

3. NOAA Fisheries F/SF1 observers must record information on the condition of sea turtles, smalltooth sawfish, and marine mammals when released, as well as describe in detail the

interaction with the gear (e.g., for longline interactions: whether hooked or entangled; where, and to what extent; whether hooks and lines are removed; and how much gear remains on the animal). Photographs must be taken to confirm species identity and release condition. Collection of these data are critical to accurately monitor incidental take levels and assess mortality levels of sea turtles and smalltooth sawfish in this fishery. NOAA Fisheries must ensure that when protected species are taken, dealing with each animal (e.g., resuscitating, tagging/scanning for tags, collecting a full suite of samples and releasing, etc.) must be the observer's sole priority.

4. A report must be submitted to and received by PR, the Southeast Region, and SF for each fishing season (i.e., semester in 2004, trimesters starting 2005) before any fishing can start in the following season.

    a. The report must provide the following information on each observed sea turtle and smalltooth sawfish take: species, date and location of interaction, target catch, tag identification (if appropriate), and whether photographs or genetic samples were taken.

    b. This report must also include data on the condition of each individual sea turtle and smalltooth sawfish, in order to obtain better data on the level of impact that this fishery may be having with respect to post-release survival. These data should include information on where the animal was hooked or otherwise entangled, depths of imbedded hooks, and actual written comments by the observers. In this regard, observer data coordinators must consult with F/PR and Northeast and Southeast Regions and Centers to ensure data collected is sufficient in detail to accomplish this goal.

    c. The report must also estimate the total take in the fishery based on effort and the observed takes. If the estimated take of sea turtles and smalltooth sawfish is unusably high, (because take is issued for a five year period unusually high take for any one season would be anything greater than about 1/10 of the estimated take listed above) the report must include an analysis of the possible reasons for the higher than expected level of take and weather or not this level of take represents new information that requires a reinitiation of this consultation.

    d. These reports must be forwarded to the Assistant Regional Administrator for Protected Resources, Southeast Regional Office, Protected Resources Division, 9721 Executive Center Drive North, St. Petersburg, Florida 33702.

5. Observers must report any sea turtle take and/or high densities of jellyfish within 24 hours to the SEFSC Observer Program Coordinator, who in turn must provide this information to the Southeast Region, F/PR and F/SF.

6. NOAA Fisheries must continue to ensure that observers associated with the Atlantic shark fisheries collect tissue samples from sea turtles caught in the fisheries and ensure that these tissue samples are analyzed to determine the genetic identity of individual sea turtles caught in the fishery. To fulfill this requirement, NOAA Fisheries must ensure that observers associated with the Atlantic fisheries are equipped with the tools, supplies, training, and

instructions to collect and store tissue samples and that the SEFSC is funded to analyze those samples.

7. NOAA Fisheries must analyze the possibility of requiring the use of VMS in all areas during all times for the Atlantic shark fishery. This analysis must be sent to the Assistant Regional Administrator for Protected Resources, Southeast Regional Office, Protected Resources Division, 9721 Executive Center Drive North, St. Petersburg, Florida 33702 and is due to by December 2004.

8. NOAA Fisheries must implement special smalltooth sawfish reporting procedures to be followed by fishermen:

    a. For 2004, all smalltooth sawfish encountered must be reported in the logbook required in the space allotted for listing "other species caught."

    b. NOAA Fisheries must add smalltooth sawfish to the species listed on 2005 logbooks (Pelagic and Coastal Pelagics) and maintain it thereafter.

    c. For any smalltooth sawfish caught the following information must be recorded: date, time, exact location (GPS reading) of the encounter, habitat type (sand, mud etc.) water depth, weather conditions (wind, cloud cover, temp) sea conditions (e.g., wave height, water clarity, temperature), estimated total length and saw length, whether or not tags were present, the tag number if available, the location and type of tag if the number is not available.

    d. For 2004, NOAA Fisheries must encourage fishermen to report any smalltooth sawfish encounters to Mote Marine Laboratory by distributing information regarding the smalltooth sawfish sightings database and reporting program.

Terms and Conditions Relating to RPM 3

1. NOAA Fisheries must require that captured smalltooth sawfish be handled in such a way as to increase their chances of survival. All fishermen participating in this fishery must be notified of the following procedures.

    a. For the safety of both the animals and the fishermen, all smalltooth sawfish caught must be left in the water. The fishing vessel should maintain a minimum speed in order to immobilize the smalltooth sawfish while maintaining water flow over the gills. The animal should be inspected for tags and any tag recorded. Length of the animal should be estimated. Removing the hook with de-hookers should not be attempted. Instead, the line should be cut as close to the hook as possible.

2. NOAA Fisheries must continue to distribute appropriate sea turtle resuscitation and handling techniques found in 50 CFR part 223.206(d)(1-5), to all fishermen participating in this fishery. All fishermen must have the following gridlines posted on their vessels.

a. Resuscitation must be attempted on sea turtles that are comatose or inactive by:

   i. Placing the sea turtle on its bottom shell (plastron) so that the sea turtle is right side up and elevating its hindquarters at least 6 inches (15.2 cm) for a period of 4 to 24 hours. The amount of elevation depends on the size of the sea turtle; greater elevations are needed for larger sea turtles. Periodically, rock the sea turtle gently left to right and right to left by holding the outer edge of the shell (carapace) and lifting one side about 3 inches (7.6 cm) then alternate to the other side. Gently touch the eye and pinch the tail (reflex test) periodically to see if there is a response.

   ii. Sea turtles being resuscitated must be shaded and kept damp or moist but under no circumstance be placed into a container holding water. A water-soaked towel placed over the head, carapace, and flippers is the most effective method in keeping a sea turtle moist.

   iii. Sea turtles that revive and become active must be released over the stern of the boat only when fishing or scientific collection gear is not in use, when the engine gears are in neutral position, and in areas where they are unlikely to be recaptured or injured by vessels. Sea turtles that fail to respond to the reflex test or fail to move within 4 hours (up to 24, if possible) must be returned to the water in the same manner as that for actively moving sea turtles.

   iv. A sea turtle is determined to be dead if the muscles are stiff (rigor mortis) and/or the flesh has begun to rot; otherwise, the sea turtle is determined to be comatose or inactive and resuscitation attempts are necessary.

   v. Any sea turtle so taken must not be consumed, sold, landed, offloaded, transshipped, or kept below deck.

Conservation Recommendations

Section 7(a)(1) of the ESA directs federal agencies to utilize their authority to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The following additional measures are recommended regarding incidental take and marine mammal, sea turtle, and smalltooth sawfish conservation:

In order for F/SER3 to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, F/SER3 requests notification of the implementation of any conservation recommendations.

Smalltooth sawfish:

1. The greatest number of interactions between bottom longline and smalltooth sawfish occur in the vicinity of the Florida Keys, where fishing occurs nearest areas where smalltooth sawfish are known to occur in the greatest concentration. NOAA Fisheries should consider taking additional action to reduce fishery interactions in this area.

2. NOAA Fisheries should conduct or fund research on the distribution, abundance and migratory behavior of smalltooth sawfish to better understand their occurrence in federal waters.

3. NOAA Fisheries should also conduct or fund reproductive behavioral studies to ensure that the incidental capture of smalltooth sawfish in Atlantic shark fisheries is not disrupting any such activities

Sea Turtles:

1. Sea turtle mitigation techniques found to be successful at reducing sea turtle interactions rates with pelagic longline gear in the western Atlantic Northeast distant waters experiments should be evaluated for their potential use and tested for their effectiveness in reducing sea turtle interactions rates in bottom longline fisheries.

2. NOAA Fisheries, in cooperation with federal and non-federal researchers should conduct additional studies to develop and evaluate fishing gear modifications and tactics to reduce the likelihood of interactions between fishing gear and sea turtles and reduce immediate and delayed mortality rates of sea turtles captured in bottom longline fisheries (e.g., visual or acoustic cues, dyed bait, hook type). Research funded or implemented by NOAA Fisheries must receive a research and enhancement permit pursuant to section 10(a)(1)(a) of the ESA. NOAA Fisheries shall conduct section 7 analyses on the issuance of any such permits. The goal of any research shall be to use robust experimental assessments to develop technologies or methods that would achieve the goals outlined in the preceding paragraph and remain economically and technically feasible for fishermen to implement.

VIII. Reinitiation of Consultation

This concludes formal consultation on Atlantic shark fisheries, as authorized under the HMS FMP and as proposed to be amended. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of the taking specified in the incidental take statement is exceeded; (2) new information reveals effects of the action that may affect listed species or critical habitat (when designated) in a manner or to an extent not previously considered; (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the biological opinion; (4) a new species is listed or critical habitat designated that may be affected by the identified action; or (5) after five years from the date of this Opinion. In instances where the amount or extent of incidental take is exceeded, F/SF1 must immediately request reinitiation of formal consultation.

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