

STOCK ASSESSMENT AND FISHERY EVALUATION (SAFE) REPORT FOR

ATLANTIC HIGHLY MIGRATORY SPECIES



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DEPARTMENT OF COMMERCE
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Stock Assessment and Fishery Evaluation (SAFE)
Report for

Atlantic Highly Migratory Species
2010

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EXECUTIVE SUMMARY

The National Marine Fisheries Service (NMFS), Highly Migratory Species (HMS) Management Division announces the availability of the 2010 Stock Assessment and Fishery Evaluation (SAFE) Report. The SAFE Report contains a review of the current status of Atlantic HMS stocks (tunas, swordfish, billfish, and sharks), describes the year's accomplishments in managing Atlantic HMS, and provides an assessment of short-term future management of Atlantic HMS. The SAFE Report provides Atlantic HMS fishery constituents information on the latest developments in Atlantic HMS management as well as fulfilling Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requirements.

In 2010, the HMS Management Division completed numerous management actions including Final Amendment 3 relating to small coastal sharks (SCS), pelagic sharks, and smooth dogfish (also known as smoothhound), and an interpretive rule and final action modifying the Atlantic billfish management unit. The HMS Management Division also published an Advanced Notice of Proposed Rulemaking regarding the Future of the Shark Fishery, which will examine the effectiveness of current shark management and how the shark fishery should be managed in the future. In addition, the HMS Management Division continued working on Amendment 4 relating to Caribbean issues, a bluefin tuna regulatory amendment as well as efforts to more thoroughly utilize the available BFT and swordfish quotas, and examined options to improve recreational monitoring of HMS fisheries. As described more thoroughly in Chapter 1, the HMS Management Division also implemented annual quota specifications for Atlantic tunas, swordfish, and sharks, completed several inseason management actions, moved administration of the Atlantic Tunas Longline permit to the NMFS Southeast Regional Permit Office, and participated in the International Commission for Conservation of Atlantic Tunas (ICCAT) negotiations to ensure U.S. interests were well represented.

Feedback and comments on this SAFE Report are encouraged and should be sent to the HMS Management Division, 1315 East West Highway, Silver Spring, MD 20910, phone: (301) 713-2347, fax: (301) 713-1917.

1.0 INTRODUCTION

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) is the primary Federal legislation governing the management and executive processes for marine fisheries of the United States. The National Standard (NS) 2 guidelines (50 CFR 600.315) require the National Marine Fisheries Service (NMFS) to prepare a Stock Assessment and Fishery Evaluation (SAFE) Report, or similar document, review it annually, and make changes as necessary for each fishery management plan (FMP). This document constitutes the 2010 SAFE Report for Atlantic highly migratory species (HMS) managed under the 2006 Consolidated HMS Fishery Management Plan (FMP) and its amendments.

Consistent with the NS 2 guidelines, this 2010 SAFE Report provides a summary of the best available scientific information on the condition of HMS stocks, marine ecosystems, and fisheries managed under Federal regulation. It also provides updated information regarding the economic status of HMS fisheries, fishing communities, and industries, as well as the socio-economic and environmental impacts of recently implemented regulations.

This document is one method utilized by NMFS to introduce new information, identify potential new management issues, and begin a preliminary assessment and evaluation of fishery regulations. This SAFE Report includes the latest stock assessment data, recommendations, and resolutions from the International Commission for the Conservation of Atlantic Tunas (ICCAT) and its Standing Committee on Research and Statistics (SCRS). The report also includes the latest domestic shark assessment information. In compliance with the NS 2 guidelines, the report presents a comprehensive summary of the most recent Atlantic HMS fisheries-related data from a variety of sources across a wide range of disciplines.

1.1 Summary and Update on HMS Management Division Activities and Regulatory Actions In 2010

Table 1.1 provides a list of most of the abbreviations and acronyms that are used in this document or that are commonly used in fisheries management.

From January 1 through November 2, 2010, NMFS enacted or proposed a number of actions with regard to Atlantic HMS. All such actions published in the Federal Register during that timeframe are listed in Table 1.2. Additionally, actions published in the Federal Register from December 3 - 31, 2009, are included, as these actions were published after release of the 2009 HMS SAFE Report. Most documents related to these actions can be found on the Atlantic HMS webpage at <http://www.nmfs.noaa.gov/sfa/hms/>. Actions taken before December 3, 2009, are noted in similar tables in previous SAFE reports. A summary of the actions listed in the table is presented below.

NMFS held HMS Advisory Panel meetings on May 11 - 13, 2010, and September 21 - 23, 2010, in Silver Spring, MD (April 14, 2010, 75 FR 19369; July 27, 2010, 75 FR 43928, respectively). These meetings provided valuable comments on a suite of management actions that NMFS pursued or considered in 2010. Once available, summaries of these discussions and comments can be found on the HMS website at: <http://www.nmfs.noaa.gov/sfa/hms/>, along with

the meeting transcripts. These documents are also available by calling the HMS Management Division at 301-713-2347.

On June 1, 2010, NMFS published a final rule for Amendment 3 to the 2006 Consolidated HMS FMP (75 FR 30484) for small coastal sharks (SCS), pelagic sharks, and smooth dogfish. The final rule and amendment implemented measures to rebuild blacknose sharks, prevent overfishing of shortfin mako and blacknose sharks, and implement management measures for smooth dogfish. The amendment also created the smoothhound shark management complex, which consists of smooth dogfish (*Mustelus canis*) and Florida smoothhound (*Mustelus norrisi*) sharks. Conservation and management measures implemented by the amendment for smoothhounds include a requirement to offload smoothhounds with their fins naturally attached, Federal dealers to reporting landings of smoothhounds, and a Federal permit requirement for the commercial and recreational retention of smoothhound sharks. These smoothhound requirements will be effective at the beginning of the smoothhound fishing season in 2012. Other measures in the final rule for Amendment 3 were effective in June and July 2010.

On September 22, 2010, NMFS published a rule that changed the genus of Atlantic white marlin from *Tetrapturus* to *Kajikia* (Sept. 22, 2010, 75 FR 57698). NMFS adopted the genus change for white marlin with no effect on the management of Atlantic white marlin. Additionally, in the same rulemaking, NMFS added the roundscale spearfish, *Tetrapturus georgii*, to the Atlantic billfish management unit and implemented regulations for this newly recognized species identical to those currently in place for white marlin.

In June and September, NMFS released the proposed and final annual swordfish specifications, respectively (June 22, 2010, 75 FR 35432; September 21, 2010, 75 FR 57407). In March, NMFS published a notice closing the commercial non-sandbar large coastal shark fishery in the Gulf of Mexico (March 17, 2010, 75 FR 12700). In October, NMFS published a notice closing the non-sandbar portion of the shark research fishery and Atlantic region (October 13, 2010, 75 FR 62690). The porbeagle fishery closed in September (September 2, 2010, 75 FR 53871). NMFS issued 2010 fishing year specifications (June 2, 2010, 75 FR 30732) and inseason retention limits for bluefin tuna (June 2, 2010, 75 FR 30730 and June 14, 2010, 75 FR 33531) in June and in July (July 20, 2010, 75 FR 41995) and August (August 19, 2010, 75 FR 51182). In February, May, and September, NMFS announced additional Atlantic shark identification and protected species safe handling, release, and identification workshops (February 24, 2010, 75 FR 8304; May 28, 2010, 75 FR 29991; September 1, 2010, 75 FR 53665). On September 20, 2010, NMFS issued a proposed rule for the 2011 Shark Specifications (75 FR 57240), and on September 20, 2010, NMFS announced its intention to issue shark research fishery permits and requested applications (75 FR 57259). NMFS also requested nominations for the HMS Advisory Panel on October 21, 2010 (75 FR 64994).

While not specific to Atlantic HMS, NMFS has also released a number of rules to implement measures in the Magnuson-Stevens Act that could impact Atlantic HMS management. These rules include, but are not limited to, the Experimental Permitting Process, Exempted Fishing Permits, and Scientific Research Activity.

Table 1.1 List of Commonly Used Fishery Management Abbreviations, Acronyms, and Initials.

AA	Assistant Administrator for Fisheries
ABC	Acceptable biological catch
ACCSP	Atlantic Coastal Cooperative Statistics Program
ACL	Annual catch limit
ACS	Angler consumer surplus
ACT	Annual catch target
AM	Accountability measure
ANPR	Advanced Notice of Proposed Rulemaking
AOCTRP	Atlantic Offshore Cetacean Take Reduction Plan
AOCTRT	Atlantic Offshore Cetacean Take Reduction Team
AP	Advisory Panel
APA	Administrative Procedure Act
ASMFC	Atlantic States Marine Fisheries Commission
ATCA	Atlantic Tunas Convention Act
B	Biomass
BAYS	Bigeye, albacore, yellowfin, skipjack tunas
BiOp	Biological Opinion
B _{MSY}	Biomass expected to yield maximum sustainable yield
B _{OY}	Biomass expected to yield optimum yield
CAR	Caribbean
CFMC	Caribbean Fishery Management Council
CFL	Curved fork length
CFR	Code of Federal Regulations
CHB	Charter/Headboat
CIE	Center for Independent Experts
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CPUE	Catch per unit effort
CSFOP	Commercial shark fishery observer program
CZMA	Coastal Zone Management Act
DEIS	Draft Environmental Impact Statement

DPS	Distinct population segment
dw	Dressed weight
EA	Environmental Assessment
EEZ	Exclusive economic zone
EFH	Essential fish habitat
EFP	Exempted fishing permit
EIS	Environmental Impact Statement
EO	Executive Order
ESA	Endangered Species Act
F	Instantaneous fishing mortality
FAD	Fish aggregating device
FAO	Food and Agriculture Organization
FEC	Florida East Coast
FEIS	Final Environmental Impact Statement
FL	Fork Length
FMP	Fishery Management Plan
F_{MSY}	Instantaneous fishing mortality rate expected to yield maximum sustainable yield
FMU	Fishery management unit
F_{OY}	Fishing mortality rate expected to yield optimum yield
FR	Federal Register
FRFA	Final regulatory flexibility analysis
GOM	Gulf of Mexico
GSAFF	Gulf and South Atlantic Fishery Foundation
GMFMC or GOMFMC	Gulf of Mexico Fishery Management Council
GSMFC	Gulf States Marine Fisheries Commission
HAPC	Habitat area of particular concern
HMS	Highly migratory species: Atlantic sharks, tunas, swordfish, and billfish
HMS FMP	Consolidated Highly Migratory Species Fishery Management Plan
ICCAT	International Commission for the Conservation of Atlantic Tunas
IPOA	International Plan of Action
IRFA	Initial regulatory flexibility analysis

ITP	International trade permit
ITQ	Individual transferable quota
ITS	Incidental take statement
IUU	Illegal, unreported, unregulated
LAP	Limited access permit
LCS	Large coastal sharks
LOA	Letter of acknowledgment
LPS	Large Pelagic Survey
LWTRP	Large Whale Take Reduction Plan
LWTRT	Large Whale Take Reduction Team
MAB	Mid Atlantic Bight
MAFMC	Mid-Atlantic Fishery Management Council
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MFMT	Maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
MPA	Marine protected area
MRFSS	Marine Recreational Fishing Statistics Survey
MSST	Minimum stock size threshold
MSY	Maximum sustainable yield
mt	Metric tons
NCA	North Central Atlantic
NEC	Northeast Coastal
NED	Northeast Distant Waters
NEFMC	New England Fishery Management Council
NEFSC	Northeast Fisheries Science Center
NEPA	National Environmental Policy Act
NERO	Northeast Regional Office
NGO	Non-governmental organization
nmi	Nautical mile
NOA	Notice of Availability
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration

NOI	Notice of Intent
NPOA	National Plan of Action
NS	National Standards
NWGB	National Working Group on Bycatch
OSF	Office of Sustainable Fisheries
OY	Optimum yield
PLL	Pelagic longline
POP	Pelagic observer program
OPR	Office of Protected Resources
PRA	Paperwork Reduction Act
Reg Flex Act	Regulatory Flexibility Act
RFMO	Regional Fishery Management Organization
RIR	Regulatory Impact Review
RPAs	Reasonable and Prudent Alternatives
RPMs	Reasonable and Prudent Measures
SAB	South Atlantic Bight
SAFE Report	Stock Assessment and Fishery Evaluation report
SAFMC	South Atlantic Fishery Management Council
SAR	Sargasso
SBRM	Standardized bycatch reporting methodology
SCRS	Standing Committee for Research and Statistics
SCS	Small coastal sharks
SDC	Status determination criteria
SEFSC	Southeast Fisheries Science Center
SEIS	Supplemental environmental impact statement
SERO	Southeast Regional Office
SEW	Stock evaluation workshop
SFA	Sustainable Fisheries Act
SFL	Straight fork length
SK Program	Saltonstall-Kennedy Program
SRP	Scientific research permit
SSB	Spawning stock biomass
TAC	Total allowable catch

TAL	Total allowable landings
TCs	Terms and Conditions
TL	Total length
TUN	Tuna North
TUS	Tuna South
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service
VMS	Vessel monitoring system
VTR	Vessel trip report
WTP	Willingness to pay
ww	Whole weight

Table 1.2 Summary of NMFS' Atlantic HMS Fisheries Actions as of November 2, 2010.

Action Type Regulatory Identification Number (RIN)	50 CFR Part	Action Description	Publication Info
Notice RIN 0648-XS88	N/A	Schedules for Atlantic Shark Identification Workshops and Protected Species Safe Handling, Release, and Identifications Workshops	Dec. 08, 2009 74 FR 64664
Final Rule RIN 0648-AX07	635	North and South Atlantic Swordfish Quotas	Dec. 16, 2009 74 FR 66585
Proposed Rule RIN 0648-AX85	635	Atlantic Bluefin Tuna Season and Retention Limit Adjustments	Dec. 24, 2009 74 FR 68414
Temporary Rule RIN 0648-XT23	635	Atlantic Bluefin Tuna Inseason Retention Limit Adjustment	Dec. 29, 2009 74 FR 68709
Final Rule RIN 0648-AX95	635	Atlantic Shark Commercial Management Measures	Jan. 05, 2010 75 FR 250
Notice RIN 0648-XS98	N/A	SEDAR HMS AP Nomination Request	Jan. 19, 2010 75 FR 2856
Notice RIN 0648-XS88	N/A	Schedules for Atlantic Shark Identification Workshops and Protected Species Safe Handling, Release, and Identifications Workshops; Correction	Feb. 24, 2010 75 FR 8304
Notice RIN 0648-XU40	N/A	Schedules for Atlantic Shark Identification Workshops and Protected Species Safe Handling, Release, and Identifications Workshops	March 05, 2010 75 FR 10217
Fishery Closure RIN 0648-XU90	635	Inseason Action to Close the Commercial Gulf of Mexico Non-Sandbar Large Coastal Shark Fishery	March 17, 2010 75 FR 12700
Notice RIN 0648-XV75	N/A	Meeting of the Atlantic Highly Migratory Species Advisory Panel	April 14, 2010 75 FR 19369
Notice RIN 0648-XV13	N/A	Atlantic Coastal Fisheries Cooperative Management Act Provisions; Atlantic Coastal Shark Fishery	April 27, 2010 75 FR 22103
Advanced Notice of Proposed Rulemaking RIN 0648-AY15	216	Implementation of Fish and Fish Product Import Provisions of the Marine Mammal Protection Act	April 30, 2010 75 FR 22731

Action Type Regulatory Identification Number (RIN)	50 CFR Part	Action Description	Publication Info
Notice RIN 0648-XW25	N/A	Fisheries of the Gulf of Mexico and South Atlantic; Southeast Data, Assessment, and Review Public Meeting	May 04, 2010 75 FR 23676
Notice	N/A	Proposed Information Collection; Comment Request; Highly Migratory Species Dealer Reporting Family of Forms	May 14, 2010 75 FR 27296
Notice RIN 0648-XW44	N/A	Schedules for Atlantic Shark Identification Workshops and Protected Species Safe Handling, Release, and Identifications Workshops	May 28, 2010 75 FR 29991
Final Rule RIN 0649-AW65	600; 635	Atlantic Shark Management Measures; Amendment 3	June 01, 2010 75 FR 30484
Temporary Rule RIN 0648-XW54	635	Atlantic Bluefin Tuna General Category Retention Limit Adjustment	June 02, 2010 75 FR 30730
Final Rule RIN 0648-AY77	635	2010 Atlantic Bluefin Tuna Quota Specifications	June 02, 2010 75 FR 30732
Temporary Rule RIN 0648-XW79	635	Atlantic Bluefin Tuna Inseason Angling Category Retention Adjustment; Southern Area Trophy Fishery Closure; Quota Transfer	June 14, 2010 75 FR 33531
Correction RIN 0648-AY77	635	2010 Atlantic Bluefin Tuna Quota Specifications	June 15, 2010 75 FR 33731
Proposed Rule RIN 0648-XV31	635	North and South Atlantic Swordfish Quotas	June 22, 2010 75 FR 35432
Fishery Closure RIN 0648-XX26	635	Atlantic Bluefin Tuna Angling Category Trophy North Fishery Closure	July 20, 2010 75 FR 41995
Notice RIN 0648-XX81	N/A	Meeting of the Atlantic Highly Migratory Species Advisory Panel	July 27, 2010 75 FR 43928
Temporary Rule RIN 0648-XY10	635	Atlantic Bluefin Tuna Inseason General Category Retention Limit Adjustment	Aug. 19, 2010 75 FR 51182
Notice RIN 0648-XY59	N/A	Schedules for Atlantic Shark Identification Workshops and Protected Species Safe Handling, Release, and Identifications Workshops	Sept. 01, 2010 75 FR 53665
Fishery Closure RIN 0648-XY56	635	Inseason Action to Close the Commercial Porbeagle Shark Fishery	Sept. 02, 2010 75 FR 53871

Action Type Regulatory Identification Number (RIN)	50 CFR Part	Action Description	Publication Info
Notice RIN 0648-XY43	N/A	Fisheries of the Gulf of Mexico and South Atlantic; Southeast Data, Assessment, and Review for Highly Migratory Species Fisheries; Sandbar, Dusky, and Blacknose Sharks	Aug. 26, 2010 75 FR 52510
Notice RIN 0648-XW44	N/A	Schedules for Atlantic Shark Identification Workshops and Protected Species Safe Handling, Release, and Identifications Workshops; Correction	Sept. 08, 2010 75 FR 54598
Advanced Notice of Proposed Rulemaking RIN 0648-BA17	635	Atlantic Shark Management Measures	Sept. 20, 2010 75 FR 57235
Proposed Rule RIN 0648-AY98	635	2011 Commercial Fishing Season and Adaptive Management Measures for the Atlantic Shark Fishery	Sept. 20, 2010 75 FR 57240
Notice of Intent RIN 0648-XY54	N/A	Atlantic Shark Management Measures; 2011 Research Fishery	Sept. 20, 2010 75 FR 57259
Final Rule RIN 0648-XV31	635	North and South Atlantic Swordfish Quotas	Sept. 21, 2010 75 FR 57407
Interpretive Rule and Final Action RIN 0648-BA12	600; 635	Atlantic Billfish Management, White Marlin (<i>Kajikia albidus</i>), Roundscale Spearfish (<i>Tetrapturus georgii</i>)	Sept. 22, 2010 75 FR 57698
Fishery Closure RIN 0648-XZ43	635	Inseason Action to Close the Commercial Non-sandbar Large Coastal Shark Research Fishery	Oct. 13, 2010 75 FR 62690
Notice RIN 0648-XZ75	N/A	Highly Migratory Species; Advisory Panel; Solicitation of Nominations	Oct. 21, 2010 75 FR 64994
Fishery Closure RIN 0648-XZ95	635	Inseason Action to Close the Commercial Blacknose Shark and Non-blacknose Small Coastal Fisheries	Nov. 02, 2010 75 FR 67251

1.2 2010 Accomplishments of the International Commission for the Conservation of Atlantic Tunas (ICCAT)

ICCAT is an international regional fishery management organization (RFMO) with 49 members, including the United States. The 17th Special Meeting of ICCAT was held in Paris, France, November 17-27, 2010. It was preceded by two days of Compliance Committee meetings. The United States helped develop recommendations aimed at promoting the

conservation, management, and rebuilding of Atlantic highly migratory fish stocks (*e.g.*, tunas, swordfish, sharks), including those critical to U.S. fishermen. ICCAT made progress on a number of issues, including bluefin tuna, sharks, sea turtles, compliance issues and action to address the decline of eastern Atlantic bluefin tuna.

North Atlantic Swordfish: In 2010, Recommendation 10-02 was adopted which maintains the total allowable catch (TAC) at 13,700 mt, in line with scientific advice for 2011. Previous North Atlantic swordfish recommendations (06-02, 08-02, 09-02) allocated 1,345 mt of U.S. underharvest from the previous management period to the TAC for the next management period in an effort to accommodate interest expressed by a number of developing Contracting Parties, Co-operating Non-Contracting Parties, Entities or Fishing (CPCs) to develop fisheries for North Atlantic swordfish. Although Recommendation 10-02 essentially extends ICCAT Recommendation 06-02 through 2011, it does not allocate U.S. underharvest to developing CPCs rather it provides permanent quota allocations for these parties for the duration of the one-year measure. The recommendation continues the United States' previous allocation of 3,907 mt whole weight (ww), and continues the underharvest carry forward caps for all CPCs. The maximum underharvest that a CPC may carry forward cannot exceed 50 percent of its initial quota allocation, which is 1,953.5 mt ww for the United States. Furthermore, it extends a clause that allows CPCs with a TAC allocation to make a one-time transfer within a fishing year of up to 15 percent of its TAC allocation to other CPCs with TAC allocations. The recommendation also extends a provision allowing the United States to harvest up to 200 mt of its annual catch limit between 5 degrees North latitude and 5 degrees South latitude, and a provision transferring 25 mt ww from the United States to Canada. Finally, Recommendation 10-02 includes a new provision that requires CPCs to submit a fishery management/development plan to ICCAT by September 2011.

Western Atlantic Bluefin Tuna: In 2010, Recommendation 10-03 was adopted setting the western Atlantic bluefin tuna TAC at 1,750 mt ww for 2011 and for 2012. These TACs represent a less than 3 percent reduction from the 2010 TAC of 1,800 mt ww. This reduced TAC takes into account a new growth curve and the two recruitment scenarios in the recent SCRS stock assessment for WBFT. Under the low recruitment scenario, the stock is at the biomass level that can support MSY and under the high recruitment scenario, higher sustainable yields are possible in the future but the stock remains overfished with overfishing occurring. A clause was added, similar to the one added in 2009 to the eastern Atlantic and Mediterranean BFT recommendation, that if ICCAT's scientific body detects a serious threat of stock collapse, ICCAT shall suspend all BFT fisheries in the western Atlantic for the following year. Recommendation 10-xx puts all parties with a directed allocation onto the allocation table. It also includes provisions for Mexico to transfer 86.5 mt ww of its quota to Canada as a special arrangement in 2011 and 2012. The recommendation further calls on parties to contribute to ICCAT's Atlantic-wide Bluefin Tuna Research Program, including the enhancement of biological sampling. It also requests that ICCAT's scientific body provide additional information in the future on the identification of specific spawning areas and the potential effects of fish size measures on the stock. The next western Atlantic bluefin tuna stock assessment and subsequent renegotiation of the recommendation will occur in 2012.

Eastern Atlantic and Mediterranean Bluefin Tuna: The Commission adopted Recommendation 10-04, amending the recovery plan for Eastern Atlantic and Mediterranean bluefin tuna. Recommendation 10-04 reduces the TAC for Mediterranean bluefin tuna from the 2010 level of 13,500 to 12,900 mt ww for 2011, until changed. The recommendation includes a revised allocation scheme that changed the allocations for Algeria, Egypt, Libya, and Turkey. It also makes several changes to the monitoring and control measures, such as the Regional Observer Program, that are expected to improve the tracking of Eastern Atlantic and Mediterranean bluefin tuna trade, particularly of farmed fish. Recommendation 10-04 maintains the 11 month closure of the Mediterranean purse seine fishery, with a one month opening from mid-May through mid-June. Additional measures were included to fully address fishing capacity issues by 2013.

Bigeye Tuna: The Commission adopted Recommendation 10-01, which maintained the TAC at 85,000 mt ww, in conformance with scientific recommendations. The Commission failed to implement an improved time and area closure to protect juvenile bigeye and yellowfin tunas in the Gulf of Guinea. Recommendation 10-01 caps the amount of underharvest that can be carried forward to 30 percent of allocations and maintains the other provisions in Recommendation 09-01.

North Atlantic Albacore: No new recommendations were adopted for North Atlantic albacore in 2010. In 2009, the Commission adopted Recommendation 09-05, which established a rebuilding plan for Northern albacore tuna that included TACs for 2010 and 2011. The TAC was reduced from 30,200 to 28,000 mt ww in conformance with scientific advice and, notably, accounted for catches of minor harvesters. In 2009, the United States' quota was reduced by 11 mt ww, or 2 percent, from 538 to 527 mt ww. Carry forward remains limited to no more than 25 percent of base allocations was retained.

Blue and White Marlin: The Commission adopted Recommendation 10-XX which extends through 2011 the terms of Recommendation 06-09. The recommendation also commits CPCs to establishing at the 2011 Commission meeting a multi-year plan to rebuild blue and white marlin populations on the basis of SCRS advice.

Sharks: The Commission adopted Recommendation 10-06 on Atlantic shortfin mako sharks caught in association with ICCAT fisheries, which requires CPCs to report to ICCAT on implementation of existing shark recommendations and steps taken to improve Task I and Task II data collection. This measure also includes a provision that prohibits CPCs from retaining shortfin mako sharks if they do not report Task I data, starting in 2013. In addition, the recommendation requests that SCRS conduct a shortfin mako stock assessment in 2012, advise on annual catch levels and other appropriate conservation measures, and complete the shark identification guide and circulate it to CPCs.

The Commission adopted Recommendation 10-07 that prohibits retention of oceanic whitetip sharks caught in association with fisheries in the ICCAT convention area and requires CPCs to collect and report the number of discards and releases of this species.

The Commission also adopted Recommendation 10-08 on hammerhead sharks caught in association with fisheries managed by ICCAT. This recommendation requires CPCs to prohibit retention of those hammerhead sharks in the family *Sphyrindae* (except for *Sphyrna tiburo*, the bonnethead shark) taken in the Convention area in association with ICCAT fisheries. The measure also requires CPCs to release hammerhead sharks when brought along side the vessel to the extent practicable. Recommendation 10-08 provides an exemption to the prohibition for developing coastal CPCs for local consumption provided that these hammerhead sharks do not enter international trade and developing coastal CPCs submit data to the Commission. In addition, the measure requires all CPCs to collect and submit to ICCAT discard and release data and where possible, to implement research on hammerhead sharks in the Convention area.

Sea Turtles: The Commission adopted Recommendation 10-09 on the bycatch of sea turtles in ICCAT fisheries. This measure requires CPCs to collect and annually report to ICCAT information on interactions of its fleet with sea turtles by gear type. The recommendation requires CPCs fishing with purse seine vessels to avoid encircling sea turtles and to release sea turtles that are captured. In addition, CPCs fishing with pelagic longline vessels must carry on board safe-handling and release equipment and be trained in safe-handling and release techniques. Based on information provided by CPCs, the measure requests SCRS to advise the Commission on sea turtle mitigation measures and to initiate an assessment of the impact of the incidental catch of sea turtles from ICCAT fisheries.

Trade related measures: No new trade restrictive measures under ICCAT's trade measures recommendation [06-13] were adopted by the Commission at the 2010 meeting. While some compliance improvements were noted, many parties did not fully meet their obligations to provide data to ICCAT's scientific committee or provide fishery management reports to the Commission. The Compliance Committee recommended that letters be sent to all but two parties, including 23 letters of identification under ICCAT's trade measures recommendation and 23 letters of concern. The United States will receive another letter of concern from ICCAT, this time for minor issues associated with implementation of the swordfish statistical document program. The letters require a written response to the Commission on how implementation of measures will be improved in 2011. With respect to ICCAT non-Parties, at the recommendation of ICCAT's Permanent Working Group, ICCAT maintained its recommendation of trade sanctions on bigeye from Georgia and Bolivia, and will send a letter of identification to Cambodia as well as letters of concern to two other non-Parties.

An EU proposal for development of an electronic bluefin tuna catch documentation scheme received broad support and work will be undertaken intersessionally on this matter with the intent of having a fully operational system by 2012. It is envisioned that the program will enable verification of the legitimacy of the product in near real-time and reduce the burden on the seafood industry, governments, and the ICCAT Secretariat associated with a paper-based system.

1.3 Existing State Regulations

Table 1.3 outlines the existing state regulations as of October 20, 2010, with regard to HMS species. While the HMS Management Division updates this table periodically throughout the year, persons interested in the current regulations for any state should contact that state directly.

Atlantic tunas (bluefin, bigeye, albacore, yellowfin, and skipjack tunas) are under federal jurisdiction from the outer boundary of the exclusive economic zone (EEZ) to the shoreline, including state waters, with the following three exceptions: state waters of Maine, Connecticut, and Mississippi (50 CFR 635.1(b)). Federal HMS regulations apply in all other state waters of the Atlantic, Gulf of Mexico, and Caribbean. NMFS periodically reviews state tuna regulations for federal consistency as required under the Atlantic Tuna Convention Act (ATCA). Table 1.3 describes the state regulations as stated in available source material and makes no statement about the consistency of the specific, individual fishery regulations with Federal regulations.

The Atlantic States Marine Fisheries Commission (ASMFC) is composed of 15 member states along the Atlantic coast from Maine to Florida. The Gulf States Marine Fisheries Commission is composed of five member states along the Gulf of Mexico from Florida to Texas. Through the Commissions, member states coordinate fisheries management measures to create consistent regulations and ensure stocks are protected across state boundaries. In August 2008, the ASMFC approved the Interstate Fishery Management Plan (FMP) for Atlantic Coastal Sharks. This FMP was modified via Coastal Sharks Addendum I in September 2009 and was effective as of January 1, 2010. All management measures for coastal shark species in the FMP and Addendum I have been implemented by ASMFC members, unless they have been granted *de minimus* status (Maine and New Hampshire) or have equivalent conservation measures in place. Member states can implement more restrictive management measures. The measures in the Interstate FMP for Coastal Sharks, as summarized from the ASMFC Coastal Shark FMP Executive Summary, include:

Recreational Measures:

1. Recreational anglers are prohibited from possessing silky, tiger, blacktip, spinner, bull, lemon, nurse, scalloped hammerhead, great hammerhead, and smooth hammerhead in the state waters of Virginia, Maryland, Delaware and New Jersey from May 15 through July 15—regardless of where the shark was caught
2. Recreational anglers are prohibited from possessing any shark species that is illegal to catch or land by recreational anglers in federal waters.
3. All sharks caught by recreational fishermen must have head, tail, and fins attached to the carcass.
4. Sharks caught in the recreational fishery must have a fork length of at least 4.5 feet with the exception of Atlantic sharpnose, blacknose, finetooth, bonnethead, and smooth dogfish.
5. Recreational anglers may only use handlines and rod and reel.
6. Each recreational shore-angler is allowed a maximum harvest of one shark from the federal recreationally permitted species, plus one additional bonnethead, and one additional Atlantic sharpnose, per calendar day. Recreational fishing vessels are allowed a maximum harvest of one shark from the federal recreationally permitted species plus one additional bonnethead,

and one Atlantic sharpnose, per trip, regardless of the number of people on board the vessel. Smooth dogfish do not count toward the retention limit.

Commercial Measures:

7. All commercial fishermen are prohibited from possessing silky, tiger, blacktip, spinner, bull, lemon, nurse, scalloped hammerhead, great hammerhead, and smooth hammerhead in the state waters of Virginia, Maryland, Delaware and New Jersey from May 15 through July 15.
8. States will close the fishery for any shark species when NMFS closes the fishery in federal waters.
9. States will implement possession limits as annually specified.
10. Commercial shark fishermen must hold a state commercial license or permit in order to commercially catch and sell sharks in state waters.
11. States may grant exemptions from the seasonal closure, quota, possession limit, size limit, gear restrictions, and prohibited species restrictions contained in this plan through a state display or research permit system.
12. A federal Commercial Shark Dealer Permit is required to buy and sell any shark caught in state waters.
13. Prohibits the use of any gear type other than rod and reel, handlines, small mesh gillnets, large mesh gillnets, trawl nets, shortlines, pound nets/fish traps, or weirs.
14. States must implement shortline and gillnet bycatch reduction measures
15. All sharks caught by commercial fishermen must have tails and fins attached naturally to the carcass through landing, except for smooth dogfish. Commercial fishermen may completely remove the fins of smooth dogfish from March through June of each year. If fins are removed, the total wet weight of the shark fins may not exceed 5 percent of the total dressed weight of smooth dogfish carcasses. From July through February each year, commercial fishermen may completely remove the head, tail, pectoral fins, pelvic (ventral) fins, anal fin, and second dorsal fin, but must keep the dorsal fin attached naturally to the carcass through landing.

A state can request permission to implement an alternative to any mandatory compliance measure only if that state can show to the Board's satisfaction that its alternative proposal will have the same conservation value as the measure contained in this management plan or any addenda prepared under Adaptive Management.

Table 1.3 State Rules and Regulations Pertaining to Atlantic HMS.

Please note that state regulations are subject to change. Please contact the appropriate state personnel to ensure that the regulations listed below remain current. X = Regulations in Effect; n = Regulation Repealed; FL = Fork Length; CL = Carcass Length; TL = Total Length; LJFL = Lower Jaw Fork Length; CFL = Curved Fork Length; DW = Dressed Weight; and SCS = Small Coastal Sharks; LCS = Large Coastal Sharks.

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tuna	Swords	Billfish	Sharks			
ME	X			X	<p>Tuna -ME Rev. Stat. Ann. tit. 12, " 6001, 6502, and 6551</p> <p>Sharks - Code ME R. 13-188 ' 50.01(1) and 50.10</p>	<p>Tuna - Retention limit - 1 tuna/year – non-resident special tuna permit holder; Unlawful to fish for tuna with gear other than harpoon or hook and line or possess tuna taken in unlawful manner; No minimum size limits</p> <p>Sharks – Fins of coastal sharks can be removed at sea, but fin weight may not exceed 5% of the carcass weight</p>	<p>ME Department of Marine Resources George Lapointe Phone: (207) 624-6553 Fax: (207) 624-6024</p>
NH			X	X	<p>Tuna - FIS 603.10 (REPEALED)</p> <p>Billfish - FIS 603.13</p> <p>Sharks - FIS 603.20</p>	<p>Billfish - Possession limit - 1 billfish/trip; Minimum size (LJFL) - Blue marlin - 99"; White marlin - 66"; Sailfish - 57"; May be taken by hook and line only; Unlawful to sell billfish</p> <p>Sharks - Prohibited sharks listed; Federal Dealer permit required for all shark dealers; Porbeagle sharks can only be taken by recreational fishing; Head, fins and tail must remain attached to all shark species through landing</p>	<p>NH Fish and Game Douglas Grout Phone: (603) 868-1095 Fax: (603) 868-3305</p>
MA	X			X	<p>Bluefin Tuna - 322 CMR 6.04</p> <p>Billfish – (REPEALED)</p> <p>Sharks – 322 CMR 6.37</p>	<p>Bluefin Tuna - References ATCA and federal regulations; Bluefin tuna may be retained if caught in a trap as incidental catch; Fishing for bluefin tuna by means of any net is prohibited prior to September 1 of the year; Fishing for tuna by means of purse seine is allowed in state waters if the vessel is compliant with the registration requirements set forth in 322 CMR 6.04(4); Purse seining for bluefin tuna is prohibited in Cape Cod Bay.</p>	<p>MA Division of Marine Fisheries Melanie Griffin Phone: (617) 626-1528 Fax: (617) 626-1509</p> <p>All MA commercial and recreational fishing</p>

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tuna	Swords	Billfish	Sharks			
						<p>Billfish – Repealed as of December 2005</p> <p>Sharks – ASMFC Coastal Shark Plan except that the tails and fins of smooth dogfish must remain attached through landing</p>	<p>regulations can be found online: http://www.mass.gov/dfwel/e/dmf/commercialfishing/cm_index.htm</p>
RI				X	Sharks - RIMFC Regulations part VII 7.24	Sharks – ASMFC Coastal Shark Plan	<p>RI Department of Environment Management Brian Murphy Phone: (401) 783-2304</p>
CT				X	Sharks – Regulations of Connecticut State Agencies § 26-159a-1; Connecticut General Statutes §26-142a(d) Declarations: 10-03, 10-05, 10-07	Sharks – Prohibited species same as federal regulations; No commercial fishing for large coastal sharks; No commercial small coastal shark fishing until further notice	<p>CT Department of Environmental Protection David Simpson Phone: (860) 434-6043 Fax: (860) 434-6150</p>
NY			X	X	<p>Billfish -NY Environmental Conservation ' 13-0339 (5)</p> <p>Sharks - NY Environmental Conservation ' 13-0338; State of New York Codes, Rules and Regulations (Section 40.7)</p>	<p>Billfish - Blue marlin, white marlin, sailfish, and longbill spearfish shall not be bought, sold or offered for sale; Striped marlin, black marlin, shortbill spearfish shall not be bought, sold or offered for sale unless tagged and identified prior to entry into the state</p> <p>Sharks – ASMFC Coastal Shark Plan</p>	<p>NY Department of Environmental Conservation Stephen W. Heins Phone: (631) 444-0430 Fax: (631) 444-0449</p>
NJ				X	Sharks -NJ Administrative Code, Title 7. Department of Environmental Protection, NJAC 7:25-18.1 and 7:25-18.12(d)	Sharks – ASMFC Coastal Shark Plan	<p>NJ Fish and Wildlife Hugh Carberry Phone: (609)748-2020 Fax: (609) 748-2032</p>

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tuna	Swords	Billfish	Sharks			
DE			X	X	Billfish - DE Code Ann. tit. 7, '1310 Sharks - DE Code Regulations 3541	Billfish - Prohibition on sale of Atlantic sailfish and blue/white/striped marlin Sharks – ASMFC Coastal Shark Plan	DE Division of Fish and Wildlife Craig Shirey Phone: (302) 739-9914
MD	X	X	X	X	Tuna - Code of Maryland Regulations 08.02.12.03 and 08.02.05.23 Swordfish - Code of Maryland Regulations 08.02.12.03 and 08.02.05.27 Billfish - Code of Maryland Regulations 08.02.12.03 and 08.02.05.26 Sharks - Code of Maryland Regulations 08.02.12.03 and 08.02.22.01-.04	Tuna - Federal regulations used to control size and seasons and recreational catch required to be tagged Swordfish - Federal regulations used to control size and seasons and recreational catch required to be tagged Billfish (blue and white marlin and sailfish) - Federal regulations control size and seasons and recreational catch required to be tagged Sharks – ASMFC Coastal Shark Plan	MD Department of Natural Resources Gina Hunt Phone: (410) 260-8326
VA			X	X	Billfish - 4 VA Administrative Code 20-350-10 Sharks - 4 VA Administrative Code 20-490-10	Billfish - Prohibition on sale of billfish Sharks – ASMFC Coastal Shark Plan	VA Marine Resources Commission Jack Travelstead Phone: (757) 247-2247 Fax: (757) 247-2020

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tuna	Swords	Billfish	Sharks			
NC	X		X	X	<p>Tuna - NC Administrative Code tit. 15A 03M.0520</p> <p>Billfish -NC Administrative Code tit. 15A, r.3M.0507 and 15A 03M.0507</p> <p>Sharks -NC Administrative Code tit. 15A, r.3M.0505</p>	<p>Tuna – Commercial and recreational minimum size: yellowfin tuna – 27” CFL, bigeye tuna - 27” CFL, bluefin tuna – 73” CFL; Recreational bag limit: 3 yellowfin tuna/day</p> <p>Billfish - Recreational possession limit - 1 blue or white marlin/vessel/trip; 1 sailfish/person/day; Minimum size - blue marlin - 99", white marlin - 66", sailfish - 63"; Unlawful to sell or offer for sale blue or white marlin and sailfish</p> <p>Sharks - Director may impose restrictions for size, seasons, areas, quantity, <i>etc.</i> via proclamation; Commercial: open seasons and species groups same as federal; 33 non-sandbar LCS retention limit; no retention of sandbar sharks; fins naturally attached to shark carcass, except for smooth dogfish; LL shall only be used to harvest LCS during open season, shall not exceed 500 yds or have more than 50 hooks; Recreational: LCS (54” FL min size) - no more than 1 shark/vessel/day or 1 shark/person/day, SCS (no min size) – no more than 1 finetooth or blacknose shark/vessel/day and no more than 1 Atlantic sharpnose and 1 bonnethead/person/day, pelagics (no min size) -1 shark/vessel/day; Same prohibited shark species as federal regulations</p>	<p>NC Division of Marine Fisheries Randy Gregory Phone: (252) 726-7021 Fax: (252) 726-0254</p>
SC	X	X	X	X	<p>Tuna/Swordfish -SC Code Ann. ' 50-5-2725 and 2730</p> <p>Billfish - SC Code Ann. ' 50-5-1700, 1705, 2725 and 2730 ; 50-1-30 (6)</p> <p>Sharks -SC Code Ann. ' 50-5-2725, 2730</p>	<p>Tuna/Swordfish – Defer to federal regulations</p> <p>Billfish – Defer to federal regulations; Unlawful to sell billfish; Hook and line gear only; Unlawful to possess while transporting gillnets, seines, or other commercial gear</p> <p>Sharks – Defer to federal regulations; Gillnets may not be used in the shark fishery in state waters; State permit required for shark fishing in state waters</p>	<p>SC Department of Natural Resources Josh Loefer Phone: (843) 953-9835 Fax: (843) 953-9386</p>

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tuna	Swords	Billfish	Sharks			
GA			X	X	<p>Gear Restrictions/Prohibitions - GA Code Ann. ' 27-4-7;</p> <p>Billfish - GA Code Ann. ' 27-4-130.2; GA Comp. R. & Regs. ' 391-2-4-.04</p> <p>Sharks - GA Code Ann. ' 27-4-130.1; GA Comp. R. & Regs. ' 391-2-4-.04</p>	<p>Gear Restrictions/Prohibitions - Use of gillnets and longlines is prohibited in state waters</p> <p>Billfish - Possession prohibited in state waters, except for catch and release</p> <p>Sharks – Commercial/Recreational: 1 shark from the Small Shark Composite (bonnethead, sharpnose, and spiny dogfish, min size 30” FL; All other sharks - 1 shark/person or boat, whichever is less, min size 54” FL, Prohibited Species: sand tiger sharks, sandbar, silky, bigeye sandtiger, whale, basking, white, dusky, bignose, Galapagos, night, reef, narrowtooth, Caribbean sharpnose, smalltail, Atlantic angel, longfin mako, bigeye thresher, sharpnose sevengill, bluntnose sixgill, and bigeye sixgill; All species must be landed head and fins intact; Sharks may not be landed in Georgia if harvested using gill nets</p>	<p>GA Department of Natural Resources Carolyn Belcher Phone: (912) 264-7218 Fax: (912) 262-3143</p>

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tuna	Swords	Billfish	Sharks			
FL		X	X	X	<p>Sharks -FL Administrative Code Ann. r.68B-44, F.A.C</p> <p>Swordfish/ Billfish - FL Administrative Cod Ann. r. 68B-33 F.A.C</p>	<p>Billfish – Longbill/Mediterranean/roundscale spearfish – harvest/possession/landing/purchase/sale/exchange prohibited</p> <p>Blue/white marlin and sailfish – Sale prohibited; Aggregate possession of 1 fish/person/day; Gear restriction (hook and line only); Minimum size limit (blue marlin – 99” LJFL; white marlin – 66” LJFL; sailfish – 63” LJFL); Recreational catch reporting requirement (all non-tournament landings must be reported NOAA within 24 hours); Must land in whole condition (gutting allowed)</p> <p>Swordfish - Minimum size - 47 in LJFL/29” cleithrum to keel; Possession limit 1 fish/person/day or 4 fish/vessel/day (with 4 or more persons onboard); Commercial harvest and sale allowed only with Florida saltwater products license and a federal LAP for swordfish; Recreational catch reporting requirement (all non-tournament landings must be reported NOAA within 24 hours)</p> <p>Sharks – Commercial/recreational: min size – 54” except no min. size on blacknose, blacktip, bonnethead, smooth dogfish, finetooth, Atlantic sharpnose; Possession limit – 1 shark/person/day, max. 2 sharks/vessel on any vessel with 2 or more persons on board; Allowable gear – hook and line only; State waters close to commercial harvest when adjacent federal waters close; Federal permit required for commercial harvest, so federal regulations apply in state waters unless state regulations are more restrictive; Finning & filleting prohibited; Prohibited species same as federal regulations except for Caribbean sharpnose shark; prohibition on all harvest of lemon sharks in state waters</p>	<p>FL Fish and Wildlife Conservation Commission Lisa Gregg Phone: (850) 487-0554 Fax: (850) 487-4847</p>

State	Species				Cite Reference	Regulatory Details	Contact Information
	<i>Tuna</i>	<i>Swords</i>	<i>Billfish</i>	<i>Sharks</i>			
AL	X	X	X	X	<p>Tuna/Swordfish/Billfish/Shark – AL Administrative Code r.220-3-.30(6)</p> <p>Tuna - AL Administrative Code r.2203.30</p> <p>Sharks - AL Administrative Code r.220-3-.30, r.220-3-.37, r.220-3-.42, and r.220-2-.77</p>	<p>Tuna/swordfish/billfish/sharks - Reference to federal landing form regulations</p> <p>Tuna - Recreational and commercial fishermen must have a federal permit to fish for tunas; Yellowfin and bigeye – 27” CFL min size</p> <p>Sharks – Recreational & commercial: bag limit – 1 sharpnose/person/day and 1 bonnethead/person/day; no min size; all other sharks – 1/person/day; min size – 54” FL or 30” dressed; state waters close when federal season closes; no shark fishing on weekends, Memorial Day, Independence Day, or Labor Day; Prohibited species: dusky, sand tiger, bigeye sand tiger, basking, whale, and white sharks; Restrictions of chumming and shore-based angling if creating unsafe bathing conditions; Regardless of open or closed season, gillnet fishermen targeting other fish may retain sharks with a dressed weight not exceeding 10% of total catch</p>	<p>AL Department of Conservation and Natural Resources Vernon Minton Vernon.Minton@dcnr.alabama.gov Phone: (251) 861 2882</p>

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tuna	Swords	Billfish	Sharks			
LA	X	X	X	X	<p>Tuna -LA Administrative Code Title 76, Pt. VII, Ch. 3, § 361</p> <p>Swords/Billfish - LA Administrative Code Title76, Pt. VII, Ch. 3, § 355</p> <p>Sharks - LA Administrative Code Title 76, Pt. VII, Ch. 3, § 357</p>	<p>Tuna - Recreational and commercial minimum size for yellowfin, bigeye, and bluefin is 27” CFL; Recreational bag limits – 3 yellowfin/person. Recreational and commercial tuna fishing requires a federal permit</p> <p>Billfish/Swordfish - Minimum size: blue marlin (99 in LJFL), white marlin (66" LJFL), sailfish (63 in LJFL), swordfish (29 in carcass length or 33 lbs dw); Recreational creel limit - 5 swordfish/vessel/trip; Federal swordfish permit required for commercial swordfish fishing; Dealers must have federal permit to buy swordfish; state swordfish fishery closes with federal fishery; reference to federal billfish regulations</p> <p>Sharks - Recreational: min size – 54” FL, except Atlantic sharpnose and bonnethead; bag limit - 1 sharpnose/person/trip, all other sharks – 1 fish/person/day; Commercial: 33 per vessel per trip limit; no min size; Com & rec harvest prohibited: 4/1-6/30; Prohibited species: same as federal regulations; Fins must remain naturally attached to carcass though off-loading</p>	<p>LA Department of Wildlife and Fisheries Jason Adriance (504) 284-2032 or 225 765-2889 Fax(504) 284-5263 or (225) 765-2489 jadriance@wlf.la.gov</p>
MS	X		X	X	<p>Tuna/Billfish/Sharks - MS Code Title-22 part 7</p>	<p>Tuna – No directed BFT fishing; only recreational anglers can retain incidentally caught BFT up to 1/boat/week; Recreational and commercial min size for yellowfin and bigeye is 27” CFL; Recreational retention limit for yellowfin is 3/person/day</p> <p>Billfish – Unlawful to sell blue and white marlin and sailfish without proper federal documentation; Recreational minimum size: blue marlin 99” LJFL; white marlin 66” LJFL; sailfish 63” LJFL; No possession for longbill spear fish; No limit for recreational take</p> <p>Sharks – Recreational: min size - LCS/Pelagics 37” TL; SCS 25” TL; bag limit - LCS/Pelagics 1/person/day up to 3/vessel/day; SCS 4/person/day; Commercial and prohibited species – same as federal regulations; Prohibition on finning</p>	<p>MS Department of Marine Resources Kerwin Cuevas Phone: (228) 374-5000</p>

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tuna	Swords	Billfish	Sharks			
TX		X	X	X	<p>Billfish/Swordfish/Sharks - TX Administrative Code Title 31, Part 2, Parks and Wildlife Code Title 5, Parks and Wildlife Proclamations 57.971, 57.973 and 57.981</p>	<p>Blue marlin, white marlin, sailfish, sharks, longbill spearfish, and broadbill swordfish are gamefish and may only be taken with pole and line (including rod and reel); Blue marlin, white marlin, sailfish, and longbill spearfish may not be sold for any purpose</p> <p>Billfish - Bag limit none; min size blue marlin – 131” TL; white marlin – 86” TL; sailfish – 84” TL</p> <p>Sharks - Commercial/recreational: bag limit - 1 shark/person/day; Commercial/recreational possession limit is twice the daily bag limit (<i>i.e.</i>, 2 sharks/person/day); min size 24” TL for Atlantic sharpnose, blacktip, and bonnethead sharks and 64” TL for all other lawful sharks. Prohibited species: same as federal regulations</p>	<p>TX Parks & Wildlife Department Mark Lingo Phone: (956) 350-4490 Fax: (956) 350-3470</p>
Puerto Rico	X	X	X	X	<p>Regulation #6768</p> <p>Article 8 – General Fishing Limits</p> <p>Article 13 – Limitations</p> <p>Article 17 – Permits for Recreational Fishing</p> <p>(March 2004)</p>	<p>Illegal to sell, offer for sale, or traffic in any billfish or marlin, either whole or processed, captured in jurisdictional waters of Puerto Rico.</p> <p>Swordfish or billfish, tuna and shark are covered under the federal Atlantic HMS regulations (50 CFR, Part 635); Fishers who capture these species are required to comply with said regulation; billfish captured incidentally with long line must be released by cutting the line close to the fishhook, avoiding the removal of the fish from the water; in the case of tuna and swordfish, fishers shall obtain a permit according to the requirements of the federal government; Year-round closed season on nurse sharks</p>	<p>Puerto Rico Department of Natural and Environmental Resources Craig Lilyestrom Phone: (787) 999-2200 x2689 Fax: (787) 999-2271</p> <p>http://www.caribbeanfmc.com/REGULATIONS%20PR-USVI/reg%20pesca%20pr/Rg6768-%20feb%202004.pdf</p>

State	Species				Cite Reference	Regulatory Details	Contact Information
	<i>Tuna</i>	<i>Swords</i>	<i>Billfish</i>	<i>Sharks</i>			
U.S. Virgin Islands	X	X	X	X	US VI Commercial and Recreational Fisher's Information Booklet Revised July 2006	Federal regulations and federal permit requirements apply in territorial waters.	www.caribbeanfmc.com http://www.caribbeanfmc.com/REGULATIONS%20PR-USVI/usvi%20booklet/regs%20usvi06.pdf

2.0 STATUS OF THE STOCKS

The thresholds used to determine the status of Atlantic HMS are presented in Figure 2.1. They are fully described in Chapter 3 of the 1999 Tunas, Swordfish, and Shark FMP and in Amendment 1 to the Billfish FMP. These thresholds were carried over in full in the 2006 Consolidated HMS FMP and are based upon the thresholds described in a paper providing the technical guidance for implementing National Standard 1 of the Magnuson-Stevens Act (Restrepo *et al.*, 1998).

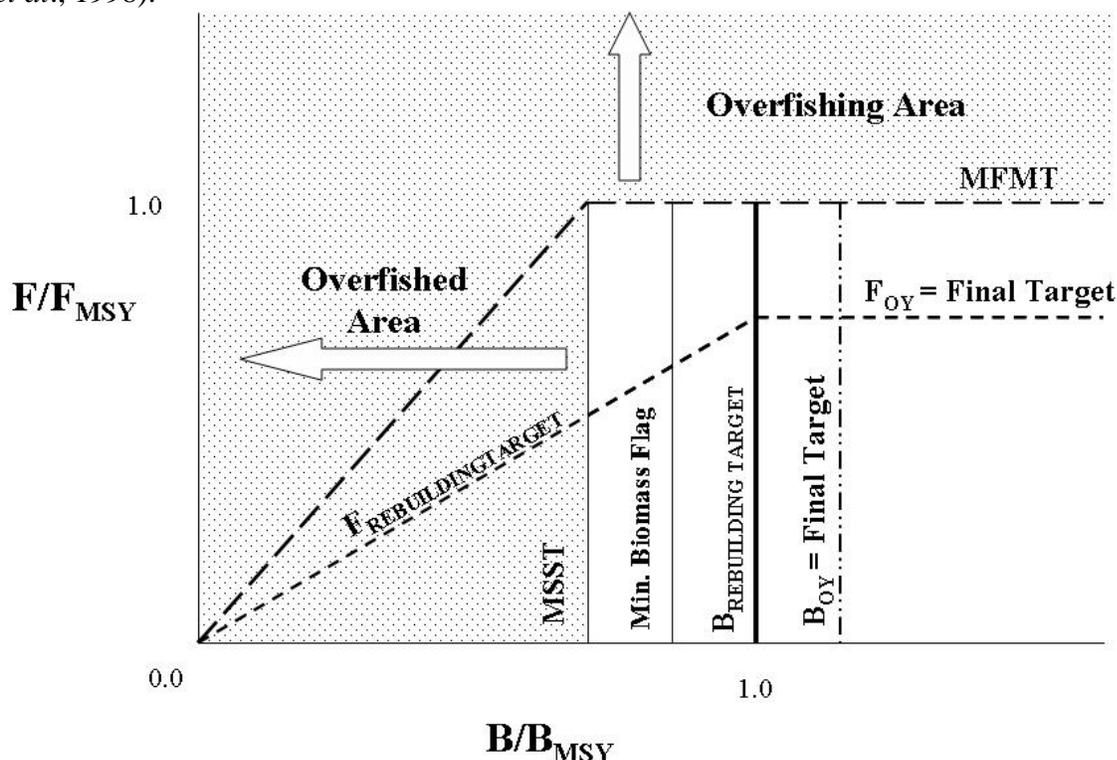


Figure 2.1 Illustration of the status determination criteria and rebuilding terms.

In summary, a species is considered overfished when the current biomass (B) is less than the minimum stock size threshold ($B < B_{MSST}$). The minimum stock size threshold ($MSST$) is determined based on the natural mortality of the stock and the biomass at maximum sustainable yield (B_{MSY}). Maximum sustainable yield (MSY) is the maximum long-term average yield that can be produced by a stock on a continuing basis. The biomass can be lower than B_{MSY} , and the stock not be declared overfished as long as the biomass is above B_{MSST} .

Overfishing may be occurring on a species if the current fishing mortality (F) is greater than the fishing mortality at MSY (F_{MSY}) ($F > F_{MSY}$). In the case of F , the maximum fishing mortality threshold is F_{MSY} . Thus, if F exceeds F_{MSY} , the stock is experiencing overfishing.

If a species is declared overfished or overfishing is occurring, action to rebuild the stock and/or prevent further overfishing is required by law. A species is considered rebuilt when B is

greater than B_{MSY} and F is less than F_{MSY} . A species is considered healthy when B is greater than or equal to the biomass at optimum yield (B_{OY}) and F is less than or equal to the fishing mortality at optimum yield (F_{OY}).

In summary, the thresholds used to calculate the status of Atlantic HMS, as described in the 1999 FMP and Amendment 1 to the Billfish FMP, are:

- Maximum Fishing Mortality Threshold (MFMT) = $F_{limit} = F_{MSY}$;
- Overfishing is occurring when $F_{year} > F_{MSY}$;
- Minimum Stock Size Threshold (MSST) = $B_{limit} = (1-M)B_{MSY}$ when $M < 0.5 = 0.5B_{MSY}$ when $M \geq 0.5$ (for billfish, the specific MSST values are: blue marlin = $0.9B_{MSY}$; white marlin = $0.85B_{MSY}$; west Atlantic sailfish = $0.75B_{MSY}$);
- Overfished when $B_{year}/B_{MSY} < MSST$;
- Biomass target during rebuilding = B_{MSY} ;
- Fishing mortality during rebuilding $< F_{MSY}$;
- Fishing mortality for healthy stocks = $0.75F_{MSY}$;
- Biomass for healthy stocks = $B_{OY} = \sim 1.25$ to $1.30B_{MSY}$;
- Minimum biomass flag = $(1-M)B_{OY}$; and
- Level of certainty of *at least* 50 percent but depends on species and circumstances.
- For bluefin tuna, spawning stock biomass (SSB) is used as a proxy for biomass
- For sharks, in some cases, spawning stock fecundity (SSF) or spawning stock number (SSN) can be used as a proxy for biomass since biomass does not influence pup production in sharks.

With the exception of Atlantic sharks, stock assessments for Atlantic HMS are conducted by ICCAT's SCRS. In 2010, the SCRS completed stock assessments for western Atlantic bluefin tuna and Atlantic bigeye tuna. All SCRS final stock assessment reports can be found at www.iccat.int/assess.htm.

Atlantic shark stock assessments for LCS and small coastal sharks (SCS) are completed by the NMFS Southeast Data, Assessment, and Review (SEDAR) process. Currently, sandbar, blacknose, and dusky sharks are undergoing a formal assessment through the SEDAR process. Results from these assessments will not be available until early to mid- 2011.

Table 2.1 summarizes stock assessment information and the current status of Atlantic HMS as of November 2009.

Table 2.1 Stock Assessment Summary Table for Atlantic tunas, swordfish, and marlin.
Source: SCRS, 2007; SCRS, 2008; SCRS, 2009a; SCRS, 2009b; SCRS 2010;
Gibson and Campana, 2005; Cortés *et al.*, 2006; NMFS, 2006; NMFS, 2007.

Species	Current Relative Biomass Level	Minimum Stock Size Threshold	Current Relative Fishing Mortality Rate	Maximum Fishing Mortality Threshold	Outlook – From Status of Stocks for U.S. managed species*
West Atlantic Bluefin Tuna	SSB ₀₉ /SSB _{MSY} = 1.1 (0.89-1.35) (low recruitment) SSB ₀₉ /SSB _{MSY} = 0.15 (0.10-0.22) (high recruitment) SSB ₀₉ /SSB ₇₅ = 0.34	0.86SSB _{MSY}	F ₀₆₋₀₈ /F _{MSY} = 0.73 (0.59-0.91) (low recruitment) F ₀₆₋₀₈ /F _{MSY} = 1.88 (1.49-2.35) (high recruitment)	F _{year} /F _{MSY} = 1.00	Low recruitment scenario: Not overfished; overfishing is not occurring. High recruitment scenario: Overfished; overfishing is occurring
	The SCRS, as stated in the stock assessment, has no strong evidence to favor either scenario over the other and notes that both are reasonable (but not extreme) lower and upper bounds on rebuilding potential.				
Atlantic Bigeye Tuna	B ₀₉ /B _{MSY} = 0.72-1.34 (median 1.01)	0.6B _{MSY} (age 2+)	F ₀₉ /F _{MSY} = 0.65-1.55 (median 0.95)	F _{year} /F _{MSY} = 1.00	Not overfished; overfishing not occurring.
Atlantic Yellowfin Tuna	B ₀₆ /B _{MSY} = 0.96 (0.72-1.22)	0.5B _{MSY} (age 2+)	F _{current} /F _{MSY} =0.86 (0.71-1.05)*	F _{year} /F _{MSY} = 1.00	Not overfished; overfishing not occurring.
North Atlantic Albacore Tuna	B ₀₇ /B _{MSY} = 0.62 (0.45-0.79)	0.7B _{MSY}	F ₀₇ /F _{MSY} = 1.045 (0.85-1.23)	F _{year} /F _{MSY} = 1.00	Overfished; overfishing is occurring.
West Atlantic Skipjack Tuna	B ₀₆ /B _{MSY} : most likely >1	<i>Unknown</i>	F ₀₆ /F _{MSY} : most likely <1	F _{year} /F _{MSY} = 1.00	Unknown
North Atlantic Swordfish	B ₀₉ /B _{MSY} = 1.05 (0.94-1.24)	<i>Unknown</i>	F ₀₈ /F _{MSY} = 0.76 (0.67-0.96)	F _{year} /F _{MSY} = 1.00	Not overfished; overfishing not occurring
South Atlantic Swordfish	Likely >1	<i>Unknown</i>	Likely <1	F _{year} /F _{MSY} = 1.00	Unknown
Blue Marlin	B ₀₄ <B _{MSY} : yes	0.9B _{MSY}	F ₀₄ >F _{MSY} : Yes	F _{year} /F _{MSY} = 1.00	Overfished: overfishing is occurring
White Marlin	B ₀₄ <B _{MSY} : yes	0.85B _{MSY}	F ₀₄ >F _{MSY} : Possibly	F _{year} /F _{MSY} = 1.00	Overfished: overfishing is occurring
West Atlantic Sailfish	B ₀₆ <B _{MSY} : Possibly	0.75B _{MSY}	F ₀₇ >F _{MSY} : Possibly	<i>Not estimated</i>	Overfished; overfishing is occurring

Species	Current Relative Biomass Level	Minimum Stock Size Threshold	Current Relative Fishing Mortality Rate	Maximum Fishing Mortality Threshold	Outlook – From Status of Stocks for U.S. managed species*
Spearfish	<i>Unknown</i>	<i>Unknown</i>	<i>Unknown</i>	<i>Not estimated</i>	<i>Unknown</i>
LCS Complex	<i>Unknown</i>	<i>Unknown</i>	<i>Unknown</i>	<i>Unknown</i>	<i>Unknown</i>
Sandbar	$SSF_{04}/SSF_{MSY} = 0.72$	4.75-5.35E+05	$F_{04}/F_{MSY} = 3.72$	0.015	Overfished; overfishing is occurring
Gulf of Mexico Blacktip	$SSF_{04}/SSF_{MSY} = 2.54-2.56$	0.99-1.07E+07	$F_{04}/F_{MSY} = 0.03-0.04$	0.20	Not overfished; overfishing not occurring
Atlantic Blacktip	<i>Unknown</i>	<i>Unknown</i>	<i>Unknown</i>	<i>Unknown</i>	<i>Unknown</i>
Dusky Sharks	$B_{03}/B_{MSY} = 0.15-0.47$	<i>Unknown</i>	$F_{03}/F_{MSY} = 1.68-1,810$	0.00005-0.0115	Overfished; overfishing is occurring
SCS Complex	$N_{05}/N_{MSY} = 1.69$	2.1E+07	$F_{05}/F_{MSY} = 0.25$	$F_{MSY} = 0.091$	Not overfished; overfishing not occurring
Bonnethead Sharks	$SSF_{05}/SSF_{MSY} = 1.13$	1.4 E+06	$F_{05}/F_{MSY} = 0.6$	$F_{MSY} = 0.31$	Not overfished; overfishing not occurring
Atlantic Sharpnose Sharks	$SSF_{05}/SSF_{MSY} = 1.47$	4.09 E+06	$F_{05}/F_{MSY} = 0.74$	$F_{MSY} = 0.19$	Not overfished; overfishing not occurring
Blacknose Sharks	$SSF_{05}/SSF_{MSY} = 0.48$	4.3 E+05	$F_{05}/F_{MSY} = 3.77$	$F_{MSY} = 0.07$	Overfished; overfishing is occurring
Finetooth Sharks	$N_{05}/N_{MSY} = 1.80$	2.4E+06	$F_{05}/F_{MSY} = 0.17$	$F_{MSY} = 0.03$	Not overfished; overfishing not occurring
Northwest Atlantic Porbeagle Sharks	$B_{09}/B_{MSY} = 0.43-0.65$	<i>Unknown</i>	$F_{08}/F_{MSY} = 0.83$	$F_{MSY} = 0.03-0.36$	Overfished; overfishing is not occurring
North Atlantic Blue Sharks	$B_{07}/B_{MSY} = 1.87-2.74$	<i>Unknown</i>	$F_{07}/F_{MSY} = 0.13-0.17$	$F_{MSY} = 0.15$	Not overfished; overfishing not occurring
North Atlantic Shortfin Mako Sharks	$B_{07}/B_{MSY} = 0.95-1.65$	<i>Unknown</i>	$F_{07}/F_{MSY} = 0.48-3.77$	$F_{MSY} = 0.007-0.05$	Approaching an overfished status; overfishing is occurring

* Status of the Stocks website: <http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm>

2.1 Stock Assessment Details

Detailed stock assessments for each of the species listed in Tables 2.1 and 2.2 can be found in the websites listed below.

2.1.1 Western Atlantic Bluefin tuna

Assessed by ICCAT's SCRS in 2010. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2010_SCRS_ENG.pdf

2.1.2 Atlantic Bigeye Tuna

Assessed by ICCAT's SCRS in 2010. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2010_SCRS_ENG.pdf

2.1.3 Atlantic Yellowfin Tuna

Assessed by ICCAT's SCRS in 2008. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2008_TROP_REP_EN.pdf

2.1.4 North Atlantic Albacore Tuna

Assessed by ICCAT's SCRS in 2009. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2009_ALB_ASSESS_ENG.pdf

2.1.5 West Atlantic Skipjack Tuna

Assessed by ICCAT's SCRS in 2008. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2008_TROP_REP_EN.pdf

2.1.6 North Atlantic Swordfish

Assessed by ICCAT's SCRS in 2009. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2009_SWO_ASSESS_ENG.pdf

2.1.7 South Atlantic Swordfish

Assessed by ICCAT's SCRS in 2009. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2009_SWO_ASSESS_ENG.pdf

2.1.8 Blue Marlin

Assessed by ICCAT's SCRS in 2006. The stock assessment can be found online:
<http://www.iccat.int/Documents/SCRS/DetRep/DET BUM-WHM.pdf>

2.1.9 White Marlin

Assessed by ICCAT's SCRS in 2006. The stock assessment can be found online:
<http://www.iccat.int/Documents/SCRS/DetRep/DET BUM-WHM.pdf>

2.1.10 West Atlantic Sailfish

Assessed by ICCAT's SCRS in 2009. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2009_SAI_ASSESS_ENG.pdf

2.1.11 Spearfish

Spearfish have not been individually assessed by ICCAT's SCRS due to the paucity of data. Some information can be found in the 2001 sailfish stock assessment located online: http://www.iccat.int/Documents/SCRS/DetRep/DET_sai.pdf

2.1.12 LCS Complex

Assessed in 2006 through the SEDAR process. The stock assessment can be found online: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=11

2.1.13 Sandbar

Currently under assessment through the SEDAR process. Assessed in 2006 through the SEDAR process. The 2006 stock assessment can be found online: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=11

2.1.14 Gulf of Mexico Blacktip

Assessed in 2006 through the SEDAR process. The stock assessment can be found online: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=11

2.1.15 Atlantic Blacktip

Assessed in 2006 through the SEDAR process. The stock assessment can be found online: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=11

2.1.16 Dusky Sharks

Currently under assessment through the SEDAR process. Assessed in 2006 by NMFS. The 2006 stock assessment can be found online: http://www.nmfs.noaa.gov/sfa/hms/sharks/2006_Dusky_Shark_Assessment_for_distribution.pdf

2.1.17 SCS Complex

Assessed in 2007 through the SEDAR process. The stock assessment can be found online: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=13

2.1.18 Bonnethead Sharks

Assessed in 2007 through the SEDAR process. The stock assessment can be found online: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=13

2.1.19 Atlantic Sharpnose Sharks

Assessed in 2007 through the SEDAR process. The stock assessment can be found online: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=13

2.1.20 Blacknose Sharks

Currently under assessment through the SEDAR process. Assessed in 2007 through the SEDAR process. The 2007 stock assessment can be found online: http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=13

2.1.21 Finetooth Sharks

Assessed in 2007 through the SEDAR process. The stock assessment can be found online:
http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=13

2.1.22 Northwest Atlantic Porbeagle Sharks

Assessed by ICCAT's SCRS in 2009. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2009_POR_ASSESS_ENG.pdf

2.1.23 North Atlantic Blue Sharks

Assessed by ICCAT's SCRS in 2008. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2008_SHK_Report.pdf

2.1.24 North Atlantic Shortfin Mako Sharks

Assessed by ICCAT's SCRS in 2008. The stock assessment can be found online:
http://www.iccat.int/Documents/Meetings/Docs/2008_SHK_Report.pdf

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3.0 ESSENTIAL FISH HABITAT

3.1 Designations in the Consolidated Atlantic Highly Migratory Species Fishery Management Plan and its Amendments

The Magnuson-Stevens Act requires NMFS to identify and describe EFH, minimize to the extent practicable the adverse effects of fishing on EFH, and identify other actions to encourage the conservation and enhancement of EFH. In 2009, NMFS completed the five year review and update of Essential Fish Habitat (EFH) for Atlantic HMS with the publishing of the Final Amendment 1 to the Consolidated HMS FMP (June 12, 2009, 74 FR 288018). On June 19, 2009, the Environmental Protection Agency (EPA) published a notice of availability (74 FR 29208) of the Final Environmental Statement (FEIS) for Amendment 1. In Amendment 1, NMFS updated and revised existing identifications and descriptions of EFH for Atlantic HMS, designated a new Habitat Area of Particular Concern (HAPC) for bluefin tuna in the Gulf of Mexico, and analyzed fishing and non-fishing impacts on EFH pursuant to Section 305(b) of the Magnuson-Stevens Act.

Since the publication of Amendment 1, NMFS has published a Final Environmental Impact Statement (FEIS) for Amendment 3 to the 2006 Consolidated HMS FMP (June 1, 2010, 75 FR 30484) which, among other things, added smooth dogfish (*Mustelus canis*) under Secretarial management. As a Magnuson-Stevens Act condition of adding a species to federal management, NMFS designated EFH for smooth dogfish using the same methodology employed in Amendment 1. Details, including a map of the proposed EFH can be found in Chapter 11 of the Amendment 3 FEIS.

On September 22, 2010, NMFS published an interpretive rule and final action (75 FR 57698) which, among other things, recognized roundscale spearfish (*Tetrapturus georgii*) to the definition of terms in the implementing regulations of the Magnuson-Stevens Act and the Atlantic HMS regulations, and defined EFH for roundscale spearfish. Roundscale spearfish and white marlin were managed as one species before this final action because the roundscale spearfish were not recognized as a distinct species taxonomically until recently. Therefore, the designation of roundscale spearfish EFH is the same as the EFH designation for white marlin found in Amendment 1 to the HMS FMP. A summary of the management history of HMS EFH is given in Table 3.1.

Table 3.1 Management history for HMS EFH.

FMP or Amendment	Species for which EFH was identified
1999 FMP for Atlantic Tunas, Swordfish, and Sharks	EFH first identified and described for Atlantic tunas, swordfish and sharks
1999 Amendment 1 to the Billfish FMP	EFH first identified and described for Atlantic billfish
2003 Amendment 1 to the FMP for Atlantic Tunas, Swordfish and Sharks	EFH updated for five shark species (blacktip, sandbar, finetooth, dusky, and nurse sharks)
2006 Consolidated Atlantic HMS FMP	Comprehensive review of EFH for all HMS. EFH for all Atlantic HMS consolidated into one FMP No changes to EFH descriptions or boundaries
2009 Amendment 1 to the Consolidated Atlantic HMS FMP	EFH updated for all federally managed Atlantic HMS. HAPC for bluefin tuna spawning area designated in the Gulf of Mexico
2010 Amendment 3 to the Consolidated Atlantic HMS FMP	EFH first defined for smooth dogfish
2010 White Marlin/ Roundscale Spearfish Interpretive Rule and Final Action	EFH first defined for roundscale spearfish; same as white marlin EFH designation in Amendment 1

Identification and Description of EFH

A search of new literature and information was undertaken to assess habitat use and ecological roles of HMS EFH. Published and unpublished scientific reports, fishery dependent and independent data sets, and expert and anecdotal information detailing the habitats used by the managed species were evaluated and synthesized for inclusion in Amendments 1 and 3. NMFS also conducted a comprehensive review of all federally and non-federally managed fishing gears that formed the basis for further analysis on gear impacts in the amendment. Additionally, NMFS took into account comments received from the HMS Advisory Panel and the public on how best to proceed to update EFH, data considerations, extent of EFH, impacts on EFH, and concerns about HAPCs, including requests to consider HAPCs for bluefin tuna spawning areas in the Gulf of Mexico.

NMFS established new EFH boundaries based on the 95 percent probability boundary using Geographic Information System (GIS) analyses and Hawth’s analysis tool. The probability boundary was created by taking all of the available distribution points for a particular species and life stage and creating a percent volume contour (PVC, or probability boundary). The probability boundaries are based on all data points collected ocean-wide and not just data points inside the Exclusive Economic Zone (EEZ), thus taking into account the migratory nature of HMS. As EFH designations are restricted from extending beyond the U.S EEZ, the EEZ boundary was used as the cut-off point for the EFH delineations.

EFH maps are presented in hard copy in Amendments 1 and 3 and electronically on the internet via spatial files in Adobe (pdf) format. The electronic maps and downloadable spatial EFH files for HMS and all federally managed species can be found on the NMFS EFH Mapper at: http://sharpfin.nmfs.noaa.gov/website/EFH_Mapper/map.aspx.

Habitat Areas of Particular Concern

NMFS has two established HAPCs for HMS, one in the Gulf of Mexico for spawning bluefin tuna and one for sandbar sharks along the Atlantic coast. More information regarding these HAPCs can be found in Amendment 1. NMFS is currently conducting research in the Gulf of Mexico regarding impacts from the 2010 Deepwater Horizon oil spill, and any resulting information related to the oil spill's impacts on bluefin tuna EFH will be documented in upcoming SAFE reports.

Fishing and Non-fishing Impacts

Amendment 1 included an analysis of fishing and non-fishing impacts on EFH as required by the Magnuson-Stevens Act and the EFH regulations. Most HMS EFH is comprised of the water column. As water column characteristics such as temperature, salinity, and dissolved oxygen are unlikely to be affected by fishing gears, NMFS concluded that fishing gears are not having a negative effect on most HMS EFH. For some shark species, EFH includes specific benthic habitat types such as sand, mud, or submerged aquatic vegetation and of the gears used in HMS fisheries only shark bottom longline (BLL) gear is considered to potentially affect EFH. NMFS reviewed all available relevant information such as the intensity, extent, and frequency of any adverse effects on EFH and concluded that shark BLL gear as currently used in the shark fishery is having no more than a minimal and temporary effect on EFH. Likewise, other HMS gears are not considered to have an impact on EFH. As a result, NMFS implemented no measures to regulate shark BLL gear or any other HMS gears to minimize fishing impacts in Amendment 1.

3.2 Shark Nursery Grounds and Essential Fish Habitat Studies

NMFS continues to study EFH for HMS to refine our understanding of important habitat areas for HMS. The Magnuson-Stevens Act defines EFH as habitat necessary for spawning, breeding, feeding, and growth to maturity. The Magnuson-Stevens Act requires the identification of EFH in fishery management plans, and towards that end NMFS has funded two cooperative survey programs designed to further delineate shark nursery habitats in the Atlantic and Gulf of Mexico. The Cooperative Atlantic States Shark Pupping and Nursery (COASTSPAN) Survey, and the Cooperative Gulf of Mexico States Shark Pupping and Nursery (GULFSPAN) Survey are designed to assess the geographical and seasonal extent of shark nursery habitat, determine which shark species use these areas, and gauge the relative importance of these coastal habitats in order to provide information that can then be used in EFH determinations. Also, survey data collected are being incorporated into stock assessment models as abundance trends and life history parameters.

The COASTSPAN program, administered by the NMFS Northeast Fisheries Science Center's Narragansett, Rhode Island laboratory, has been collecting information on shark nursery areas along the U.S. Atlantic coast since 1998. It involves NMFS scientists along with state and university researchers in Massachusetts, Delaware, North Carolina, South Carolina, Georgia, Florida and the U.S. Virgin Islands. NMFS initiated the GULFSPAN program in 2003 to expand upon the COASTSPAN Survey. This cooperative program, which is administered by the NMFS Southeast Science Center's Panama City, Florida laboratory, includes, in addition to NMFS scientists, the states of Florida, Alabama, Mississippi, and Louisiana. Following is a summary of

the results from the 2009 COASTSPAN and GULFSPAN surveys (Bethea *et al.*, 2010; McCandless *et al.*, 2010).

Massachusetts

COASTSPAN sampling was conducted in Duxbury Bay in 2009. The shark catch consisted entirely of immature sand tigers. The majority of the catch was young-of-the-year, strengthening previous year's work indicating the importance of these areas as potential nursery habitat for this prohibited species.

Rhode Island

Limited COASTSPAN sampling took place in Rhode Island estuarine waters in 2009. A total of five young-of-the-year sand tigers were caught, indicating the potential for Rhode Island waters to provide nursery habitat for this prohibited species.

Delaware Bay

COASTSPAN sampling encompassed the entire Bay from the mouth of the Delaware River to the mouth of Delaware Bay using a random stratified design based on depth and geographic location. Additional sampling was also conducted at historical fixed stations throughout the bay. Sandbar shark was the most abundant shark species caught in 2009, followed by smooth dogfish, sand tiger, and Atlantic sharpnose shark. The majority of sandbar sharks caught (99 percent) were immature, with 23 percent of these as young-of-the-year; the remaining one percent of sandbar sharks caught were mature females. Smooth dogfish were primarily represented by mature fish (82 percent), with adult females as the majority (86 percent). The immature smooth dogfish catch contained 57 percent young-of-the-year. Adult female and adult male sand tiger sharks were captured in the Bay, but the overwhelming majority were captured as immature. All Atlantic sharpnose sharks caught were mature males. Young-of-the-year sandbar sharks, smooth dogfish and sand tigers were primarily caught in the shallower regions of the bay along the Delaware and New Jersey coastlines. Delaware Bay provides important nursery habitat for these shark species and is currently listed as a Habitat Area of Particular Concern for the sandbar shark. The continued extensive use of the Bay by all life stages of sand tiger and smooth dogfish also highlight the seasonal importance of this habitat for these species.

North Carolina

COASTSPAN sampling occurred year round in inland (Pamlico Sound and Pungo, Neuse, New, and Cape Fear Rivers) and nearshore waters along the southern coast of North Carolina from New River Inlet to the South Carolina border. No sharks were captured during limited sampling in Pamlico Sound and the Pungo and Neuse Rivers. In the remaining inland waters, Atlantic sharpnose shark was the most abundant species caught along with bonnethead, sandbar, and blacktip sharks. In addition, one smooth hammerhead and one nurse shark were caught in inland waters. In the Atlantic coastal waters, the catch was seasonally dominated by spiny dogfish and smooth dogfish in the cooler months. Atlantic sharpnose sharks dominated the catch

in the warmer months, followed by bonnethead, blacktip, blacknose, finetooth, and spinner sharks, and one scalloped hammerhead shark.

South Carolina

COASTSPAN sampling took place in both nearshore and estuarine waters along the South Carolina coast including: Bulls Bay, Charlestown Harbor, North Edisto, Port Royal Sound, St. Helena Sound, and Winyah Bay. Sixteen species of sharks were captured, the most abundant of which was Atlantic sharpnose. Other sharks captured, in order of abundance, were finetooth, sandbar, bonnethead, blacktip, blacknose, scalloped hammerhead, smooth hammerhead, lemon, spinner, tiger, smooth dogfish, nurse, great hammerhead, and nurse sharks. Seven species were also captured as young-of-the-year in South Carolina estuarine waters: Atlantic sharpnose, blacktip, finetooth, scalloped hammerhead, sandbar, lemon, and bull sharks. The majority of each shark species captured were immature, with the exception of three species: Atlantic sharpnose, blacknose, and bonnethead sharks. These findings continue to highlight the importance of South Carolina estuarine and nearshore waters as nursery habitat for many small and large coastal shark species, and indicate the extensive use of these waters as habitat for several adult small coastal shark species.

Georgia

COASTSPAN sampling took place in both estuarine (Altamaha River and St. Simon and St. Andrew sound systems) and nearshore waters along the Georgia coast from Sapelo Island to the Florida border. Of the ten species of shark captured, Atlantic sharpnose was the most abundant. Other sharks included bonnethead, blacknose, sandbar, blacktip, scalloped hammerhead, tiger, smooth dogfish, finetooth, spinner, nurse, and bull sharks. Six species captured were also present as young-of-the-year in estuarine waters: Atlantic sharpnose, blacktip, sandbar, scalloped hammerhead, and finetooth sharks. In addition, Atlantic sharpnose and blacknose sharks were present as young-of-the-year in Georgia's nearshore waters. The majority of sharks captured were immature (78 percent), indicating the importance of these areas as potential nursery habitat for both small and large coastal shark species. Also, the majority of blacknose sharks (75 percent) and bonnetheads (64 percent) were mature, indicating these waters likely also provide important habitat for the adult life stage of these small coastal shark species.

Atlantic coast of Florida

COASTSPAN sampling occurred within and no more than 2 km offshore of five primary sites on Florida's north Atlantic coast: Cumberland Sound, Nassau Sound, St. Johns River, St. Augustine Inlet, and Matanzas Inlet. Species represented in the catch included, in order of abundance: Atlantic sharpnose, blacktip, bonnethead, sandbar, blacknose, scalloped hammerhead, finetooth, and lemon sharks. The primary study sites (Nassau Sound, Cumberland Sound) may serve as potential nursery habitat for at least three of the species captured: Atlantic sharpnose, blacktip, and scalloped hammerhead sharks. Cumberland Sound also likely serves as essential fish habitat for adult bonnethead females. In addition, sampling in nearshore waters indicate that these areas likely provide important habitat for mature blacknose sharks.

U.S. Virgin Islands

COASTSPAN sampling took place in Coral Bay and Fish Bay of St. John in 2009. Two species of shark captured, blacktip and lemon sharks. All sharks captured were immature and were also present as young-of-the-year in both bays. Long-term passive tracking data indicates strong site fidelity towards these two bays but preliminary results also show some connectivity between areas with similar habitat composition (mangrove associated seagrass and macroalgae beds), such as Lameshure Bay and Hurricane Hole, St John. These results confirm previous year's work that identified Coral and Fish Bay as important nursery habitat for blacktip sharks, and highlights the potential of St John waters in providing additional nursery habitat for these species.

Gulf Coast of Florida

Under the GULFSPAN program a number of areas were sampled: St. Andrew Bay, Crooked Island Sound, St. Joseph Bay, the Gulf of Mexico side of St. Vincent Island, and Apalachicola Bay. Eleven species of sharks were captured the most abundant of which was Atlantic sharpnose. Others included bonnethead, spinner, scalloped hammerhead, blacktip, sandbar, blacknose, finetooth, Florida smoothhound, great hammerhead, and bull sharks. The majority of the sharks captured were immature, indicating that areas along the Florida Gulf coast remain important potential nursery areas for both large and small coastal shark species. In general, young-of-the-year sharks were more often collected in shallower water with higher temperature, lower salinity, and more turbid conditions compared to juveniles and adults. Benthic habitat included shallow seagrass beds, clay, sand, mud, hard-bottom reefs, and oyster shoals.

Alabama

GULFSPAN sampling took place in Mississippi Sound (Point Aux Pins, Dauphin island), Mobile Bay (Dog River, Fairhope and Cedar Point south to Pelican Bay)), and the Perdido system (Perdido Bay to Orange Beach and Perdido Pass). Seven species of sharks were collected, the most abundant of which was Atlantic sharpnose. Others included finetooth, blacktip, bull, bonnethead, scalloped hammerhead, and spinner sharks. Immature individuals made up 93 percent of the catch, indicating potential nursery areas for the species captured. Similar to previous surveys, western and southern sites of coastal Alabama (i.e., Mississippi Sound) had higher levels of observed shark abundance, occupying a wide range of habitats and environmental conditions within those areas.

Mississippi

A number of GULFSPAN sampling sites were located in Mississippi Sound around Cat Island, Horn Island, Round island, Deer Island, and Davis Bayou. Of the five species of sharks captured, Atlantic sharpnose was the most prevalent. Others included blacktip, finetooth, bonnethead, and scalloped hammerhead sharks. The majority of the sharks caught were immature, indicating the Mississippi Sound continues to be a potential nursery area for the species found there. Benthic habitat included sand, silt, mud, grassbeds, artificial reef and oyster reef.

Juvenile and young-of-the-year sharks appeared to prefer the shallow, warmer, lower salinity and more turbid waters compared to adult sharks.

Conclusion

The COASTSPAN survey has expanded into new areas during the 2009 sampling season. Over time, the data obtained from these new areas and the multi-year data gathered from previously sampled areas during both COASTSPAN and GULFSPAN surveys will provide the needed information to identify new EFH areas and to further refine areas already designated as EFH by determining specific habitat characteristics associated with these EFH. The existing time series for both surveys have been used in recent stock assessments for large and small coastal shark species and are essential for monitoring these populations and their habitat use in the areas surveyed.

Chapter 3 References

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4.0 FISHERY DATA UPDATE

In this section, HMS fishery data, with the exception of some data on Atlantic sharks, are analyzed by gear type. Section 4.10 provides a summary of landings by species. While HMS fishermen generally target particular species, the non-selective nature of many fishing gears warrants analysis and management on a gear-by-gear basis. In addition, issues such as bycatch and safety are generally better addressed by gear type. A summary of bycatch, incidental catch, and protected resource interaction statistics can be found in Chapter 7.0 of this document.

The revised list of authorized fisheries and fishing gear used in those fisheries became effective December 1, 1999 (64 FR 67511). The rule applies to all U.S. marine fisheries, including Atlantic HMS. As stated in the rule, “no person or vessel may employ fishing gear or participate in a fishery in the exclusive economic zone (EEZ) not included in this List of Fisheries (LOF) without giving 90 days’ advance notice to the appropriate Fishery Management Council (Council) or, with respect to Atlantic HMS, the Secretary of Commerce (Secretary).” Authorized gear types include:

- Swordfish handgear fishery – rod and reel, harpoon, handline, bandit gear, buoy gear
- Swordfish recreational fishery - rod and reel, handline
- Pelagic longline fishery – longline, green-stick
- Shark gillnet fishery – gillnet
- Shark bottom longline fishery – longline
- Shark handgear fishery - rod and reel, handline, bandit gear
- Shark recreational fishery – rod and reel, handline
- Tuna purse seine fishery – purse seine
- Tuna recreational fishery– rod and reel, handline, speargun (speargun allowed for tunas other than bluefin), green-stick (only for vessels possessing the Atlantic HMS Charter-Headboat permit),
- Tuna handgear fishery – rod and reel, harpoon, handline, bandit gear
- Tuna harpoon fishery - harpoon
- Atlantic billfish recreational fishery – rod and reel only
- Tuna green-stick fishery – green stick

Due to the nature of the Standing Committee for Research and Statistics (SCRS) data collection, Table 4.1 depicts a summary of U.S. and international HMS catches by species rather than gear type. International catch levels and U.S. reported catches for HMS, other than sharks, are taken from the 2010 Standing Report of the SCRS (SCRS, 2010). The U.S. percentage of regional and total catch of HMS species is presented (Table 4.1) to provide a basis for comparison of the U.S. catch relative to other nations/entities. Catch of billfish includes both recreational landings and dead discards from commercial fisheries; catch for bluefin tuna includes commercial landings and dead discards and recreational landings; and swordfish include commercial landings and dead discards. International catch and landings tables are included for the pelagic longline and purse seine fisheries in Sections 4.1 and 4.2 of this document. At this point, data necessary to assess the U.S. regional and total percentage of international catch levels for most Atlantic shark species are unavailable.

Table 4.1 Calendar Year 2009 U.S. vs. International Catch (mt ww) of HMS Other Than Sharks. Source: SCRS, 2010.

Species	Total International Reported Catch	Region	Total Regional Catch	U.S. Catch	U.S. Percentage of Regional Catch	U.S. Percentage of Total Atlantic Catch
Atlantic Swordfish	25,103	North Atlantic	12,655	2,697	21.3%	10.7%
		South Atlantic	12,448	0	0%	
Atlantic Bluefin Tuna	21,636	West Atlantic	1,936	1,068	55.2%	4.9%
		East Atlantic/Med.	19,701	0	0%	
Atlantic Bigeye Tuna	86,011	Total Atlantic	86,011	516	0.60%	0.60%
Atlantic Yellowfin Tuna	118,871	West Atlantic	20,978	2,802	13.4%	2.4%
		East Atlantic/Med.	97,893	0	0%	
Atlantic Albacore Tuna	42,241	North Atlantic	15,364	188	1.2%	0.44%
		South Atlantic/Med.	26,877	0	0%	
Atlantic Skipjack Tuna	148,222	West Atlantic	25,747	119	0.46%	0.08%
		East Atlantic/Med.	122,475	0	0%	
Atlantic Blue Marlin	2,863	North Atlantic	1,412	6	0.42%	0.2%
		South Atlantic	1,451	0	0%	0%
Atlantic White Marlin	406	North Atlantic	186	3	1.6%	0.74%
		South Atlantic	220	0	0%	0%
Atlantic Sailfish	3,055	West Atlantic	1,415	3	0.21%	0.09%
		East Atlantic	1,640	0	0%	

4.1 Pelagic Longline (PLL) Fishery

4.1.1 Current Management

The PLL fishery for Atlantic HMS primarily targets swordfish, yellowfin tuna, and bigeye tuna in various areas and seasons. Secondary target species include dolphin, albacore tuna, and, to a lesser degree, sharks. Although this gear can be modified (*e.g.*, depth of set, hook type, hook size, bait, *etc.*) to target swordfish, tunas, or sharks, it is generally a multi-species fishery. These vessel operators are opportunistic, switching gear style and making subtle changes to target the best available economic opportunity of each individual trip. PLL gear sometimes attracts and hooks non-target finfish with little or no commercial value as well as species that cannot be retained by commercial fishermen due to regulations, such as billfish. PLL gear may also interact with protected species such as marine mammals, sea turtles, and seabirds. Thus, this gear has been classified as a Category I fishery with respect to the Marine Mammal Protection Act (MMPA). Any species (or undersized catch of permitted species) that cannot be landed due to fishery regulations is required to be released, regardless of whether the catch is dead or alive.

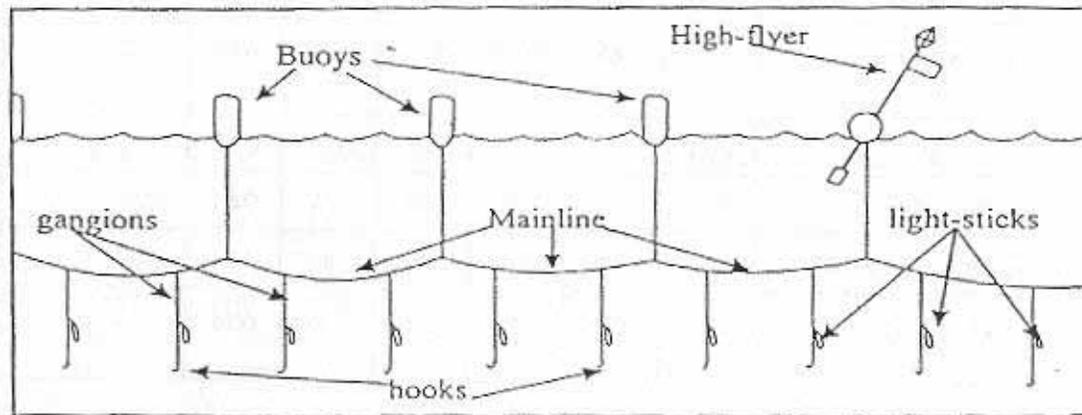


Figure 4.1 Typical U.S. Pelagic Longline Gear. Source: Arocha, 1996.

PLL gear is composed of several parts (Figure 4.1). The primary fishing line, or mainline of the longline system, can vary from five to 40 miles in length, with approximately 20 to 30 hooks per mile. Based upon observer reports from 2005 - 2006, the shortest length of a mainline set on an observed trip was 9.5 nautical miles (nm) while the longest set during a trip was 44.2 nm (Keene, *et. al.*, 2010). The depth of the mainline is determined by ocean currents and the length of the floatline, which connects the mainline to several buoys, and periodic markers which can have radar reflectors or radio beacons attached. Each individual hook is connected by a leader, or gangion, to the mainline. Lightsticks, which contain light emitting chemicals, are often used, particularly when targeting swordfish. When attached to the hook and suspended at a certain depth, lightsticks attract baitfish, which may, in turn, attract pelagic predators (NMFS, 1999).

When targeting swordfish, PLL gear is generally deployed at sunset and hauled at sunrise to take advantage of swordfish nocturnal near-surface feeding habits (NMFS, 1999). In general, longlines targeting tunas are set in the morning, fished deeper in the water column, and hauled back in the evening. Except for vessels of the distant water fleet, which undertake extended trips,

fishing vessels preferentially target swordfish during periods when the moon is full to take advantage of increased densities of pelagic species near the surface. The number of hooks per set varies with line configuration and target species (Table 4.2).

Table 4.2 Average Number of Hooks per PLL Set, 2000 - 2009. Source: PLL logbook data.

Target Species	2002	2003	2004	2005	2006	2007	2008	2009
Swordfish	695	711	701	747	742	672	708	687
Bigeye tuna	755	967	400	634	754	773	751	755
Yellowfin tuna	715	720	696	691	704	672	678	689
Mix of tuna species	767	765	779	692	676	640	747	744
Shark	640	696	717	542	509	494	377	354
Dolphin	542	692	1,033	734	988	789	989	1,033
Other species	300	865	270	889	236	NA	NA	NA
Mix of species	756	747	777	786	777	757	749	781

Figure 4.2 illustrates basic differences between swordfish (shallow) and tuna (deep) longline sets. Swordfish sets are buoyed to the surface, have fewer hooks between floats, and are relatively shallow. This same type of gear arrangement is used for mixed target species sets. Tuna sets use a different type of float placed much further apart. Compared with swordfish sets, tuna sets have more hooks between the floats and the hooks are set much deeper in the water column. It is believed that tuna sets hook fewer turtles than the swordfish sets because of the difference in fishing depth. In addition, tuna sets use bait only, while swordfish sets use a combination of bait and lightsticks. Compared with vessels targeting swordfish or mixed species, vessels specifically targeting tuna are typically smaller and fish different grounds.

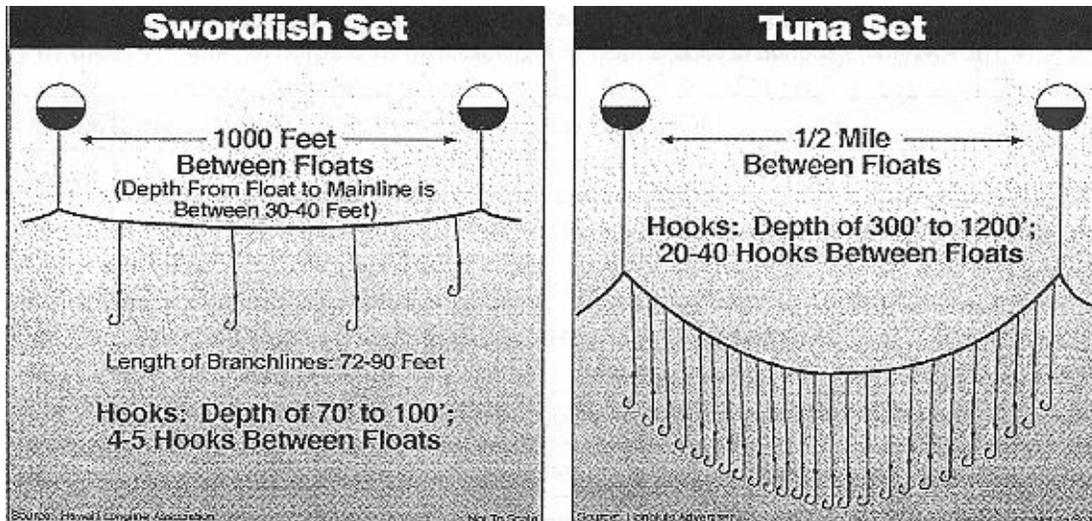


Figure 4.2 Different Pelagic Longline Gear Deployment Techniques. Source: Hawaii Longline Association and Honolulu Advertiser.

NOTE: This figure is only included to show basic differences in pelagic longline gear configuration and to illustrate that this gear may be altered to target different species.

Regional U.S. Pelagic Longline Fisheries Description

The U.S. PLL fishery has historically been comprised of five relatively distinct segments with different fishing practices and strategies. These segments are: 1) the Gulf of Mexico yellowfin tuna fishery; 2) the South Atlantic-Florida east coast to Cape Hatteras swordfish fishery, which has been greatly affected by the Florida East Coast, Charleston Bump time/area closures; 3) the Mid-Atlantic and New England swordfish and bigeye tuna fishery; 4) the U.S. distant water swordfish fishery; and, 5) the Caribbean Islands tuna and swordfish fishery. Each vessel type has different range capabilities due to fuel capacity, hold capacity, size, and construction. In addition to geographical area, these segments have historically differed by percentage of various target and non-target species, gear characteristics, and deployment techniques. Some vessels fish in more than one fishery segment during the course of a year (NMFS, 1999). Due to the various changes in the fishery, *i.e.*, regulations, operating costs, market conditions, species availability, etc., the fishing practices and strategies of these different segments may change over time.

The Gulf of Mexico Yellowfin Tuna Fishery

Gulf of Mexico vessels primarily target yellowfin tuna year-round; however, a handful of these vessels directly target swordfish, either seasonally or year-round. Longline fishing vessels that target yellowfin tuna in the Gulf of Mexico also catch and sell dolphin, swordfish, other tunas, and sharks. During yellowfin tuna fishing, few swordfish are captured incidentally. Many of these vessels participate in other Gulf of Mexico fisheries (targeting shrimp, shark, and snapper/grouper) during allowed seasons. Home ports for this fishery include, but are not limited to, Madera Beach, Florida; Panama City, Florida; Dulac, Louisiana; and Venice, Louisiana (NMFS, 1999).

For catching tuna, the longline gear is configured similarly to swordfish longline gear but is deployed differently. The gear is typically set in the morning (between two a.m. and noon) and retrieved in the evening or night (4 p.m. to midnight). Fishing occurs in varying water temperatures; however, yellowfin tuna are generally targeted in the western Gulf of Mexico during the summer when water temperatures are high. In the past, fishermen have used live bait, however, NMFS prohibited the use of live bait in the Gulf of Mexico in an effort to decrease bycatch and bycatch mortality of billfish (65 FR 47214, August 1, 2000). This rule also closed the Desoto Canyon area (year-round closure) to PLL gear. In the Gulf of Mexico, and all other areas, except the Northeast Distant Waters (NED), specific circle hooks (16/0 or larger non-offset and 18/0 or larger with an offset not to exceed 10 degrees) are currently required, as are whole finfish and squid baits.

The South Atlantic – Florida East Coast to Cape Hatteras Swordfish Fishery

Historically, South Atlantic pelagic longline vessels targeted swordfish year-round, although yellowfin tuna and dolphin fish were other important marketable components of the catch. In 2001 (65 FR 47214, August 1, 2000), the Florida East Coast closed area (year-round closure) and the Charleston Bump closed area (February through April closure) became effective. These PLL closures, implemented to reduce bycatch and bycatch mortality of protected species, non-target species, and undersized fish, effectively shut down a large portion of the PLL fishery in the South Atlantic.

Prior to the PLL closures, smaller vessels made short fishing trips from the Florida Straits north to the bend in the Gulf Stream off Charleston, South Carolina (Charleston Bump). Mid-sized and larger vessels in this segment of the fishery migrate seasonally on longer trips to areas ranging from the Yucatan Peninsula throughout the West Indies and Caribbean Sea. Some trips also range as far north as the Mid-Atlantic coast of the United States to target bigeye tuna and swordfish during the late summer and fall. Home ports (including seasonal ports) for this fishery include, but are not limited to, Georgetown, South Carolina; Charleston, South Carolina; Fort Pierce, Florida; Pompano Beach, Florida; and Key West, Florida. This segment of the fishery consists of small to mid-size vessels, which typically sell fresh swordfish to local high-quality markets (NMFS, 1999).

The Mid-Atlantic and New England Swordfish and Bigeye Tuna Fishery

Fishing in this area has evolved during recent years to focus almost year-round on directed tuna trips, with substantial numbers of swordfish trips as well. Some vessels participate in directed bigeye/yellowfin tuna fishing during the summer and fall months and then switch to bottom longline and/or shark fishing during the winter when the large coastal shark season is open. During the season, vessels primarily offload in the ports of New Bedford, Massachusetts; Barnegat Light, New Jersey; Ocean City, Maryland; and Wanchese, North Carolina (NMFS, 1999). In 1999, NMFS closed the Northeastern U.S. area in June to pelagic longline gear to reduce bluefin tuna discards (64 FR 29090, May 28, 1999). Section 7.7 of this document describes changes in discards of bluefin tuna and other species. Additionally, in 2009, NOAA Fisheries published the final Pelagic Longline Take Reduction Plan (PLTRP) (74 FR 23349, May 19, 2009) to protect pilot whales and Risso's dolphins which included, among other measures, a

requirement that PLL vessel operators fishing in the Cape Hatteras Special Research Area contact NOAA Fisheries at least 48 hours prior to a trip, and carry observers if requested.

The U.S. Atlantic Northeast Distant Water (NED) Swordfish Fishery

This fishing ground covers virtually the entire span of the western north Atlantic, from as far east as the Azores and the Mid-Atlantic Ridge. Large fishing vessels that fish in these distant waters operate out of Mid-Atlantic and New England ports during the summer and fall months targeting swordfish and tunas, and then move to Caribbean ports during the winter and spring months. Many of the current distant water operations were among the early participants in the U.S. directed Atlantic commercial swordfish fishery. These larger vessels, with greater ranges and capacities than coastal fishing vessels, enabled the United States to become a significant participant in the north Atlantic fishery. In the past, some of these vessels have also fished for swordfish in the south Atlantic (*i.e.*, south of 5° N. lat). In recent years however, no U.S. vessels have fished for swordfish in the South Atlantic.

The NED vessels traditionally have been larger than their southeast counterparts because of the greater distances to the fishing grounds. Thus, trips in this fishery tend to be longer than in the other longline fisheries. Ports for this fishery range from San Juan, Puerto Rico through Portland, Maine, and include New Bedford, Massachusetts, and Barnegat Light, New Jersey (NMFS, 1999). This segment of the fleet was directly affected by the L-shaped closure in 2000 and the NED closure implemented in 2001. A number of these vessels have returned to the NED fishery since the area was reopened pursuant to the issuance of the July 6, 2004, rule to reduce sea turtle bycatch and bycatch mortality (69 FR 40734, July 6, 2004). Unlike other areas, vessels fishing in the NED are required to use 18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel or squid baits. The NED is also allocated a 25 mt bluefin tuna quota. In 2009, the 25 mt quota in the NED was attained for the first time. As a result, the bluefin tuna target catch requirements specified for the longline category became applicable in the NED from October 20 - December 31, 2009.

The Caribbean Tuna and Swordfish Fishery

In the past, this fleet has been similar to the southeast coastal fishing fleet in that it consisted primarily of smaller vessels making short, relatively near-shore trips, producing high quality fresh product (NMFS, 1999). The U.S. Caribbean fleet historically landed swordfish and tunas that supported the tourist trade in the Caribbean as well as a tuna canning industry that no longer exists. In recent years, yellowfin tuna have been the primary species of tuna landed using PLL gear, with additional landings of skipjack, bigeye, and albacore tunas. Because no Atlantic Tunas Longline permits are currently held by residents of Puerto Rico or the U.S. Virgin Islands, it can be assumed that these tuna landings were reported by vessels fishing in the Caribbean, but based out of other U.S. ports.

Management of the U.S. Pelagic Longline Fishery

The U.S. Atlantic PLL fishery is guided by a swordfish quota that is divided between the North and South Atlantic (separated at 5° N. Lat.). Other regulations include minimum sizes for

swordfish, yellowfin tuna, bigeye tuna, and bluefin tuna; bluefin tuna target catch requirements; shark quotas; protected species incidental take limits; reporting requirements (including logbooks); gear and bait requirements; limited access vessel permits, and mandatory workshop requirements. Current billfish regulations prohibit the retention of billfish by commercial vessels, or the sale of billfish from the Atlantic Ocean. As a result, all billfish hooked on PLL gear must be discarded, and are considered bycatch. PLL is a heavily managed gear type and is strictly monitored. Because it is difficult for PLL fishermen to avoid undersized or prohibited fish in some areas, NMFS has closed areas in the Gulf of Mexico and along the U.S. East Coast. The intent of these closures was to decrease bycatch in the PLL fishery by closing areas with the highest bycatch rates. There are also time/area closures for PLL fishermen designed to reduce the incidental catch of bluefin tuna and sea turtles. In order to enforce time/area closures and to monitor the fishery, NMFS requires all PLL vessels to report positions on an approved vessel monitoring system (VMS).

In addition to the regulations mentioned above, to protect sea turtles, vessels with PLL gear onboard must, at all times, in all areas open to PLL fishing except the NED, possess onboard and/or use only 16/0 or larger non-offset circle hooks and/or 18/0 or larger circle hooks with an offset not to exceed 10 degrees. Only whole finfish and squid baits may be possessed and/or utilized with allowable hooks. Vessels fishing in the NED are required to use 18/0 or larger circle hooks with an offset not to exceed 10 degrees and whole mackerel or squid baits. All PLL vessels must possess and use sea turtle handling and release gear in compliance with NMFS careful release protocols. Additionally, all PLL vessel owners and operators must be certified in the use of the protected species handling and release gear. Certification must be renewed every three years and can be obtained by attending a training workshop. Approximately 18 - 24 workshops are conducted annually, and they are held in areas with significant numbers of PLL permit holders.

In 2009, to protect pilot whales and Risso's dolphins, the PLTRP (74 FR 23349, May 19, 2009) included a requirement that PLL vessel operators fishing in the Cape Hatteras Special Research Area must contact NOAA Fisheries at least 48 hours prior to a trip, and carry observers if requested. The PLTRP also established a 20 nm upper limit on mainline length for all PLL sets in the mid-Atlantic Bight (MAB), and required that an informational placard be displayed in the wheelhouse and on the working deck of all active PLL vessels in the Atlantic fishery.

Permits

The 1999 FMP established six different limited access permit (LAP) types: (1) directed swordfish, (2) incidental swordfish, (3) swordfish handgear, (4) directed shark, (5) incidental shark, and (6) Atlantic tunas longline. To reduce bycatch in the PLL fishery, these permits were designed so that the swordfish directed and incidental permits are valid only if the permit holder also holds both a tuna longline and a shark permit. Similarly, the tuna longline permit is valid only if the permit holder also holds both a swordfish (directed or incidental, not handgear) and a shark permit. This allows limited retention of species that might otherwise have been discarded.

As of October 2010, approximately 248 tuna longline limited access permits had been issued. In addition, approximately 177 directed swordfish limited access permits, 72 incidental

swordfish limited access permits, 215 directed shark limited access permits, and 265 incidental shark limited access permits had been issued (see Chapter 8 for more information on permits). Vessels with limited access swordfish and shark permits do not necessarily use PLL gear, but these are the only permits that allow for the use of PLL gear in HMS fisheries.

In 2010, the procedures for issuing the Atlantic tunas longline permits were consolidated within the SERO permits office in St. Petersburg, Florida. This streamlined PLL permitting process, has made it easier for fishermen to obtain combinations of permits, when necessary, and made it more efficient to administer.

Monitoring and Reporting

PLL fishermen and the dealers who purchase Atlantic HMS from them are subject to reporting requirements. NMFS has extended dealer reporting requirements to all swordfish importers as well as dealers who buy domestic swordfish from the Atlantic. These data are used to evaluate the impacts of harvesting on the stock and the impacts of regulations on affected entities.

Commercial HMS fisheries are monitored through a combination of vessel logbooks, dealer reports, port sampling, cooperative agreements with states, and scientific observer coverage. 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. In some cases, social and economic data such as volume and cost of fishing inputs are also required.

PLL Observer Program

During 2009, NMFS observers recorded 1,376 PLL sets for overall non-experimental fishery coverage of 15.0 percent (Garrison and Stokes, 2010). Table 4.3 details the amount of observer coverage in past years for this fleet.

In the PLTRP (74 FR 23349, May 19, 2009), it was recommended that NMFS increase observer coverage to 12 to 15 percent throughout all Atlantic pelagic longline fisheries that interact with pilot whales and Risso's dolphins to ensure representative sampling of fishing effort. If resources are not available to provide such observer coverage for all fisheries, regions, and seasons, the PLTRT recommended NMFS allocate observer coverage to fisheries, regions, and seasons with the highest observed or reported bycatch rates of pilot whales. The PLTRT recommended that additional coverage be achieved either by increasing the number of NMFS observers who have been specially trained to collect additional information supporting marine mammal research, or by designating and training special "marine mammal observers" to supplement traditional observer coverage. In 2009, total observer coverage, including experimental sets, was 17.3 percent (Table 4.3).

Table 4.3 Observer Coverage of the Pelagic Longline Fishery. Source: Yeung, 2001; Garrison, 2003b; Garrison and Richards, 2004; Garrison, 2005; Fairfield-Walsh and Garrison, 2006; Fairfield-Walsh & Garrison, 2007; Fairfield & Garrison, 2008; Garrison, Stokes & Fairfield, 2009; Garrison and Stokes, 2010.

Year	Number of Sets Observed			Percentage of Total Number of Sets		
1999	420			3.8		
2000	464			4.2		
	Total	Non-NED	NED	Total	Non-NED	NED
2001*	584	398	186	5.4	3.7	100.0
2002*	856	353	503	8.9	3.9	100.0
2003*	1,088	552	536	11.5	6.2	100.0
	Total	Non-EXP	EXP	Total	Non-EXP	EXP
2004**	702	642	60	7.3 %	6.7 %	100.0 %
2005**	796	549	247	10.1 %	7.2 %	100.0 %
2006	568	-	-	7.5 %	-	-
2007	944	-	-	10.8 %	-	-
2008	1,190	-	101***	13.6 %	-	100.0***
2009	1,588	1,376	212***	17.3	15.0	100.0***

*In 2001, 2002, and 2003, 100 percent observer coverage was required in the NED research experiment.

** In 2004 and 2005, there was 100 percent observer coverage in experimental fishing (EXP).

*** In 2008 and 2009, 100 percent observer coverage was required in experimental fishing in the FEC, Charleston Bump, and GOM, but these sets are not included in extrapolated bycatch estimates because they are not representative of normal fishing.

4.1.2 Recent Catch and Landings

U.S. PLL catch (including bycatch, incidental catch, and target catch) is largely related to vessel characteristics and gear configuration. The reported catch is summarized for the whole fishery in Table 4.4. Table 4.5 provides a summary of U.S. PLL landings, as reported to the International Commission for the Conservation of Atlantic Tunas (ICCAT). Additional information regarding U.S. landings and discards is available in the 2009 U.S. National Report to ICCAT (NMFS, 2010).

Table 4.4 Reported Catch of Species Caught by U.S. Atlantic PLLs, in Number of Fish, for 2002-2009. Source: PLL Logbook Data.

Species	2002	2003	2004	2005	2006	2007	2008	2009
Swordfish Kept	49,320	51,835	46,440	41,139	38,241	45,933	42,800	45,378
Swordfish Discarded	13,035	11,829	10,675	11,134	8,900	11,823	11,194	7,484
Blue Marlin Discarded	1,175	595	712	567	439	611	687	1,013
White Marlin Discarded	1,438	809	1,053	989	557	744	670	1,064
Sailfish Discarded	379	277	424	367	277	321	506	774
Spearfish Discarded	148	108	172	150	142	147	197	335
Bluefin Tuna Kept	178	273	475	375	261	337	343	629
Bluefin Tuna Discarded	585	881	1,031	765	833	1,345	1,417	1,290
Bigeye, Albacore, Yellowfin, Skipjack Tunas Kept	79,917	63,321	76,962	57,132	73,058	70,390	50,108	57,461
Pelagic Sharks Kept	2,987	3,037	3,440	3,149	2,098	3,504	3,500	3,060
Pelagic Sharks Discarded	22,828	21,705	25,355	21,550	24,113	27,478	28,786	33,721
Large Coastal Sharks Kept	4,077	5,326	2,292	3,362	1,768	546	115	403
Large Coastal Sharks Discarded	3,815	4,813	5,230	5,877	5,326	7,133	6,732	6,672
Dolphin Kept	30,384	29,372	38,769	25,707	25,658	68,124	43,511	62,701
Wahoo Kept	4,188	3,919	4,633	3,348	3,608	3,073	2,571	2,648
Turtle Interactions	465	399	369	152	128	300	476	137
<i>Number of Hooks (x 1,000)</i>	<i>7,150</i>	<i>7,008</i>	<i>7,276</i>	<i>5,911</i>	<i>5,662</i>	<i>6,291</i>	<i>6,498</i>	<i>6,979</i>

Table 4.5 Reported Landings in the U.S. Atlantic Pelagic Longline Fishery (in mt ww) for 2002-2009. Source: NMFS ICCAT National Report 2010.

Species	2002	2003	2004	2005	2006	2007	2008	2009
Yellowfin Tuna	2,573.0	2,164.0	2,492.2	1,746.2	2,009.9	2,394.5	1,324.5	1,700.1
Skipjack Tuna	2.5	1.4	0.7	0.6	0.2	0.0	1.5	0.5
Bigeye Tuna	535.8	283.9	310.1	311.9	520.6	380.7	407.7	409.4
Bluefin Tuna*	49.9	133.9	180.1	211.5	204.6	164.3	247.8	291.0
Albacore Tuna	155.0	107.6	120.4	108.5	102.9	126.8	117.9	157.4
Swordfish N.*	2,598.8	2,756.3	2,518.5	2,272.8	1,960.8	2,474.0	2,353.6	2,649.0
Swordfish S.*	199.9	20.5	15.7	0.0	0.0	0.0	0.0	0.0

* Includes landings and estimated discards from scientific observer and logbook sampling programs

In recent years, there has been concern regarding the amount of swordfish that the U.S. has been landing, as it has been well below the ICCAT-recommended quota. To address this concern, NMFS has taken a number of steps to modify swordfish management measures as the North Atlantic swordfish stock has rebuilt. In 2007, NMFS published a final rule (72 FR 31688, June 7, 2007) to change PLL vessel upgrading requirements, increase incidental swordfish landing limits, and increase recreational (Angling and Charter/Headboat) landing limits. Additionally, NMFS implemented regulations in 2008 (73 FR 38144, July 3, 2008) to allow Atlantic tunas longline permits that had been expired for more than one year to be renewed. This action enabled some PLL fishermen to renew permits which previously could not be renewed for technical reasons, because they did not have a vessel to assign the permit to. Finally, from 2008 to 2010, a limited experimental PLL fishery was authorized in the Florida East Coast and Charleston Bump PLL closed areas to examine catch and bycatch rates in these areas.

In the U.S. pelagic longline fishery, fish may be discarded for a variety reasons. Swordfish, yellowfin tuna, and bigeye tuna may be discarded because they are undersized or unmarketable (*e.g.*, bitten by sharks). Blue sharks, as well as other species, are discarded because of limited markets (resulting in low prices) and perishability of the product. Large coastal sharks are discarded when the shark season is closed. Bluefin tuna may be discarded because target catch requirements for other species have not been met. Also, all billfish are required to be released. In the past, swordfish have been discarded when the swordfish season was closed.

From 2005 through 2006, the Pelagic Observer Program (POP) recorded a total of 8,953 elasmobranchs (20 percent of the total catch) caught by U.S. PLL vessels targeting tunas and swordfish (Keene, *et al.*, 2010). Of the 31 elasmobranch species observed, blue sharks were numerically dominant (33 percent of the total elasmobranch catch), with blue, pelagic rays, silky, night, shortfin mako, tiger, and requiem sharks making up the majority (85.8 percent).

At this time, the direct use of observer data with pooling for estimating dead discards in the PLL fishery represents the best scientific information available for use in stock assessments. Direct use of observer data has been employed for a number of years to estimate dead discards in Atlantic and Pacific longline fisheries, including billfish, sharks, and undersized swordfish. Furthermore, the data have been used for scientific analyses by both ICCAT and the Inter-American Tropical Tuna Commission for a number of years.

Bycatch mortality of marlins, sailfish, swordfish, and bluefin tuna from all fishing nations may significantly reduce the ability of these populations to rebuild, and it remains an important management issue. In order to minimize bycatch and bycatch mortality in the domestic PLL fishery, NMFS implemented regulations to close certain areas to this gear type (Figure 4.3) and has banned the use of live bait by PLL vessels in the Gulf of Mexico.

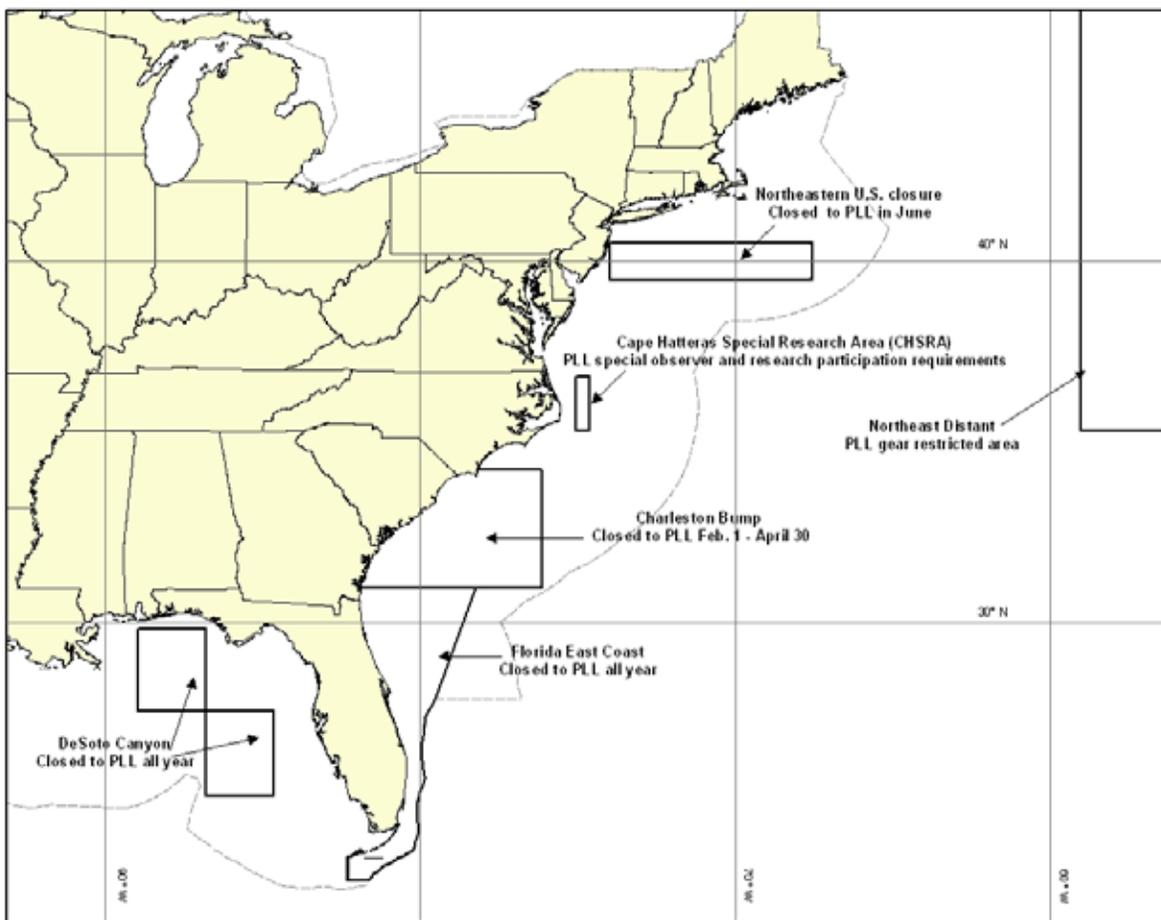


Figure 4.3 Areas Closed to Pelagic Longline Fishing by U.S. Flagged Vessels

Protected Species

Marine Mammals

Many of the marine mammals that are hooked by U.S. pelagic longline fishermen are released alive, although some animals suffer serious injuries and may die after being released. The observed and estimated marine mammal interactions for 2002 – 2009 are summarized in Table 4.6. Marine mammals are caught primarily during the third and fourth quarters in the MAB and Northeast Coastal (NEC) areas (Table 4.6). In 2009, the majority of observed interactions were with pantropical spotted dolphin, Risso’s dolphin, and pilot whales (Garrison and Stokes, 2010). NMFS monitors observed interactions with sea turtles and marine mammals on a quarterly basis and reviews data for appropriate action, if any, as necessary.

Table 4.6 Summary of Marine Mammal Interactions in the Pelagic Longline Fishery, 1999 - 2009. Sources: Yeung, 2001; Garrison, 2003b; Garrison and Richards, 2004; Garrison, 2005; Walsh and Garrison, 2006; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison, Stokes & Fairfield, 2009; Garrison and Stokes, 2010.

Year	Species	Total		Mortality		Serious Injury		Alive	
		Obs	Est	Obs	Est	Obs	Est	Obs	Est
2002	Risso’s dolphin	10	87.2	-	-	4	11	6	59.6
	Pilot whale	10	113.5	-	-	4	49.9	6	67.8
	Common dolphin	1	1	-	-	-	-	1	1
	Unidentified dolphin	2	2	-	-	1	1	1	1
	Unidentified marine mammal	1	1	-	-	1	1	-	-
2003	Beaked whale	2	48.8	-	-	1	5.3	1	43.5
	Dolphin	1	16.2	-	-	1	16.2	-	-
	Atlantic spotted dolphin	1	29.8	-	-	1	29.8	-	-
	Bottlenose dolphin	1	2	-	-	-	-	1	2
	Common dolphin	2	45.6	-	-	-	-	2	45.6
	Risso’s dolphin	14	109.5	1	1	3	40.1	10	68.4
	Striped dolphin	1	1	-	-	-	-	1	1
	Pilot whale	4	32.1	-	-	2	21.4	1	11.3
	Baleen whale	1	1	-	-	-	-	1	1
Minke whale	1	22.3	-	-	-	-	1	22.3	
2004	Pilot whale	8	107.5	-	-	6	74.1	2	33.8
	Common dolphin	1	6.8	-	-	-	-	1	6.8
	Risso’s dolphin	3	49.4	-	-	2	27.5	1	21.9
2005	Pilot whale	18	294.4	-	-	9	211.5	9	79.5
	Risso’s dolphin	2	42.1	-	-	-	2.9	2	39.2
	Common dolphin		5.7	-	-	-	-	-	5.7
	Bottlenose dolphin	1	5.2	-	-	-	-	1	5.2
	Beaked whale		1	-	-	-	1	-	-

Year	Species	Total		Mortality		Serious Injury		Alive	
		Obs	Est	Obs	Est	Obs	Est	Obs	Est
	Atlantic spotted dolphin	1	4.3	-	-	-	-	1	4.3
	Unidentified marine mammal	1	13.2	-	-	1	13.2	-	-
	Unidentified whale		3.4	-	-	-	3.4	-	-
	Unidentified dolphin	1	2.6	-	-	-	-	1	2.6
2006	Atlantic spotted dolphin		1.9	-	-	-	-	-	1.9
	Beaked whale		2.2	-	-	-	-	-	2.2
	Bottlenose dolphin		0.6	-	-	-	-	-	0.6
	Pilot whale	20	274.5	1	15.5	12	168.6	7	90.4
	Unidentified dolphin	2	26.5	-	-	2	26.5	-	-
	Unidentified marine mammal	1	12.6	1	12.6	-	-	-	-
2007	Atlantic spotted dolphin		1.4	-	-	-	-	-	1.4
	Bottlenose dolphin	2	12.6	-	-	1	-	1	12.6
	Beaked whale	1	1.5	-	-	-	-	1	1.5
	Pilot whale	8	86.6	-	-	5	56.7	3	30.7
	Risso's dolphin	2	20.3	-	-	1	9.3	1	11.0
	Unidentified dolphin	2	3.8	1	1.5	-	-	1	2.3
	Unidentified marine mammal	2	22.1	-	-	2	22.1	-	-
2008	Atlantic spotted dolphin		3.1						3.1
	Bottlenose dolphin	1	6.6	-	-	-	-	1	6.6
	Beaked whale	1	6.1	-	-	-	-	1	6.1
	Killer whale	1	3.4	-	-	-	-	1	3.4
	Pilot whale	8	141.5	-	-	5	98.2	3	43.3
	Risso's dolphin	9	64.4	1	4.4	4	20.4	4	39.6
	Sperm whale	1	1.6	-	-	-	-	1	1.6
	Unidentified dolphin		3.2	-	-	-	-		3.2
Unidentified marine mammal	2	34.7	-	-	1	20.4	1	14.3	
2009	Bottlenose dolphin	3	23	-	-	2	11.3	1	11.6
	Common dolphin	1	8.5	1	8.5	-	-	-	-
	False Killer whale		2.5	-	-	-	-		2.5
	Pantropical spotted dolphin	5	26.6	-	-	4	14.1	1	12.5
	Pilot whale	4	35.7	-	-	2	16.5	2	19.2
	Risso's dolphin	5	38.5	-	-	2	11.4	3	27.1
	Unidentified dolphin	1	1.6	-	-	-	-	1	1.6
	Unidentified marine mammal	1	8.0	-	-	1	8.0	-	-

Sea Turtles

As a result of increased sea turtle interactions in 2001 and 2002, NMFS reinitiated consultation for the pelagic longline fishery and completed a new BiOp on June 1, 2004. The June 2004 BiOp concluded that long-term continued operation of the Atlantic pelagic longline fishery as proposed was not likely to jeopardize the continued existence of loggerhead, green, hawksbill, Kemp's ridley, or olive ridley sea turtles, but was likely to jeopardize the continued existence of leatherback sea turtles. The BiOp included and Reasonable and Prudent Alternative

(RPA) which was adopted and implemented within the PLL fishery, and an Incidental Take Statement (ITS) for 2004 – 2006 combined, and for each subsequent three-year period (NMFS, 2004b). The estimated sea turtle takes for regular fishing and experimental fishing effort for 2002- 2009 are summarized in Table 4.7, Table 4.8, and Table 4.9. Loggerhead interactions are more widely distributed, however, the NED, and the NEC appear to be areas with high interaction levels each year.

The pelagic longline fishery interacted with an estimated 290 leatherback sea turtles and 243 loggerhead sea turtles outside of experimental fishing operations in 2009. The majority of loggerhead sea turtle interactions occurred in the SAB, NED, and the NEC areas (Table 4.7). The interactions with leatherback sea turtles were highest in the GOM and NEC areas (Table 4.8). NMFS monitors observed interactions with sea turtles and marine mammals on a quarterly basis and reviews data for additional appropriate action, if any, as necessary.

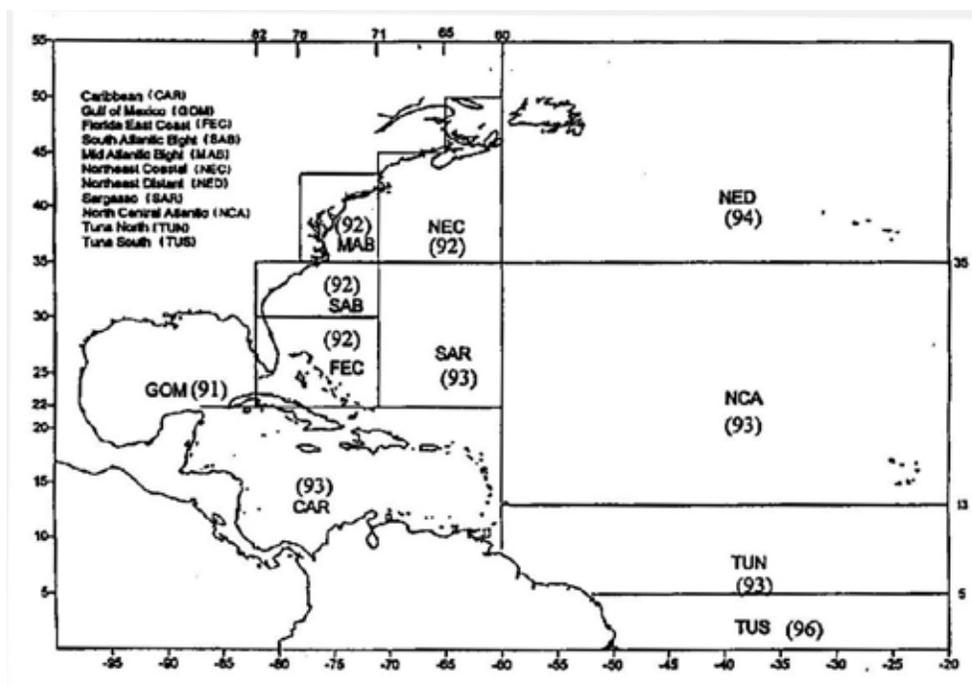


Figure 4.4 Geographic Areas Used in Summaries of Pelagic Logbook Data. Source: Cramer and Adams, 2000

Table 4.7 Estimated Number of Loggerhead Sea Turtle Interactions in the U.S. Atlantic Pelagic Longline Fishery, 2002 - 2009 by statistical area. Sources: Walsh and Garrison, 2006; Garrison, 2005; Garrison and Richards, 2004; Garrison 2003; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison et al., 2009; Garrison and Stokes, 2010.

Area	2002	2003	2004	2005	2006	2007	2008	2009
CAR	43	36	61	40	16	7	17	9
GOM	170	135	45	19	17	10	10	38

Area	2002	2003	2004	2005	2006	2007	2008	2009
FEC	99	137	99	0	40	83	47	41
SAB	22	52	194	34	18	34	70	47
MAB	94	18	92	54	70	155	20	37
NEC	147	241	150	67	135	48	237	43
NED	0	0	52	20	235	200	352	22
SAR	0	70	41	38	19	4	16	7
NCA	0	39	0	3	10	2	1	0
TUN	0	0	0	0	0	0	0	9
TUS	0	0	0	0	0	0	0	0
Total	575	728	734	275	559	543	770	243
NED exp'tal fishery (2001-03)	100	92	-	-	-	-	-	-
Exp'tal fishery (2004-05; 2008-09)	-	-	0	8	-	-	1	0
Total	675	820	734	283	559	543	771	243

Table 4.8 Estimated Number of Leatherback Sea Turtle Interactions in the U.S. Atlantic Pelagic Longline Fishery, 2002 - 2009 by statistical area. Sources: Walsh and Garrison, 2006; Garrison, 2005; Garrison and Richards, 2004; Garrison 2003; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison et al, 2009; Garrison and Stokes, 2010.

Area	2002	2003	2004	2005	2006	2007	2008	2009
CAR	0	0	17	2	4	1	2	1
GOM	695	838	780	179	109	212	144	93
FEC	100	27	64	62	28	7	30	19
SAB	93	75	164	7	39	0	0	31
MAB	70	94	184	11	30	114	43	31
NEC	5	76	33	6	73	76	140	73
NED	0	0	98	63	116	84	0	37
SAR	0	0	18	20	14	5	14	3
NCA	0	2	0	0	1	0	0	0
TUN	0	0	0	0	0	0	8	1
TUS	0	0	0	0	0	0	0	0
Total	962	1113	1359	351	415	499	381	286
NED exp'tal fishery (2001-03)	158	79	-	-	-	-	-	-

Area	2002	2003	2004	2005	2006	2007	2008	2009
Exp'tal fishery (2004-05; 2008-09)	-	-	3	17	-	-	4	4
Total	1120	1192	1362	368	415	499	385	290

Table 4.9 Estimated Sea Turtle Interactions by Species in the US Atlantic Pelagic Longline fishery, 1999-2009, and Incidental Take Levels (ITS).

PLL Fishery	2002	2003	2004	2005	2006	2007	2008	2009	3 year ITS, 2004-06/2007-09
									Total
Leatherback	962	1,112	1,362	368	415	500	385	286	1,981 / 1,764
Loggerhead	575	727	733	282	558	542	772	243	1,869 / 1,905
Other/Unidentified sea turtles	50	38	0	0	11	1	0	0	35 / 35
Marine mammals	201	300	164	372	313	151	265	144	NA

Sea Birds

Observer data indicate that seabird bycatch is relatively low in the U.S. Atlantic pelagic longline fishery (Table 4.10) (NMFS, 2009). In 2007, there were 121 active U.S. pelagic longline vessels fishing for swordfish in the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea that reportedly set approximately 6.1 million hooks. A total of one seabird was observed taken, a brown pelican which was released alive. Extrapolated estimates of seabird bycatch have varied substantially since 1992. Live discards ranged from zero to 486 per year, averaging 60 per year. Estimates of dead discards of seabirds ranged from zero to 623 per year, averaging 150 per year. The annual bycatch rate of birds discarded dead ranged from zero to 0.015 birds per 1,000 hooks, while the rate of total seabird catch ranged from zero to 0.106 birds per 1,000 hooks.

Table 4.10 Observed Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery, 2004-2009. Source: NMFS, 2008; NMFS PLL fishery observer program (POP) data.

Year	Month ¹	Area	Type of Bird	Number observed	Status
2004	1	MAB	Gull	5	dead
2004	3	MAB	Shearwater greater	1	alive
2004	3	MAB	Shearwater greater	4	dead
2004	4	NED	Seabird	1	dead

Year	Month ¹	Area	Type of Bird	Number observed	Status
2005	1	SAB	Gull herring	1	dead
2005	1	SAB	Shearwater spp	1	dead
2005	3 ²	NEC	Shearwater greater	1	alive
2005	3 ²	NEC	Shearwater greater	1	dead
2006	4	MAB	Shearwater greater	1	dead
2006	4	NEC	Shearwater spp	1	alive
2006	4	NED	Shearwater greater	1	dead
2007	1	MAB	Gull blackbacked	6	dead
2008	2	GOM	Pelican brown	1	alive
2009	1	MAB	Northern gannet	2	alive
2009	1	MAB	Northern gannet	1	dead
2009	2	GOM	Brown pelican	1	dead
2009	3	MAB	Shearwater greater	3	dead
2009	3	MAB	Unid	1	dead

¹ Beginning in 2004, reports based on Quarters not month.

² Experimental fishery takes.

Table 4.11 Status of Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery, 1992-2009. Source: NMFS Pelagic longline fishery observer program (POP).

Species	Release Status		Total	Percent Dead
	Dead	Alive		
Greater shearwater	28	3	31	90.3
Cory's shearwater	1	-	1	100.0
Unidentified shearwater	2	1	3	66.7
Herring gull	8	-	8	100.0
Great black-backed gull	9	1	10	90.0
Laughing gull	1	1	2	50.0
Unidentified gull	14	8	22	63.6
Northern gannet	2	9	8	11.1
Storm petrel	1	-	1	100.0
Unidentified seabird	40	19	59	67.8
Brown pelican	2	0	1	100.0
Grand Total	108	42	150	72.0

Table 4.12 Expanded estimates of seabird bycatch (alive and dead) in the U.S. Atlantic pelagic longline fishery, 2000 - 2007. Source: NMFS, 2008.

	2000	2001	2002	2003	2004	2005	2006	2007
Gulls	22	-	248	-	77	8	-	54
Gannets	22	-	-	-	-	-	-	-
Seabirds	-	-	36	39	6	-	-	-
Shearwaters	-	283	-	-	75	31	27	-
Storm-petrels	-	-	-	-	-	-	-	-
All	44	283	284	39	158	39	27	54

4.1.3 International Issues and Catch

PLL fisheries for Atlantic HMS primarily target swordfish and tunas. Directed PLL fisheries in the Atlantic have been operated by Spain, the United States, and Canada since the late 1950s or early 1960s. The Japanese PLL tuna fishery started in 1956 and has operated throughout the Atlantic since then (NMFS, 1999). Many of the 48 other ICCAT parties now also operate PLL vessels.

As described in past SAFE Reports, ICCAT generally establishes management recommendations on a species (*e.g.*, swordfish) or issue basis (*e.g.*, data collection) rather than by gear type. Because most ICCAT management recommendations pertain to individual species or issues, as discussed above, it is often difficult to obtain information specific to the international PLL fishery. Nevertheless, ICCAT reports landings by gear type. Available data indicate that longline effort produces the second highest volume of catch and effort, and is the most broadly distributed (longitudinally and latitudinally) of the gears used to target ICCAT managed species (SCRS, 2004b). Purse seines produce the highest volume of catch of ICCAT managed species from the Atlantic (SCRS, 2004b). Figure 4.5 shows the aggregate distribution of hooks from all fishing fleets from 2000-2006.

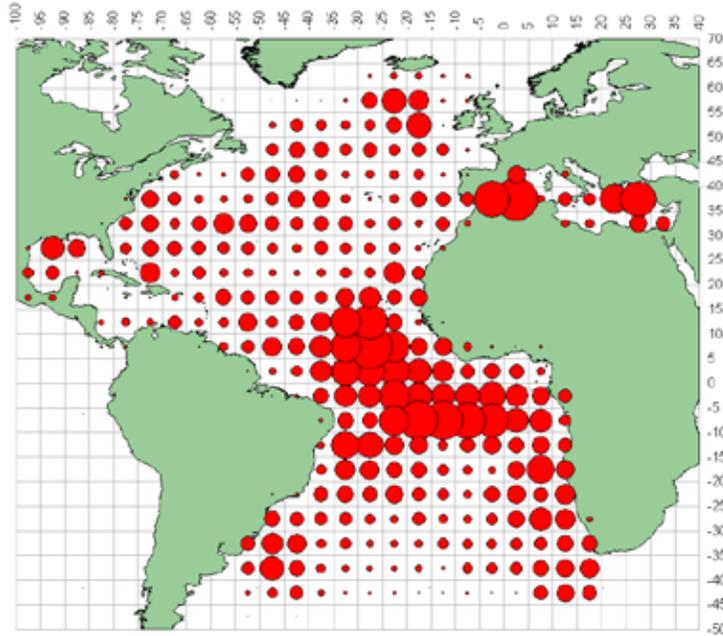


Figure 4.5 Aggregate Distribution of Hooks Deployed by All ICCAT Parties 2000-2006.
Source: SCRS, 2008.

Scientific observer data are being collected on a range of PLL fleets in the Atlantic and will be increasingly useful in better quantifying total catch, catch composition, and disposition of catch as these observer programs mature. Previously, there was no ICCAT required minimum level of observer coverage specific to PLL fishing. However, in 2010 the U.S. proposal for scientific observers was adopted by ICCAT. One of the requirements is a minimum of 5 percent observer coverage of fishing effort in PLL, purse seine, and bait boat fisheries. Japan is required to have eight percent observer coverage of its vessels fishing for swordfish in the North Atlantic, which are primarily PLL vessels; however, the recommendation is not specific to vessel or gear type. ICCAT recommendation 04-01, a conservation and management recommendation for the bigeye tuna fishery, requires at least five percent observer coverage of PLL vessels over 24 meters participating in that particular fishery. The United States has already implemented a mandatory observer program in the U.S. PLL fishery.

Highly Migratory Species

The U.S. PLL fleet represents a small fraction of the international PLL fleet that competes on the high seas for catches of tunas and swordfish. In recent years, the proportion of U.S. PLL landings of HMS, for the fisheries in which the United States participates, has remained relatively stable in proportion to international landings. Historically, the U.S. fleet has accounted for less than 0.5 percent of the landings of swordfish and tuna from the Atlantic Ocean south of 5° N. Lat. and does not operate at all in the Mediterranean Sea. Tuna and swordfish landings by foreign fleets operating in the tropical Atlantic and Mediterranean are greater than the catches from the north Atlantic area where the U.S. fleet operates. Within the area where the U.S. longline fleet operates, U.S. longline landings still represent a limited fraction of total landings. In recent years (2000-2009), U.S. longline landings have averaged 5.0 percent of total Atlantic longline landings,

ranging from a high of 5.5 percent in 2002 to a low of 4.3 percent in 2001. Table 4.13 contains aggregate longline landings of HMS, other than sharks, for all countries in the Atlantic for the period 2000-2009.

Table 4.13 Estimated International Longline Landings of HMS, Other than Sharks, for All Countries in the Atlantic: 2002-2009 (mt ww). Source: SCRS, 2009; U.S. ICCAT National Reports 2003 – 2010; SCRS, 2010.

	2002	2003	2004	2005	2006	2007	2008	2009
Swordfish (N. Atl + S. Atl)	22,240	21,709	23,891	24,442	24,563	26,507	22,096	23,786
Yellowfin Tuna (W. Atl) ²	11,921	10,166	16,019	14,449	14,249	13,287	13,069	14,992
Bigeye Tuna	46,438	54,466	48,396	38,035	34,182	46,232	41,063	47,932
Bluefin Tuna (W. Atl.) ²	730	186	644	425	565	420	606	366
Albacore Tuna (N. Atl + S. Atl)	27,851	28,325	21,652	19,888	22,963	18,324	15,864	15,326
Skipjack Tuna (W. Atl) ²	349	95	206	207	286	52	50	20
Blue Marlin (N. Atl. + S. Atl.) ³	1,357	1,698	1,397	1,588	1,248	1,828	1,763	1,619
White Marlin (N. Atl. + S. Atl.) ³	751	607	549	547	333	381	342	355
Sailfish (W. Atl.) ⁴	1,272	876	754	1,065	651	692	984	952
Total International Longline Landings (from SCRS, 2010)	112,909	118,128	113,508	100,646	99,040	107,723	95,837	105,348
Total U.S. Longline Landings (from 2003- 2010 U.S. Natl. Reports)⁵	6,194	5,509	5,638	4,918	5,032	5,809	4,695	5,413
U.S. Longline Landings as a Percent of Total International Longline Landings	5.5%	4.7 %	5.0 %	4.9 %	5.1 %	5.4 %	4.9 %	5.1%

¹Landings include those classified by the SCRS as longline landings.

²Note that the United States has not reported participation in the E. Atl yellowfin tuna fishery since 1983 and has not participated in the E. Atl bluefin or the E. Atl skipjack tuna fishery since 1982.

³Includes U.S. *dead discards* and *Brazilian live discards*.

⁴Includes U.S. *dead discards*.

⁵Includes swordfish, blue marlin, white marlin, and sailfish longline discards.

Atlantic Sharks

Stock assessments and data collection for international shark fisheries have improved in recent years due to increased reporting requirements adopted by ICCAT. Specifically, since 2004, there have been several shark-related Recommendations and Resolutions (e.g., 04-10, 06-10, 07-06, 08-07, and 08-08). Additionally, SCRS has assessed several species of sharks including blue, shortfin mako, and porbeagle sharks. For more information on ICCAT shark actions, see previous SAFE reports and ICCAT webpage (<http://www.iccat.int/en/>).

The most recent catch totals for blue, shortfin mako, and porbeagle sharks are presented in Table 4.14.

Table 4.14 Estimated International Landings of Pelagic Sharks for All Countries in the Atlantic: 2002-2009 (mt ww)¹.
 Source: SCRS, 2010

	2002	2003	2004	2005	2006	2007	2008	2009
Blue Shark (N. Atl + S. Atl + MED)	31,189	34,591	34,750	41,809	39,116	46,126	53,705	54,994
Shortfin Mako (N. Atl + S. Atl + MED)	5,080	7,189	7,104	6,305	6,022	6,714	5,197	5,399
Porbeagle (N. Atl + S. Atl + MED)	848	648	745	571	507	515	606	427
Total International Catches	37,117	42,428	42,599	48,685	45,645	53,355	59,508	60,820
U.S. Blue Shark Catches ¹	68	0	72	68	47	55	138	104
U.S. Shortfin Mako Catches ¹	415	142	411	187	130	223	198	216
U.S. Porbeagle Catches ¹	1	0	1	0	0	0	1	1
Total U.S. Catches¹	484	142	484	255	177	278	337	321
U.S. Catches¹ as a Percent of Total International Catches	1.3 %	0.3 %	1.1 %	0.5 %	0.4 %	0.5 %	0.6 %	0.5%

¹ Includes catches and discards

Sea Turtles

Sea turtle bycatch in the U.S. PLL fishery has decreased significantly in the last decade. From 1999 to 2003, the U.S. PLL fleet targeting HMS interacted with an average of 772 loggerhead and 1,013 leatherback sea turtles per year, based on observed takes and total reported effort. In 2004, the U.S. PLL fleet was estimated to have interacted with 734 loggerhead and 1,359 leatherback sea turtles (Garrison, 2005). The numbers have been reduced recently and in 2009, the U.S PLL fishery was estimated to have interacted with 243 loggerhead sea turtles and 286 leatherback sea turtles (Garrison and Stokes, 2010) (Table 4.7 and Table 4.8).

Although ICCAT adopted a resolution in 2003 (03-11) encouraging contracting parties, cooperating non-contracting parties, entities, or fishing entities to collect and provide the SCRS with all available information on sea turtle interactions in ICCAT fisheries, an exact assessment of basin-wide incidental catches is not available. However, high numbers of estimated sea turtle catches in foreign fleets have been described in other sources. Lewison, *et al.* (2004) estimated that a total of 210,000 – 280,000 loggerhead and 30,250 – 70,000 leatherback sea turtles were captured by pelagic longline fisheries each year throughout the Atlantic basin, including the Mediterranean Sea. More recently, a report by Lewison and Crowder (2007) indicates that applying bycatch rates to accurately estimate the number of turtles taken internationally by pelagic longline fleets is challenging because high variability in bycatch rates within and among fleets constrains the estimation. The report states that international sea turtle bycatch estimates are important, but given the high level of uncertainty, any precision beyond one or two significant digits is questionable. Given this caveat, Lewison and Crowder (2007) estimated that total annual sea turtle bycatch (all species) for pelagic longlines throughout the Atlantic basin, including the Mediterranean Sea, ranged from 28,180 to 39,080 interactions, which represents a notable decrease from 2004 estimates. The study suggested that pelagic longlines may not be the highest source of fishery-induced mortality but, because the gear interacts with older age classes, efforts to reduce sea turtle bycatch are warranted.

In 2010, ICCAT adopted a recommendation that requires CPCs to collect and annually report to the Commission, information on interactions of its fleet with sea turtles by gear type. Furthermore, CPCs fishing with PLL must carry on-board, safe handling and release equipment and be trained in safe-handling and release techniques.

Mortality in the domestic PLL fisheries is just one of several factors affecting sea turtle populations in the Atlantic (National Research Council, 1990). Many sources of anthropogenic mortality are outside of U.S. jurisdiction and control. Nevertheless, NMFS works to reduce sea turtle bycatch in domestic and international fisheries through collaborative research programs and coordinated education and recovery efforts in partnership with Regional Fishery Management Organizations (RFMOs) and other international bodies, governments, universities, private institutions, and local communities in relevant areas throughout the world. Among these activities, NMFS conducts joint research and holds workshops for fishers and fisheries managers on sea

turtle handling, release, and resuscitation methods; sea turtle biology and species identification; and measures to mitigate sea turtle interactions.

In recent years, NMFS funded and/or held numerous workshops or training sessions and cooperative research initiatives to promote the protection and conservation of sea turtles in the Atlantic Ocean, including:

Training/Workshops

- Workshops on the use of circle hooks, dehookers and line cutters in artisanal and industrial longline fisheries in Morocco, in cooperation with the Universite Abdelmalek Essaadi, Department of Biology. Because Morocco's drift gill net fishery is changing to pelagic longline fishing, these were designed to teach techniques with sea turtle mitigation gear and circle hooks to ensure both the viability of the new fishery as well as protection for endangered and threatened sea turtles
- Provision of laminated cards with sea turtle ID and handling guidelines and a sea turtle safe handling video to numerous countries, including Brazil, Spain, Mexico, Uruguay, Italy, Costa Rica, and Indonesia (the guidelines have been translated into Spanish and Vietnamese)
- Training for Korean and Japanese representatives in sea turtle handling protocols used by NOAA Fisheries observers

Cooperative Research

- A 2006 leatherback turtle research program in the Dominican Republic
- Cooperative research with Spain concerning loggerhead turtles hooked with longline hooks in the Azores
- Participation in a European technical meeting in June 2008 concerning bycatch in fisheries in the Canary Islands
- Work with Spanish field trials assisting with tests of bait type with regard to sea turtle capture rates, including planned future work to test circle hooks in a Spanish swordfish fishery
- Assistance for research to reduce sea turtle bycatch in longline fisheries, coordinating field trials in Brazil, Uruguay, and Italy, including provision of satellite tags to Brazilian and Uruguayan longline observers to investigate the post-hooking survivorship of turtles after their release from fishing gear
- Work with Korean fisheries scientists on statistical analysis of data gained from bycatch reduction experiments
- Collaboration with World Wildlife Fund to test the use of circle hooks in both tuna and swordfish-directed fisheries in Italy.

Working with the Department of State, NMFS has also conducted several programs involving technology transfer and training for the protection and conservation of Atlantic sea turtles, including:

- Transfer of sea turtle mitigation technology to Spain, Canada, Mexico, Italy, Uruguay, and Venezuela

- Provision of hooks designed to reduce sea turtle bycatch throughout Latin America

Many other outreach, education, and research projects have been conducted and/or funded by NMFS regarding sea turtle bycatch reduction in the Pacific Ocean.

4.2 Purse Seine

4.2.1 Current Management

Purse seine gear consists of a floated and weighted encircling net that is closed by means of a drawstring, known as a purseline, threaded through rings attached to the bottom of the net. The efficiency of this gear can be enhanced by the assistance of spotter planes used to locate schools of tuna. Once a school is spotted, the vessel, with the aid of a smaller skiff, intercepts and uses the large net to encircle it. Once encircled, the purseline is pulled, closing the bottom of the net and preventing escape. The net is hauled back onboard using a powerblock, and the tunas are removed and placed onboard the larger vessel. Economic and social aspects of the fisheries are described in Chapter 5.0 of this report.

A number of purse seine vessels targeted and landed bluefin off the coast of Gloucester, Massachusetts as early as the 1930s and purse seine vessels have participated in the U.S. Atlantic tuna fishery continuously since the 1950s. In 1958, continued commercial purse seining effort for Atlantic tunas began with a single vessel in Cape Cod Bay, Massachusetts and expanded rapidly into the mid-Atlantic region between Cape Hatteras and Cape Cod during the early 1960s. The purse seine fishery between Cape Hatteras and Cape Cod was directed mainly at small and medium bluefin, yellowfin, and skipjack tuna primarily for the canning industry. North of Cape Cod, purse seining was directed at giant bluefin. High catches of juvenile bluefin were sustained throughout the 1960s and into the early 1970s. These high catch rates by U.S. purse seine vessels are believed to have played a role in the decline in abundance during subsequent years.

A limited entry system with non-transferable individual vessel quotas (IVQs) for purse seining was established in 1982, effectively excluding any new entrants into this category. Equal baseline quotas of bluefin are assigned to individual vessels by regulation; the IVQ system is possible given the small pool of ownership in this sector of the fishery, *i.e.*, five qualified participants. In 1996, the quotas were made transferable among the five entities provided they notified NMFS in writing. The 1999 Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (1999 FMP) and its implementing regulations established BFT baseline percentage quota shares for each of the domestic fishing categories. These percentage shares were based on allocation procedures that NMFS developed over several years. The baseline percentage quota shares established in the 1999 FMP were carried forward in the 2006 Consolidated HMS FMP (effective since June 1, 1999) and set the Purse Seine category allocation at 18.6 percent of the U.S. Total Allowable Catch (TAC).

Vessels participating in the Atlantic tunas purse seine fishery are required to target the larger size class bluefin, more specifically the giant size class (81 inches or larger) and are granted a tolerance limit for large medium size class bluefin (73 to less than 81 inches); *i.e.*, large medium catch may not exceed 15 percent by weight of the total amount of giant bluefin landed during a season. These vessels may commence fishing starting on July 15 of each year and may continue through December 31, provided the vessel has not fully attained its IVQ. Over the last few years, the Purse Seine category has not fully harvested its allocated quota. Figure 4.6 compares the BFT allocations listed in the 2006 Consolidated HMS FMP, originally established in the 1999 FMP, to the 2009 landings; these pie charts clearly depict the lack of Purse seine landings last year. This can be attributed to a number of different reasons outside of the industry’s or NMFS’ control, such as lack of availability, schools of mixed size classes, high operating costs, vessel sales, etc. NMFS has issued several exempted fishing permits to this sector of the fishery (to assist in archival tagging of bluefin and other research projects) and will continue to assess current regulations and their impact on providing reasonable opportunities to harvest available quota.

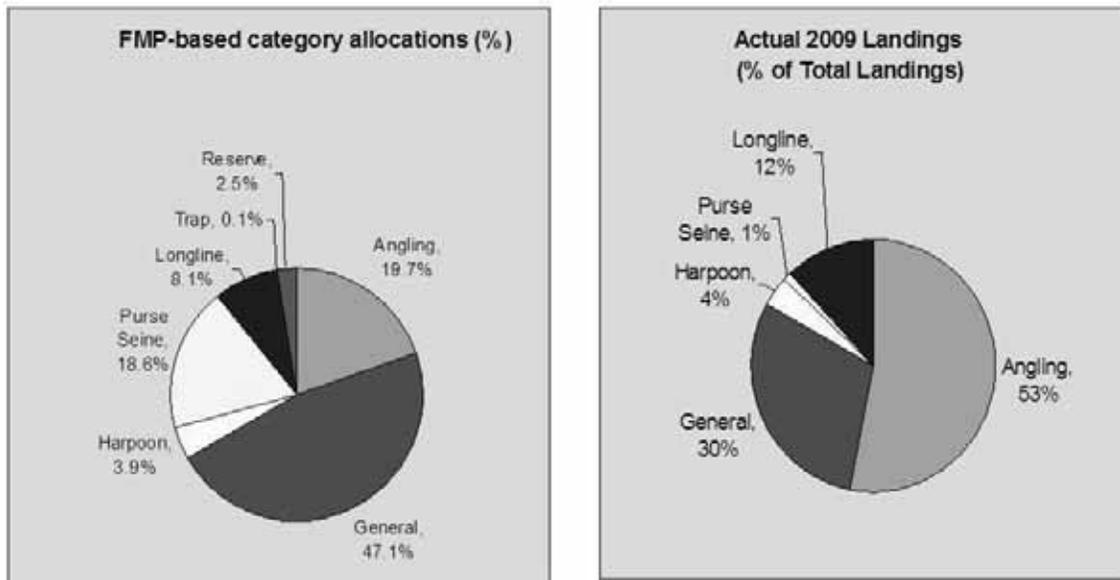


Figure 4.6 2006 Consolidated HMS FMP BFT quota allocation vs. actual BFT landings (2009). Source: NMFS Commercial BFT Landings Database; NMFS, 2006; and NMFS, 1999.

4.2.2 Recent Catch and Landings

Table 4.15 shows purse seine landings of Atlantic tunas from 2002 through 2009. Purse seine landings historically have made up approximately 20 percent of the total annual U.S. landings of bluefin (about 25 percent of total commercial landings), but recently only account for a small percentage (See Figure 4.6). In the 1980s and early 1990s, purse seine landings of yellowfin tuna were often over several hundred metric tons. Over 4,000 mt ww of yellowfin were recorded landed in 1985. Over the past 15

years, via informal agreements with other sectors of the tuna industry, the purse seine fleet has opted not to direct any effort on HMS other than bluefin.

Table 4.15 Domestic Atlantic Tuna Landings for the Purse Seine Fishery: 2002-2009 (mt ww). Northwest Atlantic Fishing Area. Source: U.S. National Report to ICCAT: 2010.

Species	2002	2003	2004	2005	2006	2007	2008	2009
Bluefin Tuna	207.7	265.4	31.8	178.3	3.6	27.9	0	11.4

4.2.3 International Issues and Catch

The U.S. purse seine fleet has historically accounted for a small percentage of the total international Atlantic tuna landings. Table 4.16 shows that over the past 10 years, the U.S. purse seine fishery has contributed to less than 0.15 percent of the total purse seine landings reported to ICCAT. In recent years, ICCAT has not taken any action that affects the U.S. purse seine fleet.

Table 4.16 Estimated International Purse Seine Atlantic Tuna Landings in the Atlantic and Mediterranean: 2002-2009 (mt ww). Source: SCRS, 2010.

Species	2002	2003	2004	2005	2006	2007	2008	2009
Bluefin Tuna	18,748	17,922	19,895	23,524	20,356	22,980	12,641	9,479
Yellowfin Tuna	97,538	82,088	62,228	61,410	62,761	52,733	70,047	77,757
Skipjack Tuna	68,935	92,347	93,284	89,704	71,215	81,335	73,080	84,494
Bigeye Tuna	20,894	22,731	18,417	18,595	16,457	17,553	15,536	22,658
Albacore	158	998	717	949	3432	1289	169	259
Total	206,273	216,086	194,541	194,182	174,221	175,890	171,473	194,659
U.S. Total	208	265	32	178	4	28	0	11
U.S. Percentage	0.10%	0.12%	0.02%	0.09%	<0.01%	0.02%	0%	<0.01%

4.3 Commercial Handgear

4.3.1 Current Management

Commercial handgears, including handline, harpoon, rod and reel, buoy gear and bandit gear, are used to fish for Atlantic HMS by fishermen on private vessels, charter vessels, and headboat vessels. Rod and reel gear may be deployed from a vessel that is at anchor, drifting, or underway (*i.e.*, trolling). In general, trolling consists of dragging baits or lures through, on top of, or even above the water's surface. While trolling, vessels often use outriggers to assist in spreading out or elevating baits or lures and to prevent fishing lines from tangling. Buoy-gear is discussed in detail in Section 4.7.

The handgear fisheries for all HMS are typically most active during the summer and fall although in the South Atlantic and Gulf of Mexico fishing occurs during the winter months. Fishing usually takes place between eight and two hundred km from shore and for those vessels using bait, the baitfish typically includes herring, mackerel, whiting, mullet, menhaden, ballyhoo, butterfish, and squid. The commercial handgear fishery for bluefin occurs mainly in New England, and more recently off the coast of southern Atlantic states, such as Virginia, North Carolina, and South Carolina, with vessels targeting large medium and giant bluefin. Figure 4.7 shows BFT commercial landings, which are predominately handgear landings, in metric tons by geographic region. The majority of U.S. commercial handgear fishing activities for bigeye, albacore, yellowfin, and skipjack tunas take place in the northwest Atlantic. Beyond these general patterns, the availability of Atlantic tunas at a specific location and time is highly dependent on environmental variables that fluctuate from year to year.

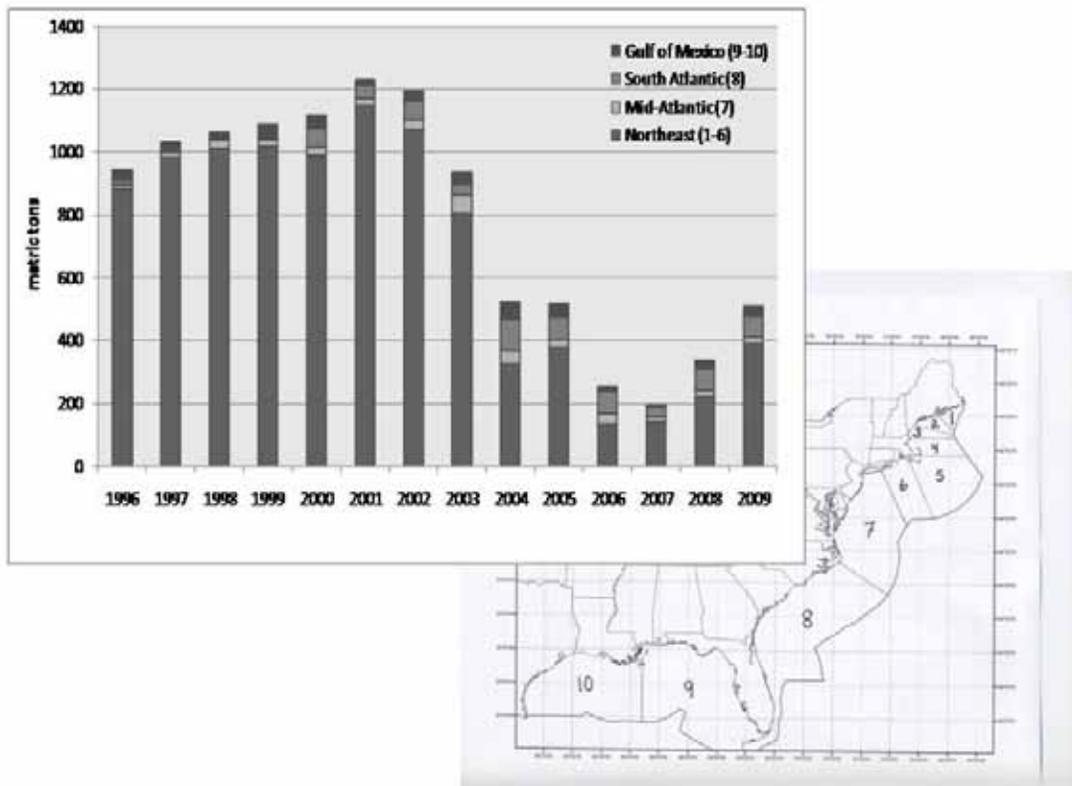


Figure 4.7 Commercial BFT landings by geographic area (1996 – 2009).
 Source: NMFS Commercial BFT Landings Database.

Currently, the U.S. Atlantic tuna commercial handgear fisheries are managed through an open access vessel permit program. Vessels that wish to sell their Atlantic tunas must obtain a permit in one of the following categories: General (handgears include rod and reel, harpoon, handline, bandit gear, and green-stick), Harpoon (harpoon only), or Charter/Headboat (rod and reel, handline, bandit gear, and green-stick). These vessels may also need permits from the states they operate from in order to land and sell their catch. All commercial permit holders are encouraged to check with their local state fish/natural resource management agency regarding these requirements. Permitted vessels are required to sell Atlantic tunas only to federally permitted Atlantic tuna dealers. Because the Atlantic tunas dealer permits are issued by the Northeast Region Permit Office, vessel owner/operators are encouraged to contact the permitting office directly, either by phone at (978) 281-9438 or via the web at <http://www.nero.noaa.gov/ro/doc/vesdata1.htm>, to obtain a list of permitted dealers in their area.

Vessels that are permitted in the General and Charter/Headboat categories commercially fish under the General category rules and regulations. For instance, regarding bluefin, vessels that possess either of the two permits mentioned above have the ability to retain a daily bag limit of one to three bluefin (depending on the current

retention limit authorized), measuring 73 inches or greater curved fork length per vessel per day while the General category bluefin fishery is open. The General category bluefin fishery opens on January 1 of each year and remains open until January 31. The fishery reopens on June 1 and remains open until December 31, or until the quota is filled. Vessel owner/operators should check with the agency via internet (<http://www.hmspermits.com>) or telephone information lines (888-872-8862) to verify the bluefin retention limit on any given day. The General category receives approximately 47 percent of the U.S. bluefin quota.

Vessels that are permitted in the Harpoon category fish under the Harpoon category rules and regulations. For instance, regarding bluefin, vessels have the ability to keep two bluefin measuring 73 inches to less than 81 inches curved fork length per vessel trip per day while the fishery is open. There is no limit on the number of bluefin that can be retained measuring longer than 81 inches curved fork length, as long as the Harpoon category season is open. The Harpoon category season also opens on June 1 of each year and remains open until November 15, or until the quota is filled. The Harpoon category bluefin quota is approximately 3.9 percent of the U.S. quota.

U.S. commercial swordfish fishing in the Atlantic Ocean is reported to have begun in the early 1800s as a harpoon fishery off the coast of New England. This fishery traditionally consisted of harpoon vessels operating out of Rhode Island and Massachusetts where they took extended trips for swordfish north and east of Hudson Canyon and particularly off Georges Bank and could land as many as 20 to 25 large swordfish over a ten-day period. These fish primarily consisted of large fish that finned on the surface and were available to the harpoon gear, some weighing as much as 600 lbs dw, but averaging about 225 to 300 lbs dw at the turn of the century. Because of the limited effort directed towards large fish, the stock was sufficient to support a sustainable seasonal swordfish fishery for more than 150 years. Most swordfish caught in the United States in the early 1900s were harvested with harpoon. Harpoon landings declined from the 1940s through the 1960s. Due to a decreased availability of the large swordfish in the northeast this fishery has essentially ceased to exist. However, in recent years, a new commercial swordfish fishery utilizing handgear, especially buoy-gear, has developed off the east coast of Florida. For information regarding the commercial buoy gear fishery, refer to Section 4.7.

The shark commercial handgear fishery plays a very minor role in contributing to the overall shark landing statistics. For further information regarding the shark fishery, refer to Sections 4.5 and 4.6. Economic and social aspects of all the domestic handgear fisheries are described later in this document (Chapter 5.0).

4.3.2 Recent Catch and Landings

The proportion of domestic HMS landings harvested with handgear varies by species, with Atlantic tunas comprising the majority of commercial landings. Commercial handgear landings of all Atlantic HMS (other than sharks) in the United States are shown in and Table 4.17.

In 2009, bluefin commercial handgear landings accounted for approximately 24 percent of the total U.S. bluefin landings, and almost 72 percent of commercial bluefin landings. Figure 4.8 shows the U.S. Atlantic BFT landings in metric tons by category since 1996. Note that the commercial handgear landings are comprised of BFT landed by both the General and Harpoon categories.

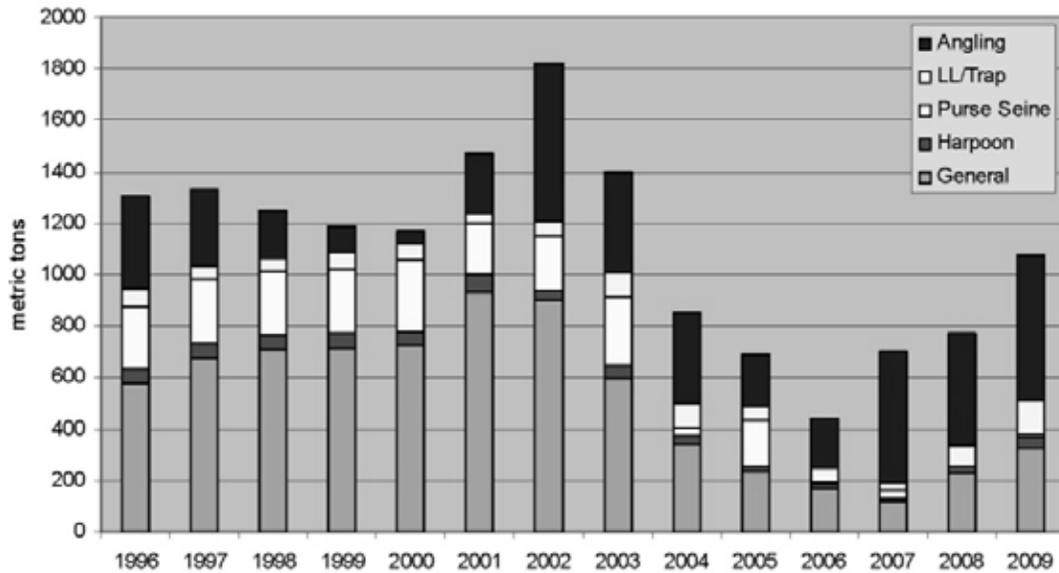


Figure 4.8 Landings of BFT by category (1996 – 2009) Source: NMFS Commercial BFT Landings Database.

Also in 2009, one percent of the total yellowfin catch, or three percent of the commercial yellowfin catch, was attributable to commercial handgear. Commercial handgear landings of skipjack tuna accounted for approximately 10 percent of total skipjack landings, or about 68 percent of commercial skipjack landings. For albacore, commercial handgear landings accounted for approximately less than one percent of total albacore landings, or about one percent of commercial albacore landings. Commercial handgear landings of bigeye tuna accounted for approximately one percent of total bigeye landings and two percent of total commercial bigeye landings. Updated landings for the commercial handgear fisheries by gear and by area for 2002 – 2009 are presented in the following tables.

Table 4.17 Domestic Atlantic Landings for the Commercial Handgear Fishery, by Species and Gear, for 2002-2009 (mt ww). Source: U.S. National Report to ICCAT: 2010.

Species	Gear	2002	2003	2004	2005	2006	2007	2008	2009
Bluefin Tuna	Rod and Reel	878.5	529.2	353.2	226.6	164.1	120.8	226.6	300.6
	Handline	4.5	2.5	1.5	2.3	0.3	0.0	0.6	0.1
	Harpoon	55.6	87.9	41.2	31.5	30.3	22.5	30.2	65.6
	TOTAL	938.6	619.6	395.9	260.4	194.7	143.3	257.4	366.3
Bigeye Tuna	Troll	0.0	0.0	0.0	0.0	0.0	0.9	0.8	0.6
	Handline	14.4	6.3	3.5	6.3	23.0	16.8	6.9	4.7
	TOTAL	14.4	6.3	3.5	6.3	23.0	17.7	7.7	5.3
Albacore Tuna	Troll	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1
	Handline	6.6	4.3	8.2	4.2	3.1	5.6	0.6	0.5
	TOTAL	6.6	4.3	8.2	4.2	3.1	5.8	0.8	0.6
Yellowfin Tuna	Troll	0.0	0.0	0.0	0.0	0.0	6.9	2.4	5.4
	Handline	244.0	199.7	248.5	160.3	162.8	148.5	45.0	83.6
	TOTAL	244.0	199.7	248.5	160.3	162.8	155.4	47.4	89.0
Skipjack Tuna	Troll	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Handline	12.7	13.1	10.4	11.8	10.2	14.2	16.5	11.8
	TOTAL	12.7	13.1	10.4	11.8	10.2	14.2	16.5	11.8
Swordfish	Handline	11.7	20.6	22.7	34.7	32.6	125.4	84.4	127.1
	Harpoon	2.8	0.0	0.5	0.0	0.3	0.0	0.0	0.1
	TOTAL	14.5	20.6	23.2	34.7	32.9	125.4	84.4	127.2

Table 4.18 Domestic Landings for the Commercial Handgear Fishery by Species and Region for 2000-2009 (mt ww). Source: U.S. National Report to ICCAT: 2010.

Species	Region	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Bluefin Tuna	NW Atl	778.3	1,000.8	938.3	607.3	395.6	260.4	194.7	143.3	257.3	366.3
Bigeye Tuna	NW Atl	4.1	33.2	13.8	6.0	3.3	6.2	21.5	17.7	7.7	5.4
	GOM	0.1	0.5	0.6	0.3	0.2	0.1	1.5	1.2	0.0	0.1
	Caribbean	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Albacore Tuna	NW Atl	2.9	1.7	3.9	1.7	6.1	3.0	2.6	5.6	0.4	0.6
	GOM	0.0	0.0	0.0	≤ .05	0.0	0.1	0.1	0.2	0.0	0.0
	Caribbean	5.0	2.2	2.7	2.6	2.1	1.1	0.4	0.2	0.4	0.0
Yellowfin Tuna	NW Atl	235.7	242.5	137.0	149.1	213.2	105.1	105.1	120.1	32.5	64.1
	GOM	28.6	43.4	100.0	39.9	28.3	45.5	49.9	26.2	11.2	21.6
	Caribbean	19.4	14.3	7.0	10.7	7.0	9.7	7.8	9.1	3.7	3.3
Skipjack Tuna	NW Atl	0.2	0.2	0.2	0.2	0.6	0.9	0.2	0.3	0.4	2.8
	GOM	0.7	0.0	0.0	0.0	0.2	0.0	0.0	0.2	≤ .05	0.2
	Caribbean	8.8	10.3	12.5	12.9	9.6	12.9	10.0	13.7	16.0	8.8
Swordfish	NW Atl	8.3	16.0	11.6	10.8	19.2	34.4	32.8	125.2	83.2	126.3
	GOM	1.2	0.3	2.9	9.8	4.0	0.3	0.1	0.2	1.2	1.0

Handgear Trip Estimates

Table 4.19 displays the estimated number of rod and reel and handline trips targeting large pelagic species, from Maine through Virginia, in 2000 through 2009. The trips include commercial and recreational trips, and are not specific to any particular species. It should be noted that the 2009 estimates are still preliminary and subject to change.

Table 4.19 Estimated number of vessel trips targeting Atlantic large pelagic species, 2002-2009. Source: Large Pelagics Survey database.

Year	AREA							Total
	NH/ME	MA	CT/RI	NY	NJ (north)	NJ (south) + MD/DE	VA	
Private Vessels								
2002	5,090	15,180	2,558	7,692	2,762	22,757	6,524	62,563
2003	4,501	13,411	2,869	12,466	3,214	21,619	5,067	63,147
2004	2,025	10,033	3,491	11,525	3,632	22,433	4,406	57,545
2005	4,607	12,052	7,603	8,051	2,446	19,759	4,631	59,148
2006	3,303	24,951	5,430	11,114	3,043	19,187	5,274	72,302

Year	AREA							Total
	NH/ME	MA	CT/RI	NY	NJ (north)	NJ (south) + MD/DE	VA	
2007	5,929	25,139	6,020	6,809	5,875	17,712	5,012	72,496
2008	3,873	19,157	3,546	7,587	3,099	15,807	3,081	56,150
2009	4,724	27,066	2,670	8,274	3,633	15,458	4,299	66,122
Charter Vessels								
2002	1,132	3,357	937	1,686	1,331	6,300	1,510	16,253
2003	221	2,561	1,246	2,035	1,331	5,201	546	13,141
2004	312	2,021	1,564	2,285	1,094	5,080	1,579	13,935
2005	329	2,397	551	2,033	1,024	3,476	763	10,573
2006	96	1,294	677	1,057	891	3,452	828	8,296
2007	789	4,073	1,141	1,445	1,420	4,579	610	14,057
2008	892	3,295	751	1,525	1,026	4,340	370	12,199
2009	568	4,930	726	1,677	1,142	3,348	534	12,923

4.4 Recreational Handgear

The following section describes the recreational portion of the handgear fishery and is primarily focused upon rod and reel fishing.

4.4.1 Current Management

All Atlantic HMS are also targeted by domestic recreational fishermen using a variety of hand gear including rod and reel gear. Since 2003, an HMS Angling permit has been required to fish recreationally for any HMS-managed species (67 FR 77434, December 18, 2002) and reporting all non-tournament recreational landings of Atlantic marlins, sailfish, and swordfish became mandatory. Additionally, all HMS fishing tournaments are required to register with NMFS at least four weeks prior to the commencement of tournament fishing activities. If selected, tournament operators are required to report the results of their tournament to the NMFS Southeast Fisheries Science Center.

Recreational fishing for Atlantic HMS is managed primarily through the use of minimum size limits and retention limits. Recreational tuna fishing regulations are complex and include a combination of minimum sizes, bag limits, limited season-based quota allotment for bluefin tuna, and reporting requirements (depending upon the particular species and vessel type).

The recreational swordfish fishery is managed through the use of a minimum size limit, trip-based retention limits, and landing requirements (swordfish may be headed and gutted but may not be cut into smaller pieces). For whole (head on) North Atlantic swordfish, the minimum size is 47 in (119 cm) lower jaw fork length (LJFL). If the head or tail of the swordfish has been removed prior to landing, a minimum size of 29 in (73 cm) from cleithrum to caudal keel shall be applied. Recreational anglers may not land

South Atlantic swordfish (south of 5° N latitude). Effective July 9, 2007 (72 FR 31688, June 7, 2007) recreational swordfish retention limits were modified for HMS Angling and Charter/Headboat permit holders. Vessel owners issued an HMS Angling permit may retain one swordfish per person, up to four swordfish per vessel/trip. Vessel owners operating a charter vessel and issued a HMS Charter/Headboat permit may retain one swordfish per paying passenger and up to six swordfish per vessel/trip. Vessel owners operating a headboat vessel and issued a HMS Charter/Headboat permit may retain one swordfish per paying passenger and up to fifteen swordfish per vessel/trip.

The recreational shark fishery is managed using bag limits, minimum size requirements, and landing requirements (sharks must be landed with head and fins naturally attached). Additionally, the possession of 21 species of sharks is prohibited. Recreational fishermen are allowed to keep non-ridgeback large coastal sharks, tiger sharks, pelagic sharks, small coastal sharks, and smoothhound sharks. As of July 24, 2008, recreational fishermen have been prohibited from keeping sandbar or silky sharks.

Atlantic blue and white marlin have a combined annual landings limit (i.e., a maximum of 250 fish that can be landed per year); however, the primary management strategy for the recreational billfish fishery is through the use of minimum size limits. For blue marlin, white marlin, and sailfish, the LJFL minimum sizes are 99 in (251 cm), 66 in (168 cm), and 63 in (160 cm), respectively. There are no recreational retention limits for Atlantic sailfish, blue marlin, and white marlin. On September 22, 2010, NMFS published a rule that added the roundscale spearfish, *Tetrapturus georgii*, to the Atlantic billfish management unit and implemented regulations for this newly recognized species identical to those currently in place for white marlin. Recreational anglers may not land longbill spearfish.

4.4.2 Recent Catch, Landings and Bycatch

The recreational landings database for Atlantic HMS consists of information obtained through surveys including the Marine Recreational Fishery Statistics Survey (MRFSS), Large Pelagic Survey (LPS), Southeast Headboat Survey (HBS), Texas Headboat Survey, Recreational Billfish Survey (RBS) tournament data, and the Recreational non-tournament swordfish and billfish landings database. Descriptions of these surveys, the geographic areas they include, and their limitations, were discussed in Section 2.6.2 of the 1999 FMP and Section 2.3.2 of the 1999 Billfish Amendment.

Historically, fishery survey strategies (including the MRFSS, LPS, and RBS) have not captured all landings of recreationally-caught swordfish. Although some swordfish handgear fishermen have commercial permits¹, many others land swordfish strictly for personal consumption. Therefore, NMFS has implemented regulations to improve recreational swordfish and billfish monitoring and conservation. These regulations stipulate that all non-tournament recreational landings of swordfish and

¹ Access to the commercial swordfish fishery is limited; hand gear fishermen may purchase permits from other permitted fishermen because the permits are transferable.

billfish must be reported by phone at (800) 894-5528 or web portal at <http://www.hmspermits.gov>. All reported recreational swordfish landings are counted against the incidental swordfish quota.

Reported domestic landings of Atlantic bluefin tuna (1983 through 1998) and BAYS tuna (1995 through 1997) were presented in Section 2.2.3 of the 1999 FMP. Updated landings for all recreational rod and reel fisheries are presented below in Table 4.20 from 2002 through 2009. Recreational landings of swordfish are monitored by the LPS, MRFSS, RBS, and mandatory recreational reporting requirements via <http://www.hmspermits.gov>.

The Marine Recreational Information Program, or MRIP, is a new data collection and analysis initiative being implemented by NMFS to help ensure the long-term sustainability of America's fisheries and the health of our oceans. Currently being phased in across the nation, MRIP provides a more comprehensive and detailed picture of the number of trips being taken by recreational anglers, the amount and species of fish they are catching, where and when those fish are being caught, and the economic impact of recreational fishing on local, regional and national economies. Through more timely and accurate fishing data, MRIP provides policy makers the information they need to make sound decisions based on the best science. As a program built on broad and continuing stakeholder input, MRIP also empowers anglers and other ocean enthusiasts to become a part of the resource management, conservation, and economic decision-making processes that impact their lives.

MRIP is a system of coordinated data collection programs designed to address specific regional needs for recreational fishing information. This regional approach based on nationally consistent standards will ensure that the appropriate, targeted, place-based information is being collected to best meet the needs of managers and stakeholders, and that it is being done in a scientifically rigorous way. One MRIP objective is to improve on the information available for the management of HMS. A current project underway is pilot testing specialized data collection approaches for estimating HMS recreational catch and effort in Puerto Rico. Recently completed Atlantic HMS projects funded through MRIP include:

- Characterization of Rod and Reel HMS Fisheries in the South Atlantic and Gulf of Mexico
- Florida HMS Private Angler Telephone Survey
- HMS For-Hire Survey – Florida Pilot Study
- Evaluation of the Sampling Distribution of Tournament Versus Non-tournament Trips in the Large Pelagics Survey

Table 4.20 Updated Domestic Landings for the Atlantic Tunas, Swordfish and Billfish Recreational Rod and Reel Fishery, 2002-2009 (mt ww)*. Sources: NMFS, 2005; NMFS, 2006; NMFS, 2007; NMFS, 2009, NMFS, 2010. (Recreational shark landings are in Table 4)

Species	Region	2002	2003	2004	2005	2006	2007	2008	2009
Bluefin Tuna**	NW Atlantic	519.3	314.6	370.2	254.4	158.2	398.6	352.2	143.3
	GOM	1.5	0.0	0.0	0.0	0.6	0.0	0.0	0.0
	Total	520.8	314.6	370.2	254.4	158.8	398.6	352.2	143.3
Bigeye tuna**	NW Atlantic	49.6	188.5	94.6	165.0	422.3	126.8	70.9	77.6
	GOM	0.0	0.0	6	0.0	24.3	0.0	0.0	0.0
	Caribbean	0.0	4.0	<0.1	0.0	0.0	0.0	0.0	0.0
	Total	49.6	192.5	100.6	165.0	446.6	126.8	70.9	77.6
Albacore**	NW Atlantic	323.0	333.8	500.5	356.0	284.2	393.6	125.2	22.8
	GOM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total	323.0	333.8	500.5	356.0	284.2	393.6	125.2	22.8
Yellowfin tuna**	NW Atlantic	2,624.0	4,672.1	3,433.7	3,504.8	4,649.2	2,726.0	657.1	742.6
	GOM	200.0	640.0	247.1	146.9	258.4	227.6	366.3	264.7
	Caribbean	7.2	16.0	0.0	0.0	0.0	12.4	0.0	3.5
	Total	2,831.2	5,328.0	3,684.8	3,651.7	4,907.6	2,966.0	1,023.4	1010.8
Skipjack tuna**	NW Atlantic	23.3	34.1	27.3	8.1	34.6	27.4	21.0	75.7
	GOM	13.2	11.1	6.3	3.1	6.4	23.9	16.3	22.0
	Caribbean	13.2	15.7	40.4	3.9	7.7	0.2	11.3	4.3
	Total	49.7	60.9	74.0	15.1	48.7	51.5	48.6	102

Species	Region	2002	2003	2004	2005	2006	2007	2008	2009
Blue marlin***	NW Atlantic	-	-	-	-	-	-	-	-
	GOM	-	-	-	-	-	-	-	-
	Caribbean	-	-	-	-	-	-	-	-
	Total	84	96	110	64	72	46	59	44
White marlin ***	NW Atlantic	-	-	-	-	-	-	-	-
	GOM	-	-	-	-	-	-	-	-
	Caribbean	-	-	-	-	-	-	-	-
	Total	33	20	25	26	36	31	59	53
Sailfish***	NW Atlantic	-	-	-	-	-	-	-	-
	GOM	-	-	-	-	-	-	-	-
	Caribbean	-	-	-	-	-	-	-	-
	Total	14	24	9	3	4	1	-	-
Swordfish	Total	21.5	6.1	25.2	61.2	52.7	68.2	75.7	31.6

* Rod and reel catches and landings for Atlantic tunas represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector.

** Rod and reel catch and landings estimates of bluefin tuna less than 73 in curved fork length (CFL) based on statistical surveys of the U.S. recreational harvesting sector. Rod and reel catch of bluefin > 73 in CFL are commercial and may also include a few metric tons of "trophy" bluefin (recreational bluefin 73 in).

*** Blue marlin, white marlin, and sailfish landings are based on prior U.S. National Reports to ICCAT and consist primarily of reported tournament landings.

Atlantic Billfish Recreational Fishery

Due to the rare nature of billfish encounters and the difficulty of monitoring landings outside of tournament events, reports of recreational billfish landings are sparse; however, the RBS provides a preliminary source for analyzing recreational billfish tournament landings. Table 4.21 documents the number of billfish reported to the RBS that were landed in tournaments from 2002 – 2010.

Table 4.21. Preliminary RBS Recreational Billfish Landings in Numbers of Fish 2002-2010. Source: NMFS Recreational Billfish Survey (RBS).

Species	2002	2003	2004	2005	2006	2007	2008	2009	2010*
Blue Marlin	84	96	110	64	72	46	44	35	12
White Marlin	33	20	25	26	36	31	47	46	32
Roundscale Spearfish	N/A	5	10						
Sailfish	14	24	9	3	4	1	-	-	3
Swordfish	16	48	168	385	207	274	114	85	38

*Data as of October 2010

All recreational, non-tournament landings of billfish, including swordfish, are required to be reported to NMFS within 24 hours of landing by the permitted owner of the vessel landing the fish. This requirement is applicable to all permit holders, both private and charter/headboat vessels, not fishing in a tournament. In Maryland and North Carolina, vessel owners are required to report their billfish landings at state-operated landings stations. A landed fish means a fish that is kept and brought to shore. Table 4.22 provides a summary of non-tournament billfish landings since 2004. However, due to potential large-scale non-compliance with the non-tournament reporting requirement, the landings in Table 4.22 are considered to be a minimum estimate of non-tournament billfish landings.

Table 4.22. Number of Atlantic billfish reported to NMFS via call-in system by calendar year, 2004-2009. Source: G. Fairclough, pers. comm.

Species	2004	2005	2006	2007	2008	2009	2010*
Blue Marlin	2	4	2	5	7	5	3
White Marlin	0	1	1	4	4	6	5
Sailfish	35	61	58	101	143	140	123
Swordfish	290	388	549	716	369	389	240

* 2010 landings as of November. 3, 2010

Swordfish Recreational Fishery

Table 4.21 shows recreational tournament-caught swordfish landings reported to the RBS from 2002 – 2010. Table 4.22 shows the number of billfish (including swordfish) reported to the NMFS recreational non-tournament reporting system from 2004 – 2010.

The recreational North Atlantic swordfish fishery declined dramatically from about 1980 through 1999, due to decreased stock abundance, but has grown rapidly since 2003 as stock abundance has increased off the east coast of Florida and in the Mid-Atlantic Bight. In the past, the New York recreational swordfish fishery occurred incidentally to overnight yellowfin tuna trips. During the day, fishermen targeted tunas, while at night they fished deeper for swordfish. This appears to have evolved into a year-round directed swordfish fishery off the east coast of Florida and a summer fishery off the coasts of New Jersey and New York. Fish have also been reported from Maryland, Virginia, Texas, Louisiana, South Carolina, and Rhode Island.

The Florida fishery has primarily occurred at night with fishermen targeting swordfish while drift fishing live or dead bait and using additional attractants such as lightsticks, LED lights, and light bars suspended under the boat. Notably, Florida recreational fishermen have recently begun targeting swordfish by fishing on the ocean bottom during the daytime in depths exceeding 1,600 ft. In general, swordfish captured using this method are larger than those captured during nighttime drift fishing. These fishermen use specialized gear including braided lines, high capacity reels (with electric or manual retrieve), heavy weights, and heavy duty rods.

Shark Recreational Fishery

Recreational landings of sharks are an important component of HMS fisheries. Recreational shark fishing with rod and reel is a popular sport at all social and economic levels. Depending upon the species, sharks can be caught virtually anywhere in salt water. Recreational shark fisheries often occur in nearshore waters accessible to private vessels and charter/headboats; however, shore-based and offshore fishing also occur. The following tables provide a summary of landings for each of the three species groups. Since 2003, the recreational fishery has been limited to rod and reel and handline gear only. Similar state regulations along the Atlantic seaboard are being implemented through an Atlantic States Marine Fisheries Commission (ASMFC) interstate fishery management plan.

Table 4.23. Estimates of Total Recreational Harvest of Atlantic Sharks: 2002-2009 (numbers of fish in thousands). Source: Cortés and Neer 2005, Cortés, pers. comm. Estimates include prohibited species.

Species Group	2002	2003	2004	2005	2006	2007	2008	2009
LCS	80.6	89.0	67.4	85.0	59.1	68.8	45.0	63.7
Pelagic	4.7	4.3	5.0	5.4	16.5	9.0	2.8	7.8
SCS	152.5	134.3	127.0	118.9	117.2	167.6	107.9	100.0
Unclassified	5.4	18.4	28.5	47.6	7.5	23.9	6.1	15.1

Table 4.24. Recreational Harvest of Atlantic LCS by Species, in number of fish: 2002-2009. Sources: Cortés and Neer 2005, Cortés, pers. comm.

LCS Species	2002	2003	2004	2005	2006	2007	2008	2009
Basking**	0	0	0	0	0	0	0	0
Bignose*	0	0	17	0	0	55	0	0
Bigeye sand tiger**	0	0	0	0	0	0	0	0
Blacktip	39,126	40,044	30,885	43,408	31,038	28,864	13,318	12,921
Bull	1,916	3,743	5,186	1,561	4,262	5,849	1,735	6,441
Caribbean reef*	741	0	652	5	47	0	0	1
Dusky*	1,047	2,777	36	3,040	194	112	2,391	447
Galapagos*	0	0	0	0	0	0	0	0
Hammerhead, great	4	47	9	55	98	786	13	13
Hammerhead, scalloped	996	2,921	879	5,021	458	1,726	119	1,603
Hammerhead, smooth	2	1	0	0	2	0	0	0
Hammerhead, unclassified	5,247	0	0	2,676	1,099	807	0	0
Lemon	4,921	4,916	5,578	510	1,145	3	818	597
Night*	0	0	0	15	1	2	0	22
Nurse	2,562	563	3,463	2,341	1,553	334	268	822
Sandbar***	8,301	5,151	3,724	2,798	821	7,060	5,801	4,908
Sand tiger**	0	0	0	0	1,040	0	0	0
Silky***	1,795	1,870	399	3,576	2,108	1,973	1,226	782
Spinner	3,997	4,864	4,041	3,269	2,281	6,547	3,824	3,124
Tiger	126	110	1	1,321	1,309	1,815	1,418	4
Whale**	0	0	0	0	0	0	0	0
White**	0	0	0	0	0	0	0	0
Requiem shark unclassified	9,815	22,020	12,488	15,423	11,652	12,837	11,519	32,024
Total:	80,596	89,027	67,359	85,019	59,108	68,770	45,010	63,709

*indicates species that were prohibited in the recreational fishery as of July 1, 1999.

** indicates species that were prohibited as of April 1997.

*** indicates species that were prohibited as of July 2008.

Table 4.25. Recreational Harvest of Atlantic Pelagic Sharks by Species, in number of fish: 2002-2009. Sources: Cortés and Neer 2005, Cortés, pers. comm.

Pelagic Shark Species	2002	2003	2004	2005	2006	2007	2008	2009
Bigeye thresher*	65	0	0	0	42	0	0	0
Bigeye sixgill*	0	0	0	0	0	0	0	0
Blue Shark	0	376	0	31	980	1,622	117	0
Mako, longfin*	0	0	0	0	0	0	0	0
Mako, shortfin	3,206	3,906	5,052	3,857	3,352	2,556	1,904	4,991
Mako, unclassified	0	0	0	0	0	0	0	9
Oceanic whitetip	0	0	0	0	0	0	0	0
Porbeagle	0	0	0	0	0	0	0	0
Sevengill*	0	0	0	0	0	0	0	0

Pelagic Shark Species	2002	2003	2004	2005	2006	2007	2008	2009
Sixgill*	0	0	0	0	0	0	0	0
Thresher	1,467	0	0	1,504	12,171	4,822	755	2,768
Total:	4,673	4,282	5,052	5,392	16,545	9,000	2,776	7,759

* indicates species that were prohibited in the recreational fishery as of July 1, 1999.

Table 4.26. Recreational Harvest of Atlantic SCS by Species, in number of fish: 2002-2009. Sources: Cortés and Neer 2005, Cortés, pers. comm.

SCS Species	2002	2003	2004	2005	2006	2007	2008	2009
Atlantic angel*	0	0	0	0	0	0	0	0
Blacknose	11,390	6,615	15,101	7,101	9,914	9,177	3,718	5,845
Bonnethead	51,667	41,314	42,429	32,227	24,885	42,444	22,973	27,689
Finetooth	3,159	1,788	366	3,129	572	4,048	2,308	733
Sharpnose, Atlantic	86,259	84,626	69,067	76,347	81,817	111,967	78,885	65,709
Sharpnose, Caribbean*	0	0	0	0	0	0	0	0
Smalltail*	0	0	67	71	0	0	0	0
Total:	152,475	134,343	127,030	118,875	117,188	167,636	107,884	99,976

*indicates species that were prohibited in the recreational fishery as of July 1, 1999.

Bycatch Issues

Bycatch in the recreational rod and reel fishery is difficult to quantify because many fishermen simply value the experience of fishing and may not be targeting a particular pelagic species. Recreational “marlin” or “tuna” trips may yield dolphin, tuna, wahoo, and other species, both undersized and legal sized. Bluefin tuna trips may yield undersized bluefin, or a seasonal closure may prevent landing of a bluefin tuna above a minimum or maximum size. Sharks may be discarded because they are a prohibited species or undersized. In these and similar cases, rod and reel catch may be discarded and the fish may be live or dead. The Magnuson-Stevens Act (16 USC 1802 MSA § 3 (2)) specifies that fish released under a recreational catch-and-release program are not considered bycatch.

The 1999 Billfish Amendment established a catch-and-release fishery management program for the recreational Atlantic billfish fishery. As a result of this program, all Atlantic billfish that are released alive, regardless of size, are not considered bycatch. NMFS believes that establishing a catch-and-release fishery in this situation solidifies the existing catch-and-release ethic of recreational billfish fishermen, and thereby increases release rates of billfish caught in this fishery. Current billfish release rates range from 89 to 99 percent. The recreational white shark fishery is by regulation a catch-and-release fishery only, and white sharks are not considered bycatch.

Bycatch can result in death or injury to discarded fish. Therefore, bycatch mortality is incorporated into fish stock assessments, and into the evaluation of management measures. Rod and reel discard estimates from Virginia to Maine during June – October could be monitored

through the expansion of survey data derived from the LPS (dockside and telephone surveys). However, the actual numbers of fish discarded for many species are so low that presenting the data by area could be misleading, particularly if the estimates are expanded for unreported effort in the future. The number of kept and released fish reported or observed through the LPS dockside intercepts for 2001 – 2009 is presented in Table 4.27.

An outreach program to address bycatch and to educate anglers on the benefits of circle hooks has been implemented by NMFS. One of the key elements of the outreach program is to provide information that leads to an improvement in post-release survival from recreational gear by encouraging recreational anglers to use circle hooks. Implementation of this outreach program began in 2007 with the distribution of DVDs to tournament operators showing the proper rigging and deployment of circle hooks with natural baits. This outreach program is anticipated to be expanded by NMFS in future years. Also, a final rule to require the mandatory use of circle hooks when fishing with natural baits and natural/artificial bait combinations in Atlantic, Gulf of Mexico, and U.S. Caribbean billfish tournaments was published in May 2007 (72 FR 26735, May 11, 2007) and became effective on January 1, 2008. As of publication of this report, NMFS has distributed over 9,000 copies of the circle hook DVDs.

4.4.3 Code of Angling Ethics

NMFS developed a Code of Angling Ethics as part of implementing Executive Order 12962 – Recreational Fisheries. NMFS implemented a national plan to support, develop, and implement programs that were designed to enhance public awareness and understanding of marine conservation issues relevant to the wellbeing of fishery resources in the context of marine recreational fishing. This code is consistent with National Standard 9, Minimizing Bycatch and Bycatch Mortality, and is reproduced below. These guidelines are discretionary, not mandatory, and are intended to inform the angling public of NMFS' views regarding what constitutes appropriate angling behavior. Part of the code covers catch-and-release fishing and is directed towards minimizing bycatch mortality.

Code of Angling Ethics

- Promotes, through education and practice, ethical behavior in the use of aquatic resources.
- Values and respects the aquatic environment and all living things in it.
- Avoids spilling, and never dumps any pollutants, such as gasoline and oil, into the aquatic environment.
- Disposes of all trash, including worn-out lines, leaders, and hooks, in appropriate containers, and helps to keep fishing sites litter-free.
- Takes all precautionary measures necessary to prevent the spread of exotic plants and animals, including live baitfish, into non-native habitats.
- Learns and obeys angling and boating regulations, and treats other anglers, boaters, and property owners with courtesy and respect.

- Respects property rights, and never trespasses on private lands or waters.
- Keeps no more fish than needed for consumption, and never wastefully discards fish that are retained.
- Practices conservation by carefully handling and releasing alive all fish that are unwanted or prohibited by regulation, as well as other animals that may become hooked or entangled accidentally. Uses tackle and techniques, which minimize harm to fish when engaging in “catch-and-release” angling.

Table 4.27. Observed or reported number of HMS kept in the rod and reel fishery, Maine through Virginia, 2002-2009. Source: Large Pelagic Survey (LPS) Data.

Species	2002	2003	2004	2005	2006	2007	2008	2009
White marlin ²	8	12	6	5	8	4	13	8
Blue marlin ²	0	4	5	3	2	2	3	3
Sailfish ²	0	0	0	1	0	1	0	0
Swordfish	5	9	9	22	27	42	30	7
Giant bluefin tuna ³	176	58	50	48	15	15	20	46
Large medium bluefin tuna ³	11	11	13	12	1	5	11	0
Small medium bluefin tuna	62	83	30	22	48	69	48	205
Large school bluefin tuna	391	287	291	179	171	298	398	107
School bluefin	556	509	927	638	84	314	228	180
Young school bluefin	7	4	16	25	0	3	4	1
Bigeye tuna	32	21	46	32	35	59	55	58
Yellowfin tuna	2,595	3,216	3,858	3,700	3,572	2,988	1,029	1,886
Skipjack tuna	117	681	197	79	104	34	64	242
Albacore	534	546	1,458	835	542	934	168	67
Thresher shark	20	24	58	45	34	62	59	66
Mako shark	72	141	216	99	111	143	169	159
Sandbar shark	0	9	7	1	1	9	1	1
Dusky shark	1	1	0	0	3	6	1	0
Tiger shark	1	0	0	1	0	1	1	3
Porbeagle	1	0	1	1	1	0	0	0
Blacktip shark	0	1	0	1	1	0	-	-
Atlantic sharpnose shark	0	0	0	0	0	0	-	-
Blue shark	36	65	74	67	61	109	43	54
Hammerhead shark	0	0	1	0	0	0	1	0
Wahoo	49	68	110	112	85	190	172	69

Species	2002	2003	2004	2005	2006	2007	2008	2009
Dolphin	2,509	4,209	3,050	6,366	3,921	2,536	5,739	3,317
King mackerel	36	66	11	376	170	82	67	14
Atlantic bonito	704	315	410	96	262	283	51	138
Little tunny	240	121	231	181	90	195	93	175
Amberjack	7	44	0	2	1	5	31	81
Spanish mackerel	5	35	9	4	1	2	67	9

¹ NMFS typically expands these “raw” data to report discards of bluefin tuna by the rod and reel fishery to ICCAT. If sample sizes are large enough to make reasonable estimates for other species, NMFS may produce estimates for other species in future SAFE reports.

² Amendment One to the Atlantic Billfish FMP established billfish released in the recreational fishery as a “catch-and-release” program, thereby exempting these fish from bycatch considerations.

³ Includes some commercial handgear landings.

Table 4.28. Observed or Reported Number of HMS Released in the Rod and Reel Fishery, Maine through Virginia, 2002-2009. Source: Large Pelagic Survey (LPS) Data.

Species	2002	2003	2004	2005	2006	2007	2008	2009
White marlin ²	215	160	378	397	160	359	454	936
Blue marlin ²	30	39	80	52	42	69	69	60
Sailfish ²	6	6	2	6	3	1	6	69
Swordfish	6	21	22	23	52	40	45	13
Giant bluefin tuna ³	8	0	3	0	3	0	0	0
Large medium bluefin tuna ³	2	0	36	4	1	3	11	7
Small medium bluefin tuna	8	13	21	30	18	32	23	93
Large school bluefin tuna	47	40	107	141	85	99	286	77
School bluefin	200	174	1,297	1,917	290	347	358	173
Young school bluefin	182	10	1,885	282	117	83	55	52
Bigeye tuna	1	3	2	2	2	1	0	13
Yellowfin tuna	328	200	1,093	502	351	171	411	2,038
Skipjack tuna	250	526	362	105	129	17	217	610
Albacore	95	31	66	67	41	40	14	5
Thresher shark	5	8	27	9	15	24	35	23
Mako shark	120	208	350	142	177	190	242	250
Sandbar shark	17	26	68	37	158	168	222	219
Dusky shark	9	44	60	49	73	87	128	152
Tiger shark	3	12	0	6	7	11	20	11
Porbeagle	14	3	1	6	8	2	2	6

Species	2002	2003	2004	2005	2006	2007	2008	2009
Blacktip shark	6	0	1	19	9	31	-	-
Atlantic sharpnose shark	0	0	0	11	0	0	-	-
Blue shark	505	2,060	2,242	920	884	1,978	2,735	4,185
Hammerhead shark	6	38	2	5	0	0	0	0
Wahoo	6	3	5	7	6	9	4	4
Dolphin	111	677	192	375	394	227	372	222
King mackerel	5	5	1	7	20	3	5	5
Atlantic bonito	176	282	389	231	114	60	36	124
Little tunny	585	443	1,130	505	102	387	614	1,028
Amberjack	57	111	1	2	13	33	145	101
Spanish mackerel	0	1	0	0	0	2	37	1

¹ NMFS typically expands these “raw” data to report discards of bluefin tuna by the rod and reel fishery to ICCAT. If sample sizes are large enough to make reasonable estimates for other species, NMFS may produce estimates for other species in future SAFE Reports.

² Amendment One to the Atlantic Billfish FMP established billfish released in the recreational fishery as a “catch-and-release” program, thereby exempting these fish from bycatch considerations.

³ Includes some commercial handgear landings.

4.4.4 International Issues and Catch

Directed recreational fisheries for HMS occur in the United States, Venezuela, the Bahamas, and Brazil. Many other countries and entities in the Caribbean and the west coast of Africa are also responsible for significant HMS recreational landings. Directed recreational fisheries for sailfish occur in the Western Atlantic and include the United States, Venezuela, the Bahamas, Brazil, Dominican Republic, Mexico, and other Caribbean nations. However, of these countries, the United States and Brazil are the only countries that currently report recreational landings to ICCAT. Therefore, a comparison of the percentage of U.S. landings relative to recreational fisheries in other countries is not possible. Further, because total landings data (including recreational landings) are incomplete, HMS stock assessments are often hampered. For more information on some efforts by ICCAT to increase reporting of recreational landings, see previous SAFE reports.

The first meeting of the Working Group on Sport and Recreational Fishing occurred on Friday, November 6, 2009. The United States was the only party to provide information detailing its recreational fisheries as required by the Recommendation that established the Working Group. Discussions of the Recreational Working Group centered around two issues: the need to improve recreational monitoring, data collection, and reporting; and, the development of a common understanding/definition of recreational and sport fishing. There was consensus within the working group regarding the need to improve recreational monitoring, data collection, and reporting. Regarding development of a common definition, the majority of CPCs that commented expressed general agreement that it would be appropriate to include the concept of non-commercial activities as a key component of a definition. There was not consensus on this

point, as some CPCs indicated that there are instances where recreationally caught fish may legitimately enter the stream of commerce. The Working Group agreed that CPCs should submit information similar to that provided by the United States to the ICCAT Secretariat, continue discussions intercessionally, seek to define common methodologies for data collection, and that the Commission should work to decide whether it would be helpful to develop a common definition of sport and recreational fisheries related to the non-commercial nature of these fisheries.

4.5 Bottom Longline (BLL)

Bottom longline is the primary commercial gear employed for targeting large coastal sharks (LCS) in all regions. Small coastal sharks (SCS) are also caught on BLL. Gear characteristics vary by region and target species, but in general, BLL consists of a longline between 3 and 8 km (1.8 – 5 miles) long with 200-400 hooks attached and is set for 2 and 20 hours. Depending on the species being targeted, both circle and J hooks are used. Fishermen targeting sharks with BLL gear are opportunistic and often maintain permits for council-managed fisheries such as reef fish, snapper/grouper, tilefish, and other teleosts. Minor modifications to how and where the gear is deployed allow fishermen to harvest sharks and teleosts on the same trip. Seasons, quota availability, market prices, and other factors influence decisions concerning whether or not to target sharks, teleosts, or both on a given trip. 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 (Hale *et al.*, 2010).

4.5.1 Current Management

Regulations for the shark fishery in this section apply to all gear types. The 1993 Fisheries Management Plan (FMP) for Sharks of the Atlantic Ocean established the basis for subsequent shark management, including establishment of three management units (LCS, SCS, and pelagic sharks), commercial quotas, and authorized gears, among other measures. An FMP amendment was completed in 2003 because of updated stock assessments, litigation, and other public comments (December 24, 2003, 68 FR 74746). Management measures enacted in that amendment included: modifying the commercial quotas, eliminating the commercial minimum size restrictions, establishing regions and trimester seasons for LCS and SCS management units, imposing gear restrictions to reduce bycatch, and a time/area closure off the coast of North Carolina effective January 1, 2005.

Based on 2005 and 2006 stock assessments, NMFS further revised shark management measures and rebuilding periods in Amendment 2 to the 2006 Consolidated HMS FMP on June 24, 2008 (73 FR 35778; corrected on July 15, 2008, 73 FR 40658). In the final rule, NMFS removed sandbar sharks from the LCS complex and established a non-sandbar LCS complex. In order to collect data on sandbar sharks, a shark research fishery was established and vessels participating in this fishery are the only vessels permitted to land sandbars when an observer is onboard. Amendment 2 also modified the number of regions (two, Atlantic and Gulf of Mexico) for the non-sandbar LCS, and implemented new annual adjusted quotas for sandbar

sharks (87.9 mt dw), non-sandbar LCS (Atlantic: 187.7 mt dw; Gulf of Mexico: 390.5 mt dw), and a porbeagle shark commercial quota (1.7 mt dw). The sandbar shark and non-sandbar LCS quotas would increase to their annual base quotas of 116.6 mt dw for sandbar sharks, 188.3 mt dw for non-sandbar LCS in the Atlantic region, and 439.5 mt dw for non-sandbar LCS in the Gulf of Mexico region as of January 1, 2013, depending on overharvests. Pelagic shark quotas were reduced for porbeagle sharks (1.7 mt dw), maintained for blue sharks (273 mt dw), and also maintained for other pelagic species (oceanic whitetip, common thresher, and shortfin mako) (488 mt dw). Amendment 2 also required that all sharks be landed with all fins attached to the carcass through landing and offloading.

Recent stock assessments results for blacknose and shortfin mako sharks required NMFS to publish Amendment 3 to the Consolidated HMS FMP on June 1, 2010 (75 FR 30484). This amendment created a species specific quota for blacknose sharks (19.9 mt), modified the quota for the non-blacknose small coastal sharks (221.6 mt), added smooth dogfish to the management unit and established a quota (715 mt dw), and would take action at the international level through international fishery management organizations to establish management measures to end overfishing of shortfin mako sharks and to promote the live release of shortfin mako sharks in the domestic commercial and recreational shark fisheries.

4.5.2 Recent Catch, Landings, and Discards

This section provides information on shark landings, species composition, bycatch, and discards as reported in the shark BLL observer program. Since 2002, shark BLL vessels are required to take an observer if selected. Participants in the shark research fishery are required to take an observer when targeting sandbar sharks. Outside of the shark research fishery, a 4-6 percent coverage rate is attained by selecting vessels at random that target sharks and possess a valid directed shark permit.

In 2009, the shark BLL observer program selected 10 vessels (including seven participants in the shark research fishery) for observer coverage and placed observers on 94 trips. Gear characteristics of trips varied by area (Gulf of Mexico or the U.S. Atlantic Ocean) and target species (grouper/snapper/tilefish, sandbar sharks, non-sandbar sharks, or a mixture) (Hale *et al.*, 2010). Observers documented the gear deployed, catch composition and disposition, bycatch, and protected resource interactions for four unique target species groups during 2009. Of the 94 trips with observers in 2009, four trips (70 hauls) targeted snapper/grouper/tilefish in the Gulf of Mexico, 78 trips targeted sandbar sharks (99 hauls) in the Gulf of Mexico and Atlantic Ocean, 7 trips (9 hauls) targeted non-sandbar shark species in the Gulf of Mexico and Atlantic Ocean, and 5 trips targeted more than one (mixture) species group in the Gulf of Mexico and Atlantic Ocean. Vessels targeting sandbar sharks participating in the shark research fishery are subject to unique retention limits (45 sandbar sharks and 33 non-LCS sandbar sharks/vessel/trip). These vessels averaged 2 trips per month in 2009. Table 4.29 through Table 4.31 summarize the shark catch composition and disposition for observed shark trips in 2009.

Table 4.29 Shark species composition of observed BLL catch during 2009 for BLL trips targeting sandbar sharks in the Gulf of Mexico and South Atlantic. Source: Hale *et al.*, 2010.

Species	Total Number Caught	% Total Catch	% Kept	% Discarded Dead	% Discarded Alive	% Unknown
Sandbar shark	3620	56.8	82.6	5.8	11.1	0.6
Tiger shark	726	11.4	20.4	10.2	68.7	0.7
Scalloped hammerhead shark	444	7	91.4	5.9	2	0.7
Atlantic sharpnose shark	435	6.8	50.8	43.7	1.1	4.4
Blacktip shark	385	6	65.2	30.1	4.4	0.3
Bull shark	166	2.6	91.6	0	6.6	1.8
Nurse shark	110	1.7	1.8	0	98.2	0
Great hammerhead shark	104	1.6	92.3	4.8	2.9	0
Dusky shark	94	1.5	0	54.3	45.7	0
Blacknose shark	71	1.1	52.1	45.1	2.8	0
Silky shark	64	1	79.7	14.1	0	6.3
Spinner shark	44	0.7	70.5	25	4.5	0
Night shark	42	0.6	0	100	0	0
Lemon shark	32	0.5	87.5	0	3.1	9.4
Dogfish family	13	0.2	7.7	0	7.7	84.6
Smooth dogfish	7	0.1	42.9	42.9	14.3	0
Caribbean reef shark	4	0.06	0	50	50	0
Sand tiger shark	3	0.04	0	0	100	0
Requiem shark family	2	0.03	0	50	0	50
Finetooth shark	2	0.03	50	0	50	0
Sharks	1	0.01	0	0	0	100
Longfin mako shark	1	0.01	0	0	100	0
Bonnethead shark	1	0.01	100	0	0	0
Total	6371					

Table 4.30 Shark species composition of observed BLL catch during 2009 for BLL trips targeting large coastal sharks in the Gulf of Mexico and South Atlantic.
Source: Hale *et al.*, 2010.

Species	Total Number Caught	% Total Catch	% Kept	% Discarded Dead	% Discarded Alive	% Unknown
Blacktip shark	141	29.4	78.0	16.3	5.7	0.0
Nurse shark	111	23.2	0.9	0	98.2	0.9
Atlantic sharpnose shark	53	11	37.7	54.7	5.70	1.9
Scalloped hammerhead shark	32	6.7	93.8	0.0	0.0	6.3
Lemon shark	28	5.8	89.3	0	7.1	3.6
Tiger shark	27	5.6	7.4	7.4	85.2	0
Bull shark	25	5.2	96.0	0	4.0	0
Great hammerhead shark	20	4.2	95.0	5.0	0	0
Blacknose shark	10	2.1	80	10	10	0
Sandbar shark	7	1.5	0.0		33.3	0
Red grouper	5	1.0	80	20	0	0
Coral	4	0.8	0	100	0	0
Carcharhinid sharks	3	0.6	0	-	-	100.0
Caribbean reef shark	2	0.4	0	100	0	0
Southern stingray	2	0.4	0	0	100	0
Green moray eel	2	0.4	100	0	0	0

Species	Total Number Caught	% Total Catch	% Kept	% Discarded Dead	% Discarded Alive	% Unknown
Cancer crabs	1	0.2	0	0	100	0
Spinner sharks	1	0.2	0	100	0	0
Goliath grouper	1	0.2	0	0	100	0
Moray eels	1	0.2	0	100	0	0
Eagle rays	1	0.2	0	0	100	0
Skates and rays	1	0.2	0	0	100	0
Bonnethead sharks	1	0.2	0	100	0	0
Total	479	-	-	-	-	-

Table 4.31 Shark species composition of observed BLL catch during 2009 for BLL trips targeting mixed species (tilefish and LCS or sandbar and LCS) in the Gulf of Mexico and South Atlantic. Source: Hale *et al.*, 2010.

Species	Total Number Caught	% Total Catch	% Kept	% Discarded Dead	% Discarded Alive	% Unknown
Sandbar shark	203	43	98	0	0	2.0
Tilefish	151	31	100	0	0	0
Scalloped hammerhead shark	63	13.2	100	0	0	0
Southern hake	10	2.1	100	0	0	0
Nurse shark	7	1.5	0	0	100	0
Great hammerhead shark	7	1.5	85.7	0	0	14.3
Tiger shark	5	1	60	0	40	0
Atlantic sharpnose shark	4	0.8	50	25	0	25
Bull shark	3	0.6	100	0	0	0
Dusky shark	3	0.6	0	100	0	0
Eels	2	0.4	100	0	0	0
Silky shark	2	0.4	100	0	0	0
Blacktip shark	2	0.4	100	0	0	0
Caribbean reef shark	2	0.4	0	100	0	0
Chain catshark	2	0.4	0	0	100	0

Species	Total Number Caught	% Total Catch	% Kept	% Discarded Dead	% Discarded Alive	% Unknown
Requiem shark family	1	0.2	0	0	0	100
Blacknose shark	1	0.2	100	0	0	0
Stingrays	1	0.2	0	0	100	0
Goliath grouper	1	0.2	0	0	100	0
Red grouper	1	0.2	100	0	0	0
Snowy grouper	1	0.2	100	0	0	0
Sevengill shark	1	0.2	00	0	100	0
Mutton snapper	1	0.2	100	0	0	0
Moray eel family	1	0.2	100	0	0	0
Lemon shark	1	0.2	100	0	0	0
Bonnethead shark	1	0.2	100	0	0	0
Total	477					

4.5.3 Bottom Longline Bycatch

Under the MMPA (16 U.S.C. 1361 *et seq.*) the Atlantic shark BLL is classified as Category III (remote likelihood or no known serious injuries or mortalities) (November 16, 2009; 74 FR 58859). As required by the Endangered Species Act (ESA), the NMFS Southeast Regional Office's Protected Resources Division prepared a Biological Opinion (BiOp) regarding the actions proposed under Amendment 2 to the 2006 Consolidated HMS FMP on May 20, 2008. The BiOp concluded, based on the best available scientific information, that Amendment 2 to the HMS FMP was not likely to jeopardize the continued existence of endangered green, leatherback, and Kemp's ridley sea turtles; the endangered smalltooth sawfish; or the threatened loggerhead sea turtle. The actions implemented under Amendment 2 were not expected to jeopardize the continued existence of any endangered or threatened species. Furthermore, the BiOp concluded that the actions implemented under Amendment 2 were not likely to adversely affect any listed species of marine mammals, invertebrates (*i.e.*, listed species of coral) or other listed species of fishes (*i.e.*, Gulf sturgeon and Atlantic salmon) in the action area. NMFS is currently engaged in a formal Section 7 consultation in accordance with the ESA to determine the potential level of incremental effect on endangered species that may arise as a result of the preferred measures in Amendment 3 to include smooth dogfish under the Secretary's authority.

Once a Biological Opinion is received from the Office of Protected Resources, it will be reviewed and a determination made concerning the need to supplement analysis in the FEIS for Amendment 3 to consider potential impacts on protected resources as a result of fishing for smooth dogfish.

Table 4.32 provides information on observed interactions with protected resources for BLL vessels fishing in the Gulf of Mexico and South Atlantic regions targeting sandbar shark in 2009. Five (5) smalltooth sawfish and two (2) loggerhead sea turtles were observed caught in bottom longline gear. No interactions with protected resources (sea bird, sea turtle, sawfish, or marine mammal) were observed for BLL vessels fishing in the Gulf of Mexico region targeting non-sandbar LCS, reef fish, or a mixture of species. No sea bird or marine mammal interactions were observed (Hale *et al.*, 2010).

Table 4.32 Number of Protected Species Interactions for all Observed Hauls Targeting Sandbar Shark in the Gulf of Mexico and South Atlantic, 2009. Disposition of Catch is Divided into Released Dead, Released Alive, and Unknown.

Species	Total Number Caught	% Discarded Dead	% Discarded Alive	% Unknown
Loggerhead sea turtle	2	100	0	0
Smalltooth sawfish	5	0	100	0

4.6 Gillnet Fishery

Gillnet is the primary gear for vessels directing on small coastal sharks. Vessels participating in the shark gillnet fishery typically possess permits for other Council and/or state managed fisheries and will deploy nets in several configurations based on target species including drift, strike, and sink gillnets. In 2009, the number of observed trips nearly doubled compared to 2008. In the drift gillnet fishery, 12 drift gillnet vessels were observed. These vessels made 255 sets on 43 trips. Using this gear configuration, the nets are 2.4-11.0 m deep (height), 274-2,103 m in length, with a mesh size of 7.9-23 cm, with total set and haulback time averaging 2.15 hours. Strikenetters use nets that are 365-548 m in length, 18.3-27.4 m deep, and with mesh sizes ranging between 11.4 and 17.8 cm. Average time from deployment to haulback is 2.13 hours. Six strikenet sets were observed in 2009. Sink gillnet catch was observed on 190 sets. These nets had a 6.4-20.3 cm mesh size, were 22.9 to 914 m in length and 2.7-8.5 m deep, and the process lasted for approximately 1.09 hours from setting to haulback. While a variety of shark species were observed landed in all types of gillnets, species composition from observed sets in 2009 shows that these gears were predominantly deployed to target non-HMS species, including Spanish and king mackerel, butterfish, Southern kingfish, and Atlantic croaker.

4.6.1 Current Management

Many of the regulations for the Atlantic shark fishery are the same for both the BLL and gillnet fishery, including, but not limited to: seasons, quotas, species complexes, permit requirements, authorized/prohibited species, and retention limits (see section 4.5.1 above for more information on shark fishery management). Examples of regulations that are specific to shark gillnet fishing, include: gillnet mesh size, requiring that gillnets remain attached to the vessel, and the need to conduct net checks every 2 hours when gear is deployed. Because the majority of the southeast shark gillnet fleet is based out of ports in northern and central Florida (South Atlantic region), regulations implementing the Atlantic Large Whale Take Reduction Plan affect this fishery. In 2007, these regulations were amended, thus removing the requirement for 100 percent observer coverage for drift gillnet vessels during the right whale calving season and prohibiting all gillnets in an expanded southeast U.S. restricted area from Cape Canaveral, Florida to the North Carolina/South Carolina border during November 15 – April 15. The rule has limited exemptions, which allows shark strikenet fishing only in waters south of 29° N. latitude during this same period and for Spanish mackerel, *Scomberomorus maculates*, gillnet fishing in the months of December to March. Operations in this area during this time period require use of VMS and observer coverage, if selected. Based on these regulations, and on current funding levels, the shark gillnet observer program now covers all anchored (sink, stab, set), strike, or drift gillnets fishing by vessels that fish from Florida to North Carolina, year-round.

4.6.2 Recent Shark Catch, Landings, and Discards

The “Catch and Bycatch in U.S. Southeast Gillnet Fisheries, 2010” is a report published every year by the Southeast Fisheries Science Center’s Panama City Laboratory that describes, in detail, the target species, gear configuration, and soak time deployed by drift gillnet, strike gillnet, and sink gillnet fishermen (Passerotti *et al*, 2010). Summary information is provided in Section 4.6 above. Table 4.33 through Table 4.35 of this section outline shark species composition, disposition, and summary information for sharks caught during observed strike, drift, and sink gillnet trips with observers onboard in 2009.

Table 4.33 Total Strike Gillnet Shark Catch by Species in order of Decreasing Abundance for all Observed Trips, 2009. Source: Passerotti *et al.*, 2010.

Species	Total Number Caught	Kept (%)	Discarded Alive (%)	Discarded Dead
Blacktip shark	9	100	0	0
Atlantic sharpnose shark	5	100	0	0
Bull shark	1	100	0	0
Total	15			

Table 4.34 Total Drift Gillnet Shark Catch by Species in Order of Decreasing Abundance for all Observed Trips, 2009. Source: Passerotti *et al.*, 2010

Species	Total Number Caught	Kept (%)	Discarded Alive (%)	Discarded Dead
Atlantic sharpnose shark	481	19.1	72.1	8.7
Blacknose shark	408	91.7	8.3	0
Smooth dogfish	336	37.8	60.1	2.1
Sandbar shark	107	0	81.3	18.7
Blacktip shark	52	13.5	40.4	46.2
Smooth hammerhead shark	14	71.4	28.6	0
Bonnethead shark	13	76.9	15.4	7.7
Spinner shark	10	40	50	10
Scalloped hammerhead shark	6	100	0	0
Common thresher shark	3	100	0	0
Finetooth shark	1	100	0	0
Dusky shark	1	0	100	0
Sand tiger shark	1	0	100	0
Atlantic angel shark	1	0	100	0
Total	1,434			

Table 4.35 Total Sink Gillnet Shark Catch by Species in order of Decreasing Abundance for all Observed Trips, 2009. Source: Passerotti *et al.*, 2010.

Species	Total Number Caught	Kept (#)	Discarded Alive (#)	Discarded Dead (#)
Spiny dogfish	1693	0	1693	0
Atlantic sharpnose shark	1456	964	212	280

Species	Total Number Caught	Kept (#)	Discarded Alive (#)	Discarded Dead (#)
Smooth dogfish	865	862	3	0
Finetooth shark	731	729	2	34.2
Bonnethead shark	323	225	60	38
Blacknose shark	222	217	5	0
Blacktip shark	160	20	32	108
Sandbar shark	4	25	75	0
Scalloped hammerhead shark	3	0	0	100
Spinner shark	2	0	100	0
Great hammerhead shark	2	0	100	0
Common thresher shark	1	0	100	0
Bull shark	3	3	0	0
Angel shark	3	0	3	0
Total	1,835			

4.6.2.1 Gillnet Bycatch

This section describes the non-shark bycatch observed in the southeast shark gillnet fisheries by gear configuration (drift, strike, and sink gillnets) (Passerotti *et al.*, 2010).

The most common non-shark species caught in the drift gillnet fishery were Spanish mackerel (*Scomberomorus maculatus*) and butterfish (*Peprilus triacanthus*) (Table 4.36). Predominant species caught in sink gillnets included Atlantic croaker, Spanish mackerel, and Bluefish. King mackerel were the predominant species observed in the strike net fishery (Table 4.37). There was a much wider range of fish species caught in the sink (Table 4.38) and drift gillnet fisheries than in strikenets, which is likely due to the number of sets observed and gear deployment methods.

4.6.2.2 Sea Turtles

There was one loggerhead and one Kemp's Ridley sea turtle observed caught in gillnet gear in 2009 (Table 4.39). Both were caught in drift gillnet gear and released alive and uninjured (Passerotti *et al.*, 2010).

4.6.2.3 Sea Birds

There was one dovekie (*Alle alle*) which is a member of the Puffin family observed caught in sink gillnet gear in 2009. The bird was released alive and uninjured (Passerotti *et al.*, 2010).

4.6.2.4 Marine Mammals

Under the MMPA (16 U.S.C. 1361 *et seq.*) the Atlantic shark gillnet fishery is classified as Category II (occasional serious injuries and mortalities) (November 16, 2009; 74 FR 58859). In 2009, there was one bottlenose dolphin caught in drift gillnet gear. The dolphin was released dead (Passerotti *et al.* 2010).

4.6.2.5 Smalltooth Sawfish

In 2009, there were no observed interactions with smalltooth sawfish in gillnet gear. The last observed interaction occurred in 2003 and the sawfish was released with no visible injuries. Given the high rate of observer coverage in for these gillnet fisheries consistent with ALWTRT requirements, NMFS believes that smalltooth sawfish interactions in this fishery are rare.

Table 4.36 Total Bycatch by Species Observed in the Drift Gillnet Fishery from the 2009 Observer Data. Source: Passerotti *et al.*, 2010.

Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
Spanish mackerel	12,637	98.9	0	1.1
Butterfish	1,906	98.6	0.2	1.3
Atlantic menhaden	1,679	25.1	6.6	68.3
Bluefish	1,499	79.6	1.3	19.1
Harvestfish	549	97.3	0.5	2.2
Atlantic thread herring	264	0	0.4	99.6
Gulf menhaden	136	95.6	0	4.4
King mackerel	132	81.8	0	18.2
Cobia	113	18.6	47.8	33.6
Frigate mackerel	83	98.8	0	1.2
Banded drum	70	0	8.6	91.4
Blue crab	51	0	88.2	11.8
Weakfish	45	13.3	2.2	84.4
Cownose ray	43	0	97.7	2.3
Little tunny	35	100	0	0
Spadefish	34	11.8	67.6	20.6
Flounder	34	2.9	79.4	17.6
Clearnose skate	34	0	100	0
Lookdown	28	0	46.4	53.6
Florida pompano	26	92.3	0	7.7
Summer flounder	18	5.6	88.9	5.6

Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
Crevalle jack	16	87.5	0	12.5
Jellyfish family	16	0	0	100
Ladyfish	15	6.7	0	93.3
Atlantic croaker	12	16.7	33.3	50
Black drum	9	100	0	0
Roughtail stingray	7	0	100	0
Manta ray	6	0	100	0
Bonito	6	100	0	0
Kingfish	4	0	0	100
Sea robin	4	0	100	0
Red drum	4	0	100	0
Southern stingray	3	0	100	0
Atlantic stingray	3	0	100	0
Spot	3	33.3	0	66.7
Horseshoe Crab	3	0	100	0
Remora	3	0	100	0
Inshore lizardfish	3	0	0	100
Butterfly ray	2	0	100	0
Gar family	2	50	50	0
Southern flounder	2	0	100	0
Penaeid shrimp	2	100	0	0
Sheepshead	1	100	0	0
Jack family	1	100	0	0
Whitespotted filefish	1	0	100	0
Atlantic bumper	1	0	100	0
Spiny pufferfish	1	0	100	0
Tripletail	1	100	0	0
Southern kingfish	1	100	0	0
Northern kingfish	1	100	0	0
Bullnose ray	1	0	100	0
Great barracuda	1	100	0	0
Puffer family	1	0	100	0
Snakefish	1	0	100	0
Houndfish	1	100	0	0
Total	19,558			

Note: Kept (%) – represents the percentage of the catch retained, D.A.(%) – percentage of the catch discarded alive, D.D (%) – percentage of the catch discarded dead

Table 4.37 Total Bycatch By Species Observed in the Strike Gillnet Fishery in 2009.Source: Passerotti *et al.*, 2010.

Common Name	Total Number Caught	Kept (%)	D.A. (%)	D.D. (%)
King mackerel	2,972	100	0	0
Spanish mackerel	2	100	0	0
Flounder	1	0	100	0
Kingfish	1	100	0	0
Total	2,976			

Note: Kept (%) – represents the percentage of the catch retained, D.A.(%) – percentage of the catch discarded alive, D.D (%) – percentage of the catch discarded dead

Table 4.38 Total Bycatch by Species Observed in the Sink Gillnet Fishery in 2009.Source: Passerotti *et al.*, 2010.

Common Name	Total Number Caught	Kept (#)	D.A. (#)	D.D. (#)
Atlantic croaker	10,060	10,056	4	0
Spanish mackerel	7,003	6,903	0	100
Bluefish	4,597	4,491	15	91
Atlantic bumper	4,383	3,154	538	691
Blue runner	3,422	3,380	0	42
Spot	3,353	3,287	4	62
Southern kingfish	853	840	0	13
Banded drum	359	0	44	315
Jellyfish family	300	0	0	300
Atlantic moonfish	286	268	1	17
Seatrout	268	256	1	11
Cubbyu	249	0	0	249
Atlantic menhaden	223	60	0	163
Atlantic cutlassfish	172	172	0	0
Red drum	130	0	116	4
King mackerel	119	63	4	52
Butterfish	117	63	0	54
Crevalle jack	93	93	0	0
Cobia	82	2	51	29
Kingfish	53	53	0	0
Cafftopsail catfish	51	2	34	15
Yellowfin menhaden	51	0	8	43
Little tunny	42	42	0	0
Sheepshead	37	37	0	0
Gulf menhaden	36	35	0	1
Gulf kingfish	27	27	0	0
Harvestfish	27	25	0	1
Bonito	26	26	0	0

Common Name	Total Number Caught	Kept (#)	D.A. (#)	D.D. (#)
Permit	23	0	23	0
Red snapper	22	0	8	14
Menhaden	17	14	0	3
Black drum	16	16	0	0
Silver porgy	11	6	0	5
Sea star family	9	0	7	2
Leatherjacket family	9	0	9	0
Spadefish	8	0	3	5
Headhead catfish	7	0	1	6
Ladyfish	6	6	0	0
Porgy family	6	5	1	0
Bullnose ray	5	0	5	0
Florida pompano	5	1	4	0
Herring family	4	1	0	3
Flounder	4	2	2	0
Inshore lizardfish	4	0	1	3
Flame box crab	3	0	3	0
Weakfish	3	0	0	0
Remora	3	0	1	2
Grey snapper	3	0	0	3
Sea robin	3	0	2	1
Remora family	3	0	3	0
Black seabass	2	2	0	0
Silver seatrout	2	2	0	0
Silver mullet	2	2	0	0
Summer flounder	2	0	2	0
Clearnose skate	2	0	2	0
Cownose ray	2	0	2	0
Grey triggerfish	1	0	1	0
Pomfret family	1	0	1	0
Knobbed porgy	1	1	0	0
Roughtail stingray	1	0	1	0
Horseshoe crab	1	0	1	0
Spider crab	1	0	1	0
Mollusc	1	0	1	0
Skates and rays	1	0	1	0
Lizardfish family	1	0	1	0
Total	26,611			

Table 4.39 Observed Interactions with Protected Species Between 2000-2009 in the Shark Gillnet Fishery. Letters in parentheses indicate whether the animal was released alive (A), dead (D), or unknown (U).

Year	Leatherback Sea Turtle	Loggerhead Sea Turtle	Kemp's Ridley Sea Turtle	Smalltooth Sawfish	Total
2000		1 (U)			1
2001		1 (U)			1
2002		1 (U)			1
2003				1(A)	1
2004					0
2005	1(A)	5 (4A, 1D)			6
2006		3 (2A, 1D)			3
2007		4 (3A, 1U)			4
2008					0
2009		1 (A)	1(A)		2
Total	1	16	1	1	19

4.7 Buoy Gear

4.7.1 Domestic History and Current Management

A detailed history of the buoy gear fishery may be found in the 2006 Consolidated HMS FMP. Commercial buoy gear was authorized in 2006 for Swordfish Directed and Handgear permit holders. Swordfish Directed permit holders may retain swordfish only if they have also been issued a Shark Directed or Incidental limited access permit and an Atlantic Tunas Longline permit. Swordfish Handgear permit holders are not required to be issued other permits to retain swordfish. HMS Charter/Headboat, Angling, and Swordfish Incidental permit holders may not fish with buoy gear.

Buoy gear means a fishing gear consisting of one or more floatation devices supporting a single mainline to which no more than two hooks or gangions are attached. The buoy gear fishery is usually prosecuted at night. Authorized permit holders may not possess or deploy more than 35 floatation devices, and may not deploy more than 35 individual buoy gears per vessel. Buoy gear must be constructed and deployed so that the hooks and/or gangions are attached to the vertical portion of the mainline. Floatation devices may be attached to one, but not both ends of the mainline, and no hooks or gangions may be attached to any floatation device or horizontal portion of the mainline. If more than one floatation device is attached to a buoy gear, no hook or gangion may be attached to the mainline between them. Individual buoy gears may not be linked, clipped, or connected together in any way. Buoy gears must be released and retrieved by hand. All deployed buoy gear must have some type of monitoring equipment affixed to it including, but not limited to, radar reflectors, beeper devices, lights, or reflective tape. If only reflective tape is affixed, the vessel deploying the buoy gear must possess on board an operable spotlight capable of illuminating deployed floatation devices. If a gear monitoring

device is positively buoyant, and rigged to be attached to a fishing gear, it is included in the 35 floatation device vessel limit and must be marked appropriately.

4.7.2 Recent Catch, Landings, and Discards

Buoy gear effort and catch data are available for 2007, 2008, and 2009 (Table 4.40, Table 4.41, and Table 4.42). Prior to 2007, buoy gear catch data were included in handline catch data.

Table 4.40 Buoy Gear Effort. Source: NMFS Pelagic Logbook Program

	2007	2008	2009
Number of Vessels	42	44	53
Number of Trips	745	598	708
Avg. Buoy Gears Deployed per Trip	11.0	11.2	11.9
Total Number of Hooks Set	11,742	8,922	11,595
Avg. Number Hooks per Gear	1.4	1.3	1.4

Table 4.41 Buoy Gear Landings in Pounds Dressed Weight. Source: NMFS Pelagic Logbook Program

	2007	2008	2009
Swordfish	183,982	122,700	154,674
Dolphin	966	1,031	1,427
Oilfish	346	414	245
Shortfin mako shark	308	797	932
Wahoo	63	227	623
Bigeye tuna	150	0	
Blacktip shark	9	0	
King mackerel	0	194	67
Yellowfin tuna	0	0	350
Hammerhead Shark	0	0	350
Silky shark	0	0	20
Greater Amberjack	0	0	10
Bonito	0	0	86

Table 4.42 Buoy Gear Catches and Discards in Numbers of Fish. Source: NMFS Pelagic Logbook Program

	2007	2008	2009
Kept			
Swordfish	2,849	1,843	2,085
Dolphin	63	103	113
Oilfish	7	10	5
Bigeye tuna	5	0	0
Blackfin tuna	3	7	2
Wahoo	2	6	44

	2007	2008	2009
Bonito	0	7	0
King mackerel	0	53	4
Shortfin mako	3	4	8
Hammerhead shark	1	0	1
Blacktip shark	1	0	0
Silky shark	0	1	1
Yellowfin tuna	0	0	9
Bonito	0	0	11
Released Alive			
Swordfish	1,559	1,018	763
Blue marlin	1	0	1
White marlin	0	3	0
Sailfish	2	1	0
Hammerhead shark	14	7	35
Blue shark	0	2	1
Thresher shark	0	1	1
Dusky shark	4	0	0
Night shark	16	1	34
Oceanic whitetip shark	0	1	0
Bigeye thresher shark	4	0	0
Tiger shark	1	2	1
Sandbar shark	1	0	1
Longfin mako shark	4	3	2
Shortfin mako shark	0	1	2
Blacktip shark	0	0	8
Silky shark	0	0	13
Oilfish	0	0	1
Greater amberjack	0	0	1
Discarded Dead			
Swordfish	129	80	51
Silky shark	9	0	0
Hammerhead shark	1	0	0
Blackfin tuna	0	0	1
Blue marlin	0	0	1

4.8 Green-Stick Gear

4.8.1 Current Management

Effective October 23, 2008, green-stick gear was specifically defined and authorized for the harvest of Atlantic tunas on Atlantic Tunas General, HMS Charter/Headboat (CHB), and Atlantic Tunas Longline permitted vessels (73 FR 54721, September 23, 2008). Green-stick gear (Figure 4.9) is defined as “an actively trolled mainline attached to a vessel and elevated or suspended above the surface of the water with no more than 10 hooks or gangions attached to the mainline. The suspended line, attached gangions and/or hooks, and catch may be retrieved collectively by hand or mechanical means. Green-stick does not constitute a pelagic longline or a bottom longline as defined in this section or as described at §635.21(c) or §635.21(d),

respectively.” Green-stick gear may be used to harvest bigeye, northern albacore, yellowfin, and skipjack tunas (collectively referred to as BAYS tunas) and bluefin tuna aboard Atlantic Tunas General, HMS Charter/Headboat, and Atlantic Tunas Longline permitted vessels.

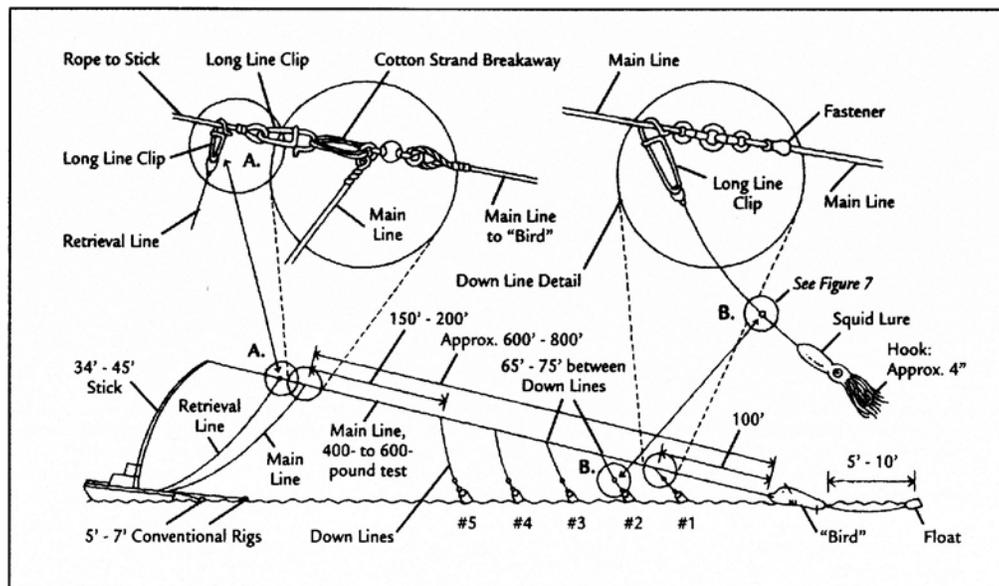


Figure 4.9 A diagram of green-stick fishing gear. Source: Wescott (1996).

Onboard Atlantic Tunas Longline permitted vessels, up to 20 J-hooks may be possessed for use with green-stick gear and no more than 10 J-hooks may be used with a single green-stick gear. J-hooks may not be used with PLL gear and no J-hooks may be possessed onboard a PLL vessel unless green-stick gear is also onboard. J-hooks possessed and used onboard PLL vessels may be no smaller than 1.5 inch (38.1 mm) when measured in a straight line over the longest distance from the eye to any other part of the hook.

Green-stick gear is used in Atlantic tuna fisheries. These fisheries are typically most active during the summer and fall, although in the South Atlantic and Gulf of Mexico fishing occurs during the winter months. Fishing usually takes place between eight and two hundred km from shore. Baits used with green-stick gear may be artificial or natural with the most common bait being artificial squid. The use of green-stick gear is most common off the mid and south Atlantic states of North Carolina and South Carolina with some use also occurring off the New England states. A limited number of vessels use green-stick gear in the northern Gulf of Mexico as well.

Commercial Atlantic tunas permits authorized to use green-stick gear are Atlantic Tunas General, HMS Charter/Headboat, and Atlantic Tunas Longline. Atlantic Tunas General and HMS CHB are open access. The Atlantic Tunas Longline permit is limited access and, in order to be valid, a vessel must also hold a shark and swordfish limited access permit. These vessels may also need permits from the states they operate out of in order to land and sell their catch. All commercial permit holders are encouraged to check with their local state fish/natural resource management office regarding these requirements. Permitted vessels are also required to sell their Atlantic tunas to federally permitted Atlantic tuna dealers. Atlantic tunas dealer

permits are issued by the Northeast Region Permit Office and vessel owner/operators are encouraged to contact the permitting office directly, either by phone at (978) 281-9438 or via the web at <http://www.nero.noaa.gov/ro/doc/vesdata1.htm>, to obtain a list of permitted dealers in their area.

Vessels that are permitted in the General and Charter/Headboat categories commercially fish under the General category rules and regulations. For instance, regarding bluefin tuna, vessels that possess either the Atlantic Tunas General or HMS Charter/Headboat permits have the ability to retain a daily bag limit of zero to three bluefin tuna, measuring 73 inches or greater curved fork length per vessel per day while the General category BFT fishery is open. Each year the General category bluefin tuna fishery season is open January 1-31 or until the quota (or subquota) is filled and is again open June 1 – December 31 or until the quota is filled. Vessel owner/operators should check with the agency via websites (www.hmspermits.gov) or telephone information lines (1-888-872-8862) to verify the bluefin tuna retention limit on any given day.

In order to characterize the catch and bycatch of green-stick gear, NMFS began a study in 2009 off North Carolina in partnership with the North Carolina Division of Marine Fisheries and with funding from the NOAA Bycatch Reduction Engineering Program. The purpose of the study is to investigate the potential feasibility of green-stick gear as an alternative to tuna fishing gear in some areas where bycatch is problematic for other gears. Preliminary information after 10 observed trips of 1-3 days in length showed that the catch included yellowfin tuna, skipjack tuna, blackfin tuna, and dolphin. Bycatch during the 10 trips included one undersized bluefin tuna, one sailfish, and some undersized yellowfin tuna, all of which were released alive and in good condition. Data collection was completed in 2010 and a final report will be produced.

4.8.2 Recent Catch and Landings

Recent Atlantic tuna catches are presented earlier in Chapter 4 (See Table 4.1). An unknown portion of these landings were made with green-stick gear as the gear has been used in the Atlantic tuna fisheries since the mid-1990s. Reporting mechanisms that are in place do not enable the number of vessels using green-stick gear to be quantified; although, limited data allow the catch to be characterized and were presented in the 2008 SAFE Report (NMFS 2008). Data on landings specific to green-stick gear are expected to improve because a green-stick gear code was designated for use in dealer reporting systems such as trip tickets in the southeast and electronic reporting programs in the northeast. NMFS has also encouraged states to utilize the green-stick gear code in their trip ticket programs with some success. In 2009, the states of South Carolina, Louisiana, and Texas indicated that they would add a green-stick gear code to their trip ticket programs and Florida confirmed that the code has been added to their program.

A portion, but not all, of green-stick gear landings has been reported via the NMFS Southeast Region's Coastal Fisheries Logbook when Atlantic Tunas General, HMS Charter/Headboat, or Atlantic Tunas Longline category fishermen also hold a NMFS Southeast Region fishing permit that requires logbook reporting. Some green-stick gear landings from 1999-2007 that were designated by hand writing "green-stick gear" as an "other" gear in the Southeast Region's Coastal Logbook were reported in the 2008 SAFE Report (NMFS 2008). Also, commercial green-stick gear catches that were reported in the PLL Logbook Program from

1999 – 2002 were reported in the 2008 SAFE Report (NMFS 2008). From 1999 - 2002, the PLL logbook format included a green-stick gear data field; however, this data field was eliminated beginning in 2003 probably because green-stick gear was not an authorized gear at the time.

Neither the Southeast Region’s Coastal Logbook nor the PLL Logbook currently have a green-stick gear data field on the forms; although, green-stick gear landings are sometimes recorded on the Coastal Fisheries Logbook form with “green-stick gear” hand written as an “other” gear. These data that are recorded with “green-stick gear” hand written as an “other” gear are very difficult to query in the logbook database. As a result, NMFS is unable to fully characterize the existing green-stick gear fishery with the data collection capability provided by the logbook program as it currently exists. NMFS is working to improve green-stick gear data collection in the future.

4.9 Safety Issues

The following section describes safety issues by fishery and gear type. More specific information regarding safety issues and statistics may be obtained from the following two U.S. Coast Guard (USCG) documents.

- “Analysis of Fishing Vessel Casualties – A Review of Lost Fishing Vessels and Crew Fatalities 1992-2007”:
http://www.nts.gov/events/forum_fishing_vessel_safety/Background/USCG%20FV%20Casualty%20Analysis%20-%201992%20to%202007.pdf
- “Recreational Boating Statistics 2009”:
http://www.uscgboating.org/assets/1/workflow_staging/Publications/394.PDF

A summary of the key findings from both reports can be found in previous SAFE reports.

Pelagic and Bottom Longline

Like all offshore fisheries, pelagic longlining can be dangerous. Although frequently closer to shore, bottom longline fishing can be equally dangerous. Trips are often long, the work is arduous, and the nature of setting and hauling longline gear may result in injury or death. Like all other HMS fisheries, longline fishermen are exposed to unpredictable weather. NMFS does not wish to exacerbate unsafe conditions through the implementation of regulations. Therefore, NMFS considers safety factors when implementing management measures in the PLL and BLL fishery. For example, all time/area closures are expected to be closed to fishing, but not transiting, in order to allow fishermen to take a more direct route to and from fishing grounds. NMFS seeks comments from fishermen on any safety concerns they may have. Fishermen have pointed out that, due to decreasing profit margins, they may fish with fewer, possibly less experienced crew members or may not have the time or money to complete necessary maintenance tasks. NMFS encourages fishermen to be responsible in fishing and maintenance activities.

Purse Seine

Accidents that can occur on purse seine vessels include general injuries caused by handling fish (*e.g.*, poisoning from being stuck by fin spines), as well as accidents related to the vessels fishing operations themselves, such as, deploying the skiff or using cables and winches to move giant bluefin tuna from the net to the hold.

Commercial Handgear

The USCG conducts routine vessel safety inspections at sea on a variety of vessels throughout the year. During the General category bluefin tuna season, the USCG has been known to concentrate patrol activities on General category bluefin tuna boats. Boarding officers indicate that the majority of the commercial handgear vessels have the necessary safety equipment. However, many part-time fishermen operating smaller vessels do not meet the necessary safety standards. There have been several cases of vessels participating in the commercial handgear fishery that have capsized due to weight while attempting to boat commercial-sized bluefin tuna (measuring 73 inches or greater and weighing several hundred pounds).

Over the last few years, the USCG focused boardings on small vessels, especially those owned by “part-time” commercial handgear fishermen, and terminated several dozen trips due to the lack of safety equipment on board. If a vessel is boarded at sea and found to be lacking major survival equipment, the USCG will terminate the trip and escort the vessels back to port.

Currently, NMFS does not require proof of proper safety equipment as a condition to obtain a commercial handgear permit. Instead, NMFS informs permit applicants that commercial vessels are subject to the Fishing Vessel Safety Act of 1988 and advises them to contact their local USCG office for further information. The USCG District Boston office reports receiving 50 to 75 calls a week during the peak fishing season. Since NMFS regulations do not require USCG inspection or safety equipment in order to obtain a commercial handgear permit, NMFS cannot be certain that all participants in the commercial handgear fisheries are adequately prepared for the conditions they may encounter. NMFS is concerned about the safety of all vessels participating in the commercial handgear fisheries and continues to work with the USCG to improve communication of vessel safety requirements to commercial handgear vessel operators.

It is unlawful for Atlantic tuna vessels to engage in fishing unless the vessel travels to and from the area where it will be fishing under its own power and the person operating that vessel brings any bluefin tuna under control (secured to the catching vessel or on board) with no assistance from another vessel, except when shown by the operator that the safety of the vessel or its crew was jeopardized or other circumstances existed that were beyond the control of the operator (50 CFR Part 635.71 (b)(1)). NMFS Enforcement and USCG boarding officers have recently encountered vessels participating in the bluefin tuna fishery that are unable to transit to and from the fishing grounds due to their limited fuel capacity. Occasionally these smaller vessels will work in cooperation with a larger documented vessel to catch a bluefin tuna. Others have been observed leaving lifesaving equipment at the dock to make room for extra fuel, bait,

and staples. NMFS is concerned that use of such inadequately equipped vessels jeopardizes crew in that the vessel may not be able to safely return to shore without assistance of the larger vessel due to insufficient fuel or to adverse weather conditions.

Over the last couple of years, NMFS has received a number of vessel permit applications from kayak owner/operators. In addition to the requirement mentioned above, NMFS only issues permits to vessels that possess a USCG documentation number, a state registration number, or a foreign registration number (recreational permit only). As kayaks typically do not require such documentation, NMFS has denied all applications for a permit for kayaks to date.

NMFS also has concerns regarding individuals embarking on HMS trips by themselves. Recently, there have been a few incidents of fishermen either severely injuring themselves or dying while pursuing HMS by themselves. Certain hazardous situations could be mitigated by having an additional person onboard the vessel while conducting a trip targeting large pelagic species. NMFS encourages vessel owner/operators to practice safe fishing techniques.

NMFS will consider all safety comments and information, including those from the USCG and NMFS Enforcement, when planning future General category effort control schedules and will discuss these issues in future meetings with the HMS Advisory Panel.

Recreational Handgear

The USCG does not maintain statistics on boating accidents, rescue, or casualty data specifically pertaining to particular recreational fisheries as it does for the commercial industry. As a result, this document contains only minimal information regarding safety in recreational HMS fisheries. However, the USCG compiles statistics on the total number of recreational boating accidents and casualties, independent of the activity or fishery in which they are engaged (Table 4.43). Three common situations often place HMS recreational HMS anglers in potential danger. Individuals in small vessels often venture out farther than their vessels are designed to travel without proper navigational equipment and may encounter rougher water than their boats are designed to withstand. Since fishermen targeting HMS species, particularly marlin, often travel 75 to 100 miles offshore, having a properly equipped, well-maintained vessel of adequate size is very important for the safety of recreational HMS constituents. Additionally, as the recreational swordfish fishery off the southeastern coast of Florida occurs at night and usually in small boats ranging from 23 to 40 feet in length, it presents other unique risks. Shipping traffic regularly transits through areas utilized by the recreational swordfish fleet, which can lead to collisions if someone is not on watch at all times. Finally, another frequent safety concern of the USCG is the potential for someone to fall overboard when on the flying bridge.

Table 4.43 Total 2009 Reported Recreational Boating Accident Types. Source: USCG Recreational Boating Statistics, 2009.

2009 Primary Accident Type	# Accidents	# Deaths	# Injuries	Total Property Damage
Total	4730	736	3358	\$35,903,921
Capsizing	369	199	220	\$1,153,740
Carbon Monoxide Exposure	17	1	39	\$0
Collision with Fixed Object	446	41	345	\$4,391,151
Collision with Floating Object	73	3	37	\$562,190
Collision with Submerged Object	165	13	56	\$1,469,119
Collision with Another Vessel	1139	65	865	\$7,292,981
Departed Vessel	100	51	49	\$40,225
Ejected from Vessel	176	24	193	\$405,535
Electrocution	0	0	0	\$0
Fall in Vessel	207	4	213	\$15,725
Falls Overboard	349	188	173	\$57,745
Fire/Explosion (fuel)	174	3	113	\$4,641,477
Fire/Explosion (non-fuel)	74	2	13	\$6,269,936
Fire/Explosion (unknown origin)	12	0	4	\$1,646,100
Flooding/Swamping	436	99	130	\$4,178,887
Grounding	308	13	197	\$3,623,040
Sinking	8	3	5	\$34,800
Skier Mishap	464	13	490	\$3,460
Struck by Vessel	49	6	47	\$6,100
Struck by Propeller	67	3	66	\$2,000
Other	101	1	103	\$107,710
Unknown	4	4	0	\$2,000

4.10 Fishery Data: Landings by Species

The following tables (Table 4.44 through Table 4.52) of Atlantic HMS landings are taken from the 2010 National Report of the United States to ICCAT (ANN-045) (NMFS, 2010). The purpose of this section is to provide a summary of recent domestic landings of HMS by gear and species allowing for interannual comparisons. Landings for sharks were compiled from the most recent stock assessment documents and updates provided from the SEFSC.

Table 4.44 U.S. Landings (mt) of Atlantic Bluefin Tuna by Gear and Area, 2002-2009.
Source: NMFS, 2010.

Area	Gear	2002	2003	2004	2005	2006	2007	2008	2009
NW Atlantic	Longline**	7.8	36.1	63.6	72.7	104.4	70.7	107.1	123.7
	Handline	4.5	2.5	1.5	2.3	0.3	0.0	0.6	0.1
	Purse seine	207.7	265.4	31.8	178.3	3.6	27.9	0.0	11.4
	Harpoon	55.5	87.9	41.2	31.5	30.3	22.5	30.2	65.6
	*Rod and reel (>145 cm LJFL)	1,008.4	676.4	348.0	170.4	217.2	235.4	305.7	717.1
	*Rod and reel (<145 cm LJFL)	519.3	314.6	370.2	254.4	158.2	398.6	352.2	143.3
	Unclassified	0.0	0.0	0.2	0.0	0.0	0.0	0.3	0.0
Gulf of Mexico	Longline	32.8	80.0	102.8	118.5	88.1	81.2	111.6	111.3
	*Rod and reel	1.5	0.0	0.0	0.0	0.6	0.0	0.0	0.0
NC Area 94a	Longline	9.3	17.8	13.7	20.3	12.1	12.4	12.3	56.0
All Areas	All Gears	1,846.8	1,480.7	973.0	848.4	614.8	848.7	919.9	1,228.6

* Rod and Reel catches and landings represent estimates of landings and dead discards when available based on statistical surveys of the U.S. recreational harvesting sector.

**from 2003-2009, this includes landings and estimated discards from scientific observer and logbook sampling programs.

Table 4.45 U.S. Landings (mt) of Atlantic Yellowfin Tuna by Gear and Area, 2002-2009.
Source: NMFS, 2010.

Area	Gear	2002	2003	2004	2005	2006	2007	2008	2009
NW Atlantic	Longline	400.0	275.3	658.9	394.2	701.7	752.8	460.5	416.4
	Rod and reel*	2,624	4,672.1	3,433.7	3,504.8	4,649.2	2,756.0	657.1	742.6
	Troll	0.0	0.0	0.0	0.0	0.0	0.0	2.4	5.4
	Gillnet	5.0	0.9	3.2	0.1	4.7	4.2	0.6	0.0
	Trawl	0.0	2.2	1.6	0.2	0.7	2.4	0.0	0.0
	Handline	137.0	149.1	213.2	105.1	105.1	118.1	30.1	58.7
	Trap	0.0	0.3	0.0	0.01	0.0	0.0	0.05	0.1
	Unclassified	**	0.1	10.6	3.8	3.9	7.0	1.4	2.2
Gulf of Mexico	Longline	2,109.0	1,835.8	1,811.9	1,210.9	1,128.5	1,377.7	756.5	1,147.0
	Rod and reel*	200.0	640.0	247.1	146.9	258.4	227.6	366.3	264.7
	Handline	100.0	39.9	28.3	45.5	49.9	34.3	11.2	21.6
	Gillnet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unclassified	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Caribbean	Longline	12.0	5.6	4.5	140.6	179.7	255.6	107.1	136.7
	Handline	7.0	9.0	7.0	9.7	7.8	9.1	3.7	3.3
	Gillnet	0.0	0.02	0.06	**	0.0	0.0	0.04	0.04
	Trap	0.0	0.2	0.1	**	0.4	0.0	0.0	0.0
	Rod and reel*				5.5	0.0	12.4	9.7	3.5
NC Area 94a	Longline	0.0	5.2	0.08	0.5	0.0	1.8	0.4	0.0
SW Atlantic	Longline	52.0	42.0	16.8	0.0	0.0	0.0	0.0	0.0
All Areas	All Gears	5,646.0	7,677.7	6,515.7	5,568.1	7,090.0	5,529.5	2,407.2	2,802.7

* Rod and Reel catches and landings represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector.

** \leq 0.05 mt

Table 4.46 U.S. Landings (mt) of Atlantic Skipjack Tuna by Gear and Area, 2002-2009.
Source: NMFS, 2010.

Area	Gear	2002	2003	2004	2005	2006	2007	2008	2009
NW Atlantic	Longline	**	0.9	0.1	0.05	0.04	0.0	0.1	0.4
	Rod and reel*	23.3	34.1	27.3	8.1	34.6	27.4	21.0	75.7
	Gillnet	**	0.9	16.7	2.2	0.2	0.05	0.04	3.3
	Trawl	**	0.5	0.2	0.07	0.7	0.005	0.003	0.0
	Handline	0.2	0.2	0.6	0.9	0.2	0.3	0.4	2.8
	Trap	**	1.5	0.006	0.0	0.3	0.0	0.0	0.0
	Pound net	0.0	0.1	0.0	0.0	0.5	0.0	0.0	0.0
	Unclassified	0.0	0.1	0.2	0.01	0.06	0.6	0.5	1.2
Gulf of Mexico	Longline	**	0.05	0.3	0.3	0.0	0.0	0.05	0.05
	Rod and reel*	13.2	11.1	6.3	3.1	6.4	23.9	16.3	22.0
	Handline	0.0	0.04	0.2	0.02	0.0	0.2	0.06	0.2
Caribbean	Longline	2.5	0.4	0.3	0.2	0.2	0.02	1.3	0.05
	Gillnet	0.6	0.4	0.3	0.06	0.02	0.0	0.01	0.6
	Rod and reel*	NA	15.7	40.4	3.9	7.7	0.2	11.3	4.3
	Handline	12.5	12.9	9.6	10.9	10.0	13.7	16.0	8.8
	Trap	0.7	0.2	0.02	0.1	0.05	0.0	0.0	0.0
All Areas	All Gears	53.0	79.1	102.5	29.9	61.0	66.5	67.1	119.4

* Rod and Reel catches and landings represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector.

** ≤ 0.05 mt

Table 4.47 U.S. Landings (mt) of Atlantic Bigeye Tuna by Area and Gear, 2002-2009.
Source: NMFS, 2010.

Area	Gear	2002	2003	2004	2005	2006	2007	2008	2009
NW Atlantic	Longline	328.6	169.2	267.0	272.9	469.4	331.9	380.2	386.1
	Rod and reel*	49.6	188.5	94.6	165.0	422.3	126.8	70.9	77.6
	Troll	0.0	0.0	0.0	0.0	0.0	0.9	0.8	0.6
	Gillnet	0.0	0.07	0.0	0.0	0.2	1.0	0.04	0.0
	Handline	13.8	6.0	3.3	6.2	21.5	16.8	6.9	4.6
	Trawl	0.5	0.03	0.9	0.6	0.0	0.4	0.0	0.0
	Unclassified	0.0	0.0	0.5	0.6	0.8	0.9	2.1	1.9
Gulf of Mexico	Longline	41.0	26.2	20.2	25.2	37.7	37.0	14.0	19.5
	Rod and reel*	0.0	0.0	6.0	0.0	24.3	0.0	0.0	0.0
	Handline	0.6	0.3	0.2	0.1	1.5	0.01	0.0	0.07
Caribbean	Longline	29.7	7.0	3.5	6.9	10.5	3.4	8.9	3.8
	Handline	0.0	0.0	0.0	0.04	0.0	0.0	0.0	0.0
NC Area 94a	Longline	45.2	36.9	5.0	6.9	3.0	8.4	4.6	0.0
SW Atlantic	Longline	91.3	44.6	14.4	0.0	0.0	0.0	0.0	0.0
All Areas	All Gears	600.3	478.8	416.0	484.4	991.4	527.3	488.5	516.5

* Rod and Reel catches and landings represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector.

** ≤ 0.05

Table 4.48 U.S. Landings (mt) of Atlantic Albacore Tuna by Gear and Area, 2002-2009.
Source: NMFS, 2010.

Area	Gear	2002	2003	2004	2005	2006	2007	2008	2009
NW Atlantic	Longline	124.0	95.7	106.6	88.9	84.8	109.9	107.2	140.1
	Gillnet	2.6	0.1	4.9	6.0	2.1	1.0	2.1	5.6
	Handline	3.9	1.7	6.1	3.0	2.6	5.4	0.2	0.5
	Trawl	0.3	0.02	2.7	1.7	1.1	0.3	0.01	0.08
	Troll	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.07
	Rod and reel*	323.0	333.8	500.5	356.0	284.2	393.6	125.2	22.8
	Unclassified	0.0	0.0	3.6	9.9	5.6	4.2	2.0	1.3
Gulf of Mexico	Longline	9.5	4.4	9.9	6.9	7.6	15.4	10.2	16.7
	Rod and reel*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Handline	0.0	0.01	0.0	0.1	0.07	0.0	0.0	0.01
Caribbean	Longline	8.4	3.9	3.2	12.1	10.5	1.2	0.4	0.3
	Gillnet	**	0.04	0.005	0.002	0.0	0.0	0.0	0.0
	Trap	0.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0
	Handline	2.7	2.6	2.1	1.1	0.4	0.2	0.4	0.003
NC Area 94a	Longline	4.8	1.6	0.2	0.6	0.03	0.3	0.8	0.3
SW Atlantic	Longline	8.3	2.0	0.5	0.0	0.0	0.0	0.0	0.0
All Areas	All Gears	488.1	446.1	646.6	488.0	399.0	532.1	248.1	187.9

* Rod and Reel catches and landings represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector.

** ≤ 0.05 mt

Table 4.49 U.S. Catches and Landings (mt) of Atlantic Swordfish by Gear and Area, 2002-2009. Source: NMFS, 2010.

Area	Gear	2002	2003	2004	2005	2006	2007	2008	2009
NW Atlantic	*Longline	1,132.8	1,341.3	1,169.7	1,096.2	1,165.2	1,649.6	1,622.5	1,642.1
	Gillnet	0.1	0.0	0.05	0.0	0.0	0.2	0.0	0.0
	Handline	8.8	10.8	18.7	34.4	32.5	125.2	83.2	126.2
	Trawl	3.9	5.6	8.3	8.2	3.5	6.5	7.6	22.9
	Unclassified	0.1	1.6	0.0	0.5	0.2	0.2	0.2	4.4
	Unclassified discards			3.9	4.2	5.1	5.5	4.1	25.1
	Harpoon	2.8	0.0	0.5	0.0	0.3	0.0	0.0	0.05
	***Rod and reel	21.5	5.9	24.3	53.1	50.6	65.9	56.7	19.0
	Trap	**	0.06	0.0	0.0	0.0	0.0	0.0	0.0
Gulf of Mexico	*Longline	549.1	507.6	453.0	480.9	328.1	457.7	361.6	473.1
	Handline	2.9	9.8	4.0	0.3	0.1	0.2	1.2	0.9
	Rod and reel		0.03	0.5	1.5	2.1	2.3	19.0	12.6
	Unclassified		3.4	0.0	0.2	0.0	0.0	0.0	2.9
	Unclassified discards			0.03	3.9	2.7	5.5	4.6	19.4
Caribbean	*Longline	329.0	274.5	295.9	143.5	88.9	27.8	57.9	22.6
	Trap	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
	Rod and reel		0.0	0.4	6.6	0.0	0.0	0.0	0.0
	Handline		0.02	0.006	0.0	0.0	0.0	0.0	0.003
	Unclassified discards		0.2	0.08	0.7	0.0	0.0	0.0	1.0
NC Atlantic	*Longline	587.9	632.8	599.9	552.2	378.6	338.9	311.6	511.2
SW Atlantic	*Longline	199.9	20.5	15.7	0.0	0.0	0.0	0.0	0.0
All Areas	All Gears	2,838.9	2,814.13	2,595.1	2,387.6	2,057.9	2,682.8	2,530.3	2,838.0

* Includes landings and estimated dead discards from scientific observer and logbook sampling programs.

** ≤ 0.5 mt

*** Rod and Reel catches and landings represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector.

Table 4.50 Commercial Landings of Atlantic Large Coastal Sharks in lb dw: 2002-2009. Sources: Cortés 2003; Cortés and Neer 2002, 2005; Cortés pers. comm., 2010.

Large Coastal Sharks	2002	2003	2004	2005	2006	2007	2008	2009
Basking**	0	0	0	0	0	0	0	0
Bignose*	0	318	0	98	46	0	104	0
Bigeye sand tiger**	0	0	0	0	0	0	0	0
Blacktip	1,099,194	1,474,362	1,092,600	894,768	1,255,255	1,091,502	573,723	601,116
Bull	40,463	93,816	49,556	118,364	173,375	154,945	186,882	207,502
Caribbean reef*	0	0	0	0	0	0	0	0
Dusky*	8,779	23,288	1,025	874	4,209	2,064	0	486
Galapagos*	0	0	0	0	0	0	0	0
Hammerhead, great	0	0	0	0	0	0	0	0
Hammerhead, scalloped	0	0	0	0	0	0	0	0
Hammerhead, smooth	0	0	92	54	150	0	358	4,025
Hammerhead, unclassified	108,160	150,368	116,546	182,387	141,068	65,232	55,907	159,937
Large coastal, unclassified	147,359	51,433	0	0	0	0	0	0
Lemon	56,921	80,688	67,810	74,436	65,097	72,583	53,427	82,311
Narrowtooth*	0	0	0	0	0	0	0	0
Night*	0	20	0	0	0	0	0	0

Large Coastal Sharks	2002	2003	2004	2005	2006	2007	2008	2009
Nurse	69	70	317	152	2,258	15	58	147
Sandbar	1,863,420	1,425,628	1,223,241	1,246,966	1,501,277	691,928	86,640	167,958
Sand tiger**	409	624	1,832	4,149	3,555	210	0	15
Silky	30,731	51,588	11,808	18,237	16,173	16,496	4,794	5,474
Spinner	8,447	12,133	14,806	47,670	96,259	17,888	123,660	37,047
Tiger	16,115	18,536	30,976	39,387	50,749	34,169	29,712	23,046
Whale**	0	0	0	0	0	0	0	0
White**	0	1,454	58	0	122	0	117	0
Unclassified, assigned to large coastal	771,450	908,077	603,229	519,654	499,069	182,240	247,639	224,137
Unclassified, fins	142,565	181,431	137,375	135,774	152,111	98,010	55,482	79,849
Total (excluding fins)	4,151,594 (1,883 mt dw)	4,292,403 (1,947 mt dw)	3,213,896 (1,458 mt dw)	3,147,196 (1,428 mt dw)	3,808,662 (1,728 mt dw)	2,329,272 (1,057 mt dw)	1,363,021 (618 mt dw)	1,513,201 (686 mt dw)

* indicates species that were prohibited in the commercial fishery as of June 21, 2000.

** indicates species that were prohibited as of April 1997.

Table 4.51 Commercial Landings of Atlantic Small Coastal Sharks in lb dw: 2002-2009. Sources: Cortés and Neer, 2002, 2005; Cortés, 2003; Cortés pers. comm.

Small coastal sharks	2002	2003	2004	2005	2006	2007	2008	2009
Atlantic angel*	495	1,397	818	3,587	500	29	91	0
Blacknose	144,615	131,511	68,108	124,039	187,907	91,438	134,255	149,874
Bonnethead	36,553	38,614	29,402	33,295	33,408	53,638	60,970	55,319
Finetooth	185,120	163,407	121,036	109,774	80,536	138,542	80,833	150,932
Sharpnose, Atlantic	213,301	190,960	230,880	354,255	459,184	332,160	324,622	277,261
Sharpnose, Caribbean*	0	0	0	0	0	0	0	0
Unclassified, assigned to small coastal	35,831	8,634	1,407	9,821	1,289	2,384	23,077	34,429
Total (excluding fins)	615,915 (279 mt dw)	534,523 (242 mt dw)	451,651 (205 mt dw)	634,885 (288 mt dw)	763,327 (346 mt dw)	618,191 (280 mt dw)	623,848 (283 mt dw)	667,815 (303 mt dw)

* indicates species that were prohibited in the commercial fishery as of June 21, 2000.

Table 4.52 Commercial landings of Atlantic Pelagic Sharks in lb dw: 2002-2009. Sources: Cortés and Neer 2002, 2005; Cortés 2003; Cortés pers. comm.

Pelagic Sharks	2002	2003	2004	2005	2006	2007	2008	2009
Bigeye thresher*	0	0	719	267	68	0	0	0
Bigeye sixgill*	0	0	0	0	0	0	0	0
Blue shark	137	6,324	423	0	588	0	3,229	4,793
Mako, longfin*	3,008	1,831	1,827	403	2,198	2,042	1,896	25,264
Mako, shortfin	159,840	151,428	217,171	156,082	103,040	165,966	120,255	141,456
Mako, unclassified	58,392	33,203	50,978	35,241	28,557	38,170	39,661	9,383
Oceanic whitetip	1,590	2,559	1,082	713	354	787	1,899	933
Porbeagle	2,690	1,738	5,832	2,452	3,810	3,370	5,259	3,609
Sevengill*	0	0	0	0	0	0	0	0
Sixgill*	0	0	0	0	0	0	0	0
Thresher	53,077	46,502	44,915	41,230	27,740	46,391	47,528	33,333
Unclassified, pelagic	5,965	79,439	0	0	571	0	0	154
Unclassified, assigned to pelagic	182,983	314,300	356,522	16,427	25,917	5,453	14,819	6,650
Unclassified, pelagic, fins	0	0	41	0	0	0	0	0
Total (excluding fins)	467,682 (212 mt dw)	637,324 (289 mt dw)	679,469 (308 mt dw)	252,815 (115 mt dw)	192,843 (87 mt dw)	262,179 (119 mt dw)	234,546 (106 mt dw)	225,575 (102 mt dw)

* indicates species that were prohibited in the commercial fishery as of June 21, 2000.

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5.0 ECONOMIC STATUS OF HMS FISHERIES

The review of each rule, and of Atlantic HMS fisheries as a whole, is facilitated when there is an economic baseline against which the rule or fishery may be evaluated. In this analysis, NMFS used the past nine years of data to facilitate the analysis of economic trends. It also should be noted that all dollar figures are reported in nominal dollars (*i.e.*, current dollars). If analysis of real dollar (*i.e.*, constant dollar) trends controlled for inflation is desired, price indexes for 2001 to 2009 are provided in Table 5.1. To determine the real price in base year dollars, divide the base year price index by the current year price index, and then multiply the result by the price that is being adjusted for inflation. From 2001 to 2009, the Consumer Price Index (CPI-U) indicates that prices have risen by 21.1 percent, the Gross Domestic Product (GDP) Implicit Price Deflator indicates that prices have risen 21.0 percent, and the Producer Price Index (PPI) for unprocessed finfish indicates a 74.3 percent rise in prices. From 2007 to 2008, the CPI, GDP Deflator, and the PPI for unprocessed finfish indicate prices changed by 3.9 percent, 2.2 percent, and -5.2 percent, respectively. From 2008 to 2009, the CPI, GDP Deflator, and the PPI for unprocessed finfish indicate prices changed by -0.4 percent, 0.9 percent, and 1.8 percent respectively.

Table 5.1 Inflation Price Indexes. The CPI-U is the standard Consumer Price Index for all urban consumers (1982-1984=100) produced by U.S. Department of Labor Bureau of Labor Statistics. The source of the Producer Price Index (PPI) for unprocessed finfish (1982=100) is also the Bureau of Labor Statistics. The Gross Domestic Product Implicit Price Deflator (2005=100) is produced by the U.S. Department of Commerce Bureau of Economic Analysis and obtained from the Federal Reserve Bank of St. Louis (<http://www.stlouisfed.org/>).

Year	CPI-U	GDP Deflator	PPI Unprocessed Finfish
2001	177.1	90.6	176.1
2002	179.9	92.1	201.5
2003	184.0	94.1	195.8
2004	188.9	96.8	224.1
2005	195.3	100.0	253.1
2006	201.6	103.3	334.6
2007	207.3	106.3	318.1
2008	215.3	108.6	301.6
2009	214.5	109.6	306.9

5.1 Commercial Fisheries²

In 2009, 7.9 billion pounds valued at \$3.9 billion were landed for all fish species by U.S. fisherman at U.S. ports. In 2008, 8.3 billion pounds valued at \$4.4 billion were landed for all fish species by U.S. fisherman at U.S. ports. The overall value of landings between 2008 and 2009 decreased by 11 percent. The total value of commercial HMS landings in 2009 was \$41.7 million (Table 5.3). The 2009 ex-vessel price index indicated that 7 of the 32 finfish species

² All the information and data presented in this section were obtained from NMFS 2010b.

groups tracked exhibited increasing ex-vessel prices, 24 species groups had decreasing ex-vessel prices, and one species group remained unchanged since 2008. The total edible finfish ex-vessel price index for 2009 was down 43 percent from 2008. The yellowfin tuna price index had the largest decrease (74 percent) of the Atlantic HMS species included in the index.

The estimated value of the 2009 domestic production of all fishery products was \$8.1 billion. This is \$855.5 million less than the estimated value in 2008. The total import value of fishery products was \$21.8 billion in 2009. This is a decrease of \$6.6 billion from 2008. The total export value of fishery products was \$19.6 billion in 2009. This is a decrease of \$3.7 billion from 2008. In comparison, the total export value in 1996 was only \$8.7 billion.

5.1.1 Ex-Vessel Prices

The average ex-vessel prices per pound dressed weight (dw) for 2002 to 2009 by species and area are summarized in Table 5.2. Prices are reported in nominal dollars. The ex-vessel price depends on a number of factors including the quality of the fish (*e.g.*, freshness, fat content, method of storage), the weight of the fish, the supply of fish, and consumer demand.

Table 5.2 and Table 5.3 indicate that the average ex-vessel prices for bigeye tuna have generally increased since 2003. Prices, however, did decline modestly from 2008 to 2009 across all regions.

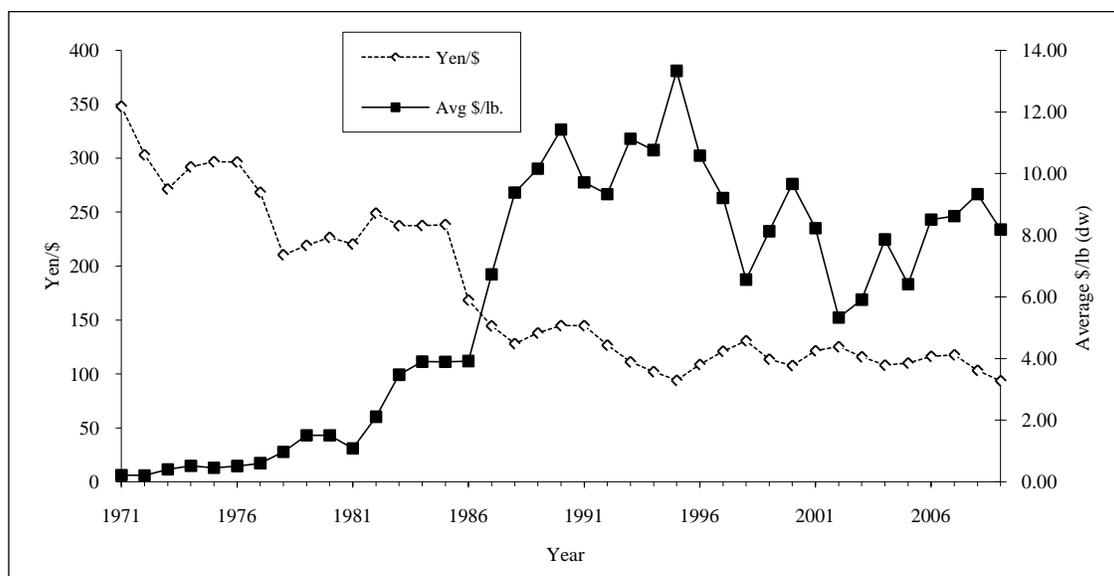


Figure 5.1 Average Annual Yen/\$ Exchange Rate and Average U.S. BFT Ex-vessel \$/lb (dw) for All Gears: 1971-2008. Source: Federal Reserve Bank (www.stls.frb.org) and Northeast Regional Office.

Average ex-vessel prices for bluefin tuna have risen 54 percent since 2002. The ex-vessel prices for bluefin tuna can be influenced by many factors, including market supply and the

Japanese Yen/U.S. Dollar (¥/\$) exchange rate. Figure 5.1 shows the average ¥/\$ exchange rate, plotted with average ex-vessel bluefin tuna prices, from 1971 to 2009.

The average ex-vessel prices for yellowfin tuna have decreased in 2009 in all regions (Table 5.2). From 2002 to 2009, the average ex-vessel price of yellowfin tuna increased 18 percent (Table 5.3).

In this year’s SAFE Report, NMFS has broken out albacore and skipjack tunas, which were previously reported together as other tunas. The average ex-vessel price for albacore tuna increased in all regions in 2009, except for the North Atlantic region (Table 5.2). From 2002 to 2009, the average ex-vessel price of albacore tuna increased 70 percent (Table 5.3). The average price of skipjack tuna remained constant in the South Atlantic from 2008 to 2009 (Table 5.2). From 2002 to 2009, the average ex-vessel price of skipjack tuna decreased 41 percent (Table 5.3).

The average ex-vessel price for large coastal sharks (LCS) increased in the Gulf of Mexico, but decreased in the South Atlantic and Mid-Atlantic in 2009 (Table 5.2). The average ex-vessel prices for pelagic sharks increased in the Gulf of Mexico and North Atlantic regions in 2009 (Table 5.2). The average ex-vessel prices for small coastal sharks (SCS) increased from 2008 to 2009 in the Mid-Atlantic and Gulf of Mexico regions, but decreased in the South-Atlantic region (Table 5.2). Shark fin prices increased in all regions except the Mid-Atlantic in 2009 (Table 5.2).

Table 5.2 Average Ex-vessel Prices per lb for Atlantic HMS by Area. Source: Dealer weighout slips from the Southeast Fisheries Science Center, Northeast Fisheries Science Center, and bluefin tuna dealer reports from the Northeast Regional Office. Gulf of Mexico includes: TX, LA, MS, AL, and the west coast of FL. S. Atlantic includes: east coast of FL. GA, SC, and NC dealers reporting to Southeast Fisheries Science Center. Mid-Atlantic includes: NC dealers reporting to Northeast Fisheries Science Center, VA, MD, DE, NJ, NY, and CT. N. Atlantic includes: RI, MA, NH, and ME. For bluefin tuna, all NC landings are included in the Mid-Atlantic.

Species	Area	2002	2003	2004	2005	2006	2007	2008	2009
Bigeye tuna	Gulf of Mexico	\$4.24	\$4.90	\$5.42	\$5.75	\$5.73	\$5.66	\$6.12	\$5.80
	S. Atlantic	\$6.03	\$3.21	\$3.10	\$3.61	\$3.94	\$4.34	\$4.34	\$4.11
	Mid-Atlantic	\$3.98	\$3.85	\$4.22	\$5.16	\$4.95	\$5.78	\$5.70	\$5.41
	N. Atlantic	\$3.74	\$3.68	\$4.60	\$4.65	\$4.54	\$5.31	\$5.60	\$5.18
Bluefin tuna	Gulf of Mexico	\$5.56	\$6.32	\$4.64	\$4.67	\$4.39	\$5.87	\$4.83	\$4.65
	S. Atlantic	\$3.77	\$4.11	\$4.91	\$4.60	\$6.36	\$7.07	\$6.00	\$14.43
	Mid-Atlantic	\$4.70	\$7.38	\$9.62	\$10.30	\$9.81	\$10.05	\$12.56	\$9.40
	N. Atlantic	\$7.31	\$5.71	\$7.42	\$5.57	\$7.92	\$8.31	\$8.33	\$7.09
Yellowfin tuna	Gulf of Mexico	\$2.65	\$2.79	\$3.21	\$3.32	\$2.89	\$3.02	\$3.51	\$3.04
	S. Atlantic	\$2.44	\$2.20	\$2.51	\$2.60	\$2.32	\$2.69	\$2.99	\$2.90
	Mid-Atlantic	\$2.03	\$1.74	\$1.98	\$2.74	\$2.44	\$2.99	\$3.30	\$2.49
	N. Atlantic	\$2.67	\$2.27	\$2.69	\$3.15	\$2.63	\$3.17	\$3.82	\$3.69

Species	Area	2002	2003	2004	2005	2006	2007	2008	2009
Albacore tuna	Gulf of Mexico	\$0.66	\$0.55	\$0.68	\$0.61	\$0.53	\$0.49	\$0.55	\$1.42
	S. Atlantic	\$1.04	\$0.86	\$0.76	\$0.94	\$0.93	\$1.24	\$1.21	\$1.29
	Mid-Atlantic	\$0.67	\$0.92	\$0.54	\$0.76	\$0.82	\$0.86	\$0.97	\$1.46
	N. Atlantic	\$0.94	\$0.93	\$0.74	\$0.91	\$0.97	\$1.37	\$2.00	\$1.26
Skipjack tuna	Gulf of Mexico	-	-	-	-	-	-	-	\$0.50
	S. Atlantic	\$0.57	\$0.47	\$1.11	\$0.70	\$0.74	\$0.73	\$0.95	\$0.95
	Mid-Atlantic	\$1.57	\$1.20	\$0.84	\$1.13	\$0.79	\$2.22	\$4.50	-
	N. Atlantic	\$3.31	\$4.17	\$2.65	-	-	-	-	-
Swordfish	Gulf of Mexico	\$2.71	\$2.85	\$3.42	\$3.20	\$2.90	\$3.07	\$2.93	\$2.69
	S. Atlantic	\$3.44	\$3.37	\$3.88	\$4.00	\$3.86	\$4.24	\$4.11	\$4.12
	Mid-Atlantic	\$3.08	\$3.04	\$3.38	\$3.52	\$3.52	\$4.07	\$3.49	\$3.40
	N. Atlantic	\$3.07	\$3.08	\$3.96	\$3.69	\$3.64	\$4.11	\$4.20	\$3.49
Large coastal sharks	Gulf of Mexico	\$1.24	\$1.01	\$0.73	\$0.86	\$0.75	\$0.42	\$0.40	\$0.66
	S. Atlantic	\$0.47	\$0.44	\$0.46	\$0.50	\$0.47	\$0.40	\$0.72	\$0.55
	Mid-Atlantic	\$0.37	\$0.25	\$0.36	\$0.29	\$0.27	\$0.55	\$0.66	\$0.57
	N. Atlantic	-	-	\$0.66	-	-	-	-	-
Pelagic sharks	Gulf of Mexico	\$1.01	\$1.05	\$1.15	\$1.19	\$1.21	\$1.29	\$1.18	\$1.25
	S. Atlantic	\$1.37	\$1.24	\$1.26	\$1.26	\$1.26	\$1.36	\$1.36	\$1.34
	Mid-Atlantic	\$0.87	\$0.70	\$0.89	\$1.21	\$1.15	\$1.10	\$1.20	\$1.15
	N. Atlantic	\$1.06	\$1.29	\$1.08	\$0.92	\$0.73	\$0.85	\$0.93	\$1.23
Small coastal sharks	Gulf of Mexico	\$0.34	\$0.35	\$0.35	\$0.47	\$0.51	\$0.58	\$0.62	\$0.69
	S. Atlantic	\$0.53	\$0.54	\$0.67	\$0.71	\$0.68	\$0.80	\$0.78	\$0.71
	Mid-Atlantic	\$0.40	\$0.38	\$0.44	\$0.39	\$0.44	\$0.43	\$0.48	\$0.57
	N. Atlantic	-	-	-	-	-	-	-	-
Shark fins	Gulf of Mexico	\$14.37	\$14.70	\$15.76	\$16.22	\$16.40	\$13.22	\$14.94	\$15.09
	S. Atlantic	\$13.92	\$13.83	\$12.55	\$13.93	\$13.24	\$11.44	\$12.73	\$13.15
	Mid-Atlantic	\$10.86	\$10.09	\$7.72	\$10.55	\$9.72	\$6.12	\$3.74	\$3.60
	N. Atlantic	\$3.06	\$2.30	\$1.39	\$4.55	\$6.23	\$3.24	\$3.00	\$3.67

5.1.2 Revenues

Table 5.3 summarizes the average annual revenues of the Atlantic HMS fisheries based on average ex-vessel prices and the weight reported landed as per the U.S. National Report (NMFS, 2010a), the information used in the shark stock assessments, information given to the International Commission for the Conservation of Atlantic Tunas (ICCAT) (Cortés pers. comm., 2010), as well as price and weight reported to the NMFS Northeast Regional Office by Atlantic bluefin tuna dealers. These values indicate that the estimated total annual revenue of Atlantic HMS fisheries has increased in 2009 to \$41.7 million from \$34.3 million in 2008. From 2008 to 2009, the Atlantic tuna fishery's total revenue increased by \$7.1 million. A majority of that increase can be attributed to the increased commercial landings of bluefin tuna. From 2008 to 2009, the annual revenues from shark decreased by 8.6 percent. This is a continuation of the trend from the previous year, where revenues declined by 25 percent. There were some large regulatory changes in the shark fishery in 2008. The fishery was closed for half of the year and when it opened the trip limit went from 4,000 pounds to a 33 fish limit with no sandbar retention

allowed. It is also worth noting that 2007 saw a large decrease in revenues because of large overharvests in 2006, which dramatically reduced the fishing season in 2007. Given these changes, the decreases in large coastal shark revenues from 2007 to 2009 were expected. A similar decline in revenues did not occur in the pelagic or small coastal shark fisheries. Finally, the annual revenues from swordfish increased by 5 percent from 2008 to 2009. This was due to an increase in landings of 10 percent from 2008 to 2009.

Table 5.3 Estimates of the Total Ex-vessel Annual Revenues of Atlantic HMS Fisheries. Sources: CFDBS, QMS, and NMFS 2010a.

Species		2002	2003	2004	2005	2006	2007	2008	2009
Bigeye tuna	Ex-vessel \$/lb dw	\$4.24	\$3.74	\$4.19	\$5.37	\$4.92	\$5.71	\$5.63	\$5.35
	Weight lb dw	971,269	512,002	556,270	563,325	960,863	706,361	736,520	774,087
	Fishery Revenue	\$4,118,181	\$1,914,887	\$2,330,771	\$3,025,055	\$4,727,446	\$4,033,321	\$4,146,608	\$4,141,365
Bluefin tuna	Ex-vessel \$/lb dw	\$5.33	\$5.91	\$7.86	\$6.41	\$8.51	\$8.62	\$9.33	\$8.19
	Weight lb dw	2,255,241	1,963,172	1,010,599	772,500	528,404	515,176	720,823	1,631,950
	Fishery Revenue	\$12,020,435	\$11,602,347	\$7,943,308	\$4,951,725	\$4,496,718	\$4,440,817	\$6,725,279	\$13,365,671
Yellowfin tuna	Ex-vessel \$/lb dw	\$2.27	\$2.07	\$4.62	\$2.92	\$2.47	\$2.98	\$3.31	\$2.68
	Weight lb dw	4,977,156	4,172,204	4,999,908	3,379,951	3,849,095	4,521,240	2,423,498	3,159,665
	Fishery Revenue	\$11,298,144	\$8,636,462	\$23,099,575	\$9,869,457	\$9,507,265	\$13,473,295	\$8,021,778	\$8,467,902
Skipjack tuna	Ex-vessel \$/lb dw	\$1.65	\$1.31	\$0.93	\$1.15	\$0.80	\$1.21	\$1.36	\$0.97
	Weight lb dw	320,288	230,163	307,942	26,103	21,693	26,455	32,628	30,688
	Fishery Revenue	\$528,475	\$301,514	\$286,386	\$30,018	\$17,354	\$32,011	\$44,374	\$29,767
Albacore tunas	Ex-vessel \$/lb dw	\$0.79	\$0.88	\$1.57	\$0.81	\$0.85	\$0.96	\$1.15	\$1.34
	Weight lb dw	320,288	230,163	307,942	232,808	203,354	244,272	216,759	291,187
	Fishery Revenue	\$253,028	\$202,543	\$483,469	\$188,574	\$172,851	\$234,501	\$249,273	\$390,191
Total tuna	Fishery Revenue	\$27,965,234	\$22,455,210	\$33,660,040	\$17,876,256	\$18,748,783	\$21,979,444	\$18,938,039	\$26,004,706
Swordfish	Ex-vessel \$/lb dw	\$3.07	\$3.11	\$3.54	\$3.62	\$3.54	\$4.02	\$3.63	\$3.45
	Weight lb dw	4,705,792	4,658,997	4,301,003	3,466,728	3,002,597	3,643,926	3,414,513	3,762,280
	Fishery Revenue	\$14,446,781	\$14,489,481	\$15,225,551	\$12,549,555	\$10,629,193	\$14,648,583	\$12,394,682	\$12,979,866
Large coastal sharks	Ex-vessel \$/lb dw	\$0.68	\$0.58	\$0.47	\$1.18	\$0.50	\$0.76	\$0.92	\$0.59
	Weight lb dw	4,151,594	4,292,403	3,213,896	3,147,196	3,808,662	2,329,272	1,363,021	1,513,201
	Fishery Revenue	\$2,823,084	\$2,489,594	\$1,510,531	\$3,713,691	\$1,904,331	\$1,770,247	\$1,253,979	\$892,789
Pelagic sharks	Ex-vessel \$/lb dw	\$0.96	\$0.92	\$0.96	\$1.19	\$1.15	\$1.13	\$1.21	\$1.17
	Weight lb dw	467,682	637,324	679,469	252,815	192,843	262,179	234,546	225,575
	Fishery Revenue	\$448,975	\$586,338	\$652,290	\$300,850	\$221,769	\$296,262	\$283,801	\$263,923
Small coastal sharks	Ex-vessel \$/lb dw	\$0.44	\$0.44	\$0.55	\$0.54	\$0.54	\$0.58	\$0.63	\$0.64
	Weight lb dw	615,915	534,523	451,651	634,885	763,327	618,191	623,848	667,815
	Fishery Revenue	\$271,003	\$235,190	\$248,408	\$342,838	\$412,197	\$358,551	\$393,024	\$427,402
Shark fins (5% of all sharks landed)	Ex-vessel \$/lb dw	\$12.92	\$12.92	\$10.88	\$12.76	\$12.74	\$9.61	\$9.47	\$9.49
	Weight lb dw	261,760	273,213	217,251	201,745	238,242	160,482	111,071	120,330
	Fishery Revenue	\$3,381,933	\$3,529,906	\$2,363,689	\$2,574,264	\$3,035,198	\$1,542,233	\$1,051,840	\$1,141,927
Total sharks	Fishery Revenue	\$6,924,995	\$6,841,027	\$4,774,918	\$6,931,643	\$5,573,495	\$3,967,293	\$2,982,644	\$2,726,040
Total HMS	Fishery Revenue	\$49,337,010	\$43,785,718	\$53,660,509	\$37,357,454	\$34,951,471	\$40,595,319	\$34,315,365	\$41,710,612

Note: Average ex-vessel prices may have some weighting errors, except for bluefin tuna which is based on a fleet-wide average.

5.1.3 Operating Costs

NMFS has collected operating cost information from commercial permit holders via logbook reporting. Each year, 20 percent of active Atlantic HMS commercial permit holders are selected to report economic information along with their Atlantic HMS logbook or Coast Fisheries logbook submissions. In addition, NMFS also receives voluntary submissions of the trip expense and payment section of the logbook form from non-selected vessels.

The primary expenses associated with operating an Atlantic HMS permitted commercial vessel include labor, fuel, bait, ice, groceries, other gear, and light sticks on swordfish trips. Unit costs are collected on some of the primary variable inputs associated with trips. The unit costs for fuel, bait, and light sticks are reported in Table 5.4. Fuel costs increased over 282 percent from 2004 to 2008 while the cost per pound for bait has remained fairly constant. This spike in fuel costs ended in 2009 when fuel costs decreased by 45 percent in one year. The unit cost per light sticks has actually declined from 2004 to 2009.

Table 5.4 Median Unit Costs for Fuel, Bait, and Light Sticks 2004 - 2009. Source: Atlantic HMS logbooks.

Input Unit Costs	2004	2005	2006	2007	2008	2009
Fuel	\$1.27	\$1.90	\$2.20	\$2.29	\$3.59	\$1.98
Bait	\$0.80	\$0.85	\$0.85	\$0.85	\$0.85	\$0.85
Light Sticks*	\$0.52	\$0.50	\$0.50	\$0.40	\$0.37	\$0.37

*Cost per light stick.

Table 5.5 provides the median total cost per trip for the major variable inputs associated with Atlantic HMS trips. Fuel costs are one of the largest variable expenses and the total costs of fuel decreased substantially per trip in 2009 in line with the decline in the unit cost of fuel.

Table 5.5 Median Input Costs for HMS Trips 2004 - 2009. Source: Atlantic HMS logbooks.

Input Costs	2004	2005	2006	2007	2008	2009
Fuel	\$1,871	\$2,341	\$1,728	\$2,144	\$3,031	\$2,303
Bait	\$960	\$920	\$750	\$858	\$1,080	\$1,320
Light Sticks	\$650	\$500	\$500	\$520	\$444	\$446
Ice Costs	\$465	\$480	\$400	\$540	\$520	\$600
Grocery Expenses	\$675	\$610	\$470	\$600	\$600	\$800
Other Trip Costs	\$800	\$1,250	\$920	\$1,236	\$1,293	\$1,500

Labor costs are also an important component of operating costs for HMS commercial vessels. Table 5.6 lists the amount of crew on a typical trip. The median number of crew members has been consistently three from 2004 to 2009. Most crew and captains are paid based on a lay system. According to Atlantic HMS logbook reports, owners are typically paid 50 percent of revenues. Captains receive a 20 percent share and crew in 2009 received 22.5 percent on average. These shares are typically paid out after costs are netted from gross revenues. Median total shared costs per trip have ranged from \$4,493 to \$5,000 from 2004 to 2009.

Table 5.6 Median Labor Inputs and Costs for HMS Trips 2004 - 2009. Source: Atlantic HMS logbooks.

Labor	2004	2005	2006	2007	2008	2009
Number of Crew	3	3	3	3	3	3
Owner Share	50%	50%	50%	50%	50%	50%
Captain Share	20%	20%	20%	20%	20%	20%
Crew Share	13%	11%	12%	15%	15%	22.5%
Total Shared Costs	\$4,493	\$4,550	\$4,500	\$4,500	\$5,000	\$4,689

In 2009, median reported total trip sales were \$9,731. In 2008, median reported total trip sales were \$10,970. In 2007, the median reported total trip sales were \$12,064. After adjusting for operating costs, median net earnings per trip in 2008 was \$3,214. Median net earnings per trip increased to \$4,340 in 2009.

It should be noted that operating costs for the Atlantic HMS commercial fleet vary considerably from vessel to vessel. The factors that impact operating costs include unit input costs, vessel size, target species, and geographic location among other things.

5.2 Fish Processing and Wholesale Sectors

Consumers spent an estimated \$75.5 billion for fishery products in 2009, including \$50.3 billion at food service establishments, \$23.8 billion in retail sales for home consumption, and \$1.4 billion for industrial fish products. The commercial marine fishing industry contributed \$38.4 billion (in value added) to the U.S. Gross National Product in 2009 (NMFS, 2010). For comparison, in 1996, consumers spent an estimated \$41.2 billion, including \$27.8 billion at food service establishments, \$13.2 billion for home consumption, and \$283.9 billion for industrial fish products. The commercial marine fishing industry contributed \$21.0 billion to the U.S. Gross National Product in 1996.

5.2.1 Dealers

NMFS does not currently have information regarding the costs and revenues for Atlantic HMS dealers. In general, dealer costs include: purchasing fish; paying employees to process the fish; rent or mortgage on the appropriate building; and supplies to process the fish. Some dealers may provide loans to the vessel owner, money for vessel repairs, fuel, ice, bait, etc. In general, outlays and revenues of dealers are not as variable or unpredictable as those of a vessel owner; however, dealer costs may fluctuate depending upon supply of fish, labor costs, and equipment repair.

Although NMFS does not have specifics regarding HMS dealers, there is some information on the number of employees for processors and wholesalers in the United States provided in *Fisheries of the United States* (NMFS, 2009b) (<http://www.st.nmfs.noaa.gov/st1/publications.html>). Table 5.7 provides a summary of available information.

Table 5.7 Processors and Wholesalers: Plants, and Employment, 2008

Area and State	Processing (1)		Wholesale (2)		Total	
	Plants	Employment	Plants	Employment	Plants	Employment
	-----Number-----					
New England:						
Maine	33	732	173	914	206	1,646
New Hampshire	9	269	13	120	22	389
Massachusetts	55	2,640	173	2,125	228	4,765
Rhode Island	11	268	34	(3)	45	(3)
Connecticut	6	71	18	182	24	253
Total	114	3,980	411	3,341	525	7,053
Mid-Atlantic:						
New York	20	431	272	1,939	292	2,370
New Jersey	17	563	94	1,113	111	1,676
Pennsylvania	4	92	29	533	33	625
Delaware	1	(3)	5	20	6	20
District of Columbia	-	-	4	(3)	4	(3)
Maryland	20	713	50	504	70	1,217
Virginia	46	1,635	63	547	109	2,182
Total	108	3,434	517	4,656	625	8,090
South Atlantic:						
North Carolina	30	602	64	597	94	1,199
South Carolina	2	(3)	22	153	24	153
Georgia	5	(3)	31	480	36	480
Florida	30	1,511	283	2,681	313	4,192
Total	67	2,113	400	3,911	467	6,024
Gulf:						
Alabama	36	1,724	16	176	52	1,900
Mississippi	24	2,906	24	110	48	3,016
Louisiana	74	1,700	103	537	177	2,237
Texas	31	1,378	86	904	117	2,282
Total	165	7,708	229	1,727	394	9,435
Inland States or Other						
Areas: (4), Total	57	2,348	228	2,841	285	5,189

(1) Data are based on North American Industry Classification System (NAICS) 3117 as reported to the Bureau of Labor Statistics.

(2) Data are based on North American Industry Classification System (NAICS) 42446 as reported to the Bureau of Labor Statistics.

(3) Included with Inland States.

5.2.2 Processing Sector

NMFS does not collect wholesale price information from dealers. The Agency did collect annual report information from the Fulton Fish Market, however that data series was discontinued in 2004.

NMFS has information regarding the mark-up percentage paid by consumers. A mark-up or margin is the difference between the price paid for the product by the consumer and the wholesale or dockside value for an equivalent weight of the product. This information is

presented in Table 5.8. Primary wholesalers and processors on average received a 126 percent margin on sales in 2009, up from 90.3 percent in 2008.

Table 5.8 Summary of the Mark-Up and Consumer Expenditures for the Primary Wholesale and Processing of Domestic Commercial Marine Fishery Products. Source: NMFS 2009b.

	2008	2009
Purchase of fishery inputs	\$7,390,725,000	\$7,000,518,000
Percent mark-up of fishery inputs	90.3%	126.0%
Total mark-up	\$6,675,397,000	\$6,675,397,000
Value added as percent of total mark-up	60.3%	60.2%
Value added within sector	\$4,024,922,000	\$5,531,542
Total value of sales within sector	\$14,066,121,000	\$15,822,199

5.3 International Trade

5.3.1 Overview of International Trade for Atlantic HMS

Several regional fishery management organizations (RFMOs), including ICCAT, have taken steps to improve the collection of international trade data to further international conservation policy for the management of HMS. While RFMOs cannot re-create information about stock production based on trade data, this information can be used provisionally to estimate landings related to these fisheries, and to identify potential compliance problems with certain RFMO management measures. This section describes United States participation in HMS related international trade programs, a review of U.S. HMS export activity, import activity, and data use.

The United States collects general trade monitoring data through the U.S. Bureau of Customs and Border Protection (CBP; imports) and the U.S. Bureau of the Census (Census Bureau; exports and imports). These programs collect data on the amount and value of imports and exports categorized under the Harmonized Tariff Schedule (HTS). Many HMS have distinct HTS codes, and some species are further subdivided by product (*e.g.*, fresh or frozen, fillets, steaks, etc.). NMFS provides Census Bureau trade data for marine fish products online for the public at <http://www.st.nmfs.gov/st1/trade/index.html>. Some species are combined into groups (*e.g.*, sharks), which can limit the value of these data for fisheries management when species-specific information is required. Often the utility of these data are further limited if the ocean area of origin for each product is not distinguished. For example, the HTS code for Atlantic, Pacific, and Indian Ocean bigeye tuna is the same.

Trade data for Atlantic HMS are more useful as a conservation tool when they include more detailed information, such as the flag of the harvesting vessel, the ocean of origin, and the species for each transaction. Under the authority of ATCA and the Magnuson-Stevens Act, NMFS collects this more detailed information through catch and statistical document programs while monitoring international trade of bluefin tuna, swordfish, southern bluefin tuna, and frozen bigeye tuna. These trade programs implement ICCAT recommendations and support rebuilding efforts by collecting data necessary to identify nations and individuals that may be fishing in a manner that diminishes the effectiveness of ICCAT fishery conservation and management

measures (Section 5.3.3). In support of these programs, NMFS implemented the HMS International Trade Permit in 2005 (69 FR 67268, November 17, 2004) to identify importers and exporters of HMS products that require trade monitoring documentation. Traders of shark fins must also be permitted. Copies of the ITP application and all trade monitoring documents associated with these programs are found on the NMFS HMS Management Division webpage at <http://www.nmfs.noaa.gov/sfa/hms/>. These and several other trade monitoring programs established by NMFS for HMS are described in greater detail below.

Table 5.9 Number of International Trade Permits (ITP) by state as of November 2010.

State	Number of ITPs
CA	73
CT	2
FL	53
GA	2
HI	13
IL	3
KS	1
LA	4
MA	32
MD	1
ME	9
MP	1
NC	2
NH	2
NJ	11
NY	25
OH	1
OR	1
PA	1
PR	1
RI	6
TX	3
VA	3
WA	10
TOTAL	260

5.3.1.1 Bluefin Tuna Catch Document

In 2007, ICCAT adopted a rigorous bluefin tuna catch document (BCD) program (Recommendation 07-10) which tracks bluefin from capture, through farming operations, landing, and trade. NMFS implemented the program in July 2008 (73 CFR 31380; June 2, 2008). Updates to the program were included in ICCAT recommendations 08-12 and 09-11. The intent of the program is to support the ICCAT rebuilding program by accounting for all bluefin tuna harvested and available in the marketplace, or held in cages. Previous to the BCD

program, the trade of bluefin tuna was tracked internationally under ICCAT's Bluefin Tuna Statistical Document (BSD) program (Recommendation 92-01).

All cooperating nations to ICCAT are required to generate a BCD at the harvest of a bluefin tuna, including live bluefin tuna bound for capture related aquaculture. In the United States, bluefin tuna are tagged when landed, and landing data associated with the tag number is transmitted to NMFS within 24 hours. The tag stays on the fish until it is cut up into portions to be consumed, and the associated landings data can be retrieved at any time by referencing the tag number. If a bluefin is exported, then a BCD document must accompany the export, and remains with the tagged fish until it is consumed abroad. All exporters must be permitted with a HMS International Trade permit as described above.

Bluefin tuna from abroad that are imported into the United States must also be accompanied by a BCD. Importers are first required to obtain an HMS International Trade Permit from NMFS, and must report any imports of bluefin tuna to NMFS. NMFS routinely consults import data generated by the Bureau of Customs and Border Protection (CBP) to check against BCD data and ensure that importers are abiding by BCD and other NMFS regulations implementing ICCAT requirements.

5.3.1.2 Swordfish Statistical Document

On March 17, 2005, the ICCAT swordfish statistical document (SD) program was implemented by the United States (69 FR 67268, November 17, 2004) to replace the previously used Certificate of Eligibility. The swordfish SD program is based on a 2001 ICCAT recommendation (01-22), and ensures that all imported swordfish are greater than the minimum size of 14.9 kg (33 lb) dw, and identifies the flag of the harvesting vessel and ocean area of origin. Similar to the BCD program, CBP data on swordfish imports is used to obtain missing data and identify dealers that are not following the required reporting procedures.

5.3.1.3 Bigeye Tuna Statistical Document

Like the two previous trade monitoring programs discussed above, the bigeye tuna SD program is used to track movement of internationally traded bigeye tuna to its final destination. ICCAT recommended the implementation of a bigeye tuna SD program in 2001 (Recommendation 01-21). The initial program was implemented in 2005 along with the swordfish SD, and applies only to frozen bigeye tuna. It may be expanded to cover fresh product in the future. Other RFMOs, including the Inter-American Tropical Tuna Commission and the Indian Ocean Tuna Commission, have also adopted frozen bigeye SD programs that have been implemented by the United States.

5.3.1.4 Dolphin-safe Tuna Imports

For every shipment of frozen or processed tuna imported into the United States, a completed Fisheries Certificate of Origin (NOAA Form 370) is required to be submitted at the time of importation. In some cases, an additional certification signed by a representative of a

nation participating in the International Dolphin Conservation Program or a Captain's Statement is required to accompany the NOAA Form 370. Since the late 1970s, NOAA Form 370 has been used to document imports of frozen or processed yellowfin tuna and other species of tuna for the purpose of protecting dolphins in the Eastern Tropical Pacific Ocean. Form 370 is filed with other documents necessary for entry of tuna into the United States. The form is *not* required for fresh tuna. Further information is available on the website <http://dolphinsafe.gov/>.

5.3.1.5 Billfish Certificate of Eligibility

The Billfish Certificate of Eligibility is used to ensure that any billfish being imported or sold in the United States (outside of the Pacific states) is not of Atlantic origin. In the Pacific states, billfish involved in trade are presumed to be of Pacific origin. Any statement that contains the specified information is sufficient to meet the certificate of eligibility documentation requirements, and it needs to be available upon request throughout the entire commerce stream, including at time of consumption at a restaurant. It is not necessary to use the form available from NMFS or to submit the form to NMFS upon final disposition of the billfish

5.3.1.6 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

CITES is an international agreement that regulates the global trade in wildlife. The goal of CITES is to protect and regulate species of animals and plants to ensure that commercial demand does not threaten their survival in the wild. Countries cooperate through a system of permits and certificates to confirm that trade is legal. Species listed on Appendix II are those that are vulnerable to overexploitation, but not at risk of extinction. In every case of an import or export of an Appendix II species, an export/import permit may only be issued if, the export/import will not be detrimental to the survival of the species, the specimen was legally acquired (in accordance with the national wildlife protection laws) and any live specimen will be shipped in a manner which will not cause it any damage. Currently there are three species of sharks listed on Appendix II, whale, basking and great white sharks. Species listed on Appendix I are considered to be at risk of extinction, and are prohibited from international commercial trade, except in special circumstances.

The United States proposed that six shark species be listed in Appendix II, for consideration at the fifteenth meeting of the Conference of the Parties to CITES (CoP15) held during March 2010 in Doha, Qatar. The proposed species were oceanic whitetip shark (*Carcharhinus longimanus*) and scalloped hammerhead (*Sphyrna lewini*); along with "look alike" species great hammerhead (*S. mokarran*); smooth hammerhead (*S. zygaena*); dusky shark (*C. plumbeus*); and sandbar shark (*C. obscurus*). The United States submitted these proposals due to concerns that over-exploitation to supply the international fin trade is negatively impacting the population status of these sharks, as the fins of these six shark species are among the most valuable in trade. The United States also supported the Principality of Monaco's proposal that Atlantic bluefin tuna be included on Appendix I. All of these proposals were defeated at CoP15.

5.3.2 U.S. Exports of HMS

Exports” may include merchandise of both domestic and foreign origin. The Census Bureau defines exports of "domestic" merchandise to include commodities which are grown, produced, or manufactured in the United States (*e.g.*, fish caught by U.S. fishermen). For statistical purposes, domestic exports also include commodities of foreign origin which have been altered in the United States from the form in which they were imported, or which have been enhanced in value by further manufacture in the United States. The value of an export is the f.a.s. (free alongside ship) value defined as the value at the port of export based on a transaction price including inland freight, insurance, and other charges incurred in placing the merchandise alongside the carrier. It excludes the cost of loading the merchandise, freight, insurance, and other charges or transportation costs beyond the port of exportation.

5.3.2.1 Atlantic and Pacific Bluefin Tuna Exports

As discussed in the previous section, NMFS collects detailed export data on bluefin tuna (Atlantic and Pacific) through the BCD program. Table 5.10 gives bluefin tuna export data for exports from the United States since 2000. Figure 5.2 includes data from the NMFS BCD program, and Census Bureau data. Census Bureau data are consistently greater in value than data reported by the BCD program. This has been determined to be a result of NMFS’ additional quality control measures that ensure data for other species (*e.g.*, Southern bluefin tuna) or other transaction types (*e.g.*, re-exports) are not erroneously included with bluefin export data. Bluefin tuna re-export data are listed separately (Table 5.18).

In the time series shown in Table 5.10 and depicted in Figure 5.2, U.S. exports of Atlantic bluefin tuna have roughly paralleled commercial landings. Most U.S. bluefin tuna exports are destined for the sushi markets in Japan. Decreases in Atlantic bluefin tuna exports since 1999 could be the result of the development of a U.S. market for high-quality fresh bluefin tuna meat. As shown in Figure 5.3, the percentage of the commercial U.S. bluefin tuna catch that has been exported declined from 89% in 1996 to 51% in 2009. The greatest percentage of catch was retained in the United States in 2007, when only 46% of landed product was exported. This issue is discussed further in this chapter under the section “*Atlantic and Pacific Bluefin Tuna Imports.*”

Table 5.10 United States Exports of Atlantic and Pacific Bluefin Tuna (BFT), 1999-2009.
Sources: NMFS BCD Program, NERO, and Census Bureau.

Year	Atlantic Commercial Landings (NERO, MT, DW)	Atlantic BFT Exports (BCD, MT, DW)	Pacific BFT Exports (BCD, MT, DW)	Total U.S. Exports (BCD, MT, DW)	Total U.S. Exports (Census Bureau, MT)	Value of U.S. Exports (Census Bureau, \$ million)
2000	903.9	758.0	76.0	834.0	1,044	11.20
2001	987.0	812.3	67.0	879.0	1,020	10.70
2002	964.0	730.4	0.1	730.5	922	10.74

Year	Atlantic Commercial Landings (NERO, MT, DW)	Atlantic BFT Exports (BCD, MT, DW)	Pacific BFT Exports (BCD, MT, DW)	Total U.S. Exports (BCD, MT, DW)	Total U.S. Exports (Census Bureau, MT)	Value of U.S. Exports (Census Bureau, \$ million)
2003	756.9	578.7	2.1	580.8	998	11.36
2004	428.6	247.3	0.0	247.3	370	4.50
2005	419.4	245.7	125.1	370.8	454	5.30
2006	204.6	93.1	0.0	93.1	281	3.60
2007	196.4	85.4	8.2	93.6	238	2.90
2008	266.4	146.5	0.0	146.5	177	2.49
2009	408.5	236.2	0.0	236.2	300	4.05

Note: most exports of Pacific bluefin tuna were in round (whole) form, although some exports were of dressed and gilled/gutted fish; Atlantic exports were almost entirely dressed, but also included whole and other product forms (dw); data are preliminary and subject to change.

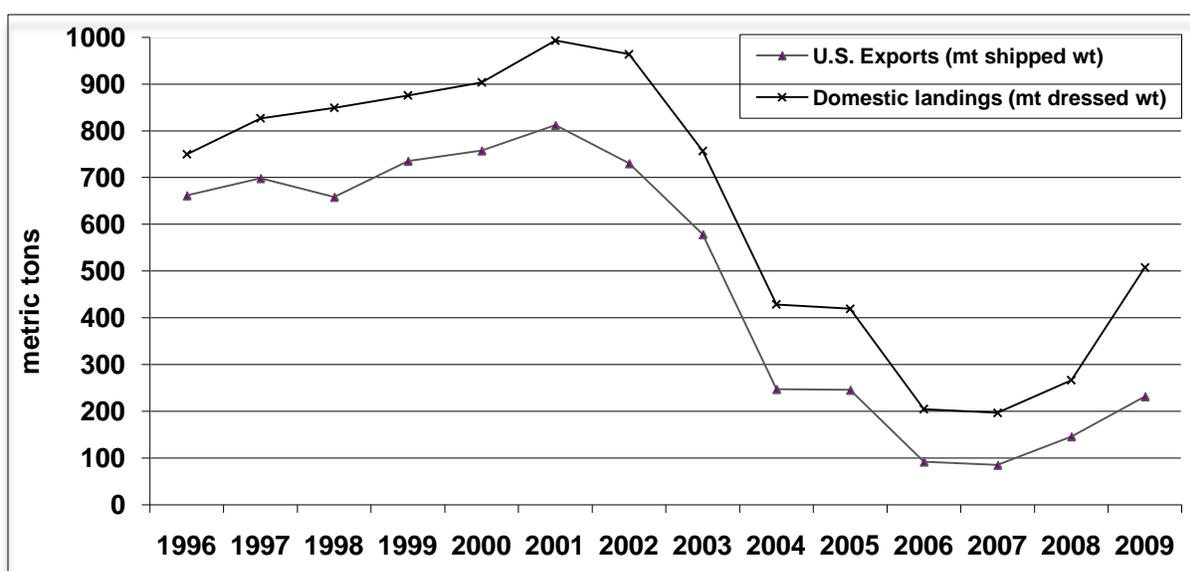


Figure 5.2 Total annual U.S. domestic landings (mt dressed weight) and U.S. exports (mt shipped weight) for Atlantic bluefin tuna.

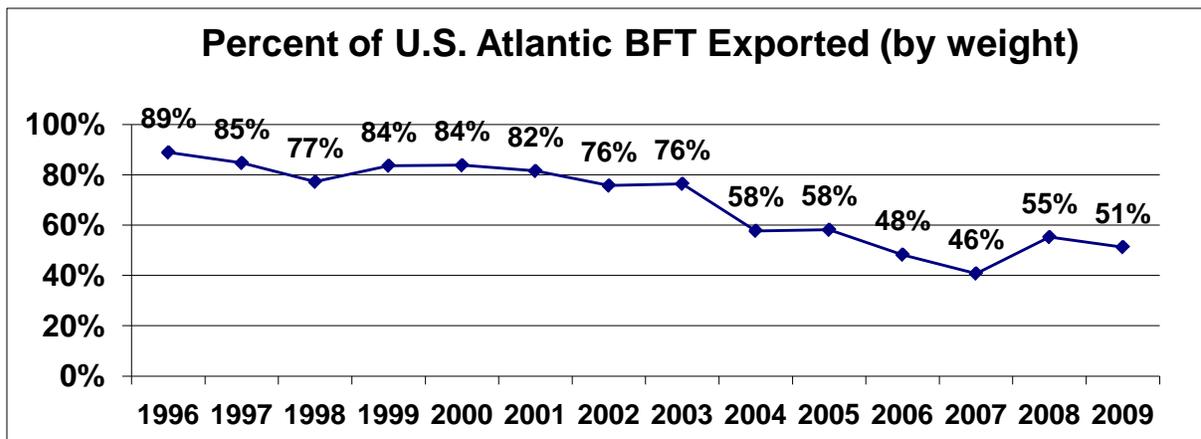


Figure 5.3 Annual percentage (by weight) of commercially landed U.S. Atlantic bluefin tuna that was exported.

5.3.2.2 Other Tuna Exports

Export data for other tunas is gathered by the Census Bureau, and includes trade data for albacore, yellowfin, bigeye, and skipjack tuna from all ocean areas of origin combined. In 2001, albacore tuna first replaced bluefin tuna as the most valuable tuna export from the United States (Table 5.11), according to Census Bureau information.

Albacore has remained a higher value export than bluefin tuna since 2003. The total value of albacore exports has remained over \$20 million for six of the last seven years. Most albacore exports are Pacific in origin, as Atlantic landings have ranged between 188 mt and 640 mt during the time series in Table 5.11. Landings of Atlantic albacore have declined since 2007 to their lowest since 2000 (Table 5.11).

Table 5.11 Amount and Value of U.S. Exports of Albacore Tuna From All Ocean Areas, 1999-2009 (Census Bureau data) and U.S. Landings of North Atlantic Albacore Tuna (2010 U.S. National Report to ICCAT).

Year	Atlantic Landings (mt ww)	U.S. Exports (from all ocean areas)					
		Fresh		Frozen		Total for all Exports	
		MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)
2000	407	263	0.78	2,747	6.04	3,010	6.83
2001	324	1,542	3.62	4,609	9.83	6,151	13.45
2002	488	680	1.50	4,483	8.28	5,163	9.78
2003	448	894	1.86	9,731	18.85	10,624	20.71
2004	640	1,360	3.28	10,737	24.11	12,097	27.38
2005	486	549	1.61	7,402	16.99	7,951	18.60
2006	400	378	1.04	8,810	19.56	9,187	20.60
2007	532	275	0.84	11,731	25.52	12,006	26.35
2008	248	997	2.69	7,958	22.54	8,955	25.23
2009	188	417	1.02	9,903	22.58	9,510	23.60

Note: Landings may be calculated on a calendar or fishing year basis; exports may be in whole (ww) or product weight (dw); data are preliminary and subject to change.

Table 5.12 and Table 5.13 show U.S. Atlantic landings and U.S. exports from all ocean areas combined for yellowfin and skipjack tuna, respectively. Yellowfin exports were greater and more valuable than exports for skipjack or bigeye tuna (Table 5.14). Yellowfin tuna exports were unusually high in 2008. The amount of fresh yellowfin product exported usually exceeds the amount of frozen yellowfin product annually. However, export of frozen product was much higher in 2008 than any other year included in Table 5.12. In Table 5.13, the amount and value of exported fresh and frozen skipjack tuna has varied over the nine year period with no discernable trends. Exports of skipjack in 2009 greatly exceeded values for any of the previous years in the time series.

Table 5.12 Amount and Value of U.S. Exports of Yellowfin Tuna From All Ocean Areas, 1999-2009 (Census Bureau data) and U.S. Landings of Atlantic Yellowfin Tuna (2010 U.S. National Report to ICCAT).

Year	Atlantic Landings (mt ww)	U.S. Exports (from all ocean areas)					
		Fresh		Frozen		Total for all Exports	
		MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)
2000	7,051	412	1.12	406	.76	819	1.89
2001	6,703	290	.71	834	1.45	1,124	2.17
2002	5,646	1612	2.37	420	.81	2,033	3.19
2003	7,685	1792	2.93	176	.68	1,968	3.62
2004	6,437	306	1.54	242	.31	549	1.86
2005	5,562	158	1.70	291	.97	449	2.67
2006	7,090	183	1.96	108	.37	291	2.32
2007	5,559	148	1.75	138	.44	286	2.19
2008	2,407	198	2.09	4,140	9.06	4,338	11.16
2009	2,802	221	2.51	274	.66	495	3.17

Note: Landings may be calculated on a calendar or fishing year basis; exports may be in whole (ww) or product weight (dw); data are preliminary and subject to change.

Table 5.13 Amount and Value of U.S. Exports of Skipjack Tuna From All Ocean Areas, 1999-2009 (Census Bureau data) and U.S. Landings of West Atlantic Skipjack Tuna (2010 U.S. National Report to ICCAT).

Year	Atlantic Landings (mt ww)	U.S. Exports (from all ocean areas)					
		Fresh		Frozen		Total for all Exports	
		MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)
2000	44	7	.01	83	.05	91	.06
2001	69	82	.15	34	.04	117	.20
2002	66	66	.17	11	.01	77	.18
2003	77	81	.22	0	0	81	.22
2004	102	55	.30	140	.18	196	.48
2005	30	35	.14	-	-	35	.14
2006	61	6	.02	23	.04	30	.06
2007	66	17	.06	77	.12	94	.18
2008	67	31	.15	350	.41	381	.56
2009	119	2.07	.54	530	.71	737	1.25

Note: Landings data may have been ported on either a fishing year or calendar year basis; exports may be in whole (ww) or product weight (dw); data are preliminary and subject to change.

Bigeye tuna exports and Atlantic landings are given in Table 5.14. No data were available for bigeye tuna exports in 2001, and prior to 2001 bigeye exports were included in the category of unspecified tuna. Annually, bigeye tuna exports include more fresh than frozen product, except in 2008 when export of frozen product increased dramatically.

Table 5.14 Amount and Value of U.S. Exports of Bigeye Tuna From All Ocean Areas, 2002-2009 (Census Bureau data) and U.S. Landings of Atlantic Bigeye Tuna (2009 U.S. National Report to ICCAT).

Year	Atlantic Landings (mt ww)	U.S. Exports (from all ocean areas)					
		Fresh		Frozen		Total for all Exports	
		MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)
2002	600	95	.22	8	.01	104	.24
2003	480	255	.47	40	.08	295	.56
2004	419	361	1.40	48	.10	410	1.51
2005	484	431	1.95	50	.12	481	2.07
2006	991	223	1.69	76	.20	299	1.89
2007	523	128	1.38	65	.14	193	1.52
2008	489	145	1.72	318	.96	462	2.68
2009	516	121	1.53	78	.19	199	1.72

NOTE: Landings data may have been reported on either a fishing year or calendar year basis; exports may be in whole (ww) or product weight (dw); data are preliminary and subject to change.

5.3.2.3 Shark Exports

Export data for sharks is gathered by the Census Bureau, and includes trade data for sharks from any ocean area of origin. Shark exports are not categorized down to the species level, with the exception of dogfish, and are not identified by specific product code other than fresh or frozen meat and fins. Due to the popular trade in shark fins and their high relative value compared to shark meat, a specific HTS code was assigned to shark fins in 1998. It should be noted that there is no tracking of other shark products besides meat and fins. Therefore, NMFS cannot track trade in shark leather, oil, or shark cartilage products.

Table 5.15 indicates the magnitude and value of shark exports by the United States from 2000 – 2009. The reduction in shark fin exports from 2002 to 2009 is of particular note, as is the increase in the unit value of shark fins during this time period (except for 2008). Decreases in shark fin trade were expected as the result of the Shark Finning Prohibition Act, which was enacted in December of 2000 and implemented by final rule (67 FR 6194, February 11, 2002). Exports of shark fins were back up to 56 mt in 2009, from 11 mt in 2008). Also of note is the dramatic increase in export of frozen shark products in 2008.

Table 5.15 Amount and Value of U.S. Shark Product Exports From 2000-2009. Source: Census Bureau.

Yr	Shark Fins Dried			Non-specified Fresh Shark			Non-specified Frozen Shark			Total for all Exports	
	MT	US\$ (million)	\$/KG	MT	US\$ (million)	\$/KG	MT	US\$ (million)	\$/KG	MT	US\$ (million)
2000	365	3.51	9.62	430	.78	1.82	345	.81	2.35	1,140	5.10
2001	335	3.16	9.44	332	.54	1.64	634	2.34	3.69	1,301	6.04
2002	123	3.46	28.00	968	1.47	1.52	982	2.34	2.38	2,075	7.28
2003	45	4.03	87.79	837	1.31	1.57	592	1.34	2.28	1,476	6.70
2004	63	3.02	47.53	536	1.18	2.21	472	.98	2.09	1,071	5.18
2005	31	2.37	76.93	377	1.03	2.73	494	1.06	2.15	902	4.46
2006	34	3.17	94.66	816	1.62	1.99	747	1.38	1.85	1,597	6.17
2007	19	1.78	93.68	502	1.05	2.09	695	1.35	1.94	1,216	4.18
2008	11	0.69	63.00	559	1.21	2.16	4122	7.21	1.75	4,692	9.11
2009	56	2.82	50.36	254	.72	2.83	320	1.33	4.16	630	4.87

Note: Exports may be in whole (ww) or product weight (dw); data are preliminary and subject to change.

5.3.2.4 Swordfish Exports

U.S. Census data only reports swordfish exports for the years 2007 through 2009 (Table 5.16). The low cost and year round availability of swordfish imports into the United States is believed to have reduced the marketability of U.S. domestic swordfish, and created an export market for U.S. product in recent years.

Table 5.16 Amount and Value of U.S. Swordfish Product Export from 2007-2009.

Source: Census Bureau

Yr	Swordfish Fillet Fresh		Swordfish Fillet Frozen		Swordfish Fresh		Swordfish Frozen		Swordfish Meat Frozen		Total	
	MT	US\$ (mill.)	MT	US\$ (mill.)	MT	US\$ (mill.)	MT	US\$ (mill.)	MT	US\$ (mill.)	MT	US\$ (mill.)
2007	38	.33	11	.08	135	.91	11	.04	216	.69	412	2.1
2008	24	.25	48	.34	121	.89	1.2	.01	154	.88	349	2.4
2009	43	.38	19	.23	133	.81	12.1	.04	24	.13	231	1.6

5.3.2.5 Re-exports of Atlantic HMS

For purposes of international trade tracking of HMS, the term “re-export” refers to a product that has been entered for consumption into the United States and then exported to another country, with or without further processing in the United States (from 50 CFR Part 300, Subpart M, International Trade Documentation and Tracking Programs for HMS). For most HMS species for most years, re-export activity is a small fraction of export activity and well below relative reference points of 1000 mt and/or one million dollars annually. Annual re-export figures in excess of these relative reference points are given in Table 5.17.

In previous editions of SAFE reports, bluefin tuna re-exports for 2003-2005 reflected a great deal of transshipment from Mexico through the United States to Japan. Implementation of the HMS International Trade Permit regulations in 2005 (69 FR 67268, November 17, 2004) changed the way re-exports and transshipments were distinguished, and probably resulted in the decrease in re-exports since 2005. Table 5.17 has been updated to reflect these changes for previous years.

Table 5.17 Re-exports for HMS (see Table 5.10 for bluefin tuna) over the reference points of 1000 mt and/or one million U.S. dollars, annually from 1999-2009. (Census Bureau data).

Year	Product	Amount (MT)	Value (\$ mill.)
2004	Shark fins, dried	29	1.84
2005	Yellowfin tuna, fresh	123	2.30
2005	Shark fins, dried	34	1.53
2006	Yellowfin tuna, fresh	208	2.62
2007	Yellowfin tuna, fresh	208	2.91
2007	Yellowfin tuna, frozen	506	1.80
2008	Yellowfin tuna, fresh	224	3.40
2008	Shark fins, dried	26	1.37
2009	Yellowfin tuna, fresh	162	2.18
2009	Yellowfin tuna, frozen	381	0.92

5.3.2.6 Summary of Atlantic HMS Exports

As indicated in the previous section, the value of HMS exports (from all ocean areas combined) is nationally dominated by tuna products. In 2009, fresh and frozen tuna products accounted for 18,994 mt dw or 1.9 percent of the 1,019,833 mt dw of fresh and frozen seafood products exported from the United States, as indicated in *Fisheries of the United States, 2009*. The value of these HMS products accounted for \$60.9 million, out of a national total of \$3.3 billion.

Data reflecting international trade of HMS species harvested from all ocean areas are of limited value for describing trade of HMS harvested from the Atlantic Ocean. For example, Atlantic landings of albacore tuna (commercial and recreational) for 2009 were reported in the 2010 U.S. National Report to ICCAT as 188 mt (Table 5.11). National trade data show that over 9,510 mt of albacore were exported in 2009 (Table 5.11), indicating the majority of albacore exports were Pacific Ocean product. Trade tracking programs such as the bluefin tuna, swordfish, and bigeye tuna consignment document programs are more accurate for tracking the international disposition of Atlantic HMS.

All import shipments must be reported to the U.S. Bureau of Customs and Border Protection. "General" imports are reported when a commodity enters the country, and "consumption" imports consist of entries into the United States for immediate consumption combined with withdrawals from CBP bonded warehouses. "Consumption" import data reflect the actual entry of commodities originating outside the United States into U.S. channels of consumption. As discussed previously, CBP data for certain products are provided to NMFS for use in implementing consignment document programs. U.S. Census Bureau import data are used by NMFS as well.

5.3.2.7 Atlantic and Pacific Bluefin Tuna Imports

United States imports and re-exports of bluefin tuna for 2000 through 2009, as reported through both CBP and BCD program data, are shown in Table 5.18. The difference in import numbers between the CBP and BCD data may be explained by imports of other species (e.g., Southern bluefin tuna) erroneously included under the bluefin tuna HTS code, or, a lack of knowledge and compliance with the BCD program by importers.

Table 5.18 Imports of Atlantic and Pacific Bluefin Tuna into the United States: 1999-2009. Sources: NMFS BSD program and CBP data.

YEAR	NMFS BCD Program		U.S. CBP Data	
	Imports (MT)	Re-exports (MT)	Imports (MT)	VALUE (US\$ mill.)
2000	431.5	29.7	453.4	7.67
2001	512.9	7.0	532.3	8.21
2002	529.8	9.9	605.0	9.75
2003	649.9	38.4	780.3	11.67

YEAR	NMFS BCD Program		U.S. CBP Data	
	Imports (MT)	Re-exports (MT)	Imports (MT)	VALUE (US\$ mill.)
2004	823.4	17.1	886.1	15.25
2005	966.1	10.4	1,064.0	19.96
2006	791.5	18.5	865.2	17.05
2007	584.6	17.7	697.1	13.97
2008	412.7	16.8	487.1	11.91
2009	407.7	33.6	476.8	10.29

Note: Most imports of bluefin tuna were in dressed form, and some were round and gilled/gutted fish, fillets or belly meat (dw); data are preliminary and subject to change. Southern bluefin tuna trade was included in figures for Atlantic and Pacific bluefin tuna trade prior to 2002.

The rise in popularity of sashimi in the United States has generated increased imports of bluefin tuna, and dealers reported an expanded domestic market for both locally-caught and imported raw tuna during the early part of the current decade. U.S. consumption of bluefin tuna (landings + imports – exports – re-exports) generally increased from 1996 through 2005, and then declined through 2008 (Figure 5.4). Since 2004, the United States has imported more bluefin tuna than it has exported. This trade gap was greatest in 2006, but appears to be narrowing in the last several years.

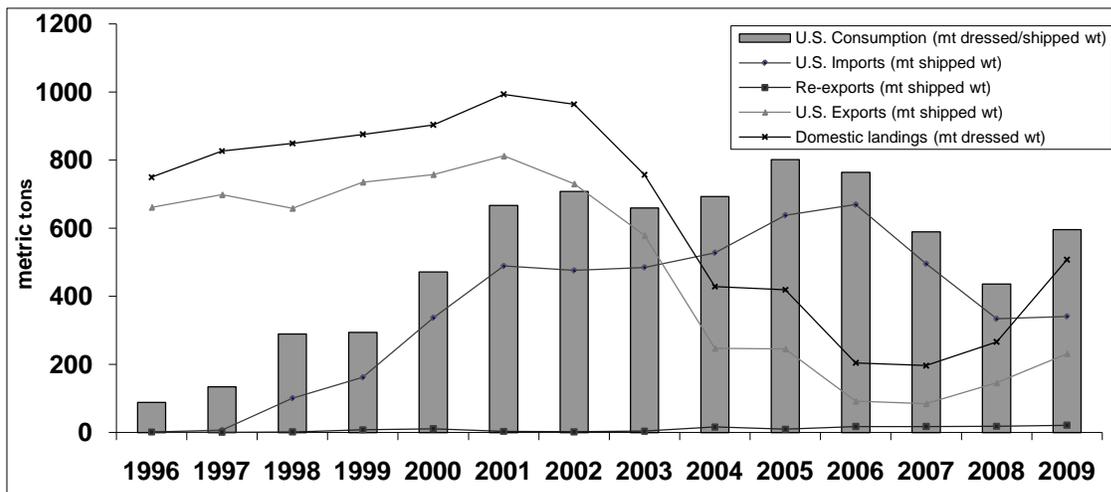


Figure 5.4 United States annual consumption of bluefin tuna from 1996 through 2009. Annual U.S. imports, re-exports, exports (mt shipped wt) and landings (mt dressed weight) are also depicted. Consumption equals landings + imports – exports – re-exports.

Western Atlantic bluefin tuna imports into the United States originate primarily from Canada with much less from Mexico (U.S. BCD program). Eastern imports vary by year. For 2008 - 2009, import volume was greatest from France, Tunisia, Libya, and Italy. In 2007,

volume was greatest from Spain, Croatia, Italy, and Morocco, and in 2006, Spain, Croatia, Malta, and Tunisia.

5.3.2.8 Other Tuna Imports

Since January 2001, CBP has been collecting species-specific import information for bigeye tuna (grouped to include all ocean areas). Previously, bigeye tuna had been grouped with other tuna under general tuna imports. The total amount of bigeye tuna imports has ranged between 4,800 and 8,059 mt over the last eight years, as shown in Table 5.19. Since 2000, imports of frozen bigeye tuna were greatest in 2008.

Table 5.19 Imports of Bigeye Tuna Into the United States From All Ocean Areas Combined: 2001-2009 Source: Census Bureau data.

Year	Fresh		Frozen		Total for all Imports	
	MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)
2001	4,684	25.70	135	.32	4,820	26.02
2002	6,312	39.84	319	.70	6,632	40.55
2003	7,312	51.01	560	1.48	7,872	52.49
2004	6,752	49.10	1,175	2.62	7,928	51.73
2005	5,040	38.18	1,539	3.33	6,579	41.51
2006	4,920	36.55	1,523	3.15	6,442	39.70
2007	5,617	42.30	1,512	3.19	7,129	45.49
2008	5,462	41.43	2,597	5.31	8,059	46.74
2009	5,459	41.72	1,125	2.36	6,584	44.08

Note: Imports may be whole weight (ww) or product weight (dw); data are preliminary and subject to change.

Annual yellowfin tuna imports into the United States for all ocean areas combined are given in Table 5.20. As indicated by the data in this section, yellowfin tuna are imported in the greatest quantity of all fresh and frozen tuna products. The annual value and total amount of yellowfin imports had been generally, gradually increased since 2000, but fell for the last two years. Most imported yellowfin products are fresh. The least amount of frozen product during this time series was imported in 2009.

Table 5.20 Imports of Yellowfin Tuna Into the United States From All Ocean Areas Combined: 1999-2009. Source: Census Bureau data.

Year	Fresh		Frozen		Total for all Imports	
	MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)
2000	13,153	70.27	3,290	18.73	16,443	89.00
2001	15,563	85.50	3,967	23.45	19,530	108.95
2002	15,966	95.22	4,619	29.31	20,585	124.53
2003	15,299	94.03	5,579	39.67	20,878	133.71
2004	15,624	99.41	5,833	35.35	21,457	134.96
2005	17,064	116.58	6,002	46.89	23,066	163.47
2006	17,792	126.47	5,442	42.78	23,234	169.25
2007	17,985	137.42	5,506	44.26	23,492	181.69
2008	15,904	129.59	3,847	27.97	19,751	157.56
2009	14,199	112.34	2868	24.73	17,067	137.07

NOTE: Imports may be whole weight (ww) or product weight (dw); data are preliminary and subject to change.

The amount of albacore imports from all ocean areas has generally declined since 2000 (Table 5.21) with a slight increase in 2009. In 2000, albacore imports were valued at \$133 million while in 2005 the value dropped to approximately \$5 million, and have remained fairly low. Import amounts and value have been fairly stable over the last several years. (Products in airtight containers (e.g., cans or foil pouches) are not included in these data.)

Table 5.21 Imports of Albacore Tuna into the United States From All Ocean Areas Combined: 1999-2009. Source: Census Bureau data.

Year	Fresh		Frozen		Total for all Imports	
	MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)
2000	1,843	6.42	51,001	127.33	52,845	133.76
2001	1,107	3.85	40,428	105.58	41,536	109.43
2002	1,296	4.81	11,903	24.49	13,200	29.31
2003	1,062	4.11	12,569	25.90	13,632	30.02
2004	1,004	3.12	4,943	11.67	5,947	14.80
2005	706	2.38	1,016	2.96	1,722	5.34
2006	876	3.54	667	1.71	1,543	5.25
2007	945	3.86	718	1.98	1,664	5.86
2008	703	2.95	1,632	4.73	2,335	7.68
2009	718	3.07	1,493	3.46	2,211	6.53

Note: Imports may be whole weight (ww) or product weight (dw); data are preliminary and subject to change.

Skipjack tuna imports into the United States are comprised mainly of frozen product (Table 5.22). The amount and value of skipjack imports decreased dramatically in 2000, and have been variable but low since. (Products in airtight containers (e.g., cans or foil pouches) are not included in these data.)

Table 5.22 Imports of Skipjack Tuna From All Ocean Areas Combined Into the United States: 1999-2009. Source: U.S. Census Bureau data.

Year	Fresh		Frozen		Total for all Imports	
	MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)
1999	0	0	8,238	6.30	8,238	6.30
2000	0	0	904	2.75	904	2.75
2001	<1	<0.01	377	0.61	378	0.62
2002	<1	0.01	824	0.83	825	0.84
2003	0	0	224	0.43	224	0.43

Year	Fresh		Frozen		Total for all Imports	
	MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)
2004	<1	<0.01	110	0.26	112	0.27
2005	0	0	652	0.67	652	0.67
2006	140	0.14	883	0.84	1,023	0.98
2007	31	0.06	835	0.73	866	0.79
2008	14	0.02	685	0.77	699	0.79
2009	20	.04	498	0.63	519	0.67

Note: Imports may be whole weight (ww) or product weight (dw); data are preliminary and subject to change.

5.3.2.9 Swordfish Imports

Table 5.23 summarizes swordfish import data collected by NMFS' Swordfish Statistical Document Program for the 2009 calendar year. According to these data, most swordfish imports were Pacific Ocean product. For Atlantic product, most imports came from Canada, followed by Brazil. CBP data located at the bottom of the table reflect a larger amount of imports than reported by the import monitoring program, and may be used by NMFS staff to follow up with importers, collect statistical documents that have not been submitted, and enforce dealer reporting requirements.

Table 5.23 Swordfish Import Data for the 2009 Calendar Year Collected Under the NMFS Swordfish Statistical Document Program. (np=not provided)

Flag of Harvesting Vessel	Ocean Area of Origin								Total (mt dw)
	Atlantic (mt dw)	North Atlantic (mt dw)	South Atlantic (mt dw)	Med. (mt dw)	Pacific (mt dw)	Western Pacific (mt dw)	Indian (mt dw)	Not Provided (mt dw)	
Australia						65.0		0.5	65.5
Brazil	5.2		348.0		0.2			6.8	360.2
Canada		821.7						4.4	826.1
Chile					373.1				373.1
China					6.1				6.1
Costa Rica					406.3			3.8	410.1
Ecuador			0.2	90.4	652.7		2.2	3.8	749.3
Fiji Islands					7.9	28.0		2.7	38.6
Indonesia							211.4		211.4
Japan					2.3				2.3
Malaysia							14.1		14.1
Mexico					248.5			1.3	249.8
Micronesia					4.1				4.1

Flag of Harvesting	Ocean Area of Origin								Total (mt dw)
	Atlantic (mt dw)	North Atlantic (mt dw)	South Atlantic (mt dw)	Med. (mt dw)	Pacific (mt dw)	Western Pacific (mt dw)	Indian (mt dw)	Not Provided (mt dw)	
New Zealand					0.6	131.7		2.6	134.9
Nicaragua					9.3				9.3
Panama					1103.9				1103.9
South Africa			94.7				85.0	2.4	182.1
Tonga					0.1				0.1
Trinidad & Tobago		14.9						2.2	17.1
Uruguay		7.3	83.5					6.1	96.9
Venezuela		0.6							0.6
Vietnam					133.1			0.1	133.2
np		0.1	10.7	20.0	493.5			0.9	525.2
Total Imports Reported by SDs	5.2	844.6	537.1	110.4	3441.7	224.7	312.7	37.6	5514.0
Total Imports Reported by U.S. Customs & Border Protection									7703.7
Total Imports Not Reported by SDs									2189.7

Table 5.24 indicates the amount and value of swordfish products imported by the United States from 2000 – 2009, as recorded by the U.S. Census Bureau, for all ocean areas combined. New import product categories were added in 2007. The amount of each product imported per year and annual totals for product and value were fairly consistent over the past several years. Total imports have fallen over the last five years.

Table 5.24 Imported Swordfish Products by Year: 2000-2009. Source: Census Bureau data.

Year	Fresh (MT)		Frozen (MT)			Total for all Imports	
	Steaks	Other	Fillets	Steaks	Other	MT	US\$ (million)
2000	161	8626	4833	524	167	14,314	85.57
2001	71	8982	3814	710	119	13,697	81.89
2002	195	9726	4156	956	677	15,711	88.26
2003	147	8079	3929	433	560	13,150	75.62
2004	157	6568	3261	387	351	10,726	70.95

Year	Fresh (MT)			Frozen (MT)					Total for all Imports	
	Steaks		Other	Fillets	Steaks	Other			MT	US\$ (million)
2005	172		6388	2957	367	304			10,187	77.17
2006	77		6830	2875	351	201			10,334	75.63
*New Categories in 2007	*Fillets	Steaks	Other	Fillets	Steaks	*Meat >6.8 kg	*Meat <=6.8 kg	Other		
2007	174	84	5412	2520	171	118	737	205	9,422	70.85
2008	96	13	5658	2673	170	55	207	88	8,962	68.98
2009	53	10	5312	1632	112	96	23	33	7272	55.85

NOTE: Imports may be whole weight (ww) or product weight (dw); data are preliminary and subject to change.

5.3.2.10 Shark Imports

Similar to tuna imports other than bluefin tuna and frozen bigeye tuna, NMFS does not require shark importers to collect and submit information regarding the ocean area of catch. Shark imports are also not categorized by species, and lack specific product information on imported shark meat such as the proportion of fillets and steaks. The condition of shark fin imports; e.g., wet, dried, or further processed products such as canned shark fin soup, is also not collected. There is no longer a separate tariff code for shark leather, so its trade is not tracked by CBP or Census Bureau data.

The United States may be an important trans-shipment port for shark fins, which may be imported wet, processed, and then exported dried. It is also probable that U.S.-caught shark fins are exported to Hong Kong or Singapore for processing, and then imported back into the United States for consumption by urban-dwelling Asian Americans (Rose, 1996).

Table 5.25 summarizes Census Bureau data on shark imports for 2000 through 2009. Imports of fresh shark products and shark fins have decreased significantly since 2000. As of July 2, 2008, shark fin importers, exporters, and re-exporters are required to be permitted under NMFS' HMS International Trade Permit regulations (73 FR 31380). Permitting of shark fin traders was implemented to assist in enforcement and monitoring trade of this valuable commodity.

From 2000 to 2009, the overall annual amount and value of shark imports has fluctuated with no discernable trends outside of a decrease in shark fins since 2002 and a general decrease in fresh shark imports during the time series. Imports of dried shark fins has been increasing gradually since 2003.

Table 5.25 U.S. Imports of Shark Products From All Ocean Areas Combined: 2000-2009 Source: Census Bureau data.

Year	Shark Fins Dried		Non-specified Fresh Shark		Non-specified Frozen Shark		Total For All Imports	
	MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)	MT	US\$ (million)
1999	59	2.10	1,095	2.03	105	.62	1,260	4.76
2000	66	2.35	1,066	1.85	90	.57	1,222	4.79
2001	50	1.08	913	1.38	123	1.78	1,087	4.25
2002	39	1.02	797	1.24	91	1.09	928	3.35
2003	11	0.01	515	0.72	100	0.99	626	1.82
2004	14	0.34	650	1.00	156	2.35	821	3.70
2005	27	0.75	537	1.02	147	2.27	711	4.04
2006	28	1.38	338	0.68	93	1.35	459	3.41
2007	29	1.68	548	1.03	174	1.04	751	3.75
2008	29	1.74	348	0.72	189	1.88	566	4.34
2009	21	0.97	180	0.37	125	1.50	326	2.83

NOTE: Imports may be whole weight (ww) or product weight (dw); data are preliminary and subject to change.

5.3.3 The Use of Trade Data for Management Purposes

Trade data has been used in a number of ways to support the international management of HMS. When appropriate, the SCRS uses trade data on bluefin tuna, swordfish, bigeye tuna, and yellowfin tuna that are submitted to ICCAT as an indication of landings trends. These data can then be used to augment estimates of fishing mortality of these species, which improves scientific stock assessments. For example, in 2009, the SCRS used bluefin catch document data to more precisely estimate bluefin tuna catch levels in the Mediterranean Sea and eastern Atlantic (SCRS, 2009). Previously, the SCRS had determined that reported catches of the eastern stock of bluefin had been significantly under-reported for ten years, beginning in the mid 1990s.

Trade data can also be used to assist in assessing compliance with ICCAT recommendations and identify those countries whose fishing practices diminish the effectiveness of ICCAT conservation and management measures. On several occasions, ICCAT has adopted recommendations to address the lack of compliance with management programs for the bluefin tuna, bigeye tuna, and North and South Atlantic swordfish fisheries by ICCAT members. Penalties for non-compliance or fishing in a manner that diminishes the effectiveness of ICCAT conservation measures may include catch limit reductions and, if necessary, trade restrictive measures.

For example, an analysis of vessel sighting and Japanese bluefin statistical document data led to the 1996 determination that fishing vessels from the countries of Panama, Honduras, and

Belize were fishing in a manner that diminished the effectiveness of the bluefin tuna rebuilding program, and resulted in a 1996 ICCAT recommendation for sanctions against the import of bluefin tuna from these countries (Table 5.26). In 1999, ICCAT recommended this trade restriction on Panama be lifted as a result of the Government of Panama's efforts to substantially reduce fishing vessel activities deemed inconsistent with ICCAT measures. In 2001, Honduras became a member of ICCAT, and based on this change in status and Honduras' significant efforts to control its fleet and address ICCAT concerns, ICCAT recommended lifting trade sanctions for bluefin tuna. The bluefin sanction for Belize was lifted by ICCAT in 2002.

In another example, import data from 1997–1999 revealed significant Atlantic bluefin tuna exports from Equatorial Guinea despite the fact that a zero catch limit was in effect for that country. The government of Equatorial Guinea had not responded to ICCAT inquiries and had reported no bluefin tuna catch data to ICCAT, and as a result ICCAT recommended trade restrictions as a penalty for non-compliance. Based on information regarding improved compliance presented by Equatorial Guinea at the 2004 ICCAT meeting, specifically, that Equatorial Guinea had canceled licenses and flags of large-scale longline vessels previously participating in IUU tuna fishing in the Convention area and guaranteed compliance with ICCAT conservation and management measures, the trade sanction was lifted by ICCAT. As indicated in Table 5.26 most of the trade sanctions recommended by ICCAT since 1996 have been lifted. In fact, only trade sanctions for Bolivia and Georgia remain in effect, and no new sanctions have been recommended since 2003.

Table 5.26 Summary and Current Status of ICCAT Recommended Trade Sanctions for Bluefin Tuna, Swordfish, and Bigeye Tuna Implemented by the United States.

Country	Species	ICCAT Recommended Sanction	U.S. Sanction Implemented	ICCAT Sanction Lifted	U.S. Sanction Lifted
Panama	Bluefin	1996	1997	1999	2000
Honduras	Bluefin	1996	1997	2001	2004
	Bigeye	2000	2002	2002	2004
	Swordfish	1999	2000	2001	2004
Belize	Bluefin	1996	1997	2002	2004
	Swordfish	1999	2000	2002	2004
	Bigeye	2000	2002	2002	2004
Equatorial Guinea	Bluefin	1999	2000	2004	2005
	Bigeye	2000	2002	2004	2005
Cambodia	Bigeye	2000	2002	2004	2005
St. Vincent & the Grenadines	Bigeye	2000	2002	2002	2004
Bolivia	Bigeye	2002	2004	In effect	In effect
Sierra Leone	Bluefin	2002	2004	2004	2005
	Bigeye	2002	2004	2004	2005
	Swordfish	2002	2004	2004	2005
Georgia	Bigeye	2003	2004	In effect	In effect

5.4 Recreational Fisheries

While a comprehensive understanding of the economic impacts of HMS recreational fishing is not currently available, existing studies indicate that HMS recreational fishing provides significant positive economic impacts to coastal communities. These positive economic impacts derive from individual angler expenditures, recreational charters, tournaments, and the shoreside businesses that support those activities. The net economic and social benefits of HMS recreational fishing in the United States are likely positive and some of the ecological impacts are mitigated by the strong catch-and-release ethic in this fishery.

The Deepwater Horizon/BP Oil Spill in the Gulf of Mexico affected recreational fisheries in the Gulf of Mexico due to a series of fishery closures of various sizes that began in May 2010 and continue to be in place through publication of this report. The impacts of the oil spill and related fishery closures continue to be investigated.

5.4.1 Recreational Angling

An economic survey completed by the U.S. Fish and Wildlife Service (USFWS) in 2006 found that for the entire United States, 7.7 million saltwater anglers (including anglers in state waters) went on approximately 67 million fishing trips and spent approximately \$8.9 billion (USFWS, 2006). These participation rates are down from the 2001 survey which found 9.1 million saltwater anglers (including anglers in state waters) went on approximately 72 million fishing trips and spent approximately \$8.4 billion (USFWS, 2001). The 2006 survey found saltwater anglers spent \$5.3 billion on trip-related costs and \$3.6 billion on equipment (USFWS, 2006). Expenditure on trip-related costs increased 17 percent from 2001, but equipment expenditures have declined seven percent. These expenditures included lodging, transportation to and from the coastal community, vessel fees, equipment rental, bait, auxiliary purchases (e.g., binoculars, cameras, film, foul weather clothing, etc.), and fishing licenses. Approximately 79 percent of the saltwater anglers surveyed fished in their home state in 2006, compared to 76 percent in 2001 (USFWS, 2001).

Specific information regarding angler expenditures for trips targeting HMS species was extracted from the recreational fishing expenditure survey add-on (1998 in the Northeast, 1999 – 2000 in the Southeast) to the NMFS' Marine Recreational Fisheries Statistics Survey (MRFSS). These angler expenditure data were analyzed on a per person per trip-day level and reported in 2003 dollars. The expenditure data includes the costs of tackle, food, lodging, bait, ice, boat fuel, processing, transportation, party/charter fees, access/boat launching, and equipment rental. The overall average expenditure on HMS related trips is estimated to be \$122 per person per day. Specifically, expenditures are estimated to be \$686 per person per day on billfish directed trips (based on a low sample size), \$85 on pelagic shark directed trips, \$95 on LCS directed trips, \$81 on SCS directed trips, and \$106 on tuna directed trips.

The American Sportfishing Association (ASA) also has a report listing the 2006 economic impact of sportfishing on specific states. This report states that all sportfishing (in both federal and state waters) has an overall economic importance of \$125 billion dollars. ASA estimates 8,528,000 anglers participate in saltwater fishing. These saltwater anglers spent \$11 billion in retail sales, resulting in 263,000 jobs, and \$9 billion in salaries, wages, and business

earnings in 2006. Saltwater fishing contributed \$30 billion of the overall economic impact estimated. Florida, Texas, South Carolina, and North Carolina are among the top ten states in terms of overall economic expenditures for both saltwater and freshwater fishing. Florida is also one of the top states in terms of economic impact of saltwater fishing with \$3.0 billion in angler expenditures, \$5.1 billion in overall economic impact, \$1.6 billion in salaries and wages related to fishing, and 51,588 fishing related jobs (ASA, 2008).

In 2003, Ditton and Stoll published a paper that surveyed the literature regarding what is currently known about the social and economic aspects of recreational billfish fisheries. It was estimated that 230,000 anglers in the United States spent 2,136,899 days fishing for billfish in 1991. This is approximately 3.6 percent of all saltwater anglers over age 16. The states with the highest number of billfish anglers are Florida, California, North Carolina, Hawaii, and Texas, in descending order. Billfish anglers studied in the U.S. Atlantic, Puerto Rico, and Costa Rica fished between 39 and 43 days per year.

Billfish recreational anglers tend to spend a great deal of money on trips. Ditton and Stoll (2003) report that a 1990 study of U.S. total trip costs for a typical billfish angler estimated a mean expenditure of \$2,105 per trip for the Atlantic and \$1,052 per trip for Puerto Rico. The aggregate economic impact of billfish fishing trips in the U.S. Atlantic is conservatively estimated to be \$22.7 million annually.

In addition to the economic impact of recreational billfish angling, Ditton and Stoll (2003), using a contingent valuation method, estimated consumer's surplus or net economic benefit to maintain current billfish populations in the U.S. Atlantic to be \$497 per billfish angler per year in the U.S. Atlantic and \$480 in Puerto Rico. They also estimate that the number of annual billfish anglers in the U.S. Atlantic to be 7,915 and 1,627 in Puerto Rico. The aggregate willingness-to-pay for maintaining current billfish populations is \$3.93 million in the U.S. Atlantic and 0.78 million in Puerto Rico. The aggregate direct impact of billfish expenditures is estimated to be \$15.13 million for the U.S. Atlantic and \$32.40 million for Puerto Rico. Thus, the total aggregate economic value of billfish angler fishing is \$19.06 million per year for the U.S. Atlantic and \$33.18 million per year for Puerto Rico.

5.4.2 Atlantic HMS Tournaments

Generally, HMS tournaments last from three to seven days, but lengths can range from one day to an entire fishing season. Similarly, average entry fees can range from approximately \$0 to \$5,000 per boat (average approximately \$500/boat – \$1,000/boat), depending largely upon the magnitude of the prize money that is being awarded. The entry fee would pay for a maximum of two to six anglers per team during the course of the tournament. Additional anglers can, in some tournaments, join the team at a reduced rate of between \$50 and \$450. The team entry fee did not appear to be directly proportional to the number of anglers per team, but rather with the amount of money available for prizes and, possibly, the species being targeted. Prizes may include citations, T-shirts, trophies, fishing tackle, automobiles, boats, or other similar items, but most often consists of cash awards. In general, it appears that billfish and tuna

tournaments charge higher entry fees and award more prize money than shark and swordfish tournaments, although all species have a wide range.

Cash awards distributed in HMS tournaments can be quite substantial. Several of the largest tournaments, some of which are described below, are part of the World Billfish Series Tournament Trail whereby regional winners are invited to compete in the World Billfish Series Grand Championship for a new automobile and a bronze sculpture. Other tournament series include the International Game Fish Association (IGFA) Rolex Tournament of Champions, and the South Carolina Governor's Cup. White marlin is a top billfish species from Cape Hatteras, North Carolina to the eastern tip of Georges Bank from June through October each year. The White Marlin Open in Ocean City, Maryland, which is billed as the "world's largest fishing tournament," awarded \$856,507.00 in 2010 to the vessel catching the largest white marlin and \$423,040.00 to the vessel catching the largest blue marlin. The 27th Annual Pirate's Cove Billfish Tournament in North Carolina awarded over \$600 thousand in prizes in 2010, with the top boat garnering over \$326,317 for winning in five categories. Total prize money awarded in the Big Rock Tournament in North Carolina has exceeded \$1 million since 1998. The 2010 winner of the Big Rock Blue Marlin Tournament won \$999,453 from a total tournament purse of \$1.66 million.

Blue marlin, sailfish, and tunas are often targeted in fishing tournaments, including those discussed above. In 2009, blue marlin was the HMS most frequently identified as a prize category in registered HMS tournaments. The 34th Annual Pensacola (Florida) International Billfish Tournament indicated that it would award over \$325,000 in cash and prizes in 2004. The World Sailfish Championship in Key West, Florida had a \$100,000 guaranteed first prize for 2009. In South Carolina, the Megadock Billfishing Tournament awarded a \$ 105,184 prize for the first place winner of this three-day tournament that involved 62 boats competing for \$1 million in total prize money. The 2010 Florida Billfish Masters Tournament in Miami, Florida awarded over \$78,000 in prize money, with the top boat receiving over \$25,000. The Mid-Atlantic Tuna Tournament sponsored by the South Jersey Marina in Cape May, New Jersey, had 34 vessels competing for a share of over \$161,000 in total prize money.

Several tournaments target sharks. Many shark tournaments occur in New England, New York, and New Jersey, although other regions hold shark tournaments as well. In 2010, the 30th Annual South Jersey Shark Tournament hosted 144 boats and awarded over \$288,410 in prize money, with an entry fee of \$525 per boat. The "Mako Fever" tournament, sponsored by the Jersey Coast Shark Anglers, in 2009 awarded over \$55,000 in prizes, with an entry fee of \$350 per boat per day. In 2010, the 24th Annual Oak Bluffs Monster Shark Tournament in Martha's Vineyard featured over 500 anglers and an entry fee of \$1,475 per boat.

While fishing tournaments are an important component of Atlantic HMS recreational fisheries and provide socioeconomic benefits to associated communities, there are some organizations that oppose these tournaments. For the past several years, for example, the Humane Society of the United States has petitioned NMFS to halt all shark tournaments.

Swordfish tournaments have gained increased popularity in recent years, especially on the east coast of Florida, as the swordfish population has recovered. Events include the

Islamorada Swordfish Tournament that began in 2004, and the Miami Swordfish Tournament that began in 2003, which make up the Florida Swordfish Series. The winner of this tournament series in 2009 will receive a \$10,000 prize and a \$5,000 prize will go to the boat catching the largest fish of the series. The registration fee was \$1,250 per boat for these tournaments in 2010.

In addition to official prize money, many fishing tournaments may also conduct a “calcutta” whereby anglers pay from \$200 to \$5,000 to win more money than the advertised tournament prizes for a particular fish. Tournament participants do not have to enter calcuttas. Tournaments with calcuttas generally offer different levels depending upon the amount of money an angler is willing to put down. Calcutta prize money is distributed based on the percentage of the total amount entered into that Calcutta. Therefore, first place winner of a low level Calcutta (entry fee ~\$200) could win less than a last place winner in a high level calcutta (entry fee ~\$1000). On the tournament websites, it was not always clear if the total amount of prizes distributed by the tournament included prize money from the calcuttas or the estimated price of any equipment. As such, the range of prizes discussed above could be a combination of fish prize money, calcutta prize money, and equipment/trophies.

Fishing tournaments can sometimes generate a substantial amount of money for surrounding communities and local businesses. Ditton *et al.*, (2000) estimated that the total expenditure (direct economic impact) associated with the 1999 Pirates Cove Billfish Tournament, not including registration fees, was approximately \$2,072,518. The total expenditure (direct economic impact) associated with the 2000 Virginia Beach Red, White, and Blue Tournament was estimated at approximately \$450,359 (Thailing *et al.*, 2001). These estimated direct expenditures do not include economic effects that may ripple through the local economy leading to a total impact exceeding that of the original purchases by anglers (i.e., the multiplier effect). Less direct, but equally important, fishing tournaments may serve to generally promote the local tourist industry in coastal communities. In a survey of participants in the 1999 Pirates Cove Billfish Tournament, Ditton *et al.*, (2000) found that almost 80 percent of tournament anglers were from outside of the tournament’s county. For this reason, tourism bureaus, chambers of commerce, resorts, and state and local governments often sponsor fishing tournaments.

5.4.3 Atlantic HMS Charter and Party Boat Operations

At the end of 2004, NMFS collected market information regarding advertised charterboat rates. The analysis of this data focused on observations of advertised rates on the internet for full day charters. Full day charters vary from 6 to 14 hours long with a typical trip being 10 hours. Most vessels can accommodate six passengers, but this also varies from two to 12 passengers. The average price for a full day boat charter was \$1,053 in 2004. Sutton *et al.*, (1999) surveyed charterboats throughout Alabama, Mississippi, Louisiana, and Texas in 1998 and found the average charterboat base fee to be \$762 for a full day trip. Holland *et al.* (1999) conducted a similar study on charterboats in Florida, Georgia, South Carolina, and North Carolina and found the average fee for full day trips to be \$554, \$562, \$661, and \$701, respectively. Comparing these two studies conducted in the late 1990s to the average advertised daily HMS charterboat rate in 2004, it is apparent that there has been a significant gain in charterboat rates.

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6.0 COMMUNITY PROFILES

This Chapter identifies and describes the HMS fishing communities, as required under the Magnuson-Stevens Act and other laws, and consolidates all of the communities profiled in previous HMS FMPs or FMP amendments and updates the community information where possible. Of the communities profiled in this chapter, ten were originally selected due to the proportion of HMS landings in the town, the relationship between the geographic communities and the fishing fleets, the existence of other community studies, and input from the HMS and Billfish Advisory Panels (which preceded the combined HMS Advisory Panel that currently exists). The remaining 14 communities, although not selected initially, have been identified as communities that could be impacted by changes to the current HMS regulations because of the number of HMS permits associated with these communities, and their community profile information has been incorporated into the document.

6.1 Introduction

The Magnuson-Stevens Act requires, among other things, that all FMPs include a fishery impact statement intended to assess, specify, and describe the likely effects of the measures on fishermen and fishing communities (§303(a)(9)).

The National Environmental Policy Act (NEPA) also requires federal agencies to consider the interactions of natural and human environments by using a “systematic, interdisciplinary approach which will ensure the integrated use of the natural and social sciences in planning and decision-making” (§102(2)(A)). Moreover, agencies need to address the aesthetic, historic, cultural, economic, social, or health effects, which may be direct, indirect, or cumulative. Consideration of social impacts is a growing concern as fisheries experience increased participation and/or declines in stocks. The consequences of management actions need to be examined to better ascertain and, if necessary and possible, mitigate regulatory impacts on affected constituents.

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

The Magnuson-Stevens Act outlines a set of National Standards (NS) that apply to all fishery management plans and the implementation of regulations. Specifically, NS 8 notes that:

“Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing

communities in order to: (1) provide for the sustained participation of such communities; and, (2) to the extent practicable, minimize adverse economic impacts on such communities.”

See also 50 CFR §600.345 for National Standard 8 Guidelines. “Sustained participation” is defined to mean continued access to the fishery within the constraints of the condition of the resource (50 CFR §600.345(b)(4)).

It should be clearly noted that NS 8 “does not constitute a basis for allocation of resources to a specific fishing community nor for providing preferential treatment based on residence in a fishing community” (50 CFR §600.345(b)(2)).

The Magnuson-Stevens Act further defines a “fishing community” as: “...a community that is substantially dependent upon or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew, and United States fish processors that are based in such community.”

(§3(17)) The National Standard guidelines expand upon the definition of a fishing community, and state that, “A fishing community is a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or on directly related fisheries-dependent services and industries (for example, boatyards, ice suppliers, tackle shops)” (50 CFR §600.345(b)(2)).

NMFS (2001) guidelines for social impact assessments specify that the following elements are utilized in the development of FMPs and FMP amendments:

1. The size and demographic characteristics of the fishery-related work force residing in the area; these determine demographic, income, and employment effects in relation to the work force as a whole, by community and region.
2. The cultural issues of attitudes, beliefs, and values of fishermen, fishery-related workers, other stakeholders, and their communities.
3. The effects of proposed actions on social structure and organization; that is, on the ability to provide necessary social support and services to families and communities.
4. The non-economic social aspects of the proposed action or policy; these include life-style issues, health and safety issues, and the non-consumptive and recreational use of living marine resources and their habitats.
5. The historical dependence on and participation in the fishery by fishermen and communities, reflected in the structure of fishing practices, income distribution and rights.

6.2 Methodology

6.2.1 Previous community profiles and assessments

NMFS contracted with Dr. Doug Wilson, from the Ecopolicy Center for Agriculture, Environmental and Resource Issues at Rutgers, the State University of New Jersey, to help develop the community profiles and social impact assessments for the 1999 HMS FMP and Amendment 1 to the FMP for Atlantic Billfish. Dr. Wilson and his colleagues completed their fieldwork in July 1998. This study covered commercial and recreational Atlantic HMS fisheries extending along the Atlantic and Gulf coasts from Maine to Texas and in the Caribbean. The study investigated the social and cultural characteristics of fishing communities in five states and one U.S. territory: Massachusetts, New Jersey, North Carolina, Florida, Louisiana, and Puerto Rico. These areas were selected because they each had important fishing communities that could be affected by the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks and the 1999 Atlantic Billfish FMP Amendment 1, and because they are fairly evenly spread along the Atlantic and Gulf coasts and the Caribbean. The study compiled basic sociological information from at least two coastal communities from each state or territory. For each state or territory, a profile of basic sociologic information was compiled, with at least two coastal communities visited for further analysis. Towns were selected based on HMS landings data, the relationship between the geographic communities and the fishing fleets, the existence of other community studies, and inputs from the Advisory Panels for HMS and Billfish. The information in this document incorporates by reference the Wilson *et al.*, (1998) study of the HMS fishery and the work of McCay and Cieri (2000) for the Mid-Atlantic Fishery Management Council, “The Fishing Ports of the Mid-Atlantic” (http://www.st.nmfs.noaa.gov/st1/econ/cia/McCay_Port_Study-Apr2000_Revised.pdf)

Additionally, NMFS contracted with the Virginia Institute of Marine Science (VIMS) at the College of William and Mary to re-evaluate several of the baseline HMS communities (Kirkley, 2005). The VIMS study gathered a profile of basic sociological information for the principal states involved with the Atlantic shark fishery. From the 255 communities identified as involved in the 2001 commercial fishery, Amendment 1 to the 1999 HMS FMP focused on specific towns based on shark landings data, the size of the shark fishing fleet, the relationship between the geographic communities and the fishing fleets, and the existence of other community studies. While the recreational fishery is an important component in the overall shark fishery, the VIMS study did not profile the shark recreational fishery because participation and landings were not documented in a manner that permits community identification. The Wilson *et al.*, study selected for profile, only the recreational fisheries found within commercial fishing communities due to the lack of community-based data for the sport fishery. To the extent that it is available, the information on the HMS-related recreational fisheries has been incorporated into the community profiles.

Following the Consolidated HMS FMP, which published in 2006, NMFS contracted MRAG Americas, Inc. to create a report updating current HMS fishery community profiles. The report utilized HMS permit information and U.S. census data to rank communities according to the percentage of HMS permits, by permit category, and in relation to their overall population; based on a methodology described by Sepez *et al.* (2005). Communities that met the mean percentage for at least one permit category were included and community profile information

was created or updated accordingly. The report identified 14 communities that have not previously been included (Wakefield, Rhode Island; Montauk, New York; Cape May, New Jersey; Ocean City, Maryland; Atlantic Beach, Beaufort, and Morehead City, North Carolina; Apalachicola, Destin, and Port Salerno, Florida; Orange Beach, Alabama; Grand Isle, Louisiana; and Freeport and Port Aransas, Texas), along with 10 communities that had been included in previous SAFE reports (Gloucester and New Bedford, Massachusetts; Barnegat Light and Brielle, New Jersey; Hatteras Village and Wanchese, North Carolina; Islamorada and Madeira Beach, Florida; and Dulac and Venice, Louisiana). This list did not include four communities that had been included in assessments since the 1999 HMS FMP (Fort Pierce, Panama City Beach, and Pompano Beach, Florida; and Arecibo, Puerto Rico). All communities that have been identified by MRAG Americas, Inc. and ones that have been evaluated in the past are included in this assessment to update the most recent community profile information available and to ensure continuity with the 1999 HMS FMP and previous amendments.

The list of communities profiled in the reports noted above is not intended to be an exhaustive record of every HMS-related community in the United States; rather the objective is to give a broad perspective of representative areas. The demographic profile tables found in the 2008 SAFE Report (NMFS, 2008) were modified from previous documents to include the same baseline information for each community profiled, and use both 1990 and 2000 Bureau of the Census data for comparative purposes. A profile for the U.S. Virgin Islands could not be created because the 1990 Census data were not available, and only some of the demographic information was available for 2000. Additionally, a descriptive profile for the Virgin Islands has not been developed for any previous HMS-related actions. The descriptive community profiles in this chapter include information provided by Wilson, *et al.* (1998) and Kirkley (2005), Impact Assessment, Inc. (2004), and recent information obtained from MRAG Americas, Inc. (2008). In this chapter, the community descriptions are organized by state.

Several other chapters in this SAFE report include information that addresses the requirements described Section 6.1 and that is an integral part of any social impact assessment and fishery impact statement. Please refer to the summary of regulatory actions in Chapter 1, description of the fisheries in Chapter 4, the economic evaluation in Chapter 5, and the permit data in Chapter 8.

6.2.2 Community Impacts from Hurricanes

This section is an overview of the impacts on HMS communities caused by hurricanes during 2009. Please refer to prior SAFE reports for hurricane impact information prior to 2009.

The 2009 hurricane season was well below average, largely due to El Nino developing during the peak months of August – October (Bell et al., 2010). Only two named storms made landfall in the United States, tropical storm Claudette and Ida, which became extratropical cyclone before making landfall (Bell et al., 2010). Both named storms made landfall in the Gulf Coast region with minimal impacts, and most likely had minimal detrimental effects on HMS fishery operations in this region.

6.2.3 Community Impacts from 2010 Deepwater Horizon/BP Oil Spill

On April 20, 2010, an explosion and subsequent fire damaged the Deepwater Horizon MC252 oil rig, which capsized and sank approximately 50 miles southeast of Venice, Louisiana. Oil flowed for 86 days into the Gulf of Mexico from a damaged well head on the sea floor. In response to the Deepwater Horizon MC252 oil spill, NMFS issued a series of emergency rules (75 FR 24822, May 6, 2010; 75 FR 26679, May 12, 2010; 75 FR 27217, May 14, 2010) closing a portion of the Gulf of Mexico exclusive economic zone (EEZ) to all fishing and analyzed the environmental impacts of these closures in an Environmental Assessment. The fishery closures ranged in size from 6,817 sq. mi. (<4 percent of the U.S. GOM) on May 2, 2010, to 88,522 sq. mi. (approx. 37 percent of the U.S. Gulf of Mexico) on June 2, 2010. NMFS continues to adjust the spatial dimensions of the fishery closed area as new information becomes available regarding areas affected by oil. Information regarding the current status of the oil spill related fishery closed area may be found at <http://sero.nmfs.noaa.gov/>.

The Deepwater Horizon oil spill may have detrimental impacts to HMS fishermen in the Gulf of Mexico, but because many effects may not be apparent in the short-term a full assessment of impacts on HMS fishermen will not be possible for several years. NMFS will continue to monitor the economic impacts from the Deepwater Horizon oil spill and will include updated information in future SAFE reports.

6.3 United States Demographic Profile

The U.S. demographic profile has not been updated since the 2000 U.S. Census. Please refer to the 2008 SAFE Report (NMFS, 2008) for detailed U.S. Census information.

6.4 State and Community Profiles

For information regarding HMS fishing activities for individual states and communities, please refer to the 2008 SAFE Report for Atlantic Highly Migratory Species (NMFS, 2008). A copy can be obtained from MRAG Americas, Inc online at: http://www.nmfs.noaa.gov/sfa/hms/hmsdocument_files/SAFEreports.htm. The 2008 SAFE Report contains the most recent information available to NMFS detailing U.S. Census information regarding communities participating in HMS fisheries.

More recent information regarding fishing communities in St. Croix can be found in Stoffle et. al, 2009 online at: https://grunt.sefsc.noaa.gov/P_QryLDS/download/TM582_tm_593.pdf?id=LDS

The Fisheries of the United States – 2009 (NMFS, 2010) report contains updated figures regarding recreational anglers by state and can be found online at: http://www.st.nmfs.noaa.gov/st1/fus/fus09/fus_2009.pdf

Information regarding HMS permits by state can be found in Chapter 8 of this 2010 SAFE Report.

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7.0 BYCATCH, INCIDENTAL CATCH, AND PROTECTED SPECIES

In 1998, NMFS developed a national bycatch plan, *Managing the Nation's Bycatch* (NMFS, 1998), which includes programs, activities, and recommendations for federally managed fisheries. The national goal of the Agency's bycatch plan activities is to implement conservation and management measures for living marine resources that will minimize, to the extent practicable, bycatch and the mortality of bycatch that cannot be avoided. Inherent in this goal is the need to avoid bycatch, rather than create new ways to utilize bycatch. The plan also established a definition of bycatch as fishery discards, retained incidental catch, and unobserved mortalities resulting from a direct encounter with fishing gear.

Bycatch in commercial and recreational fisheries is an important issue for the fishing industry, resource managers, scientists, and the public. Bycatch can result in death or injury to the discarded fish, and it is essential that this component of total fishing-related mortality be incorporated into fish stock assessments and evaluation of management measures. Bycatch precludes other more productive uses of fishery resources and decreases the efficiency of fishing operations. Although not all discarded fish die, bycatch can represent a large source of mortality, which can slow the rebuilding of overfished stocks. Bycatch imposes direct and indirect costs on fishing operations by increasing sorting time and decreasing the amount of gear available to catch target species. Incidental catch concerns also apply to populations of marine mammals, sea turtles, seabirds, and other components of ecosystems which may be protected under other applicable laws and for which there are no commercial or recreational uses but for which existence values may be high.

7.1 Bycatch Reduction and the Magnuson-Stevens Act

According to the Magnuson-Stevens Act, "The term "bycatch" means fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards. Such term does not include fish released alive under a recreational catch and release fishery management program." Fish is defined as finfish, mollusks, crustaceans, and all other forms of marine animal and plant life other than marine mammals and birds. Birds and marine mammals are therefore not considered bycatch under the Magnuson-Stevens Act, but are examined as incidental catch.

National Standard 9 of the Magnuson-Stevens Act requires that fishery conservation and management measures shall, to the extent practicable, minimize bycatch and minimize the mortality of bycatch that cannot be avoided. In many fisheries, it is not practicable to eliminate all bycatch and bycatch mortality. Some relevant examples of fish caught in Atlantic HMS fisheries that are included as bycatch or incidental catch are marlin, undersized swordfish, and bluefin tuna caught by commercial fishing gear; undersized swordfish and tunas in recreational hook and line fisheries; species for which there is little or no market such as blue sharks; and species caught and released in excess of a bag limit.

There are benefits associated with the reduction of bycatch, including the reduction of uncertainty concerning total fishing-related mortality, which improves the ability to assess the status of stocks, to determine the appropriate relevant controls, and to ensure that overfishing

levels are not exceeded. It is also important to consider the bycatch of HMS in fisheries that target other species as a source of mortality for HMS and to work with fishery constituents and resource manager partners on an effective bycatch strategy to maintain sustainable fisheries. This strategy may include a combination of management measures in the domestic fishery, and if appropriate, multi-lateral measures recommended by international bodies such as the International Commission for the Conservation of Atlantic Tunas (ICCAT) or coordination with Regional Fishery Management Councils or States. The bycatch in each fishery is summarized annually in the SAFE Report for Atlantic HMS fisheries. The effectiveness of the bycatch reduction measures is evaluated based on this summary.

A number of options are currently employed (*) or available for bycatch reduction in Atlantic HMS fisheries. These include but are not limited to:

Commercial

1. Gear Modifications (including hook and bait types)*
2. Circle Hooks*
3. Time/Area Closures*
4. Performance Standards
5. Education/Outreach*
6. Effort Reductions (*i.e.*, Limited Access)*
7. Full Retention of Catch
8. Use of De-hooking Devices (mortality reduction only)*

Recreational

1. Use of Circle Hooks (mortality reduction only)*
2. Use of De-hooking Devices (mortality reduction only)
3. Full Retention of Catch
4. Formal Voluntary or Mandatory Catch-and-Release Program for all Fish or Certain Species*
5. Time/Area Closures*

There are probably no HMS fisheries in which there is zero bycatch because none of the currently legal fishing gears are perfectly selective for the target species of each fishing operation (with the possible exception of the swordfish/tuna harpoon fishery and speargun fishery). Therefore, to totally eliminate bycatch of all non-target species in Atlantic HMS fisheries would be impractical. The goal then is to minimize the amount of bycatch to the extent practicable and minimize the mortality of species caught as bycatch.

7.1.1 Standardized Reporting of Bycatch

Section 303(a)(11) of the Magnuson-Stevens Act requires that a fishery management plan establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery. In 2004, NMFS published a report entitled “*Evaluating Bycatch: A National Approach to Standardized Bycatch Monitoring Programs*,” which described the current status of, and guidelines for, bycatch monitoring programs (NMFS, 2004a). The data collection and analyses that are used to estimate bycatch in a fishery constitute the “standardized bycatch reporting methodology” (SBRM) for that fishery (NMFS, 2004a). Appendix 5 of the report specifies the protocols for SBRMs established by NMFS throughout the country.

As part of the Agency’s National Bycatch Strategy, NMFS established a National Working Group on Bycatch (NWGB) to develop a national approach to standardized bycatch reporting methodologies and monitoring programs. This work is to be the basis for regional teams, established in the National Bycatch Strategy, to make fishery-specific recommendations.

NMFS utilizes self-reported logbook data (Fisheries Logbook System or FLS, and the supplemental discard report form in the reef fish/snapper-grouper/king and Spanish mackerel/shark logbook program), at-sea observer data, and survey data (recreational fishery dockside intercept and telephone surveys) to produce bycatch estimates in HMS fisheries. These data are collected with respect to fishing gear type (see Section 7.1.1). The number and location of discarded fish are recorded, as is the disposition of the fish (*i.e.*, released alive vs. released dead). Post-release mortality of HMS can be accounted for in stock assessments to the extent that the data allow.

The fishery logbook systems in place are mandatory programs, and it is expected that the reporting rates are generally high (Garrison, 2005). Due to the management focus on HMS fisheries, there has been close monitoring of reporting rates, and observed trips can be directly linked to reported effort. In general, the gear characteristics and amount of observed effort is consistent with reported effort. However, under-reporting is possible, which can lead to a negative bias in bycatch estimates. Cramer (2000) compared dead discards of undersized swordfish, sailfish, white and blue marlin, and pelagic sharks from HMS logbook and Pelagic Observer Program (POP) data in the U.S. Atlantic pelagic longline fishery. Cramer (2000) provided the ratio of catch estimated from the POP data divided by the reported catch in the HMS logbooks. The ratio indicated the amount of underreporting for each species in a given area. However, the data analyzed by Cramer (2000), was based on J-hook data from 1997 – 1999 and that gear is prohibited now. In some instances, logbooks are used to provide effort information against which bycatch rates obtained from observers is multiplied to estimate bycatch. In other sectors/fisheries, self-reporting provides the primary method of reporting bycatch because of limited funding, priorities, etc.

The following section provides a review of the bycatch reporting methodologies for all HMS fisheries currently in place. Future adjustments may be implemented based on evaluation of the results of studies developed as part of the HMS Bycatch Reduction Implementation Plan,

or as needed due to changing conditions in the fisheries. Further analyses of bycatch in the various HMS fisheries may be conducted as time, resources and priorities allow.

U.S. Atlantic Pelagic Longline (PLL) Fishery

NMFS utilizes both self-reported data (mandatory logbooks for all vessels) and observer data to monitor bycatch in the pelagic longline fishery. The observer program has been in place since 1992 to document finfish bycatch, characterize fishery behavior, and quantify interactions with protected species (Beerkircher *et al.*, 2002). The observer program is mandatory for those vessels selected and all vessels with directed and incidental swordfish permits are selected. The program had a target coverage level of five percent of the U.S. fleet within the North Atlantic (waters north of 5° N. latitude), as was agreed to by the United States at ICCAT. Actual coverage levels achieved from 1992 – 2003 ranged from two to nine percent depending on quarter and year (Table 7.1) Observer coverage was 100 percent for vessels participating in the Northeast Distant Waters (NED) experimental fishery during 2001 – 2003. Overall observer coverage in 2003 was 11.5 percent of the total sets made, including the NED experiment. The program began requiring an eight percent coverage rate due to the requirements of the 2004 Biological Opinion (BiOp) for Atlantic Pelagic Longline Fishery for HMS. Observer coverage in 2005-2008 ranged from 7.5 – 15.0 percent. NMFS has attempted to attain one hundred percent observer coverage in the Gulf of Mexico during April through June for 2007-2009 to monitor bluefin tuna interactions. Since 1992, data collection priorities have been to collect catch and effort data of the U.S. Atlantic pelagic longline fleet on highly migratory fish species, although information is also collected on bycatch of protected species. Due to increased observer coverage in the Mid-Atlantic Bight as mandated by the Pelagic longline Take reduction Team (PLTRT) final rule, percent observer coverage in this fishery is expected to increase.

Fishery observer effort is allocated among eleven large geographic areas and calendar quarter based upon the historical fishing range of the fleet (Walsh and Garrison, 2006). The target annual coverage is eight percent of the total reported sets, and observer coverage is randomly allocated based upon reported fishing effort during the previous fishing year/quarter/statistical reporting area (Beerkircher *et al.*, 2002). Bycatch rates of protected species (catch per 1,000 hooks) are quantified based upon observer data by year, fishing area, and quarter (Garrison, 2005). The estimated bycatch rate is then multiplied by the fishing effort (number of hooks) in each area and quarter reported to the Fishery Logbook System (FLS) program to obtain estimates of total interactions for each species of marine mammal and sea turtle (Garrison, 2005).

Purse Seine Fishery

Vessels operating in the bluefin tuna purse seine fishery submit either Vessel Trip Reports (VTRs) (NMFS Northeast) or HMS logbooks (NMFS Southeast) based on the type of Federal permits they hold in addition to their HMS permit. Observers were placed on purse seine vessels operating in this fishery in 1996 and 2001 in order to monitor groundfish bycatch in closed areas in the Northwest Atlantic (B. McHale, pers. comm., 2005). The purse seine fishery was observed to have very little bycatch of groundfish or other species of fish and no protected species interactions. As a result, observer coverage has not been used recently to document

bycatch or validate logbook reports. In addition, the lack of effort in recent years has not warranted consideration for additional observer coverage.

Shark Bottom Longline Fishery

Vessels participating in the bottom longline fishery for sharks are required to submit snapper/grouper/reef fish/shark logbooks to report their catch and effort, including bycatch species. All vessels having Shark Limited Access Permits are required to report. Observers have monitored the shark bottom longline fishery since 1994. The program has been mandatory for vessels selected to carry observers beginning in 2002. Prior to that, it was a voluntary program relying on cooperating vessels/captains to take observers. From 2002 – 2005, the objective of the vessel selection was to achieve a representative five percent level of coverage of the total fishing effort in each fishing area (North Atlantic, South Atlantic, and Gulf of Mexico) and during each fishing season of that year (Smith *et al.*, 2006). Since 2006, target coverage level has been 3.9 percent of the total fishing effort. This level is estimated to attain a sample size needed to provide estimates of sea turtle, smalltooth sawfish, or marine mammal interactions with an expected coefficient of variance (CV) of 0.3 (Carlson, unpubl., as cited in Smith *et al.*, 2006)

Effective August 1, 2001, selected federal permit holders that report on the Gulf of Mexico reef fish, South Atlantic snapper-grouper, king and Spanish mackerel, and shark fisheries logbook must report all species and quantities of discarded (alive and dead) sea turtles, marine mammals, birds, and finfish on a supplemental discard form. A randomly selected sample of 20 percent of the vessels with active permits in the above fisheries is selected each year. The selection process is stratified across geographic area (Gulf of Mexico and South Atlantic), gear (handline, longline, troll, gillnet, and trap), and number of fishing trips (ten or less trips and more than 11 trips). Shark fishermen can also use the pelagic longline logbook or the northeast vessel trip reports depending on the permits held by the vessel. If they use either the PLL logbook or VTR, they need to report all of the catch and effort, as well as all the bycatch or incidental catch.

The Final Rule for Amendment 2 to the Consolidated Highly Migratory Species (HMS) Fishery Management Plan (FMP) (73 FR 35778, June 24, 2008, corrected at 73 FR 40658, July 15, 2008) established, among other things, a shark research fishery to maintain time series data for stock assessments and to meet NMFS' 2009 research objectives. The shark research fishery permits authorize participation in the shark research fishery and the collection of sandbar and non-sandbar large coastal sharks (LCS) from federal waters in the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea for the purposes of scientific data collection subject to 100 percent observer coverage. The commercial vessels selected to participate in the shark research fishery are the only vessels authorized to land/harvest sandbars subject to the sandbar quota available for each year. The base quota is 87.9 mt dw/year through December 31, 2012, although this number may be reduced in the event of overharvests, if any, and 116.6 mt dw/year starting on January 1, 2013. The selected vessels would also have access to the non-sandbar LCS, small coastal shark (SCS), and pelagic shark quotas. Commercial vessels not participating in the shark research fishery may only land non-sandbar LCS, SCS, and pelagic sharks subject to the retention limits and quotas per 50 CFR 635.24 and 635.27, respectively.

Shark Gillnet Fishery

Vessels participating in the gillnet fishery for sharks are required to submit logbooks to report their catch and effort, including bycatch species. An observer program for the directed shark gillnet fishery has been in place from 1993–1995 and from 1998 to the present. The objectives of this program are to obtain estimates of catch and bycatch and bycatch mortality rates of protected species, juvenile sharks, and other fish species. Protected resources interactions are estimated to meet the mandates of the Atlantic Large Whale Take Reduction Plan and the May 2008 Biological Opinion. There are special regulations in place for gillnetters during certain times of the year, however, the process by which vessels are selected and coverage levels are consistent. Vessels are randomly selected on a quarterly basis and then observed for a minimum of 3 trips during that time, with a goal of estimating protected resources interactions corresponding to the sample size necessary to provide estimates of sea turtle or marine mammal interactions with an expected Coefficient of Variation of 0.3.

Commercial Handgear Fishery

The commercial handgear fishery includes vessels using handline, harpoon, rod and reel, or bandit gear to fish for HMS. NMFS has the authority to use observers to collect bycatch information from commercial vessels fishing for tunas. Many of these vessels are already required to complete Federal and/or state logbooks (*e.g.*, the NMFS Northeast Region VTR), in which they are required to report all fishing information, including that for HMS and bycatch. NMFS is currently evaluating various alternatives to increase fishery data collection of vessels fishing for HMS with handgear, such as selecting additional HMS permitted vessels to report in logbooks or to be selected for observer coverage, and is investigating alternatives for electronic reporting. Therefore, no estimates of bycatch are available at this time. Bycatch and bycatch mortality are considered to be low due to the nature of the gear but this should be validated in the future.

Recreational Handgear Fishery

NMFS collects recreational catch-and-release data from dockside surveys (the Large Pelagics Survey and the Marine Recreational Fishery Statistics Survey) for the rod and reel fishery and uses these data to estimate total landings and discards of bycatch or incidental catch. Statistical problems associated with small sample size remain an obstacle to estimating bycatch reliably in the rod and reel fishery. CVs can be high for many HMS (rare event species in the marine recreational Fishing Statistical Survey (MRFSS)) and the Large Pelagic Survey (LPS) does not cover all times/geographic areas for non-bluefin tuna species. New survey methodologies are being developed, however, especially for the Charter/Headboat sector of the rod and reel fishery, which should help to address some of the problems in estimating bycatch for this fishery. In addition, selecting recreational vessels for voluntary logbook reporting may be an option for collecting bycatch information for this sector of the HMS fishery.

NMFS has the authority to use observers to collect bycatch information from vessels with HMS Charter/Headboat or Angling permits. Many of the charter/headboat vessels are required

to complete Federal and/or state logbooks (*e.g.*, the NMFS Northeast Region VTR), in which they are required to report all fishing information, including that for HMS and bycatch. NMFS is currently evaluating various alternatives to increase logbook coverage of vessels fishing for HMS, such as selecting additional HMS vessels to report in logbooks or be selected for observer coverage, and is investigating alternatives for electronic reporting.

The National Academy of Sciences assembled a committee to review current marine recreational fishing surveys at the request of NMFS (NAS, 2006). The committee was tasked with developing recommendations for improvements to current surveys and to recommend the implementation of possible alternative approaches. The committee's final report was published in April 2006, and NMFS is in the process of evaluating the recommendations. At the present time, no other alternative approach is available. Further information can be found in Section 4.4.

7.2 Bycatch Reduction in HMS Fisheries

The NMFS HMS bycatch reduction program includes an evaluation of current data collection programs, implementation of bycatch reduction measures such as gear modifications and time/area closures (Table 7.1), and continued support of data collection and research relating to bycatch. Additional details on bycatch and bycatch reduction measures can be found in Section 3.5 of the FMP for Atlantic Tunas, Swordfish and Sharks (NMFS, 1999), Regulatory Amendment 1 to the 1999 FMP (NMFS, 2000), Regulatory Adjustment 2 to the 1999 FMP (NMFS, 2002), Amendment 1 to the 1999 FMP (NMFS, 2003a), and in the Consolidated HMS FMP (NMFS, 2006). In addition, an HMS Bycatch Reduction Implementation Plan was developed in late 2003, which identified priority issues to be addressed in the following areas: 1) monitoring; 2) research; 3) management; and 4) education/outreach. Individual activities in each of these areas were identified and new activities may be added or removed as they are addressed or identified.

7.2.1 Evaluation and Monitoring of Bycatch

The identification of bycatch in Atlantic HMS fisheries is the first step in reducing bycatch and bycatch mortality. The Magnuson-Stevens Act requires the amount and type of bycatch to be summarized in the annual SAFE reports. Bycatch reporting methods are addressed in Section 7.1.1. A summary of bycatch species, data collection methods, and management measures by fishery/gear type is found in Table 7.1.

Pelagic longline dead discards of swordfish, billfish, large coastal sharks, and pelagic sharks are estimated using data from NMFS observer reports and pelagic logbook reports. Shark bottom longline and shark gillnet discards can be estimated using logbook data and observer reports as well. Shark gillnet discards have also been estimated using logbook data when observer coverage is equal to 100 percent.

NMFS has not estimated bycatch in the swordfish harpoon fishery. NMFS has limited historical observer data on harpooned swordfish from driftnet trips in which harpoons were sometimes used. Swordfish harpoon fishermen are required to submit pelagic logbooks and NMFS can examine those for their utility in estimating bycatch. NMFS has not estimated bycatch in the bluefin tuna harpoon fishery because these fishermen have not been selected to

submit logbooks. NMFS has not estimated bycatch in the General category commercial rod and reel tuna fishery although anecdotal evidence indicates that some undersized bluefin tuna may be captured.

There is concern about the accuracy of discard estimates in the recreational rod and reel fishery for Atlantic HMS due to the low number of observations by the LPS and the MRFSS. Recreational bycatch estimates (numbers of fish released alive and dead) are not currently available, except for bluefin tuna. For some species, encounters are considered rare events, which might result in bycatch estimates with considerable uncertainty. Due to improvements in survey methodology, increased numbers of intercepts (interviews with fishermen) have been collected since 2002. NMFS intends to develop bycatch estimates (live and dead discards) and estimates of uncertainty from the recreational fishery from the LPS. These data will be included in future SAFE Reports. Bycatch estimates may also be examined by using tournament data for the recreational fishery.

Table 7.1 Summary of bycatch species in HMS fisheries, Marine Mammal Protection Act (MMPA) category, endangered Species Act (ESA) requirements, data collection, and management measures by fishery/gear type. (Excerpted from HMS Bycatch Priorities and Implementation Plan and updated through September 2010)

Fishery/Gear Type	Bycatch Species	MMPA Category	ESA Requirements	Bycatch Data Collection	Management Measures
Pelagic Longline	Bluefin tuna Billfish Undersize target species Marine mammals Sea turtles Seabirds Non-target finfish Prohibited shark species Large Coastal Shark species after closure	Category I	Jeopardy findings in 2000 & 2004; Reasonable and Prudent Alternative implemented 2001-04; ITS, Terms & Conditions, RPMs	Permit requirement (1985); logbook requirement (SWO-1985; SHK - 1993); observer requirement (1992), EFPs (2001-present)	BFT target catch requirements (1981); quotas (SWO - 1985; SHK - 1993); prohibit possession of billfish (1988); minimum size (1995); gear marking (1999); line clippers, dipnets (2000); MAB closure (1999); limited access (1999); limit the length of mainline (1996-1997 only); move 1 nm after an interaction (1999); voluntary vessel operator workshops (1999); GOM closure (2000); FL, Charleston Bump, NED closures (2001); gangion length, corrodible hooks, de-hooking devices, handling & release guidelines (2001); NED experiment (2001-03); VMS (2003); circle hooks and bait requirements (2004); mandatory safe handling and release workshops (2006); sea turtle control device (2008); closed area research (2008-10); marine mammal handling and release placard, 20 nm mainline restriction in MAB, observer and research reqts in Cape Hatteras Spec. Research Area (CHSRA), increased obs coverage in Atl PLL fishery (2009)
Shark Bottom Longline	Prohibited shark species Target species after closure Sea turtles Smalltooth sawfish Non-target finfish	Category III	ITS, Terms & Conditions, RPMs	Permit requirement (1993); logbook requirement (1993); observer coverage (1994)	Quotas (1993); trip limit (1994); gear marking (1999); handling & release guidelines (2001); line clippers, dipnets, corrodible hooks, de-hooking devices, move 1 nm after an interaction (2004); South Atlantic closure, VMS (2005); shark identification workshops for dealers (2007); sea turtle control device (2008); shark research fishery (2008)
Shark Gillnet	Prohibited shark species Sea turtles Marine mammals Non-target finfish	Category II	ITS, Terms & Conditions, RPMs	Permit requirement (1993); logbook requirement (1993); observer coverage	Quotas (1993); trip limit (1994); gear marking (1999); deployment restrictions (1999); 30-day closure for leatherbacks (2001); handling & release guidelines (2001); net checks (2002); whale sighting (2002); VMS (2004); closure for right whale mortality (2006);

Fishery/Gear Type	Bycatch Species	MMPA Category	ESA Requirements	Bycatch Data Collection	Management Measures
	Smalltooth sawfish			(1994)	shark identification workshops for dealers (2007)
BFT Purse Seine	Undersize target species Non-target finfish	Category III	ITS, Terms & Conditions	Permit requirement (1982); observer requirement (1996, 2001 only); EFPs (2002-03)	Quotas (1975); limited access, individual vessel quotas (1982); minimum size (1982)
BFT & SWO Harpoon	Undersize target species	Category III	ITS, Terms & Conditions	Permit requirement (BFT - 1982; SWO - 1987); SWO logbook requirement (1987)	Quotas (BFT - 1982; SWO - 1985); minimum size (BFT - 1982; SWO - 1985)
Handgear - Commercial	Undersize target species Non-target finfish	Category III	ITS, Terms & Conditions	Permit requirement (BFT - 1982; SWO 1987; SHK - 1993); logbook requirement (SWO - 1985; SHK - 1993)	Regulations vary by species, including quotas, minimum sizes, retention limits, landing form
Handgear - Recreational	Undersize target species Non-target finfish	Category III	ITS, Terms & Conditions	Large Pelagic Survey (1992); MRFSS (1981)	Regulations vary by species, including minimum sizes, retention limits, landing form; BFT quotas

7.2.2 Bycatch Mortality

The reduction of bycatch mortality is an important component of NS 9. Physical injuries may not be apparent to the fisherman who is quickly releasing a fish because there may be injuries associated with the stress of being hooked or caught in a net. Little is known about the mortality rates of many of the species managed under this FMP, but there are some data for certain species. Information on bycatch mortality of these fish should continue to be collected, and in the future, could be used to estimate bycatch mortality in stock assessments.

NMFS submits annual data (Task II) to ICCAT on mortality estimates (dead discards). These data are included in the SAFE reports and U.S. National Reports to ICCAT to evaluate bycatch trends in HMS fisheries.

Pelagic Longline Fishery

NMFS collects data on the disposition (released alive or dead) of bycatch species from logbooks submitted by fishermen in the pelagic longline fishery. Observer reports also include disposition of the catch as well as information on hook location, trailing gear, and injury status of protected species interactions. These data are used to estimate post-release mortality of sea turtles and marine mammals based on guidelines for each (Angliss and DeMaster 1998, Ryder *et al.* 2006). See Section 7.4 for estimates of sea turtle and marine mammal bycatch estimates.

Purse Seine Fishery

NMFS has limited observer data on the bluefin tuna purse seine fishery. There are no recorded instances of non-tuna finfish, other than minimal numbers of blue sharks, caught in tuna purse seines. Anecdotal evidence indicates that if fish are discarded, they are easily released out of the net with minimal bycatch mortality.

Bottom Longline Fishery

The shark bottom longline fishery has relatively low observed bycatch rates. Historically, finfish bycatch has averaged approximately five percent in the bottom longline fishery. Observed protected species bycatch (sea turtles) has typically been much lower, less than 0.01 percent of the total observed catch. Disposition of discards is recorded by observers and can be used to estimate discard mortality.

Shark Gillnet Fishery

Many shark gillnet fishermen have begun targeting finfish rather than sharks. A total of 421 gillnet sets were observed in 2009. The majority of species caught were finfish (93.7%) versus sharks (6.3%). Three protected species were observed (one bottlenose dolphin, one loggerhead sea turtle, and one Kemp's ridley sea turtle) and all were released alive and uninjured. Disposition of discards is recorded by observers and can be used to estimate discard mortality.

Commercial Handgear Fishery

Vessels targeting bluefin tuna with harpoon gear have not been selected for observer coverage since the deliberate fishing nature of the gear is such that bycatch is expected to be low. Therefore, there are no recorded instances of non-target finfish caught with harpoons and NMFS cannot quantify the bycatch of undersized bluefin tuna in this fishery. Bycatch in the swordfish harpoon fishery is virtually, if not totally, non-existent. Since bycatch approaches zero in this fishery, it follows that bycatch mortality is near zero. Disposition of bycatch reported in logbooks is used to estimate mortality of bycatch in the hook and line handgear fisheries.

Recreational Handgear Fishery

The LPS collects data on disposition of bycatch (released alive or dead) in recreational HMS fisheries. Rod and reel discard estimates from Virginia to Maine during June through October can be monitored through the expansion of survey data derived from the LPS (dockside and telephone surveys). However, the actual numbers of fish discarded for many species are low. Post-release mortality studies have been conducted on few HMS at this time. Summaries of those studies can be found in previous SAFE reports.

7.3 Protected Species Interactions in HMS Fisheries

This section examines the interaction between protected species and Atlantic HMS fisheries managed under the Consolidated HMS FMP. As a point of clarification, interactions are different than bycatch. Interactions take place between fishing gears and marine mammals, and seabirds; while bycatch consists of the incidental take and discards of non-targeted finfish, shellfish, mollusks, crustaceans, sea turtles, and any other marine life other than marine mammals and seabirds. Following a brief review of the three acts (Marine Mammal Protection Act, Endangered Species Act, and Migratory Bird Treaty Act) affecting protected species, the interactions between HMS gears and each species is examined. Additionally, the interaction of seabirds and longline fisheries are considered under the auspices of the United States “National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries” (NPOA – Seabirds).

7.3.1 Interactions and the Marine Mammal Protection Act (MMPA)

The Marine Mammal Protection Act of 1972 as amended is one of the principal Federal statutes guiding marine mammal species protection and conservation policy. In the 1994 amendments, section 118 established the goal that the incidental mortality or serious injury of marine mammals occurring during the course of commercial fishing operations be reduced to insignificant levels approaching a zero mortality rate goal (ZMRG) and serious injury rate within seven years of enactment (*i.e.*, April 30, 2001). In addition, the amendments established a three-part strategy to govern interactions between marine mammals and commercial fishing operations. These include the preparation of marine mammal stock assessment reports, a registration and marine mammal mortality monitoring program for certain commercial fisheries (Category I and II), and the preparation and implementation of take reduction plans (TRP).

NMFS relies on both fishery-dependent and fishery-independent data to produce stock assessments for marine mammals in the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea. Draft stock assessment reports are typically published around January and final reports are typically published in the fall. Final 2008 stock assessment reports can be obtained on the web at: <http://www.nmfs.noaa.gov/pr/sars/species.htm> while draft 2010 stock assessment reports are available at: <http://www.nmfs.noaa.gov/pr/sars/draft.htm>.

The following marine mammal species occur off the Atlantic and Gulf Coasts that are, or could be of concern with respect to potential interactions with HMS fisheries.

<u>Common Name</u>	<u>Scientific Name</u>
Atlantic spotted dolphin	<i>Stenella frontalis</i>
Blue whale	<i>Balaenoptera musculus</i>
Bottlenose dolphin	<i>Tursiops truncatus</i>
Common dolphin	<i>Delphinis delphis</i>
Fin whale	<i>Balaenoptera physalus</i>
Harbor porpoise	<i>Phocoena phocoena</i>
Humpback whale	<i>Megaptera novaeangliae</i>
Killer whale	<i>Orcinus orca</i>
Long-finned pilot whale	<i>Globicephela melas</i>
Minke whale	<i>Balaenoptera acutorostrata</i>
Northern bottlenose whale	<i>Hyperoodon ampullatus</i>
Northern right whale	<i>Eubalaena glacialis</i>
Pantropical spotted dolphin	<i>Stenella attenuata</i>
Pygmy sperm whale	<i>Kogia breviceps</i>
Risso's dolphin	<i>Grampus griseus</i>
Sei whale	<i>Balaenoptera borealis</i>
Short-beaked spinner dolphin	<i>Stenella clymene</i>
Short-finned pilot whale	<i>Globicephela macrorhynchus</i>
Sperm whale	<i>Physeter macrocephalus</i>
Spinner dolphin	<i>Stenella longirostris</i>
Striped dolphin	<i>Stenella coeruleoalba</i>
White-sided dolphin	<i>Lagenorhynchus acutus</i>

Under MMPA requirements, NMFS produces an annual List of Fisheries (LOF) that classifies domestic commercial fisheries, by gear type, relative to their rates of incidental mortality or serious injury of marine mammals. The LOF includes three classifications:

1. Category I fisheries are those with frequent serious injury or mortality to marine mammals;
2. Category II fisheries are those with occasional serious injury or mortality; and
3. Category III fisheries are those with remote likelihood of serious injury or mortality to marine mammals.

The final 2011 MMPA LOF was published on November 8, 2010 (75 FR 68468). The Atlantic Ocean, Caribbean, and Gulf of Mexico large pelagic longline fishery is classified as Category I (frequent serious injuries and mortalities incidental to commercial fishing) and the southeastern Atlantic shark gillnet fishery is classified as Category II (occasional serious injuries and mortalities). The following Atlantic HMS fisheries are classified as Category III (remote likelihood or no known serious injuries or mortalities): Atlantic tuna purse seine; Gulf of Maine and Mid-Atlantic tuna, shark and swordfish, hook-and-line/harpoon; southeastern Mid-Atlantic and Gulf of Mexico shark bottom longline; and Mid-Atlantic, southeastern Atlantic, and Gulf of Mexico pelagic hook-and-line/harpoon fisheries. Commercial passenger fishing vessel (charter/headboat) fisheries are subject to Section 118 and are listed as a Category III fishery. Recreational vessels are not categorized since they are not considered commercial fishing vessels. Beginning with the 2009 LOF, high seas fisheries are included in the LOF. Many fisheries operate in both U.S. waters and on the high seas thereby making the high seas component an extension of a fishery already on the LOF. NMFS categorizes the majority of high seas fisheries on the LOF as Category II based on the lack of marine mammal stock abundance information from the high seas. Exceptions to this are high seas fisheries that also operate in U.S. waters that have already been categorized as I, II, or III. For additional information on the fisheries categories and how fisheries are classified, see <http://www.nmfs.noaa.gov/pr/interactions/lof/>.

Fishermen participating in Category I or II fisheries are required to register under the MMPA and to accommodate an observer aboard their vessels if requested. Vessel owners or operators, or fishermen, in Category I, II, or III fisheries must report all incidental mortalities and serious injuries of marine mammals during the course of commercial fishing operations to NMFS. There are currently no regulations requiring recreational fishermen to report takes, nor are they authorized to have incidental takes (*i.e.*, they are illegal).

The Pelagic Longline Take Reduction Team (PLTRT) was formed to address the incidental mortality and serious injury of long-finned pilot whales (*Globicephala melas*) and short-finned pilot whales (*Globicephala macrorhynchus*) in the mid-Atlantic region of the Atlantic pelagic longline fishery. Under section 118 of the Marine Mammal Protection Act (MMPA), the PLTRT is charged with developing a take reduction plan (TRP) to reduce bycatch of pilot whales in the Atlantic pelagic longline fishery to a level approaching a zero mortality rate within 5 years of implementation of the plan. The PLTRT developed a draft Take Reduction Plan (TRP) and was published along with a proposed rule to implement it on June 24, 2008 (73 FR35623). The final TRP was published on May 19, 2009 (74 FR 23349) effective June 18, 2009. The TRP implemented a suite of management strategies to reduce mortality and serious injury of pilot whales and Risso's dolphins in the Atlantic pelagic longline fishery. NMFS finalized the following three regulatory measures: (1) establish a Cape Hatteras Special Research Area (CHSRA), with specific observer and research participation requirements for fishermen operating in that area; (2) set a 20-nm (37.02-km) upper limit on mainline length for all pelagic longline sets within the MAB; and (3) require an informational placard on handling and release of marine mammals be displayed both in the wheelhouse and on the working deck of all active pelagic longline vessels in the Atlantic fishery. NMFS also finalized the following non-regulatory measures: (1) increased observer coverage in the MAB to 12-15 percent to ensure representative sampling of pilot whales and Risso's dolphins; (2) encourage vessel operators to

maintain daily communication with other local vessel operators regarding protected species interactions throughout the PLL fishery with the goal of identifying and exchanging information relevant to avoiding protected species bycatch; (3) recommending that NMFS update the guidelines for handling and releasing marine mammals and NMFS and the industry to develop new technologies, equipment, and methods for safer and more effective handling and release of marine mammals; and (4) recommending NMFS pursue research and data collection goals in the PLTRT regarding pilot whales and Risso’s dolphins. More information on the PLTRT can be found at <http://www.nmfs.noaa.gov/pr/interactions/trt/pl-trt.htm>. A summary of the observed and estimated marine mammal interactions with the pelagic longline fishery is presented in Table 4.6.

7.3.2 Interactions and the Endangered Species Act (ESA)

The Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*), provides for the conservation and recovery of endangered and threatened species of fish, wildlife, and plants. The listing of a species is based on the status of the species throughout its range or in a specific portion of its range in some instances. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. §1532(20)] if no action is taken to stop the decline of the species. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. §1532(20)]. Species can be listed as endangered without first being listed as threatened. The Secretary of Commerce, acting through NMFS, is authorized to list marine and anadromous fish species, marine mammals (except for walrus and sea otter), marine reptiles (such as sea turtles), and marine plants. The Secretary of the Interior, acting through the U.S. Fish and Wildlife Service (USFWS), is authorized to list walrus and sea otter, seabirds, terrestrial plants and wildlife, and freshwater fish and plant species.

In addition to listing species under the ESA, the service agency (NMFS or USFWS) generally must designate critical habitat for listed species concurrently with the listing decision to the “maximum extent prudent and determinable” [16 U.S.C. §1533(a)(3)]. The ESA defines critical habitat as those specific areas that are occupied by the species at the time it is listed that are essential to the conservation of a listed species and that may be in need of special consideration, as well as those specific areas that are not occupied by the species that are essential to their conservation. Federal agencies are prohibited from undertaking actions that are likely to destroy or adversely modify designated critical habitat.

Marine Mammals

Blue whale (<i>Balaenoptera musculus</i>)	Endangered
Fin whale (<i>Balaenoptera physalus</i>)	Endangered
Humpback whale (<i>Megaptera novaeangliae</i>)	Endangered
Northern right whale (<i>Eubalaena glacialis</i>)	Endangered
Sei whale (<i>Balaenoptera borealis</i>)	Endangered
Sperm whale (<i>Physeter macrocephalus</i>)	Endangered

Sea Turtles

Green turtle (<i>Chelonia mydas</i>)	*Endangered/Threatened
Hawksbill sea turtle (<i>Eretmochelys imbricata</i>)	Endangered

Kemp's ridley sea turtle (<i>Lepidochelys kempii</i>)	Endangered
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	Endangered
Loggerhead sea turtle (<i>Caretta caretta</i>)	Threatened
Olive ridley sea turtle (<i>Lepidochelys olivacea</i>)	Threatened
<u>Critical Habitat</u>	
Northern right whale	Endangered

Finfish

Smalltooth sawfish (<i>Pristis pectinata</i>)	Endangered
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*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.

7.3.2.1 Sea Turtles

NMFS has taken numerous steps in the past few years to reduce sea turtle bycatch and bycatch mortality in domestic longline fisheries. A summary of those steps can be found in Chapter 4 and previous SAFE reports. As noted in Chapter 4, sea turtle interactions have decreased since these steps have been taken.

7.3.2.2 Smalltooth Sawfish

On April 1, 2003, NMFS listed smalltooth sawfish as an endangered species (68 FR 15674) under the ESA. After reviewing the best available scientific and commercial information, the status review team determined that the U.S. Distinct Population Segment (DPS) of smalltooth sawfish is in danger of extinction throughout all or a significant portion of its range from a combination of the following four listing factors: 1) the present or threatened destruction, modification, or curtailment of habitat or range; 2) overutilization for commercial, recreational, scientific, or educational purposes; 3) inadequacy of existing regulatory mechanisms; and 4) other natural or manmade factors affecting its continued existence. NMFS is working on designating critical habitat for smalltooth sawfish.

NMFS believes that smalltooth sawfish takes in the shark gillnet fishery are rare given the low reported number of takes and high rate of observer coverage. The fact that there were no smalltooth sawfish caught during 2001, when 100 percent of the fishing effort was observed, indicates that smalltooth sawfish takes (observed or total) most likely do not occur on an annual basis. Based on this information, the 2003 BiOp estimated that one incidental capture of a sawfish (released alive) over five years, would occur as a result of the use of gillnets in this fishery (NMFS, 2003a). No smalltooth sawfish were observed in shark gillnet fisheries for 2009.

For vessels targeting sharks in the Gulf of Mexico in 2008, two smalltooth sawfish were observed caught in bottom longline gear and both were released alive. Smalltooth sawfish have been observed caught (eight known interactions, seven released alive, one released in unknown condition) in shark bottom longline fisheries from 1994 through 2004 (NMFS, 2003a). Based on these observations, expanded sawfish take estimates for 1994-2002 were developed for the shark bottom longline fishery (NMFS, 2003a). A total of 466 sawfish were estimated to have been taken in this fishery during 1994 - 2002, resulting in an average of 52 per year. All were released alive except one. Estimates of sawfish bycatch for 2003-06 have been developed and

range from 0 to 161 interactions per year (Richards, 2007a; 2007b). However, due to the sparseness of observations (interactions) and effort variables chosen for the various approaches to estimating total interactions, the results were not very precise. A small bottom longline time-area closure to protect smalltooth sawfish southwest of Key West, Florida, was considered during the development of the Consolidated HMS FMP (NMFS, 2006). The closure was not implemented due to the lack of information regarding critical habitat for this species and a proposed rule to designate critical habitat for smalltooth sawfish published on November 20, 2008 (73 FR 70290).

7.3.2.3 Interactions with Seabirds

The NPOA-Seabirds was released in February 2001. The NPOA for Seabirds calls for detailed assessments of longline fisheries, and, if a problem is found to exist within a longline fishery, for measures to reduce seabird bycatch within two years. NMFS, in collaboration with the appropriate Councils and in consultation with the USFWS, will prepare an annual report on the status of seabird mortality for each longline fishery. The United States is committed to pursuing international cooperation, through the Department of State, NMFS, and USFWS, to advocate the development of NPOAs within relevant international fora. NMFS intends to meet with longline fishery participants and other members of the public in the future to discuss possibilities for complying with the intent of the plan of action. Because interactions appear to be relatively low in Atlantic HMS fisheries, the adoption of immediate measures is unlikely.

Gannets, gulls, greater shearwaters, and storm petrels are occasionally hooked by Atlantic pelagic longlines. These species and all other seabirds are protected under the Migratory Bird Treaty Act. Seabird populations are often slow to recover from excess mortality as a consequence of their low reproductive potential (one egg per year and late sexual maturation). The majority of longline interactions with seabirds occur as the gear is being set. The birds eat the bait and become hooked on the line. The line then sinks and the birds are subsequently drowned.

Bycatch of seabirds in the shark bottom longline fishery has been virtually non-existent. A single pelican has been observed killed from 1994 through 2008. No expanded estimates of seabird bycatch or catch rates for the bottom longline fishery have been made due to the rarity of seabird takes.

7.4 Measures to Address Protected Species Concerns

NMFS has taken a number of actions designed to reduce interactions with protected species over the last few years. Bycatch reduction measures have been implemented through the FMP for Atlantic Tunas, Swordfish and Sharks (NMFS, 1999), in Regulatory Amendment 1 to the 1999 FMP (NMFS, 2000), in Regulatory Adjustment 2 to the 1999 FMP (NMFS, 2002), in Amendment 1 to the 1999 FMP (NMFS, 2003a), and in the June 2004 Final Rule for Reduction of Sea Turtle Bycatch and Bycatch Mortality in the Atlantic Pelagic Longline Fishery (69 FR 40734). NMFS closed the Southeast U.S. Restricted Area to gillnet fisheries from February 15, 2006, to March 31, 2006, as a result of an entanglement and subsequent mortality of a right whale with gillnet gear (71 FR 8223). NMFS continues to monitor observed interactions with

marine mammals and sea turtles on a quarterly basis and reviews data for appropriate action, if any, as necessary. A final rule requiring the possession and use of an additional sea turtle control device as an addition to the existing requirements for sea turtle bycatch mitigation gear in pelagic and bottom longline fisheries was effective October 23, 2008 (73 FR 54721). NMFS finalized the PLTRT TRP effective June 18, 2009 (74 FR 23349) which implemented a suite of management strategies to reduce mortality and serious injury of pilot whales and Risso's dolphins in the Atlantic pelagic longline fishery.

7.5 Bycatch of HMS in Other Fisheries

NMFS is concerned about bycatch mortality of Atlantic HMS in any federal or state-managed fishery which captures them. NMFS plans to address bycatch of these species in the appropriate FMPs through coordination with the responsible management body. For example, capture of swordfish and tunas incidental to squid trawl operations is addressed in the Squid, Mackerel, and Butterfish FMP. Capture rates of tunas in coastal gillnet fisheries are being explored through issuance of exempted fishing permits and reporting requirements. NMFS continues to solicit bycatch data on HMS from all state, interjurisdictional, and Federal data collection programs.

7.5.1 Squid Mid-Water Trawl

U.S. squid trawl fishermen, using mid-water gear, landed 7.6 mt ww of yellowfin tuna, skipjack tuna, albacore tuna, bigeye tuna, and swordfish in 2008 incidental to the squid, mackerel, and butterfish trawl fishery (Table 7.2). Bycatch of HMS in other trawl fisheries may be included as a portion of the overall reported trawl landings in Table 7.2. Landings decreased from 2007 for all tuna species. Swordfish landings increased but remain at a low level relative to the directed fishery landings. A retention limit of 30 swordfish per trip allows squid trawl fishermen with swordfish limited access permits to land some of the swordfish that are encountered, although regulatory discards still occur.

Table 7.2 Atlantic HMS Landed (mt ww) Incidental to Trawl Fisheries, 2000-2009.

Source: NMFS, 2003; NMFS, 2005; NMFS, 2009; NMFS, 2010.

Species	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Yellowfin tuna	1.76	2.7	0.3	2.2	1.6	0.2	0.7	2.4	0.0	0.0
Skipjack tuna	<0.05	0.2	<0.05	0.5	0.2	0.07	0.7	<0.01	<0.01	0.0
Bigeye tuna	1.7	0.4	0.5	0.03	0.9	0.6	0.0	0.4	0.0	0.0
Albacore	<0.05	0.0	0.3	0.02	2.7	1.7	1.1	0.3	0.01	0.08
Swordfish	10.9	2.5	3.9	5.6	8.3	8.2	3.5	6.5	7.6	22.9
Total	14.46	5.8	5.0	8.35	13.7	10.77	6.0	9.61	7.61	23.0

7.5.2 Menhaden Purse Seine Fishery

In the menhaden purse seine fishery, sharks were caught incidentally in approximately 30 percent of the purse seine sets observed (deSilva *et al.*, 2001). Ten species of sharks were identified with blacktip sharks being the most common species. Approximately 20 percent of the sharks were not identified to species. An estimated 30,000 sharks were taken in this fishery annually in 1994 and 1995. At the time of release, 75 percent of sharks were dead, 12 percent were disoriented, and eight percent were healthy. The odds of observing shark bycatch was highest in April and May. Stomach analyses of sharks suggest that their occurrence in the fishery is probably the result of sharks preying on gulf menhaden (deSilva *et al.*, 2001). No new data are available at this time.

Industry workers in this fishery employ a fish excluder device to reduce the retention of sharks and other large species (Rester and Condrey, 1999). In addition, a recently introduced hose cage modification may prove to be effective in reducing shark bycatch. These devices vary in effectiveness and no standards exist for such bycatch reduction measures in this fishery. In addition, there are currently no reporting requirements for takes of sharks in the menhaden purse seine fishery. Recent estimates of large coastal sharks discarded in this fishery range from 24,000 – 26,200 individuals (Cortés, 2005).

7.5.3 Shrimp Trawl Fishery

Shark bycatch in the shrimp trawl fishery consists mainly of sharks too small to be highly valued in the commercial market. As a result, few sharks are retained. Bycatch estimates of LCS in this fishery have been generated and were reviewed in a recent LCS assessment (SEDAR 11, 2006). Bycatch estimates of the small coastal shark complex were generated for both the Gulf of Mexico and South Atlantic shrimp trawl fisheries for a recent SCS stock assessment. Requirements for turtle excluder devices in these fisheries have probably resulted in less bycatch because sharks are physically excluded from entering the gear. Bycatch of the SCS complex in the Gulf of Mexico shrimp trawl fishery consists mainly of Atlantic sharpnose and bonnethead sharks (SEDAR 13, 2007). Estimates of bycatch (numbers of fish) of small coastal sharks in the U.S. south Atlantic and Gulf of Mexico shrimp trawl fisheries and bottom longline fishery relative to total catch for 1992-2005 can be found in Table 7.3 of the 2009 SAFE Report.

Finetooth sharks were added as a select species for the shrimp trawl observer program in 2005 to help determine if this fishery has bycatch of finetooth sharks. Prior to this, data on finetooth shark bycatch was not recorded.

7.6 Effectiveness of Existing Time/Area Closures in Reducing Bycatch

Since 2000, NMFS has implemented a number of time/area closures and gear restrictions in the Atlantic Ocean and Gulf of Mexico for the PLL fishery to reduce discards and bycatch of a number of species (juvenile swordfish, bluefin tuna, billfish, sea turtles, etc.). Beginning in July, 2004, circle hooks were required for the entire PLL fishery as well. Preliminary analyses of the effectiveness of the closures and combined closures and circle hook requirement are summarized here.

The combined effects of the individual area closures and gear restrictions were examined by comparing the reported catch and discards from 2005-2009 to the averages for 1997-1999 throughout the entire U.S. Atlantic fishery. Previous analyses attempted to examine the effectiveness of the time/area closures only by comparing the 2001-2003 reported catch and discards to the base period (1997-1999) chosen and are included here as well for reference. The percent changes in the reported numbers of fish caught and discarded were compared to the predicted changes from the analyses in Regulatory Amendment 1 to the 1999 FMP (NMFS, 2000). Overall effort, expressed as the number of hooks reported set, declined by 26.6 percent during 2005-09 from 1997-1999 (Table 7.3). Declines were noted for both the numbers of kept and discards of almost all species examined including swordfish, tunas, sharks, billfish, and sea turtles. The only positive changes from the base period were the numbers of bluefin tuna and dolphin kept. The reported number of bluefin tuna kept increased by 63.5 percent for 2005-2009 compared to 1997-1999 (Table 7.3). The number of reported discards of bluefin tuna increased by almost 29 percent between the same time periods, which is almost triple the predicted 11 percent increase from the analyses in Regulatory Amendment 1. The number of dolphin kept increased by almost 14 percent between time periods, (Table 7.3). Billfish (blue and white marlin, sailfish) discards reportedly decreased by 59.1 to 66.6 percent from 1997-1999 to 2005-2009 (Table 7.4). The reported discards of spearfish declined by 8.5 percent, although the absolute number of discards was also low (less than 200 fish). The reported number of turtle interactions decreased by 60 percent from 1997-1999 to 2005-2009.

The reported declines in swordfish kept and discarded, large coastal sharks kept, and dolphin kept decreased more than the predicted values developed for Regulatory Amendment 1. Reported discards of pelagic sharks, all billfish (with the exception of spearfish for which no predicted change was developed in Regulatory Amendment 1), and total BAYS tunas kept also declined more than the predicted values. The number of LCS discards remained unchanged from 1997-1999 to 2005-2009, while the number of bluefin tuna discards and dolphin kept increased more than predicted.

The reported distribution of effort over the same time periods was also examined for changes in fishing behavior (Table 7.5). Declines in the number of hooks set were noted for almost all areas with the exception of the Sargasso (SAR) area, where reported effort has increased almost eight-fold from the 1997-1999 period. However, this effort represents only two

percent of the overall effort reported in this fishery. Overall, reported effort decreased by 26.6 percent from 1997-1999 to 2005-2009. Reported effort declined by only 7.5 percent in the MAB area, 16.7 percent in the Gulf of Mexico, and 15.3 percent in the South Atlantic Bight (SAB). Reported effort declined by 35 percent or more in all other areas with the exception of the SAR. Although reported effort declined by 64 percent in the SAT area (Tuna North and Tuna South combined), recent effort has shown an increasing trend.

Concern over the status of bluefin tuna and the effects of the pelagic longline fishery on the species led to a re-examination of a previous analysis which compared the reported catch and discards of select species or species groups from the MAB and NEC to that reported from the rest of the fishing areas (Table 7.6). The number of bluefin tuna discards reported from the MAB/NEC has increased over the last few years while the discards from the other areas has remained relatively constant. The increase in bluefin tuna discards in the MAB/NEC does not appear to be effort-related as the reported number of hooks set has also been relatively stable (MAB) or in decline (NEC).

Table 7.3 Total number of swordfish, bluefin tuna, yellowfin tuna, bigeye tuna, total BAYS (bigeye, albacore, yellowfin and skipjack tuna), reported landed or discarded in the U.S. Atlantic PLL fishery, 1997 – 2009, and percent change from 1997-99. Predicted values from Regulatory Amendment 1 where Pred ¹ = without redistribution of effort, Pred ² = with redistribution of effort. Source: HMS Logbook data.

Year	Number of hooks set (x1000)	Swordfish kept	Swordfish discards	Bluefin tuna kept	Bluefin tuna discards	Yellowfin tuna kept	Yellowfin tuna discards	Bigeye tuna kept	Bigeye tuna discards	Total BAYS kept	Total BAYS discards
1997-99	8,533.1	69,131	21,519	238	877	72,342	2,489	21,308	1,133	101,477	4,224
A) 2001-03	7,364.1	50,838	13,240	212	607	55,166	1,827	13,524	395	76,116	3,069
2004	7,325.9	46,950	10,704	476	1,031	64,128	1,736	8,266	486	77,989	3,452
2005	5,922.6	41,239	11,158	376	766	43,833	1,316	8,383	369	57,237	2,545
2006	5,662.0	38,241	8,900	261	833	55,821	1,426	12,491	257	73,058	2,865
2007	6,290.6	45,933	11,823	357	1,345	56,062	1,452	8,913	249	70,390	3,031
2008	6,498.1	48,000	11,194	343	1,417	33,774	1,717	11,254	356	50,108	3,427
2009	6,978.9	45,378	7,484	629	1,290	40,912	1,701	10,379	397	57,461	3,555
B) 2005-09	6,266.8	42,661	10,094	389	1,130	46,071	1,522	10,274	325	61,629	3,083
% dif (A)	-13.7	-26.5	-38.5	-10.9	-30.7	-23.7	-26.6	-36.5	-65.2	-25.0	-27.3
% dif (B)	-26.6	-38.3	-53.1	63.5	28.9	-36.3	-38.9	-51.8	-71.3	-39.3	-27.0
Pred ¹		-24.6	-41.5		-1.0					-5.2	
Pred ²		-13.0	-31.4		10.7					10.0	

Table 7.4 Total number of pelagic sharks, large coastal sharks, dolphin (mahi mahi), and wahoo reported landed or discarded and number of billfish (blue and white marlin, sailfish, spearfish) and sea turtles reported caught and discarded in the U.S. Atlantic PLL fishery, 1997 – 2009 and percent change from 1997-99. Predicted values from Regulatory Amendment 1 where Pred¹ = without redistribution of effort, Pred² = with redistribution of effort. Source: HMS logbook data.

Year	Pelagic sharks kept	Pelagic shark discards	Large coastal sharks kept	Large coastal shark discards	Dolphin kept	Dolphin discards	Wahoo kept	Wahoo discards	Blue marlin discards	White marlin discards	Sailfish discards	Spearfish discards	Sea turtles
1997-99	3,898	52,093	8,860	6,308	39,711	608	5,172	175	1,621	1,973	1,342	213	596
A) 2001-03	3,237	23,017	5,306	4,581	29,361	322	3,776	74	815	1,045	341	139	429
2004	3,460	25,414	2,304	5,144	39,561	295	4,674	35	713	1,060	425	172	370
2005	3,150	21,560	3,365	5,881	25,709	556	3,360	280	569	990	367	155	154
2006	2,098	24,113	1,768	5,326	25,658	1,041	3,608	100	439	557	277	142	128
2007	3,504	27,478	546	7,133	68,124	467	3,073	52	611	744	321	147	300
2008	3,500	28,786	115	6,732	43,511	404	2,571	82	686	669	505	196	476
2009	3,060	33,721	403	6,672	62,701	433	2,648	81	1,013	1,064	774	335	137
B) 2005-09	3,062	27,129	1,239	6,344	45,127	580	3,051	119	662	804	448	195	239
% dif (A)	-17.0	-55.8	-40.1	-27.4	-26.1	-47.0	-27.0	-57.8	-49.7	-47.0	-74.6	-34.6	-28.1
% dif (B)	-21.4	-47.9	-86.0	0.6	13.6	-4.6	-41.0	-31.9	-59.1	-59.2	-66.6	-8.5	-60.0
Pred¹	-9.5	-2.0	-32.1	-42.5	-29.3				-12.0	-6.4	-29.6		-1.9
Pred²	4.1	8.4	-18.5	-33.3	-17.8				6.5	10.8	-14.0		7.1

Table 7.5 Reported distribution of hooks set by area, 1997-2009, and percent change from 1997-99 (CAR=Caribbean, GOM=Gulf of Mexico, FEC=Florida East Coast, SAB=South Atlantic Bight, MAB=Mid-Atlantic Bight, NEC=Northeast Coastal, NED=Northeast Distant, SAR=Sargasso, NCA=North Central Atlantic, and SAT=Tuna North & Tuna South). Source: HMS logbook data.

Year	CAR	GOM	FEC	SAB	MAB	NEC	NED	SAR	NCA	SAT	Total
1997-99	328,110	3,346,298	722,580	813,111	1,267,409	901,593	511,431	14,312	191,478	436,826	8,533,148
A) 2001-03	175,195	3,682,536	488,838	569,965	944,929	624,497	452,430	76,130	222,070	127,497	7,364,086
2004	298,129	4,118,468	264,524	672,973	856,521	462,171	455,862	128,582	20,990	47,730	7,325,950
2005	180,885	3,037,968	323,551	467,680	835,091	356,696	462,490	110,107	55,716	92,382	5,922,566
2006	73,774	2,577,231	281,239	544,647	1,085,640	406,199	339,586	135,575	64,500	153,620	5,662,011
2007	32,650	2,914,475	345,486	737,873	1,319,056	326,532	285,827	100,336	11,409	207,598	6,281,242
2008	87,190	2,368,381	642,846	846,984	1,423,136	579,244	224,635	147,969	16,148	152,763	6,489,246
2009	34,783	3,037,197	830,348	847,525	1,199,657	481,110	262,003	107,172	0	179,152	6,978,947
B) 2005-09	81,856	2,787,050	484,694	688,942	1,172,516	429,956	314,908	120,232	29,555	157,103	6,266,812
% dif (A)	-46.6	10.0	-32.3	-29.9	-25.4	-30.7	-11.5	431.9	16.0	-70.8	-13.7
% dif (B)	-75.1	-16.7	-32.9	-15.3	-7.5	-52.3	-38.4	740.1	-84.6	-64.0	-26.6

Table 7.6 Number of bluefin tuna (BFT), swordfish (SWO), sharks (PEL-pelagic; LCS-Large Coastal Sharks), billfish, and turtles reported kept and/or discarded in the Mid-Atlantic Bight (MAB) and Northeast Coastal (NEC) areas combined, 1997-2009. Source: HMS logbook Data.

Year	Hooks set (x1000)	SPECIES									
		BFT kept	BFT discards	SWO kept	SWO discards	PEL shark kept	PEL shark discards	LCS kept	LCS discards	Billfish discards	Turtle interactions
1997	2,441.1	96	583	6,330	3,663	3,062	40,515	6,670	958	803	52
1998	2,207.4	94	1,157	9,684	4,923	2,143	28,579	1,781	890	401	57
1999	1,858.5	70	335	8,213	4,331	1,680	12,479	1,966	736	818	174
2000	1,645.4	26	356	8,748	2,846	2,099	13,083	4,744	1,407	240	30
2001	1,975.3	45	200	10,661	4,000	2,537	9,013	4,383	997	310	69
2002	1,582.3	18	389	10,986	4,219	2,378	7,308	2,331	1,207	311	41
2003	1,150.7	67	471	10,888	3,022	2,222	6,929	2,787	1,429	172	42
2004	1,318.7	128	709	8,486	2,463	2,323	7,594	923	1,488	219	54
2005	1,191.8	96	575	9,184	2,420	1,912	7,026	2,512	2,433	473	44
2006	1,491.8	124	737	10,278	2,564	1,428	7,547	1,279	2,180	266	28
2007	1,645.6	137	1,148	14,102	3,082	2,313	8,169	431	2,861	407	55
2008	2,002.5	143	1,133	13,208	3,199	2,695	9,541	63	1,781	320	100
2009	1,608.8	137	952	12,657	1,896	2,256	14,113	206	2,210	299	16

Table 7.7 Number of bluefin tuna (BFT), swordfish (SWO), sharks (PEL-pelagic; LCS-Large Coastal Sharks), billfish, and turtles reported kept and/or discarded in all areas other than the Mid-Atlantic Bight (MAB) and Northeast Coastal (NEC), 1997-2009. Source: HMS logbook Data.

Year	Hooks set (x1000)	SPECIES									
		BFT kept	BFT discards	SWO kept	SWO discards	PEL shark kept	PEL shark discards	LCS kept	LCS discards	Billfish discards	Turtle interactions
1997	7,233.5	111	123	62,892	16,892	2,048	41,507	7,076	6,911	6,091	215
1998	5,823.9	143	164	60,943	18,422	1,588	16,682	4,677	4,687	3,364	833
1999	6,035.1	200	269	59,331	16,325	1,172	16,516	4,409	4,741	3,968	458
2000	6,376.5	210	382	54,787	13,860	969	14,965	3,014	5,320	3,394	241
2001	5,767	138	148	38,575	10,448	974	14,941	2,127	3,895	1,723	352
2002	5,647.3	160	204	39,453	8,963	693	15,160	1,746	2,761	2,866	426
2003	5,969.7	208	410	41,950	9,067	907	14,842	2,565	3,453	1,641	357
2004	6,007.3	348	322	38,464	8,241	1,137	17,820	1,381	3,656	2,151	316
2005	4,730.8	280	191	32,055	8,738	1,238	14,534	853	3,448	1,608	110
2006	4,170.2	137	96	27,963	6,336	670	16,566	489	3,146	1,149	100
2007	4,645.1	200	197	31,831	8,741	1,191	19,309	115	4,272	1,416	245
2008	4,495.7	200	284	29,592	7,995	805	19,245	52	4,951	1,736	376
2009	5,298.2	492	338	32,721	5,588	804	16,608	197	4,462	2,887	121

7.6.1 Prohibition of Live Bait in the Gulf of Mexico

Regulatory Amendment 1 to the 1999 FMP also prohibited the use of live bait on pelagic longline gear in the Gulf of Mexico due to concerns over the incidental bycatch of billfish. Based on logbook data, the number of hooks reported set with live bait or a combination of live and dead bait in the Gulf of Mexico decreased from 22.7 percent in 2000, to less than 0.1 percent in 2003 (Table 7.8). However, the number of hooks reported set with no bait type specified increased from zero in 1999 – 2001 to 3.7 percent in 2003, declining to less than one percent in 2004. Nearly all of the hooks reported set in the Gulf of Mexico in the past two years have been set with dead bait. NMFS will continue to analyze the effectiveness of the live bait prohibition in the Gulf of Mexico pelagic longline fishery.

Table 7.8 Comparison of the number of hooks (thousands) reported set in the Gulf of Mexico with dead, artificial, or live bait, or a combination of baits, 1999-2008. Source: PLL Logbook data.

Bait Type	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Dead	2,336 (70.9)	2,598 (77.3)	3,176.5 (98.3)	3,494.6 (97.6)	3,668.7 (96.3)	4,089.0 (99.8)	2,878.9 (94.8)	2,368.2 (91.9)	2,908.5 (99.6)	2,359.9 (99.3)
Live	372 (11.3)	259 (7.7)	5,500.0 (0.2)	0.7 (<0.1)	1.5 (<0.1)	0 (0)	0 (0)	0 (0)	1.2 (<0.1)	0 (0)
Both (DL)	585 (17.8)	506 (15.0)	49.3 (1.5)	13.1 (0.4)	1 (<0.1)	0 (0)	0.9 (<0.1)	0 (0)	0 (0)	0 (0)
Artificial	-	-	-	-	-	-	0 (0)	8.7 (0.3)	0 (0)	3.2 (0.25)
Both (DA)	-	-	-	-	-	-	20.3 (0.7)	14.2 (0.6)	0.7 (<0.1)	6.95 (0.44)
Unknown	0 (0)	0 (0)	0 (0)	71.0 (2.0)	139.6 (3.6)	8.0 (0.2)	137.5 (4.5)	186.1 (7.2)	10.4 (0.4)	0 (0)
Total hooks	3,293	3,363	3,231.2	3,579.5	3,810.8	4,097.0	3,037.5	2,577.2	2,920.7	2,370.1

Numbers in parentheses are percent of the total number of hooks set in the Gulf of Mexico

7.6.2 Conclusion

The time/area closures and live bait prohibition (which was not analyzed in 2009 but is described in Section 7.6.1) in the Gulf of Mexico have been successful at reducing bycatch in the HMS pelagic longline fishery. Reported discards of all species of billfish have declined. The reported number of turtles caught, swordfish discarded, and pelagic and large coastal shark discards have also declined. However, the reported number of target species kept, such as swordfish and BAYS tuna have decreased more than was predicted. This is contrary to the other objective of the time/area closures, which was to minimize the reduction in target catch. NMFS will continue to analyze these measures as additional data become available and examine the effects of ongoing regulatory change over time.

7.7 Evaluation of Other Bycatch Reduction Measures

NMFS continues to monitor and evaluate bycatch in HMS fisheries through direct enumeration (pelagic and bottom longline observer programs, shark gillnet observer program), evaluation of management measures (closed areas, trip limits, gear modifications, etc.), and vessel monitoring systems (VMS).

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8.0 HMS PERMITS AND TOURNAMENTS

This section provides updates for the number of permits that were issued in conjunction with HMS fishing activities as of October 2010. HMS fisheries permit numbers (Table 8.1 through Table 8.8), and dealer permit numbers for shark, swordfish, and tunas are updated through October 2010. Section 8.7, Atlantic HMS Tournaments, provides a comprehensive synthesis of recreational fishing tournaments and their role in the context of HMS management. These tables have been updated since the 2009 SAFE Report, which listed numbers of permits as of October 2009.

8.1 HMS Commercial Fishing Permits

The limited access permit program was implemented in the 1999 HMS Fishery Management plan for Atlantic tunas, sharks, and swordfish and became effective on July, 1 1999 (64 FR 29090, May 28, 1999). The program established six different permit types for limited access provisions: Swordfish Directed, Swordfish Incidental, Swordfish Handgear, Shark Directed, Shark Incidental, and Atlantic Tuna Longline. To reduce bycatch concerns in the pelagic longline fishery, these permits were designed so that the Swordfish Directed and Incidental permits are valid only if the permit holder also holds both an Atlantic Tuna Longline and a shark permit. Similarly, the Atlantic Tuna Longline permit is valid only if the permit holder also holds both a swordfish (Directed or Incidental, not Handgear) and a shark permit. No additional limited access permits are required to make a Swordfish Handgear or any of the shark permits valid. The Atlantic Tuna Longline permit is now being issued from NMFS Southeast Regional Office Permits Branch to facilitate more efficient issuance of all limited access permits.

The initial permits were issued in May of 1999, and after successful application/appeals processes, 982 permit holders received limited access permits by October 2000. There was a slight decrease in the number of permits issued between October 2009 and October 2010, from 1,107 to 1,052 (Table 8.1).

The number of commercial Atlantic tunas permit holders by category is listed in Table 8.2. The overall number of commercial tuna permits slightly increased in many categories between October 2009 and October 2010 (Table 8.2). On August 4, 2008 (73 FR 38144, July 3, 2008) NMFS published a rule that eliminated the “sunset” provision for Atlantic Tuna Longline Category permits. This rule allows the most recent shark and swordfish limited access permit holders on record to renew previously expired Longline permits as long as other requirements for renewal were met. Distributions for General Category permits can be found in (Table 8.3). Trap Category permits (six total) occur from Alabama to Rhode Island with the exception of one permit holder in Puerto Rico. Harpoon Category permits (29 total) occur from Massachusetts north to Maine. Although there are five entities eligible to participate in the purse seine tuna fishery, two vessels have been sold and only three Purse Seine Category permits were issued in 2010.

Table 8.1 Distribution of Shark, Swordfish, and Atlantic Tuna Longline Limited Access Permits Between 2003 and 2010. Permit numbers as of October 2010.

State	# Directed Swordfish	# Incidental Swordfish	# Swordfish Handgear	# Directed Shark	# Incidental Shark	# Tuna Longline	# Permit Holders/# Permits
ME	4	-	1	2	3	4	6/14
NH	1	-	-	1	-	1	2/3
MA	7	2	14	2	12	11	30/48
RI	-	-	15	-	3	-	15/18
CT	1	-	-	-	2	1	2/4
NY	16	5	3	10	14	22	28/70
NJ	30	13	5	26	29	43	60/146
DE	1	-	-	-	1	1	1/3
MD	5	-	-	3	3	5	7/16
VA	1	1	-	1	2	2	3/7
NC	10	6	-	16	12	16	29/60
SC	4	2	-	7	12	6	19/31
GA	-	-	-	2	1	-	3/3
FL	68	35	36	133	128	105	300/505
AL	-	-	-	6	1	-	7/7
MS	-	-	-	-	4	-	4/4
LA	29	3	-	3	32	26	37/93
TX	-	5	1	3	6	4	12/19
CA	-	-	-	-	-	1	1/1
*Totals 2010	177	72	75	215	265	248	566/1052
2009	187	72	81	223	285	259	636/1107
2008	181	76	81	214	285	241	628/1079
2007	180	79	82	231	296	218	613/1086
2006	191	86	88	240	312	214	604/1131
2005	190	91	92	235	320	200	639/1128
2004	195	99	96	241	348	222	657/1201
2003	206	99	95	251	359	235	696/1245

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

Table 8.2 The number of Atlantic tuna permit holders in each category are listed for 2003 through 2010. Permit numbers for 2010 are as of October 2010. The actual number of 2010 permit holders in each category is subject to change as individuals renew or allow their permits to expire.

Category	2003	2004	2005	2006	2007	2008	2009	2010
Longline	235	222	200	214	218	241	259	248
Harpoon	47	49	40	40	26	26	23	29
Trap	2	2	7	7	9	9	4	6
General	5,526	5,057	4,494	4,824	3,616	4,031	3,824	3,849
Purse Seine	5	5	5	5	4	4	3	3
Total	5,815	5,335	4,746	5,090	3,873	4,311	4,113	4,135

Table 8.3 General Category permits as of October 2010

State	General Category permits	State	General Category permits
AL	29	NH	201
CA	1	NJ	215
CT	72	NY	202
DE	34	OH	1
FL	179	OK	1
GA	3	PA	8
IL	1	PR	92
IN	1	RI	173
LA	29	SC	71
MA	1317	TX	19
MD	30	VA	58
ME	563	VI	8
MI	1	VT	4
MS	12	WA	1
MT	1	WI	1
NC	520	WV	1
Total			3,849

8.2 Atlantic HMS Charter/Headboat Permits

In 2002, NMFS published a final rule (67 FR 77434, Dec. 18, 2002) expanding the HMS recreational permit from tuna only to include all HMS and defining HMS charter/headboat operations. This permit was effective March 2003 and established a requirement that owners of charter boats or headboats that are used to fish for, take, retain, or possess Atlantic tunas, sharks, swordfish, or billfish must obtain an Atlantic HMS Charter/Headboats permit. This permit replaced the Atlantic Tunas Charter/Headboat permit. A vessel issued an Atlantic HMS Charter/Headboat permit for a fishing year will not be issued an HMS Angling permit or any Atlantic Tunas permit in any category for that same fishing year, even if there is a change in the vessel's ownership. The total number of Atlantic HMS Charter/Headboat permits increased slightly between 2009 and 2010. The distribution of Atlantic HMS Charter/Headboat permits can be seen in Table 8.4.

Table 8.4 Atlantic HMS Charter/Headboat Permits by State as of October 2010.

State	Atlantic HMS Charter/Headboat	State	Atlantic HMS Charter/Headboat
AK	1	NC	447
AL	59	NH	88
AR	1	NJ	533
CT	80	NY	338
DE	99	OH	1
FL	653	OK	1
GA	24	PA	23
ID	1	PR	21
LA	74	RI	174
MA	799	SC	153
MD	151	TX	154
ME	115	VA	120
MI	4	VI	24
MN	1	VT	1
MS	28	WV	5
MT	1	Total	4,174

8.3 HMS Angling Permit

Effective March 2003 (67 FR 77434, Dec. 18, 2002), the HMS Angling Permit is required to fish for, retain, or possess, including catch and release fishing, any federally regulated HMS. Species authorized for harvest with an HMS Angling permit include: sharks, swordfish, white and blue marlin, sailfish, spearfish, and federally regulated Atlantic tunas (bluefin, yellowfin, bigeye, skipjack, and albacore). Atlantic HMS caught, retained, possessed, or landed by persons on board vessels with an HMS Angling permit may not be sold or transferred to any person for a commercial purpose. By definition, recreational landings of Atlantic HMS are those that cannot be marketed through commercial channels, therefore it is not possible to monitor anglers' catches through ex-vessel transactions as in the commercial fishery. Instead, NMFS conducts statistical sampling surveys of the recreational fisheries. These survey programs have been used for over a decade and include the MRFSS and the LPS. A vessel issued an HMS Angling permit for a fishing year will not be issued an HMS Charter/ Headboat permit or an Atlantic Tunas permit in any category for that same fishing year, regardless of any change in the vessel's ownership. The total number of Atlantic HMS Angling permits decreased slightly between 2009 and 2010. The distribution of Atlantic HMS Angling permits can be seen in Table 8.5.

Table 8.5 Atlantic HMS Angling Permits as of October 2010

State	Permits by Home Port*	Permits by Residence**	State	Permits by Home Port*	Permits by Residence**
AK	5	1	ND	2	2
AL	290	271	NE	-	4
AR	9	7	NH	488	572
AZ	-	4	NJ	3613	3031
BVI	11	7	NM	-	3
CA	8	10	NV	4	7
CO	3	8	NY	1852	1927
CT	680	754	OH	13	25
DC*	1	11	OK	2	9
DE	932	563	OR	2	1
FL	3844	3592	PA	244	1308
GA	119	196	PR	718	748
IA	2	5	RI	671	494
IL	5	25	SC	827	796
IN	7	14	SD	1	2
KS	-	2	TN	16	34
KY	3	5	TX	731	750
LA	469	470	UT	-	1
MA	3875	3833	VA	1056	1128
MD	1281	1284	USVI	62	33
ME	591	536	VT	28	49
MI	22	32	WA	2	1
MN	9	12	WI	2	9
MO	10	14	WV	4	10
MS	132	154	WY	-	2
MT	3	2	Canada	6	5
NC	1827	1717	Total	24,479	24,479

*The home port is identified for the Atlantic HMS Angling permit are listed as the port where the vessel is stored submitted by the permit holder

**The residence identified for the Atlantic HMS Angling permit are listed as the bill to state submitted by the permit holder

8.4 Dealer Permits

Dealer permits are required for commercial receipt of Atlantic tuna, swordfish, and sharks, and are described in further detail in the 2006 Consolidated HMS FMP. Dealer permits are open access. An Atlantic shark dealer permit is required for any entity, person, or company that is the “first receiver” of any Atlantic shark or part of an Atlantic shark. A first receiver is any entity, person, or company that takes, for commercial purposes (other than solely for transport), immediate possession of the fish, or any part of the fish, as the fish are offloaded from a fishing vessel of the United States. Shark dealers, or a proxy for each location that first receives sharks, must attend and successfully complete an Atlantic Shark Identification Workshop, and be issued a certificate in order to obtain or renew their shark dealer permit. Also, trucks or other conveyances which are extensions of a shark dealer’s place of business must possess a copy of a valid Atlantic Shark Identification Workshop Certificate. All permitted dealers are required to submit reports detailing the nature of their business. Swordfish and shark dealer permit holders must submit bi-weekly dealer reports on all HMS they purchase. Swordfish and shark dealer permit numbers and distributions are listed in Table 8.6. Tuna dealers must submit, within 24 hours of the receipt of a bluefin tuna, a landing report for each bluefin purchased from U.S. fishermen. Dealers must also submit bi-weekly reports that include additional information on tunas they purchase. To facilitate quota monitoring, “negative reports” for shark and swordfish are also required from dealers when no purchases are made (*i.e.*, NMFS can determine who has not purchased fish versus who has neglected to report). NMFS continues to automate and improve its permitting and dealer reporting systems and plans to make additional permit applications and renewals available online in the near future. Tuna dealer permit numbers and distributions can be found in Table 8.6.

Table 8.6 Number of Domestic Atlantic Tuna, Shark, and Swordfish Dealer Permits Issued in each State between 2003 and 2010. Permits for 2010 are as of October 2010. The actual number of permits per state may change as permit holders move or sell their businesses.

State/Country	Bluefin Only *	BAYS Only	Bluefin and BAYS	Atlantic swordfish	Atlantic sharks	Total # of permits
AL	-	-	1	3	3	7
CA	1	2	1	5	-	9
CT	-	1	3	2	1	7
DE	-	-	4	-	-	4
FL	2	-	12	70	35	119
GA	-	-	2	1	1	4
HI	-	-	2	3	-	5
LA	-	-	7	9	8	24
MA	8	5	88	15	7	123
MD	-	1	10	4	3	18
ME	9	1	11	4	2	27
NC	5	3	25	14	10	57
NH	-	-	5	-	-	5
NJ	2	9	41	12	9	73
NY	2	16	58	12	4	92
PA	-	-		1	-	1
PR	-	6		1	1	8
RI	1	7	2	5	4	19
SC	-	1	5	12	13	31
TX	-	2	1	4	3	10

State/Country	Bluefin Only *	BAYS Only	Bluefin and BAYS	Atlantic swordfish	Atlantic sharks	Total # of permits
VA	1	4	12	3	4	24
VI	-	2	2	-	-	4
WA	-	-	1	1	-	2
Totals 2010	32	58	323	181	108	702
2009	32	55	289	177	106	659
2008	30	62	303	171	128	694
2007	9	22	255	269	206	761
2006	43	60	313	285	336	1037
2005	68	66	332	294	228	988
2004	-	-	-	321	230	1075**
2003	-	-	-	319	254	1052**

*Does not include Pacific bluefin tuna dealer permits which were eliminated July 1, 2005.

**Total includes sum of all Atlantic tuna dealer permits but total number of permit holders with BAYS and bluefin dealer permits were not calculated.

8.5 Exempted Fishing Permits (EFPs), Display Permits, Letters of Acknowledgement (LOAs) Chartering Permits, and Scientific Research Permits (SRPs)

EFPs, display permits, LOAs and SRPs are issued under the authority of the Magnuson-Stevens Act (MSA) (16 U.S.C. 1801 et seq.) and/or ATCA (16 U.S.C. 971 et seq.). EFPs are issued to individuals for the purpose of conducting research or other fishing activities using private (non-NOAA) vessels, whereas an SRP would be issued to agency scientists who are using NOAA vessels as their research platform. Similar to SRPs, LOAs are issued to individuals conducting research from “bona fide” research vessels on species that are only regulated by MSA and not ATCA. NMFS requests research plans for these activities and indicates concurrence by issuing an LOA. Display permits are issued to individuals who are fishing for, catching, and then transporting HMS to certified aquariums for public display. Regulations at 50 CFR 600.745 and 50 CFR 635.32 govern scientific research activity, exempted fishing, and exempted educational activity with respect to Atlantic HMS. The 2003 Amendment 1 to the Atlantic Tunas, Swordfish, and Sharks FMP implemented and created a separate display permitting system, which operates apart from the exempted fishing activities that are focusing on scientific research. The application process for display permits is similar to that required for EFPs and SRPs. When NMFS implemented Amendment 2 to the 2006 Consolidated HMS FMP (73 FR 35788 June, 24 2008), the shark quota for EFPs, display permits, and SRPs remained the same. However, the quota for sandbar shark was reduced to 1.39 mt. authorized for display and 1.39 mt authorized for research under EFPs and SRPs.

In response to the Deep Water Horizon/BP oil spill on April 20, 2010, NMFS has worked closely with agency researchers and outside researchers to assess the spill. Many EFPs and SRPs were issued to sample and monitor HMS for oil contamination. The numbers of permits associated with the oil spill are included in the numbers of permits in Table 8.8.

Amendment 2 to the Consolidated HMS FMP also implemented a shark research fishery. This research fishery is conducted under the auspices of the exempted fishing program. Research fishery permit holders assist NMFS in collecting valuable shark life history data and data for future shark stock assessments. Fishermen must fill out an application for a shark research permit under the exempted fishing program to participate in the shark research fishery. In 2009, NMFS received 14 applications for the 2010 shark research fishery. Based on the qualification criteria, 9 were chosen to participate in the 2010 shark research fishery. Shark research fishery participants are subject to 100 percent observer coverage in addition to other terms and conditions.

Issuance of EFPs, display permits, and SRPs may be necessary because possession of certain shark and billfish species are otherwise prohibited, possession of billfishes onboard commercial fishing vessels is prohibited, the commercial fisheries for bluefin tuna, swordfish and large coastal sharks may be closed for extended periods

during which collection of live animals and/or biological samples would otherwise be prohibited, or for other reasons. These EFPs, SRPs, and display permits would authorize collections of tunas, swordfish, billfishes, and sharks from Federal waters in the Atlantic Ocean and Gulf of Mexico for the purposes of scientific data collection and public display. In addition, NMFS regulations at 50 CFR 635.32 regarding implantation or attachment of pop-up satellite archival tags in Atlantic HMS require prior authorization and a report on implantation activities.

In order to implement the chartering recommendations of ICCAT, NMFS published a rule on December 6, 2004 (69 FR 70396), requiring U.S. vessel owners with HMS permits to apply for and obtain a chartering permit before fishing under a chartering arrangement outside U.S. waters. These permits are issued in a manner similar to other EFPs. Under this final rule and consistent with the ICCAT recommendations, vessels issued a chartering permit are not authorized to use the quota or entitlement of the United States until the chartering permit expires or is terminated. This is because of the fact that under a chartering arrangement that U.S. vessels have attained authorization to harvest another ICCAT Contracting Parties' quota. Having a chartering permit does not obviate the need to obtain a fishing license, permits, or other authorizations issued by the chartering nation in order to fish in foreign waters, or obtain other authorizations such as a High Seas Fishing Compliance Act Permit, 50 CFR 300.10 *et seq.* A U.S. vessel shall not be authorized to fish under more than one chartering arrangement at the same time. NMFS will issue chartering permits only if it determines that the chartering arrangement is in conformance with ICCAT's conservation and management programs. Due to interest from the commercial industry, NMFS is currently considering changes to the vessel chartering regulations to potentially allow catches taken under a chartering arrangement to count against the Atlantic HMS quota.

The number of EFPs, display permits, and SRPs issued from 2006 – 2010 by category and species are listed in Table 8.7. Year-end reports for permits issued for 2010 are required, and are expected to be submitted to NMFS in early 2011.

Table 8.7 Number of Atlantic HMS Exempted Fishing Permits (EFPs), Display Permits, and Scientific Research Permits (SRPs) issued between 2006 and 2010.

Permit type		2006	2007	2008	2009	2010*
Exempted Fishing Permit	Sharks for display	7	6	5	4	2
	HMS for display	1	3	1	2	2
	Tunas for display	0	0	0	0	0
	Shark research on a non-scientific vessel	7	4	4	4	9
	Tuna research on a non-scientific vessel	5	4	4	4	5
	HMS research on a non-scientific vessel	4	9	7	5	2
	Billfish research on a non-scientific vessel	3	3	3	1	2
	Shark Fishing	0	0	0	0	0
	HMS Chartering	0	0	0	0	0
	Tuna Fishing	5	0	0	0	0
	TOTAL	32	29	24	20	22
Scientific Research Permit	Shark research	2	2	0	4	1
	Tuna research	0	1	0	0	1
	Billfish research	1	0	0	0	0
	HMS (multi-species) research	4	1	1	0	4
	TOTAL	7	4	1	4	6
Letters of Acknowledgement	Shark research	5	8	6	5	8
	TOTAL	5	8	6	5	8

*Permit numbers for 2010 are as of November 1, 2010.

8.6 Atlantic HMS Tournaments

Fishing tournaments are an important component of HMS recreational fisheries. A tournament is defined in the HMS regulations as any fishing competition involving Atlantic HMS in which participants must register or otherwise enter or in which a prize or award is offered for catching or landing such fish. Since 1999, Federal regulations have required that each HMS tournament operator register their tournament with NMFS at least four weeks prior to the commencement of tournament fishing activities. Tournament operators may be selected for reporting and must submit tournament results to NMFS within seven days of the conclusion of the tournament.

Tournament registration and reporting is necessary because it provides an important source of information used to assess HMS fish stocks and to estimate the annual catch of Atlantic HMS. The information may be used by NMFS to plan for the assignment of tournament observers to assist in catch/effort data compilation and to obtain biological data and samples from landed fish (length/weight, stomach contents, injuries, parasites, hard and soft tissue samples for age determination, genetic and microconstituent analysis, spawning condition, fecundity, etc.). Additionally, with an accurate tournament database, NMFS may better assess the practicality of using tournaments for angler educational outreach efforts including distribution of written informational materials, notification of public hearings, and explanation of HMS regulations. HMS tournament registration and reporting information further allows NMFS, in the course of developing fishery management plans, to evaluate the social and economic impact of tournament angling in relation to other types of angling (*e.g.*, commercial, non-tournament recreational) and the relative effect of tournament angling on populations of various regulated HMS. Finally, the information is essential for the United States to meet its reporting obligations to ICCAT.

Generally, all billfish tournaments are selected for reporting to the Recreational Billfish Survey (RBS), because the information is critical to determine U.S. billfish landings for ICCAT compliance purposes. Tournament registration and reporting forms are available at: http://www.nmfs.noaa.gov/gpea_forms/forms.htm.

Tournaments may range from smaller club “member-only” events with as few as ten participating boats (40 – 60 anglers) to larger, statewide tournaments with 250 or more participating vessels (1,000 – 1,500 anglers). For the larger tournaments, corporate sponsorship from tackle manufacturers, marinas, boat dealers, marine suppliers, beverage distributors, resorts, radio stations, publications, chambers of commerce, restaurants, and other local businesses is often involved.

Many HMS fishing tournaments, particularly those that target billfish, promote strict conservation principles in their rules. For example, significant numbers of blue marlin, white marlin, and sailfish tournaments are “release-only,” utilizing observers, angler affidavits, polygraph tests, photographs, or digital video camcorders to document the live release of billfish. Minimum sizes for fish that are allowed to be landed in many tournaments are often larger than state and Federal requirements. Also, since January 1, 2008, NMFS has required that anglers fishing from an HMS permitted vessel in any

tournament awarding points or prizes for Atlantic billfish must deploy only non-offset circle hooks when using natural bait or natural bait/artificial lure combinations. Because fishing tournament participants are often well known and/or respected anglers, these conservation trends likely influence the general angling population in a positive manner.

Table 8.8 shows the number of registered HMS tournaments, by state, between 2003 and 2009. In 2009, 270 tournaments registered with the HMS Management Division and were conducted along the U.S. Atlantic coast, including the Gulf of Mexico and Caribbean. This is an increase of 3 tournaments from 267 registered tournaments in 2008. In 2009, most HMS fishing tournaments were conducted in Florida, Texas, Louisiana, New Jersey, Puerto Rico, North Carolina, Maryland, South Carolina, New York, Massachusetts, and Alabama. The largest number of registered HMS tournaments has consistently occurred in the state of Florida.

Table 8.8 Number of registered Atlantic HMS tournaments by state (2003-2009). Source: NMFS Atlantic HMS Tournament Registration Database

STATE	2003	2004	2005	2006	2007	2008	2009
ME	3	5	3	5	5	4	6
NH	0	0	0	0	0	0	0
MA	7	10	4	7	10	10	8
RI	3	3	2	2	2	2	1
CT	0	0	1	1	0	1	0
NY	14	14	10	12	13	13	11
NJ	18	17	16	19	17	20	22
DE	0	1	0	0	1	1	1
MD	14	14	14	13	11	13	13
VA	5	4	5	4	6	5	5
NC	15	16	18	17	17	16	16
SC	13	9	9	12	13	16	12
GA	12	3	13	11	11	10	0
FL	66	57	74	83	97	80	88
AL	9	8	7	8	10	8	7
MS	7	2	2	1	1	1	1
LA	20	22	26	20	24	24	24
TX	17	10	17	17	33	21	33
PR	13	17	22	19	20	19	20
USVI	6	1	10	7	7	2	1
Bahamas*	1	2	2	1	1	1	1
Bermuda*	0	0	1	0	0	0	0
Turks/Caicos*	1	0	0	0	0	0	0
TOTAL	244	215	256	259	299	267	270

*Some foreign tournaments voluntarily registered because the participants were mostly U.S. citizens.

Table 8.9 shows the number and percentage of HMS tournaments awarding points or prizes for a particular HMS based upon 2009 tournament registrations. Blue marlin, yellowfin tuna, sailfish, and white marlin are the predominant target species in HMS fishing tournaments. In 2009, the percentage of tournaments that awarded points or prizes increased for all billfish species (except longbill spearfish), decreased for pelagic and ridgeback sharks, and increased for small coastal sharks compared to 2008.

Table 8.9 Number and percent of 2009 Atlantic HMS tournaments awarding points or prizes by species (2008 values in parentheses). Source: NMFS Atlantic HMS Tournament Registration Database

Species	Number of Tournaments	Percent of tournaments
Blue Marlin	155 (153)	57% (57%)
Yellowfin Tuna	154 (152)	57% (57%)
Sailfish	170 (148)	63% (55%)
White Marlin	142 (136)	53% (51%)
Swordfish	89 (90)	33% (34%)
Bluefin Tuna	86 (90)	32% (34%)
Longbill Spearfish	76 (78)	28% (29%)
Bigeye Tuna	57 (56)	21% (21%)
Pelagic Sharks	51 (60)	19% (22%)
Albacore Tuna	31 (28)	11% (10%)
Skipjack Tuna	17 (24)	6% (9%)
Small Coastal Sharks	12 (7)	4% (3%)
Non-Ridgeback Sharks	10 (10)	4% (4%)
Ridgeback Sharks	10 (14)	4% (5%)

*Some foreign tournaments voluntarily registered because participants were mostly U.S. citizens.

Table 8.10, Table 8.11 , and Table 8.12 show the percentage and number of 2009 HMS registered tournaments, by state (or country) for blue marlin, white marlin, and sailfish, respectively. These tables indicate that Florida is the leading state in terms of numbers of registered billfish tournaments, especially for sailfish. Of note is the absence of Atlantic billfish tournaments in Georgia in 2009 due to billfish categories not being offered for a series of tournaments organized by a fishing club. The series of tournaments does not offer billfish categories due to a state prohibition of landing billfish in Georgia. Prior to 2008, that series of tournaments had billfish categories and Georgia ranked as the number 5 to 6 state with the most Atlantic billfish tournaments.

Table 8.10 Registered Atlantic Blue Marlin Tournaments in 2009. Source: NMFS Atlantic HMS Tournament Registration Database.

State	Number of 2009 Tournaments Awarding Points or Prizes for Blue Marlin	Percent of 2009 Tournaments Awarding Points or Prizes for Blue Marlin
Florida	33	21%
Texas	29	19%
Louisiana	19	12%
Puerto Rico	15	10%
North Carolina	15	10%
New Jersey	9	6%
Maryland	9	6%
South Carolina	8	5%
Alabama	7	5%
Virginia	4	3%
Massachusetts	2	1%
New York	2	1%
U.S. Virgin Islands	1	< 1%
Bahamas*	1	< 1%
Mississippi	1	< 1%
Total	155	100%

*Some foreign tournaments voluntarily registered because the participants were mostly U.S. citizens.

Table 8.11 Registered Atlantic White Marlin Tournaments in 2009. Source: NMFS Atlantic HMS Tournament Registration Database.

State	Number of 2009 Tournaments Awarding Points or Prizes for White Marlin	Percent of 2009 Tournaments Awarding Points or Prizes for White Marlin
Florida	32	23%
Texas	27	19%
Louisiana	18	13%
North Carolina	15	11%
New Jersey	11	8%
Maryland	9	6%
South Carolina	8	6%
Alabama	7	5%
Virginia	4	3%
Puerto Rico	5	4%
Massachusetts	2	1%
New York	2	1%
Bahamas *	1	< 1%
Mississippi	1	< 1%
Total	142	100%

*Some foreign tournaments voluntarily registered because the participants were mostly U.S. citizens.

Table 8.12 Registered Atlantic Sailfish Tournaments in 2009. Source: NMFS Atlantic HMS Tournament Registration Database.

State	Number of 2009 Tournaments Awarding Points or Prizes for Sailfish	Percent of 2009 Tournaments Awarding Points or Prizes for Sailfish
Florida	70	41%
Texas	29	17%
Louisiana	17	10%
North Carolina	15	9%
South Carolina	9	5%
Maryland	9	5%
Puerto Rico	7	4%
Alabama	6	4%
Virginia	4	2%
Bahamas *	1	< 1%
Mississippi	1	< 1%
New Jersey	1	< 1%
Total	170	100%

*Some foreign tournaments voluntarily registered because the participants were mostly U.S. citizens