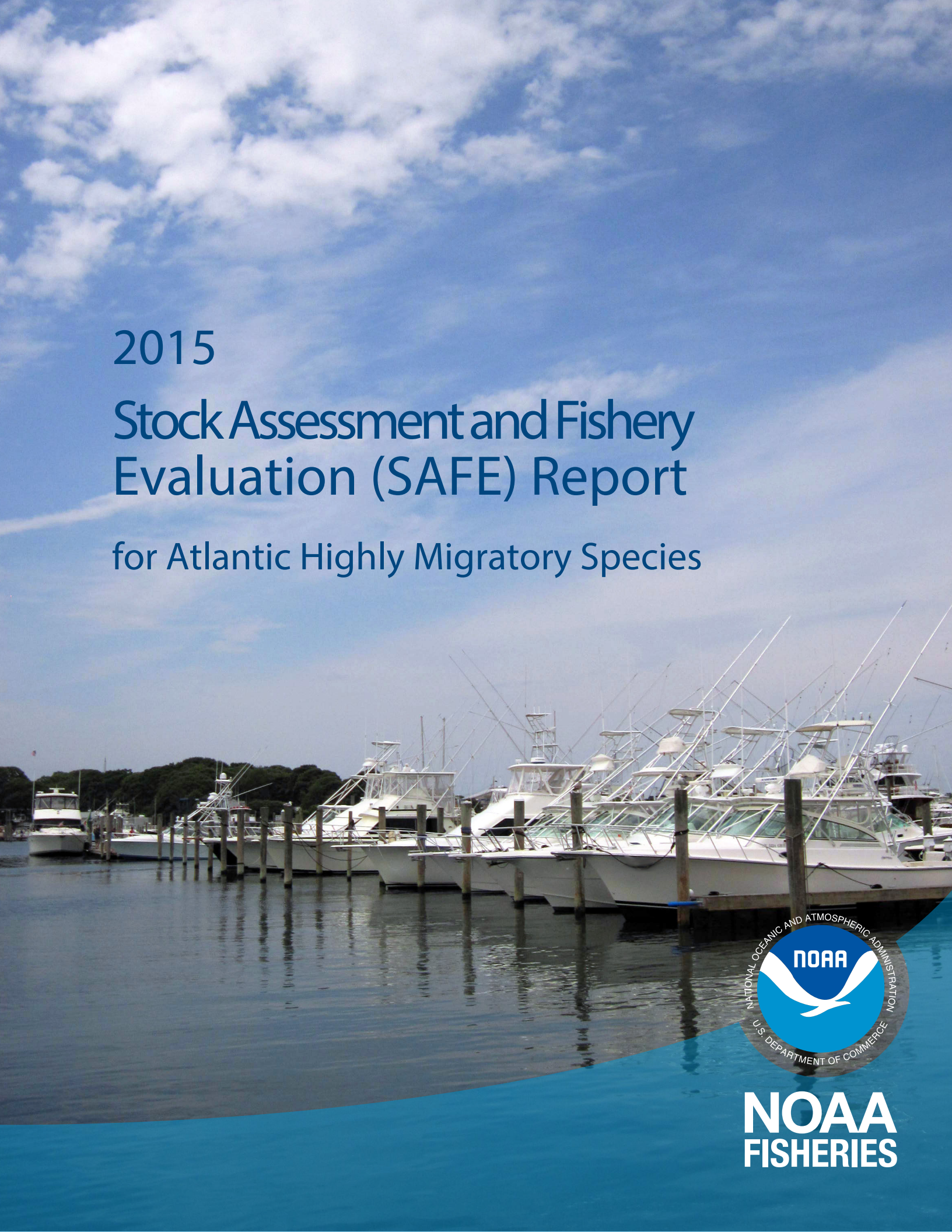

2015

Stock Assessment and Fishery Evaluation (SAFE) Report

for Atlantic Highly Migratory Species

NOAA FISHERIES

2015
Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species

Atlantic Highly Migratory Species Management Division
December 2015

For HMS permitting information and regulations:
HMS Recreational, Commercial, and Dealer compliance guides
http://www.nmfs.noaa.gov/sfa/hms/compliance/guides/
Regulatory updates for tunas
https://hmspermits.noaa.gov/

To purchase or renew an HMS permit:
Open access permits: HMS Charter/headboat, Atlantic tunas (General, Harpoon, Purse Seine, and Trap categories), North Atlantic swordfish (General Commercial), and HMS Angling (recreational)
NOAA Fisheries, (888) 872-8862
https://hmspermits.noaa.gov/

Limited access permits: Atlantic sharks, Swordfish, and Tunas longline
Open access permit: HMS Commercial Caribbean Small Boat and Smoothhound shark
Dealer permits: Sharks and Swordfish
NOAA Fisheries Southeast Regional Office, (727) 824-5326
http://sero.nmfs.noaa.gov/operations_management_information_services/constituency_services_branch/permits/

Dealer permits: Tunas
NOAA Fisheries Greater Atlantic Regional Office, (978) 281-9370
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For HMS SAFE Reports (2000 – current):
http://www.nmfs.noaa.gov/sfa/hms/documents/safe_reports.

For hard copies of this document and the referenced literature:
Highly Migratory Species Management Division, NOAA Fisheries, 1315 East-West Highway, Silver Spring, MD 20910, Phone (301) 427-8503, Fax (301) 713-1917

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LIST OF COMMONLY USED ACRONYMS

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
ALWTRT/P	Atlantic Large Whale Take Reduction Team/Plan
AM	Accountability measure
ANPR	Advanced notice of proposed rulemaking
AOCTRP	Atlantic Offshore Cetacean Take Reduction Plan
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
BFT	Bluefin tuna
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
COASTSPAN	Cooperative Atlantic States Shark Pupping and Nursery survey
CPC	Contracting parties, non-contracting parties, entities, or fishing entities
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	Gulf of Mexico Fishery Management Council
GULFSPAN	Gulf of Mexico Shark Pupping and Nursery survey
GSMFC	Gulf States Marine Fisheries Commission
GRA	Gear Restricted Area
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
IBQ	Individual bluefin [tuna] quota
ICCAT	International Commission for the Conservation of Atlantic Tunas
IMO	International Maritime Organization
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 Pelagics Survey
LWTRT/P	Large Whale Take Reduction Team/Plan
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
MRIP	Marine Recreational Information Program
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
GARFO	Greater Atlantic Regional Fisheries 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
PLTRT/P	Pelagic Longline Take Reduction Team/Plan
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	Stock Assessment and Fishery Evaluation
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
SRP	Scientific research permit
SSB	Spawning stock biomass
SWO	Swordfish
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
UVI	Unique Vessel Identifier
VMS	Vessel monitoring system
VTR	Vessel trip report
WTP	Willingness to pay
ww	Whole weight
YOY	Young of the year

EXECUTIVE SUMMARY

This 2015 Stock Assessment and Fisheries Evaluation (SAFE) Report is produced by the National Marine Fisheries Service (NMFS) Atlantic Highly Migratory Species (HMS) Management Division. It contains a review of the current status of Atlantic HMS stocks (tunas, swordfish, billfish, and sharks) and describes the year's accomplishments in managing Atlantic HMS. Atlantic HMS SAFE Reports provide the public with information on the latest developments in Atlantic HMS management and fulfill Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requirements.

Since the 2014 HMS SAFE Report, the HMS Management Division: held two HMS Advisory Panel meetings; published several rules regarding HMS fisheries, including proposed and final rules (Amendment 6; 80 FR 2648 and 50074, respectively) to implement a range of management measures for the commercial shark quotas and fisheries, proposed and final rules (80 FR 33467 and 52198) to adjust the baseline annual U.S. bluefin tuna quota and other bluefin tuna fishery provisions, proposed and final rules to adjust the 2015 North and South Alantic swordfish quotas (80 FR 8838 and 25609), proposed and final rules to adjust the 2016 shark quotas (80 FR 49974 and 74999), a proposed rule (80 FR 61146) to implement the electronic bluefin tuna catch documentation system (eBCD), and a final rule (Amendment 9) (80 FR 73128) for smoothhound shark management measures including modifications to shark gillnet requirements; published the final Essential Fish Habitat 5-Year Review (80 FR 37598), and enacted several inseason actions for HMS. The HMS Management Division also assisted the Deepwater Horizon Natural Resource Damage Assessment Trustee Council with the Deepwater Horizon Pelagic Longline Bycatch Reduction Project that is part of the Final Phase IV Early Restoration Plan and Environemental Assessments for the Deepwater Horizon National Resource Damage Assessment. NMFS also published a final rule (79 FR 77339) that established technical and other requirements for vessel monitoring system type approval.

In November 2015, the 24th Regular Meeting of the International Commission for the Conservation of Atlantic Tunas (ICCAT) was held, during which the United States helped develop recommendations to promote the conservation, management, and rebuilding of Atlantic HMS stocks. At this meeting, ICCAT adopted recommendations regarding Atlantic bigeye tuna, Atlantic porbeagle sharks, and Atlantic blue and white marlins; adopted a recommendation on the implementation of the electronic bluefin tuna catch document (eBCD) system; evaluated the reporting and conservation and management measures of the 50 Contracting Parties; and adopted the recommendation on the use of alternative biological reference points in SCRS stock assessments on a stock-by-stock basis.

Several stocks of HMS underwent stock assessments in 2015: Atlantic bigeye tuna and blue sharks underwent international stock assessments, and the Atlantic smooth dogfish shark and the Gulf of Mexico smoothhound shark complex underwent domestic assessments. NMFS continued shark nursery grounds research and EFH studies through two programs (COASTSPAN and GULFSPAN) along the U.S. Atlantic, Gulf of Mexico, and Caribbean.

Much of the data in this report is based on final reports of 2014 data that were completed and/or published in 2015. Domestic fishery landings and bycatch data are presented from the U.S. Annual Report to ICCAT, and directly from NMFS program databases including

commercial landings from the HMS and Coastal Fisheries Logbook Programs, the Pelagic Longline and Southeast Gillnet and Bottom Longline Observer Programs, the Electronic Dealer Reporting Program (eDealer), the online catch reporting system at hmspermits.noaa.gov, and the Commercial Bluefin Tuna Landings Database; and recreational landings from the Large Pelagics Survey, the Recreational Billfish Survey, and the HMS Recreational Reporting Program. NMFS permits data are presented from the Office of Science and Technology's International Trade Permit Database, the Northeast and Southeast Regional Permits Offices' Databases, the HMS Permits Database, the HMS Exempted Fishing Permits, Display Permits, and Scientific Research Permits Database, and the HMS Tournament Registration Database.

International landings data are presented from the ICCAT Standing Committee on Research and Statistics' annual report. International trade data are presented from the National Seafood Inspection Laboratory's Bluefin Tuna Catch Document and Swordfish Statistical Document Programs, the U.S. Census Bureau, and U.S. Customs and Border Protection.

Community profiles of the HMS fisheries from the 2010 national census were presented in the 2011 and 2012 SAFE Reports. Impacts to these communities from the major storms in 2014 are presented in this report. Finally, the NMFS Office of Science and Technology has developed tools for social impact analyses, from which the vulnerability or resilience to potential economic disruptions resulting from regulations, social changes, or natural disasters, assessed in 2013, are presented for twenty-five HMS fishing communities.

Feedback and comments on this SAFE Report are encouraged and should be sent to the HMS Management Division F/SF1, 1315 East West Highway, Silver Spring, MD 20910, phone: (301) 427-8503, fax: (301) 713-1917.

1. INTRODUCTION

The 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 NMFS to prepare a SAFE Report, or similar document, review it annually, and make changes as necessary for each fishery management plan (FMP). This document constitutes the 2015 SAFE Report for Atlantic HMS managed under the 2006 Consolidated Atlantic HMS FMP and its amendments (Table 1.1).

Table 1.1 Species Managed under the 2006 Consolidated Atlantic HMS Fishery Management Plan and its Amendments

Common Name	*Scientific Name*	Common Name	*Scientific Name*
Skipjack tuna	*Katsuwonus pelamis*	Sandbar shark	*Carcharhinus plumbeus*
Albacore tuna	*Thunnus alalunga*	Smalltail shark	*Carcharhinus porosus*
Yellowfin tuna	*Thunnus albacares*	Night shark	*Carcharhinus signatus*
Bigeye tuna	*Thunnus obesus*	Sand tiger	*Carcharias taurus*
Bluefin tuna	*Thunnus thynnus*	White shark	*Carcharodon carcharias*
		Basking shark	*Cetorhinus maximus*
Swordfish	*Xiphias gladius*	Tiger shark	*Galeocerdo cuvier*
		Nurse shark	*Ginglymostoma cirratum*
Sailfish	*Istiophorus platypterus*	Sevengill shark	*Heptranchias perlo*
White marlin	*Kajikia albida*	Sixgill shark	*Hexanchus griseus*
Blue marlin	*Makaira nigricans*	Bigeye sixgill shark	*Hexanchus nakamurai*
Roundscale spearfish	*Tetrapturus georgii*	Shortfin mako	*Isurus oxyrinchus*
Longbill spearfish	*Tetrapturus pfluegeri*	Longfin mako	*Isurus paucus*
		Porbeagle	*Lamna nasus*
Bigeye thresher shark	*Alopias superciliosus*	Smooth dogfish	*Mustelus canis*
Thresher shark	*Alopias vulpinus*	Florida smoothhound	*Mustelus norrisi*
Blacknose shark	*Carcharhinus acronotus*	Gulf smoothhound	*Mustelus sinusmexicanus*
Bignose shark	*Carcharhinus altimus*	Lemon shark	*Negaprion brevirostris*
Narrowtooth shark	*Carcharhinus brachyurus*	Bigeye sand tiger	*Odontaspis noronhai*
Spinner shark	*Carcharhinus brevipinna*	Blue shark	*Prionace glauca*
Silky shark	*Carcharhinus falciformis*	Whale shark	*Rhincodon typus*
Galapagos shark	*Carcharhinus galapagensis*	Caribbean sharpnose shark	*Rhizoprionodon porosus*
Finetooth shark	*Carcharhinus isodon*	Atlantic sharpnose shark	*Rhizoprionodon terraenovae*
Bull shark	*Carcharhinus leucas*	Scalloped hammerhead	*Sphyrna lewini*
Blacktip shark	*Carcharhinus limbatus*	Great hammerhead	*Sphyrna mokarran*
Oceanic whitetip shark	*Carcharhinus longimanus*	Bonnethead	*Sphyrna tiburo*
Dusky shark	*Carcharhinus obscurus*	Smooth hammerhead	*Sphyrna zygaena*
Caribbean reef shark	*Carcharhinus perezii*	Atlantic angel shark	*Squatina dumerili*

Consistent with the NS 2 guidelines, this SAFE Report provides a comprehensive summary of the most recent data on the condition of Atlantic HMS stocks, marine ecosystems, and fisheries managed under Federal regulation from a variety of sources across a wide range of disciplines. This includes information from the latest stock assessment data, and a summary of recommendations and resolutions from the International Commission for the Conservation of Atlantic Tunas (ICCAT) and its Standing Committee on Research and Statistics (SCRS). 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.

1.1 Agency Activities and Regulatory Actions for HMS

Since the publication of the 2014 SAFE Report, NMFS proposed or implemented a number of actions with regard to Atlantic HMS. These actions were published in the Federal Register and are listed in Table 1.2 and the major actions are discussed below. Most documents related to these and previous actions are available on the Atlantic HMS website at http://www.nmfs.noaa.gov/sfa/hms/ or by calling the HMS Management Division at (301) 427-8503.

NMFS held two Atlantic HMS Advisory Panel meetings in 2015: March 10-12 in Bethesda, MD, and September 9-10 in Silver Spring, MD. These meetings provided valuable opportunities for comments on a suite of management actions that NMFS pursued or considered in 2015. Meeting presentations and transcripts are posted on the HMS website.

NMFS published a final rule on December 24, 2014 (79 FR 77339) that codified the type-approval specifications, revised latency standards, and established initial type-approval, renewal, revocation, and appeals processes for industry and constituents. The final rule became effective January 23, 2015. For more information, go to http://www.nmfs.noaa.gov/ole/about/our_programs/vessel_monitoring.html.

On May 5, 2015, NMFS published final North and South Atlantic swordfish specifications (80 FR 25609) that adjusted the 2015 fishing season quotas for North and South Atlantic swordfish based upon 2014 commercial quota underharvests and international quota transfers consistent with ICCAT Recommendations 13-02 and 13-03. The proposed rule for this action published on February 19, 2015 (80 FR 8838) and the public comment period ended on March 23, 2015.

On June 1, 2015, Amendment 7 electronic monitoring requirements (for vessels fishing with pelagic longline gear) became effective. These regulations had been published on December 2, 2014, in the final rule implementing Amendment 7, but the effective date was delayed until June 1, 2015. As of June 1, 2015, a vessel with an Atlantic Tunas Longline permit may not depart on a fishing trip with pelagic longline gear onboard unless it has an installed, operable, and certified electronic monitoring system. Beginning in January 2015, a NMFS contractor, Saltwater, Inc., installed the required electronic monitoring systems (i.e., specialized equipment including video cameras, computer with data storage, GPS unit, and sensors) on eligible pelagic longline vessels to support the Individual Bluefin Quota (IBQ) program implemented by Amendment 7 to the 2006 Consolidated HMS FMP (Amendment 7; December

2, 2014; 79 FR 71510). By the end of November 2015, electronic monitoring systems were installed on a total of 112 vessels.

On July 1, 2015, NMFS announced the availability of the final Essential Fish Habitat (EFH) 5-Year Review and the Agency's intent to initiate an amendment to the 2006 Consolidated Atlantic HMS Fishery Management Plan (FMP) to revise Atlantic HMS EFH descriptions and designations in a Federal Register notice (80 FR 37598). In reviewing literature that has become available since 2009, new data emerged for certain Atlantic HMS, which warrants revision to those species' EFH descriptions and designations. For other Atlantic HMS, new data were either unavailable or it was determined that the new data did not warrant revisions to EFH descriptions and designations. However, in the upcoming amendment, new observer, survey, and tag/recapture data collected since 2009 will be used to revise EFH geographic boundaries for all species. The draft EFH 5-year Review was published on March 5, 2015 (80 FR 11981) and the public comment period ended on April 6, 2015.

On August 20, 2015, NMFS published a final rule (80 FR 50074) for Amendment 6 to the 2006 Consolidated Atlantic HMS FMP. The final action implemented modifications to retention limits for LCS, a new management boundary for SCS in the Atlantic region, sub-regional commercial quotas for LCS in the Gulf of Mexico region, modifications to quota linkages between blacknose and non-blacknose SCS in both the Atlantic and Gulf of Mexico regions, modifications to the TACs and commercial quotas for non-blacknose SCS in both the Atlantic and Gulf of Mexico regions, and modifications to vessel upgrading restrictions. As a result of these modifications to the commercial quotas and the creation of a management boundary in the Atlantic region, the non-blacknose SCS fisheries in the Gulf and Atlantic regions were re-opened. The proposed rule for this action published on January 20, 2015 (80 FR 2648) and the public comment period ended on April 3, 2015.

On August 28, 2015, NMFS published a final rule (80 FR 52198) that increased the baseline annual U.S. Atlantic bluefin tuna quota from 923.7 mt (as established in 2011) by 135 mt to 1,058.79 mt, as recommended by the International Commission for the Conservation of Atlantic Tunas (ICCAT) for 2015 and 2016. NMFS adjusted and codified the baseline annual subquotas for the domestic fishing categories consistent with the process established in Amendment 7 to the 2006 Consolidated Atlantic HMS FMP (79 FR 71510, December 2, 2014). The final rule also included minor modifications to the regulations regarding Atlantic tunas purse seine auxiliary vessel activity under the ''transfer at sea'' provisions. In the same notice and specifically for 2015, NMFS augmented the Reserve category quota with available underharvest of the 2014 adjusted U.S. Atlantic bluefin tuna quota and recalculated the Purse Seine and Reserve category quotas that were announced on February 11, 2015 (80 FR 7547), consistent with the Amendment 7 annual reallocation process and to reflect the increased U.S. quota. The proposed rule for this action published on June 12, 2015 (80 FR 33467) and the public comment period ended on July 13, 2015.

On September 23, 2015, the Deepwater Horizon Natural Resource Damage Assessment Trustee Council published the Final Phase IV Early Restoration Plan and Environmental Assessments. The plan includes 10 projects that have a combined estimated cost of $134 million. The proposed projects will benefit sea turtles, birds, and fish; increase recreational opportunities; and improve nearshore and reef habitats. One of those projects is the Pelagic Longline Bycatch

Reduction Project. The goal of the Pelagic Longline Bycatch Reduction Project is to restore pelagic fish. Many species of pelagic fish were likely exposed to oil and dispersants that were released during the Deepwater Horizon spill and response. The project aims to reduce bycatch by compensating fishers in the Gulf for voluntarily refraining from pelagic longline fishing for a six-month period each year, known as the "repose period." The project will also provide participating fishermen with two alternative types of gear—greenstick and buoy gear—which are less likely to impact non-target species. Fishers participating in the repose will use the alternative gears to continue harvesting yellowfin tuna and swordfish during the repose period. Fishers will be provided with training and technical support on alternative gears throughout their period of participation. The project includes components designed to improve alternative gear catch efficiency in the Gulf of Mexico and technical assistance to educate fishers on improvements identified as a result of these efforts. The project includes a monitoring plan that will use fishery observers, vessel logbooks, and vessel monitoring systems has been developed to assess the benefits of the project. The estimated cost of the project is $20 million. For more information, go to http://www.gulfspillrestoration.noaa.gov/restoration-planning/phase-iv/.

On October 9, 2015, NMFS published a proposed rule for implementation of the ICCAT electronic bluefin tuna catch documentation system (eBCD system) (80 FR 61146). NMFS proposed to revise the regulations governing international trade documentation and tracking programs for Atlantic bluefin tuna to implement recommendations adopted at recent ICCAT meetings. The proposed rule would transition the current ICCAT paper-based bluefin tuna catch documentation program, used in the United States by HMS international trade permit holders, to use of the electronic system. The comment period for the proposed rule closed on November 9, 2015, and a final rule is expected in 2016.

On November 24, 2015, NMFS published a final rule (80 FR 73128) for Amendment 9 to the 2006 Consolidated Atlantic HMS FMP. This final rule implemented: (1) an effective date for previously-adopted smoothhound shark management measures finalized in Amendment 3 to the 2006 Consolidated HMS FMP and in the 2011 HMS Trawl Rule; (2) commercial quotas for Atlantic and Gulf of Mexico smoothhound sharks based on the results of recent stock assessments; (3) the smooth dogfish-specific provisions of the Shark Conservation Act of 2010 to allow limited removal of smooth dogfish fins while at sea; (4) shark gillnet fishing requirements to comply with the 2012 Shark Biological Opinion; and, (5) modifications to the Atlantic shark gillnet VMS requirements, consistent with the Atlantic Large Whale Take Reduction Plan requirements. The Amendment 9 measures will be effective on March 15, 2016.

On December 1, 2015, NMFS published a final rule (80 FR 74999) that establishes quotas and opening dates for the 2016 Atlantic commercial shark fisheries. The quota adjustments are based on over- and/or underharvests experienced during 2015 and previous fishing seasons. NMFS is re-opening all of the 2016 Atlantic commercial shark fisheries on January 1, 2016. The large coastal shark (LCS) retention limit for directed shark limited access permit holders will start at 45 LCS other than sandbar sharks per trip in the Gulf of Mexico region and at 36 LCS other than sandbar sharks per trip in the Atlantic region. These retention limits for directed shark limited access permit holders may decrease or increase during the year to provide, to the extent practicable, fishing opportunities for commercial shark fishermen in all regions and areas.

Table 1.2 Atlantic HMS Federal Management Actions (Dec 18, 2014 to Dec 16, 2015)

Federal Register Cite	Date	Rule or Notice
		HMS Fisheries (General)
79 FR 78310	12/30/2014	NMFS Announces the Location for Installation of Electronic Monitoring Equipment
80 FR 10058	2/25/2015	Notice of Public Meeting for the Atlantic HMS Advisory Panel
80 FR 11981	3/5/2015	NMFS Announces the Draft Atlantic HMS Essential Fish Habitat 5-Year Review
80 FR 12152	3/6/2015	Notice to Reschedule the Norfolk, VA Atlantic Shark Identification Workshop and Notice for Atlantic Shark Identification Workshops, and Protected Species, Release, Disentanglement, and Identification Workshops
80 FR 26196	5/7/2015	NMFS Announces the Location for Installation of Electronic Monitoring Equipment
80 FR 27288	5/13/2015	Notice to Reschedule the Louisiana Protected Species, Release, Disentanglement, and Identification Workshop
80 FR 32941	6/10/2015	Notice for Atlantic Shark Identification Workshops, and Protected Species, Release, Disentanglement, and Identification Workshops
80 FR 37598	7/1/2015	NMFS Announces the Availability of the Final Atlantic HMS Essential Fish Habitat 5-Year Review and Notice of Intent to Amend the 2006 Consolidated HMS FMP
80 FR 46544	8/5/2015	Notice of Public Meeting for the Atlantic HMS Advisory Panel
80 FR 49211	8/17/2015	Correction Notice of Public Meeting for the Atlantic HMS Advisory Panel
80 FR 54533	9/10/2015	Notice for Atlantic Shark Identification Workshops, and Protected Species, Release, Disentanglement, and Identification Workshops
80 FR 60124	10/5/2015	Notice to Request Nominations for the Atlantic HMS Advisory Panel for Atlantic HMS SEDAR Workshops
80 FR 60566	10/7/2015	Technical Amendment to the Atlantic HMS Regulations
80 FR 63747	10/21/2015	Notice for Atlantic Shark Identification Workshop
80 FR 68297	11/4/2015	Notice of Intent to Issue Exempted Fishing Permits (EFPs), Scientific Research Permits (SRPs), Display Permits, Letter of Acknowledgement (LOAs), and Chartering Permits
80 FR 68515	11/5/2015	Notice of Request Nominations for Atlantic HMS Advisory Panel
80 FR 75975	12/7/2015	Notice for Atlantic Shark Identification Workshops, and Protected Species, Release, Disentanglement, and Identification Workshops
		Bluefin and BAYS Tunas
79 FR 77943	12/29/2014	Inseason Action to Transfer Subquota for the General Category (Commercial) Atlantic Bluefin Tuna and Adjust the Retention Limit for January 2015
80 FR 5991	2/4/2015	Correction Notice to Amendment 7 to the 2006 Consolidated HMS FMP
80 FR 7547	2/11/2015	Annual Adjustment of Atlantic Bluefin Tuna Purse Seine and Reserve Category Quotas and Reminder of the New Reporting Requirements Implemented in Amendment 7
80 FR 27863	5/15/2015	Inseason Action to Adjust Daily Retention Limits for Angling Category, Harpoon Category, and for General Category for June-August Subquota Period, and Announce Start Date for Purse Seine Category Fishery
80 FR 32478	6/9/2015	Inseason Action to Close the Angling Category Atlantic Bluefin Tuna Southern Area Trophy Fishery
80 FR 33467	6/12/2015	Proposed Rule for the 2015 Bluefin Tuna Quota Specifications
80 FR 45098	7/29/2015	Inseason Action to Transfer Atlantic Bluefin Quota from Reserve Category to the Longline Category
80 FR 46516	8/5/2015	Inseason Action to Transfer Atlantic Bluefin Quota from Reserve Category to the Harpoon Category
80 FR 51959	8/27/2015	Inseason Action to Maintain the Four-Fish General Category Daily Retention Limit for September-December 2015

Federal Register Cite	Date	Rule or Notice
80 FR 52198	8/28/2015	Final Rule for the 2015 Bluefin Tuna Quota Specifications
80 FR 61146	10/9/2015	Proposed Rule to Implement the ICCAT Electronic Bluefin Tuna Catch Documentation System
80 FR 68265	11/4/2015	Inseason Action to Transfer Atlantic Bluefin Quota from the Harpoon and Reserve Category to the General Category
80 FR 7499	12/1/2015	Inseason Action to Transfer Atlantic Bluefin Quota from the Reserve Category to the General Category and Adjust the Retention Limit
80 FR 77264	12/14/2015	Inseason Action to Transfer Atlantic Bluefin General Category Quota from the December 2016 Subquota to the January 2016 Subquota and Adjust the Retention Limit
		Sharks
80 FR 2648	1/20/2015	Proposed Rule for Amendment 6 to the 2006 Consolidated Atlantic HMS FMP
80 FR 2916	1/21/2015	Notice of Intent for Applications from the Gulf of Mexico Region to the 2015 Shark Research Fishery
80 FR 3221	1/22/2015	Public Meeting for Selected Participants of the 2015 Shark Research Fishery
80 FR 11379	3/3/2015	90-Day Finding on Petition to List the Common Thresher Shark as Threatened or Endangered Under the Endangered Species Act
80 FR 12394	3/9/2015	Notice to Reschedule the Manteo, NC Public Hearing for Draft Amendment 6 to the 2006 Consolidated HMS FMP
80 FR 16356	3/27/2015	90-Day Finding on Petition to List the Porbeagle Shark as Threatened or Endangered Under the Endangered Species Act
80 FR 24836	5/1/2015	NMFS Closes the Gulf of Mexico Aggregated LCS and Hammerhead Shark Management Groups
80 FR 32040	6/5/2015	Closure of the Commercial Blacknose Shark and Non-Blacknose SCS Management Groups in the Atlantic Region
80 FR 36974	6/29/2015	Stock Status Determination for Atlantic Smooth Dogfish Shark and the Gulf of Mexico Smoothhound Shark Complex
80 FR 38016	7/2/2015	Closure of the Commercial Blacknose Shark and Non-Blacknose SCS Management Groups in the Gulf of Mexico Region
80 FR 48053	8/11/2015	90-Day Finding on Petition to List the Smooth Hammerhead Shark as Threatened or Endangered Under the Endangered Species Act
80 FR 48061	8/11/2015	90-Day Finding on Petition to List the Bigeye Thresher Shark as Threatened or Endangered Under the Endangered Species Act
80 FR 50074	8/18/2015	Final Rule for Amendment 6 to the 2006 Consolidated Atlantic HMS FMP
80 FR 49974	8/18/2015	Proposed Rule to Establish the Quotas and Opening Dates for the 2016 Atlantic Shark Commercial Fishing Season
80 FR 68513	11/5/2015	Notice of Intent for Applications to the 2016 Shark Research Fishery
80 FR 73128	11/24/2015	Smoothhound Shark and Atlantic Shark Management Measures
80 FR 74999	12/1/2015	Final Rule to Establish the Quotas and Opening Dates for the 2016 Altantic Shark Commercial Fishing Season
80 FR 75436	12/2/2015	Inseason Action to Close the Non-Blacknose Small Coastal Shark Fishery in the Gulf of Mexico Region
		Swordfish and Billfishes
80 FR 8838	2/19/2015	Proposed Rule to Adjust the 2015 North and South Atlantic Swordfish Quotas
80 FR 25609	5/5/2015	Final Rule to Adjust the 2015 North and South Atlantic Swordfish Quotas
80 FR 44884	7/28/2015	Inseason Action to Adjust the Retention Limits for Vessels Issued Swordfish General Commercial Permits or HMS Charter/Headboat Permits

1.2 2015 Accomplishments of the International Commission for the Conservation of Atlantic Tunas

The International Commission for the Conservation of Atlantic Tunas (ICCAT) is a regional fishery management organization (RFMO) with 50 members, including the United States. The 24th Regular Meeting of ICCAT was held in St. Julian's, Malta November 10-17, 2015. The United States helped develop recommendations aimed at promoting the conservation, management, and rebuilding of Atlantic highly migratory fish stocks (e.g., tunas, billfish, swordfish, sharks), including those important to U.S. fishermen. ICCAT made progress on a number of issues, including, tropical tunas, sharks, marlins, monitoring, control and surveillance measures, compliance issues and management evaluation strategies.

Tunas: The Commission adopted Recommendation 15-01 for Atlantic bigeye, yellowfin, and skipjack tunas, taking into consideration the recently updated status of the bigeye tuna stock following the 2015 stock assessment (i.e., overfished with overfishing occurring). The recommendation reduces the Total Allowable Catch (TAC) from 85,000 to 65,000 mt. Under the revised catch limits, the United States shall endeavor to maintain its annual catch of bigeye tuna to less than 1,575 mt. Other new or revised provisions include: expansion of the time/area closure in the Gulf of Guinea that is in effect from January 1 through February 28 each year, revised capacity measures, a reduction in the amount of underharvest that can be carried over from 30 percent to 15 percent, limits on the number of fish aggregating devices (FADs) that can be active at any one time, new FAD reporting requirements, and new observer requirements. The Atlantic yellowfin tuna and northern albacore tuna assessments will be conducted by the SCRS in 2016. For both bluefin tuna stocks, the next benchmark assessment is scheduled for 2017.

Sharks: The Commission adopted Recommendation 15-06 for Atlantic porbeagle sharks. This recommendation requires ICCAT parties to release any incidental catches of porbeagle sharks that are alive when brought alongside the vessels, and directs the Commission to consider additional measures if catches of porbeagle sharks increases beyond 2014 levels. The shortfin mako stock assessment will be conducted by the SCRS in 2017.

Marlins: The Commission adopted Recommendation 15-05 for Atlantic blue and white marlins that will maintain the current Atlantic-wide TAC levels for both stocks until new scientific advice is available in 2018. The new Recommendation also requires ICCAT parties to provide estimates of live and dead discards, and all available data including observer data on landings and discards for blue marlin, white marlin/spearfish, annually by July 31st. The SCRS shall review the data and determine the feasibility of estimating fishing mortalities by commercial fisheries (including longline and purse seine), recreational fisheries, and artisanal fisheries. The Recommendation directs the SCRS to develop a new data collection initiative as part of the ICCAT Enhanced Program for Billfish Research to overcome the data gap issues of those fisheries; in particular, artisanal fisheries of developing countries.

Monitoring, Control and Surveillance Measures: The Commission adopted Recommendation 15-10 on the implementation of the electronic bluefin tuna catch documentation (eBCD) system. This Recommendation sets out an implementation deadline mandating use of the electronic system starting May 1, 2016, unless, based on examination of the status of the system, the eBCD Technical Working Group (TWG) advises the Commission that the system is not sufficiently ready for implementation. If the TWG so advises the Commission,

ICCAT parties must use the eBCD system to the fullest extent practicable, but paper BCD documents will continue to be accepted until the TWG advises the Commission that the system is sufficiently ready to be implemented.

Compliance: The Commission invested a significant amount of time and effort to review the compliance of the 50 ICCAT parties with existing obligations, evaluating various reporting requirements as well as conservation and management measures. There was demonstrated improvement in ICCAT parties' reporting of catch data and other information this year, but there is further work to do to ensure that all parties are in full compliance with all reporting obligations. The Compliance Committee agreed that 26 contracting parties and 1 cooperating non-contracting party will receive letters from the Commission concerning compliance issues. ICCAT adopted Resolution 15-09 regarding the guidelines on the implementation of Recommendation 11-15 (No Data, No Fish), including reporting zero catch. The additional issues discussed during the Compliance Committee meetings included the requirements of the Port Inspection program, lack of reporting on observer coverage, implementation of shark measures, and clarification on retroactive vessel listing.

Harvest Control Rules and Management Strategy Evaluation: Agreement was reached on the development of harvest control rules and management strategy evaluation as important tools to support future decision-making. The Commission adopted Recommendation 15-07, which details the process by which alternative biological reference points (i.e., threshold and limit biomass levels, and the target fishing mortality rate) will be identified and tested by SCRS on a stock-by-stock basis, for, among others, northern albacore, bluefin tuna, North Atlantic swordfish, and tropical tunas. North Atlantic albacore will be the first stock; a management objective has been defined (Recommendation 15-04) and the development of harvest control rules will continue in 2016. The Commission will provide specific input in three areas for individual stocks: (1) management objectives; (2) acceptable levels of probability (e.g., of achieving targets or avoiding limits); and (3) timeframes for ending overfishing and/or rebuilding.

1.3 State Regulations

Table 1.3 outlines the state regulations regarding HMS as of November 5, 2015. While the HMS Management Division updates this table annually, 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 regulations for Atlantic tunas apply in all other state waters of the U.S. Atlantic, Gulf of Mexico, and Caribbean. NMFS periodically reviews state tuna regulations for federal consistency as required under the Atlantic Tunas 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 (GSMFC) 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 FMP for Atlantic Coastal Sharks, effective as of January 1, 2010. This FMP was modified via Coastal Sharks Addendum I in September 2009 to allow for limited at-sea processing of smoothhound sharks and to remove recreational smoothhound shark possession limits. The ASMFC Interstate FMP was also modified via Addendum II in May 2013 to establish state shares of any future federal smoothhound shark quota and to allow smoothhound sharks to be fully processed at sea provided the fin to carcass ratio does not exceed 12 percent. In October 2013, the Interstate FMP was further modified through Addendum III to reorganize some shark complexes consistent with federal regulations. All management measures for coastal shark species in the Interstate FMP and its addendums have been implemented by ASMFC members, unless they have been granted *de minimus* status (Maine, Massachusetts, and New Hampshire) or have equivalent conservation measures in place. Member states can implement more restrictive management measures. A state can request permission to implement an alternative to any mandatory compliance measure only if that state can show to the ASMFC 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.

Some Atlantic states have also adopted legislative bans on the possession and trade of shark fins, including Delaware, Maryland, Massachusetts, and New York, although some allow limited exemptions for certain species such as smoothhound sharks. Some states on the west coast of the United States, several U.S. territories, and Illinois have similar restrictions.

Table 1.3 State Rules and Regulations Pertaining to Atlantic HMS

State regulations are subject to change. Please contact the appropriate state personnel to ensure that the regulations listed below are 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. * Regulations, references, and contact information not confirmed by state before publication of this year's Report. Please see state resources for more information.

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfishes	Sharks			
ME*	X			X	Tuna - ME Rev. Stat. Ann. tit. 12, " 6001, 6502, and 6551 Sharks - Code ME R. 13-188 ' 50.01, 50.04 and 50.10	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; retention limits and size limits mirror federal regulations. Sharks –Commercial harvest of sharks (except spiny dogfish) in state waters prohibited; finning prohibited; sharks harvested elsewhere but landed in Maine, or sharks landed recreationally, must be landed with head, fins, and tail naturally attached to the carcass; porbeagle cannot be landed commercially after federal quota closes. Dealers who purchase sharks must obtain a federal dealer permit. Recreational anglers must possess a federal HMS angling permits.	ME Department of Marine Resources Phone: (207) 624-6550 Fax: (207) 624-6024
NH			X	X	Billfish - FIS 603.13 Sharks - FIS 603.20	Billfish - Possession limit - 1 billfish/trip; Minimum size (LJFL) - Blue marlin – 99"; White marlin - 66"; Sailfish – 57"; May be taken by rod and reel only; Unlawful to sell billfish (blue or white marlin, sailfish, roundscale spearfish, and longbill spearfish), personal use only Sharks – See list for prohibited sharks (http://gencourt.state.nh.us/rules/state_agencies/fis600.html) – no take, landings, or possession of prohibited shark species; NH Wholesale Marine Species License and a Federal Dealer permit required for all dealers purchasing listed sharks; Porbeagle sharks can only be taken by recreational fishing from state waters; Head, fins and tail must remain attached to all shark species through landing	NH Fish and Game Douglas Grout Phone: (603) 868-1095 Fax: (603) 868-3305

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfishes	Sharks			
MA	X			X	Bluefin Tuna - 322 CMR 6.04 Sharks – 322 CMR 6.37	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. Sharks – ASMFC Coastal Shark Plan (no shark species may be landed with tails or fins removed 322 CMR 6.37(3)(d)) All MA commercial and recreational fishing regulations are at: http://www.mass.gov/dfwele/dmf/commercialfishing/cmr_index.htm	MA Division of Marine Fisheries Jared Silva Phone: (617) 626-1534 Fax: (617) 626-1509
RI*				X	Sharks - RIMFC Regulations part VII 7.24	Sharks – ASMFC Coastal Shark Plan RI commercial fishing license or landing permit required to harvest or land HMS All RI commercial and recreational marine fisheries regulations are at: http://www.dem.ri.gov/pubs/regs/regs/fishwild/rimftoc.htm RIMFC Regulations part VII 7.24 are at: http://www.dem.ri.gov/pubs/regs/regs/fishwild/rimf7.pdf	RI Dept of Environment Management, Div of Fish and Wildlife Eric Schneider Phone: (401) 423-1933
CT				X	Sharks – Regulations of Connecticut State Agencies § 26-159a-1; Connecticut General Statutes §26-102, Declaration 15-04	Sharks – Prohibited species same as federal regulations; Possession of sandbar shark (*Carcharhinus plumbeus*) prohibited except by permit for research and display purposes	CT Dept of Energy and Environmental Protection David Simpson Phone: (860) 434-6043 Fax: (860) 434-6150

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfishes	Sharks			
NY			X	X	Billfish - NY Environmental Conservation ' 13-0339 (5) Sharks - NY Environmental Conservation ' 13-0338; State of NY Codes, Rules and Regulations (Section 40.7)	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 Sharks – ASMFC Coastal Shark Plan. Separate requirement that No person shall possess, sell, offer for sale, trade, or distribute a shark fin; provided, however, that this prohibition shall not apply to any shark fin that was taken from a spiny dogfish (*Squalus acanthias*) or a smooth dogfish (*Mustelus canis*) lawfully caught by a licensed commercial fisherman; a shark fin may be possessed by any person if the shark was lawfully caught and the person has a recreational marine fishing registration or a license or permit from the department for bona fide scientific research or educational purposes	NY Department of Environmental Conservation Stephen W. Heins Phone: (631) 444-0435 Fax: (631) 444-0449
NJ*				X	Sharks - NJ Admin Code, Title 7. Dept of Environmental Protection, NJAC 7:25-18.1 and 7:25-18.12(d)	Sharks – ASMFC Coastal Shark Plan	NJ Fish and Wildlife Russ Babb Phone: (609)748-2020 Fax: (609) 748-2032
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 John Clark Phone: (302) 739-9914

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfishes	Sharks			
MD	X	X	X	X	Code of Maryland Regulations: Bluefin tuna - 08.02.12.03 and 08.02.05.23 Swordfish - 08.02.12.03 and 08.02.05.27 Billfish - 08.02.12.03 and 08.02.05.26 Sharks - 08.02.12.03 and 08.02.22.01-.04	Bluefin 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/white marlin and sailfish) - Federal regulations control size and seasons and recreational catch required to be tagged Sharks – Recreational catch required to be tagged; ASMFC Coastal Shark Plan; all recreationally harvested sharks must have heads, tails, and fins attached naturally to the carcass through landing; all commercially harvested sharks other than smoothhounds must have tails and fins attached naturally to carcass through landing; smoothhound sharks harvested commercially may have dorsal, pectoral and caudal fins removed (caudal fins may not exceed 4% of total dressed weight of smoothhound shark carcasses on board; dorsal and pectoral fins may not exceed 8% of total dressed weight of smoothhound shark carcasses on board)	MD Department of Natural Resources Gina Hunt Phone: (410) 260-8326
VA			X	X	Billfish - 4 VA Admin Code 20-350-10 Sharks - 4 VA Admin Code 20-490-10	Billfish - Prohibition on sale of billfish Sharks – ASMFC Coastal Shark Plan	VA Marine Resources Commission Robert O'Reilly Phone: (757) 247-2247 Fax: (757) 247-2002
NC*	X		X	X	NC Admin Code: Tunas - title 15A 03M.0520 Billfish - title 15A, r.3M.0507 & 03M.0507 Sharks -title 15A, NCAC, 03M .0512 Compliance w/FMPs	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 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 Sharks - Director may impose restrictions for size, seasons, areas, quantity, etc. via proclamation; ASMFC Coastal Shark Plan; additionally: longline in the shark fishery shall not exceed 500 yd or have more than 50 hooks	NC Division of Marine Fisheries Randy Gregory Phone: (252) 726-7021 Fax: (252) 726-0254

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfishes	Sharks			
SC	X	X	X	X	SC Code Ann: Tuna/Swordfish - 50-5-2725 and 2730 Billfish - 50-5-1700, 1705, 2725 and 2730; 50-1-30 (7) Sharks - 50-5-2725, 2730	Tuna/Swordfish – Defer to federal regulations 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 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	SC Department of Natural Resources Wallace Jenkins Phone: (843) 953-9835 Fax: (843) 953-9386
GA			X	X	GA Code Ann: Gear Restrictions/Prohib - 27-4-7; Billfish - 27-4-130.2; GA Comp. R. & Regs. ' 391-2-4-.04 Sharks - 27-4-130.1; GA Comp. R. & Regs. ' 391-2-4-.04	Gear Restrictions/Prohibs - Use of gillnets and longlines is prohibited in state waters Billfish - Possession prohibited in state waters, except for catch and release Sharks – Commercial/Recreational: 1/person for sharks from the Small Shark Composite (bonnethead, Atlantic sharpnose, and spiny dogfish), min size 30” FL. All other sharks - 1 shark/person or boat, whichever is less, min size 54” FL. Hammerheads (great, scalloped and smooth)-1/person or boat, whichever is less, minimum size – 78” FL. Prohibited Species: same as federal, plus silky sharks; All species must be landed head and fins intact; Sharks may not be landed in Georgia if harvested using gillnets; ASMFC Coastal Shark Plan	GA Department of Natural Resources Carolyn Belcher Phone: (912) 264-7218 Fax: (912) 262-3143

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfishes	Sharks			
FL		X	X	X	Sharks - FL Administrative Code 68B-44 Billfish and Spearfish - FL Administrative Code 68B-33 Swordfish – FL Administrative Code 68B-58	Billfish – Longbill and Mediterranean– harvest/possession/landing/purchase/sale/exchange prohibited Blue/white marlin, roundscale spearfish, 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; roundscale spearfish – 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) Swordfish - Minimum size – 47" LJFL/25" CK; Authorized fishing gear for swordfish is hook and line in state waters, Recreational possession limit 1 fish/person/day or 4 fish/vessel/day (with 4 or more persons onboard) on private boats, limit of 1 fish/paying customer/day up to 15 fish/vessel/day on for-hire vessels; Captain and crew on for-hire vessels have zero bag limit. Commercial harvest and sale allowed only with Florida saltwater products license, restricted species endorsement, and a federal commercial permit for swordfish, so federal regulations apply in state waters unless state regulations are more restrictive, Wholesale dealers purchasing swordfish must possess a federal Atlantic Swordfish Dealer permit; Recreational catch reporting requirement (all recreational landings must be reported to NMFS within 24 hours) Sharks – Commercial/recreational: min size – 54" except no min. size on blacknose, blacktip, bonnethead, smooth dogfish, finetooth, Atlantic sharpnose; Commercial/recreational 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, removing heads and tails, and filleting prohibited (gutting allowed); Prohibited species same as federal regulations plus prohibition on harvest of spiny dogfish, lemon, sandbar, silky, tiger, great hammerhead, smooth hammerhead, and scalloped hammerhead sharks, direct and continuous transit through state waters to place of landing for spiny dogfish, lemon, sandbar, silky, tiger, great hammerhead, smooth hammerhead, and scalloped hammerhead sharks legally caught in federal waters is allowed.	FL Fish and Wildlife Conservation Commission Martha Bademan Phone: (850) 487-0554 Fax: (850) 487-4847

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfishes	Sharks			
AL	X	X	X	X	Tunas/Swordfish/Billfish/ Sharks – AL Administrative Code r.220-3-.30 Sharks - AL Administrative Code r.220-3-.30, r.220-3-.37, and r.220-2-.77	All HMS - Reference to federal landing form regulations. Any vessel or individual required to possess a federal permit to harvest or retain marine aquatic species must possess such permit to possess or land such marine aquatic species in Alabama Tuna - Recreational and commercial fishermen must have a federal permit to fish for tunas; Yellowfin and bigeye – 27" CFL min size Sharks – Recreational: bag limit – 1 sharpnose/person/day and 1 bonnethead/person/day; no min size; great hammerhead, smooth hammerhead, scalloped hammerhead 1/person/day - 78" FL; all other sharks – 1/person/day; min size – 54" FL or 30" dressed; Commercial - no size limit and no possession limit on any non-prohibited species. Restrictions of chumming and shore-based angling if creating unsafe bathing conditions; Prohibited species: Atlantic angel, basking, bigeye sand tiger, bigeye sixgill, bigeye thresher, bignose, Caribbean reef, Caribbean sharpnose, dusky, Galapagos, largetooth sawfish, longfin mako, narrowtooth, night, sandtiger, smalltooth sawfish, smalltail, sevengill, sixgill, spotted eagle ray, whale, white sandbar (unless fisherman possess a federal shark research fishery permit), silky (unless fisherman possess a Federal Atlantic shark fisheries permit). Commercial-state waters close, by species, when federal season closes; no shark fishing on weekends, Memorial Day, Independence Day, or Labor Day; Regardless of open or closed season, gillnet fishermen targeting other fish may retain sharks with a dressed weight not exceeding 10% of total catch.	AL Department of Conservation and Natural Resources, Marine Resources Division Major Scott Bannon Phone: (251) 861-2882 www.outdooralabama.com

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfishes	Sharks			
LA	X	X	X	X	Tunas - LA Administrative Code Title 76, Pt. VII, Ch. 3, § 361 Swordfish/Billfish - LA Administrative Code Title76, Pt. VII, Ch. 3, § 355 Sharks - LA Administrative Code Title 76, Pt. VII, Ch. 3, § 357	Tunas - Recreational and commercial minimum size for yellowfin and bigeye is 27" CFL; Recreational bag limits – 3 yellowfin/person. Recreational minimum size for bluefin tuna is 73" CFL and bag limit is 1/vessel/year. Recreational and commercial tuna fishing requires a federal permit. LA Admin Code States: "No person who, pursuant to state or federal law, is subject to the jurisdiction of this state shall violate any federal law, rule or regulation particularly those rules and regulations enacted pursuant to the Magnuson-Stevens Fishery Conservation Act and published in the Code of Federal Regulations as amended Title 50 and 15, for tunas while fishing in the EEZ, or possess, purchase, sell, barter, trade, or exchange tunas within or without the territorial boundaries of Louisiana in violation of any state or federal law, rule or regulation particularly those rules and regulations enacted pursuant to the Magnuson-Stevens Fishery Conservation Act and published in the Code of Federal Regulations as amended Title 50 and 15 law." Billfish/Swordfish - Minimum size: blue marlin (99" LJFL), white marlin (66" LJFL), sailfish (63" LJFL), swordfish (29" carcass length or 33 lb dw, 47" LJFL if not dressed); 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 Sharks - Recreational: min size – 54" FL, except Atlantic sharpnose and bonnethead which have no size limit; bag limit - 1 sharpnose or bonnethead/person/day, all other sharks, except sandbar, silky and all prohibited sharks – 1 fish/person/day in aggregate including SCS, LCS, and pelagic sharks; Commercial: 36/vessel/day limit; no min size; Com & rec harvest prohibited: Apr 1 - Jun 30; Prohibited species: same as federal regulations; Fins must remain naturally attached to carcass though off-loading. Commercial shark fishing requires annual state shark permit. Owners/operators of vessels other than those taking sharks in compliance with state or federal commercial permits are restricted to no more than one shark from either the large coastal, small coastal, or pelagic group per vessel per trip within or without Louisiana waters.	LA Department of Wildlife and Fisheries Jason Adriance Phone: (504) 284-2032 or 225 765-2889 Fax: (504) 284-5263 or (225) 765-2489

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfishes	Sharks			
MS*	X		X	X	Tunas/Billfish/Sharks - MS Code Title-22 part 7	Tunas – No directed bluefin tuna fishing; only recreational anglers can retain incidentally-caught bluefin tuna 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 (possession limit) Billfish – Unlawful to sell blue and white marlin and sailfish without proper federal documentation; Recreational min size: blue marlin 99" LJFL; white marlin 66" LJFL; sailfish 63" LJFL; No possession for longbill spearfish; No limit for recreational take Sharks – Recreational min size: LCS/Pelagics 37" TL; SCS 25" TL; possession limit: LCS/Pelagics 1/person up to 3/vessel; SCS 4/person; Commercial and prohibited species same as federal regulations; Prohibition on finning	MS Department of Marine Resources Kerwin Cuevas Phone: (228) 374-5000
TX		X	X	X	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	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 Billfish – No bag limit; min size (TL): blue marlin 131"; white marlin 86"; sailfish 84" Sharks - Commercial/recreational: bag limit - 1 shark/person/day; possession limit is twice the daily bag limit (i.e., 2 sharks/person/day); min size 24" TL for Atlantic sharpnose, blacktip, and bonnethead sharks and 64" TL for all other lawful sharks. Prohib species: same as federal regulations	TX Parks & Wildlife Department Mark Lingo Phone: (512) 389-4668 Fax: (512) 389-8762
Puerto Rico	X	X	X	X	Regulation #7949 Article 13 – Commercial Fishing Limits Article 18 – Recreational Fishing Limits	Illegal to sell, offer for sale, or traffic in any billfish or marlin, either whole or processed, captured in jurisdictional waters of Puerto Rico. Swordfish or billfish, tuna, and shark are covered under the federal Atlantic HMS regulations (50 CFR, Part 635), which also apply in territorial waters; 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.	Puerto Rico Department of Natural and Environmental Resources Craig Lilyestrom Phone: (787) 772-2022

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfishes	Sharks			
U.S. Virgin Islands*	X	X	X	X	V.I.C., Title 12, Chapter 9A.	Federal regulations and federal permit requirements apply in territorial waters. http://caribbeanfmc.com/pdfs/booklet%20usvi%20Commercial%202009.pdf	6291 Estate Nazareth St. Thomas, VI 00802 Phone: (340) 775-6762 45 Mars Hill Complex Frederiksted, St. Croix, VI 00840 Phone: (340) 773-1082

2. STATUS OF THE STOCKS

The thresholds used to determine the status of Atlantic HMS are presented in Figure 2.1. These thresholds are fully described in Chapter 3 of the 1999 Tunas, Swordfish, and Shark FMP (1999 FMP) and in Amendment 1 to the Billfish FMP, and were carried over in full in the 2006 Consolidated HMS FMP. These thresholds are based upon those described in a paper providing the initial technical guidance for implementing NS 1 of the Magnuson-Stevens Act (Restrepo et al., 1998). These types of figures are often used by stock assessment scientists to summarize the results of various stock assessment models. Generally, if the model results are in the white portion of the figure, the stock may have a status of "not overfished" and "overfishing is not occurring." Similarly, if the model results are in the gray portions of the figure, the stock may have a status of "overfished," "overfishing is occurring," or both.

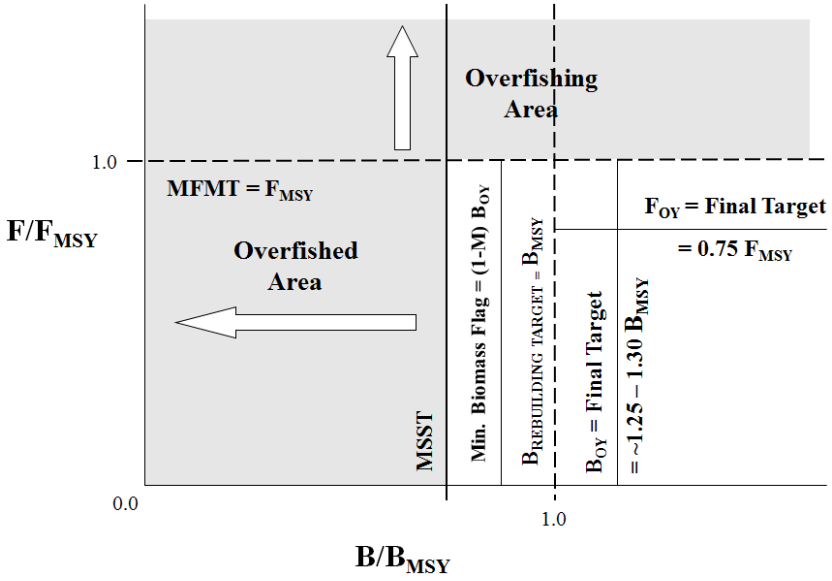

Figure 2.1 Illustration of the Status Determination Criteria and Rebuilding Terms

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}. If a species is declared overfished, action to rebuild the stock is required by law. A species is considered rebuilt when B is greater than B_{MSY}. It is important to note that other bodies, such as ICCAT, use different thresholds for stock status determination. For instance, the ICCAT Convention defines an overfished status as $B_{year}/B_{MSY} < 1.0$, not $B_{year}/B_{MSY} <$ 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 overfishing is occurring, action to end overfishing is required by law.

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}).

The domestic thresholds used to calculate the domestic 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) = $B_{limit} = (1\text{-}M)B_{MSY}$ when $M < 0.5$; MSST = $0.5B_{MSY}$ 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 = $0.75B_{MSY}$); M = natural mortality. In many cases an average M across age classes or sensitivity runs from a stock assessment model is used to calculate MSST. 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 = $B_{OY} \approx 1.25$ to $1.30B_{MSY}$;
- Minimum biomass flag = $(1\text{-}M)B_{OY}$; and
- Level of certainty of *at least* 50 percent but depends on species and circumstances.
- For some stocks (e.g., bluefin tuna, albacore), spawning stock biomass (SSB) is used as a proxy for biomass.
- For sharks, in some cases, spawning stock fecundity (SSF) or number of fish (N) can be used as a proxy for biomass since biomass does not influence pup production in sharks. SSF is the sum of the number of mature sharks at age multiplied by pup-production at age.

Table 2.1 and Table 2.2 present the stock assessment information and the current stock status of Atlantic HMS as of November 2015 under both the domestic and international thresholds (e.g., whether a species is considered to be overfished on a domestic, and when appropriate, international level). In some cases, these statuses are preliminary as NMFS is still reviewing the most recent stock assessment results. NMFS updates all U.S. fisheries stock statuses each quarter and provides a final Status of U.S. Fisheries Report to Congress on an annual basis (http://www.nmfs.noaa.gov/sfa/fisheries_eco/status_of_fisheries).

With the exception of many Atlantic shark stocks, stock assessments for Atlantic HMS are conducted by ICCAT's SCRS (http://www.iccat.int/en/assess.htm). In 2015, the SCRS completed stock assessments for Atlantic bigeye tuna and blue sharks.

Atlantic shark stock assessments for large coastal, small coastal, and smoothhound sharks are generally completed by the Southeast Data, Assessment, and Review (SEDAR) process. SEDAR assessments for Atlantic smooth dogfish and the Gulf of Mexico smoothhound shark complex were completed in 2015, and finalized documents are at http://sedarweb.org/sedar-39.

In some cases, NMFS looks to available resources, including peer reviewed literature, for external assessments that, if deemed appropriate, could be used for domestic management purposes. NMFS followed this process in determining the stock status of scalloped hammerhead sharks based on an assessment for this species that was completed by Hayes et al. (2009).

Table 2.1 Atlantic HMS Stock Status Summaries (Domestic and International): Overfished (and Years to Rebuild) and Not Overfished

Species	Current Relative Biomass Level	B_{MSY}	International Threshold	Domestic Minimum Stock Size Threshold	International Stock Status	Domestic Stock Status	Years to Rebuild	Rebuilding Start Date (End Date)	Most Recent Assessment
West Atlantic bluefin tuna	SSB_{2013}/SSB_{MSY}* = 2.25 (1.92 - 2.68) (low recruitment) SSB_{2013}/SSB_{MSY}* = 0.48 (0.35 - 0.72) (high recruitment)	SSB_{MSY} = 13,226 mt (low recruitment; 12,969-13,645 mt) SSB_{MSY} = 63,102 mt (high recruitment; 50,096-72,921 mt)	B_{MSY}	0.86 SSB_{MSY} (11,374 mt; low recruitment) (54,268 mt; high recruitment)	Low recruitment scenario: Not overfished High recruitment scenario: Overfished	Low recruitment scenario: Not overfished* High recruitment scenario: Overfished*	20	5/1/1999 (2019)	2014
Atlantic bigeye tuna	B_{2014}/B_{MSY} = 0.67 (0.48 - 1.20)	*Unspecified*†	B_{MSY}	0.6 B_{MSY}	Overfished	Not overfished (Rebuilding)	Not available† ††	1/1/1999	2015
Atlantic yellowfin tuna	B_{2010}/B_{MSY} = 0.85 (0.61 - 1.12)	*Unspecified*†	B_{MSY}	0.5 B_{MSY} (age 2+)	Overfished	Not overfished			2011
North Atlantic albacore tuna	SSB_{2011}/SSB_{MSY} = 0.94 (0.74 - 1.14)	SSB_{MSY} = 81,110 mt	B_{MSY}	0.7 B_{MSY} (56,777 mt; based on SSB_{MSY})	Overfished	Not overfished (Rebuilding)	10	1/1/2010 (2020)	2013
West Atlantic skipjack tuna	B_{2013}/B_{MSY}: Probably close to 1.3	30,755 mt	B_{MSY}	*Unknown*	Not overfished	Not overfished			2014
North Atlantic swordfish	B_{2011}/B_{MSY} = 1.14 (1.05 - 1.24)	65,060 mt	B_{MSY}	0.8 B_{MSY}; (52,048 mt)	Not overfished	Not overfished			2013
South Atlantic swordfish	B_{2011}/B_{MSY} = *Unknown but likely above 1*	*Unknown*	B_{MSY}	0.8 B_{MSY} *(Unknown)*	Not overfished	Not overfished			2013
Blue marlin	B_{2009}/B_{MSY} = 0.67 (0.53 - 0.81)	25,411 mt (SSB_{MSY})	B_{MSY}	0.9 B_{MSY} (22,870 mt; based on SSB_{MSY})	Overfished	Overfished	Not available† ††	6/1/2001	2011

Species	Current Relative Biomass Level	B_{MSY}	International Threshold	Domestic Minimum Stock Size Threshold	International Stock Status	Domestic Stock Status	Years to Rebuild	Rebuilding Start Date (End Date)	Most Recent Assessment
White marlin (and roundscale spearfish)	B_{2010}/B_{MSY} = 0.5 (0.42-0.60)	29,240 mt (27,260 - 30,720 mt)	B_{MSY}	0.85 B_{MSY} (23,171-26,112 mt)	Overfished	Overfished	Not available††††	6/1/2001	2012
West Atlantic sailfish	$B_{2007} < B_{MSY}$: Possibly	*Unknown*	B_{MSY}	0.78 B_{MSY}	Possibly overfished	Overfished	Not available†††	1/1/1999	2009
Longbill spearfish	*Unknown*	*Unknown*	B_{MSY}	*Unknown*	*Unknown*	*Unknown*			*1997*
Northwest Atlantic porbeagle sharks	B_{2008}/B_{MSY} = 0.43 – 0.65	29,382 - 40,676 mt	B_{MSY}	(1-M)B_{MSY}**	Overfished	Overfished	100	7/24/2008 (2108)	2009
North Atlantic blue sharks	B_{2013}/B_{MSY} = 1.35-3.45	*Unspecified*†	B_{MSY}	(1-M)B_{MSY}	Not likely overfished	Not overfished			2015
North Atlantic shortfin mako sharks	B_{2010}/B_{MSY} = 1.15 - 2.04	183,612 mt - 863,655 mt††	B_{MSY}	(1-M)B_{MSY}**	Not overfished	Not overfished			2012
Sandbar sharks	SSF_{2009}/SSF_{MSY} = 0.51 – 0.72	SSF_{MSY} = 349,330 - 1,377,800 (numbers of sharks)	*NA*	301,821 – 1,190,419 (based on SSF_{MSY})	*NA*	Overfished	66	1/1/2005 (2070)	2010
Gulf of Mexico blacktip sharks	SSF_{2010}/SSF_{MSY} = 2.00-2.66	SSF_{MSY} = 1,570,000 - 6,440,000 (numbers of sharks)	*NA*	1,327,697 - 5,446,093 (1-M)SSF_{MSY}	*NA*	Not overfished			2012
Atlantic blacktip sharks	*Unknown*	*Unknown*	*NA*	(1-M)B_{MSY}	*NA*	*Unknown*			2005/2006
Dusky sharks	SSB_{2009}/SSB_{MSY} = 0.41 - 0.50	*Unknown*†	*NA*	(1-M)SSB_{MSY}	*NA*	Overfished	100	7/24/2008 (2108)	2010
Scalloped hammerhead sharks	N_{2005}/N_{MSY} = 0.45	N_{MSY} = 62,000 (numbers of sharks)	*NA*	(1-M)N_{MSY}	*NA*	Overfished	10	7/3/2013 (2023)	2009
Atlantic Bonnethead sharks	*Unknown*	*Unknown*	*NA*	*Unknown*	*NA*	*Unknown*			2013

Species	Current Relative Biomass Level	B_{MSY}	International Threshold	Domestic Minimum Stock Size Threshold	International Stock Status	Domestic Stock Status	Years to Rebuild	Rebuilding Start Date (End Date)	Most Recent Assessment
Gulf of Mexico Bonnethead sharks	*Unknown*	*Unknown*	*NA*	*Unknown*	*NA*	*Unknown*			2013
Atlantic sharpnose sharks – Atlantic stock	SSF_{2011} /SSF_{MSY} = 2.07	SSF_{MSY} = 4,860,000 (numbers of sharks)	*NA*	(1-M)SSF_{MSY}	*NA*	Not overfished			2013
Atlantic sharpnose sharks - Gulf of Mexico stock	SSF_{2011}/SSF_{MSY}= 1.01	SSF_{MSY} = 17,900,000	*NA*	(1-M)SSF_{MSY}	*NA*	Not overfished			2013
Atlantic blacknose sharks – Atlantic stock	SSF_{2009}/SSF_{MSY} = 0.43 – 0.64	SSF_{MSY} = 77,577 - 288,360 (numbers of sharks)	*NA*	62,294 - 231,553 (1-M)SSF_{MSY}	*NA*	Overfished	30	7/3/2013 (2043)	2010
Atlantic blacknose sharks – Gulf of Mexico stock	*Unknown*	*Unknown*	*NA*	(1-M)B_{MSY}	*NA*	*Unknown*			2010
Finetooth sharks	N_{2005}/N_{MSY} = 1.80	N_{MSY} = 3,200,000 (numbers of sharks)	*NA*	2,400,000 (1 - M)N_{MSY}	*NA*	Not overfished			2007
Atlantic smooth dogfish	SSF_{2012}/SSF_{MSY} = 1.96-2.81	SSF_{MSY} = 4,746,000	*NA*	3,701,000 (1 - M)SSF_{MSY}	*NA*	Not overfished			2015
Gul fof Mexico smoothhound shark complex	N_{2012}/N_{MSY} = 1.68-1.83	N_{MSY} = 7,190,000	*NA*	5.53E+06 (1 - M)N_{MSY}	*NA*	Not overfished			2015

*Future stock productivity is based upon two hypotheses about future recruitment: a "high recruitment scenario" in which future recruitment has the potential to achieve levels that occurred in the early 1970s and a "low recruitment scenario" in which future recruitment is expected to remain near present levels. The SCRS, as stated in the stock assessment, has insufficient evidence to favor either scenario over the other and notes that both are plausible (but not extreme) lower and upper bounds on rebuilding potential. **M is unknown. †A value for B_{MSY} (or its proxy) was not provided in the stock assessment. ††Only the BSP model provided B_{MSY} values. The B_{MSY} range encompasses the16 scenarios run of the BSP model. †††There is insufficient information to estimate how many years it will take this stock to rebuild. Sources: SCRS, 2007, 2008, 2009a, 2009b, 2010, 2011, 2012a, 2012b, 2013, 2014, 2015; Gibson and Campana, 2005; Cortés et al., 2006; NMFS, 2006; NMFS, 2007; Hayes et al., 2009; SEDAR 2011a, 2011b, 2011c, 2011d, 2013a, 2013b, 2015a, 2015b.

Table 2.2 Atlantic HMS Stock Status Summaries (Domestic and International): Overfishing Is Occurring and Overfishing Is Not Occurring

Species	Current Relative Fishing Mortality Rate	Maximum Fishing Mortality Threshold	International Stock Status	Domestic Stock Status	Most Recent Assessment
West Atlantic bluefin tuna	$F_{2010\text{-}2012}/F_{MSY}$*= 0.36 (0.28 - 0.43) (low recruitment) $F_{2010\text{-}2012}/F_{MSY}$*= 0.88 (0.64 - 1.08) (high recruitment)	F_{MSY} = 0.20 (0.17-0.24) (low recruitment) F_{MSY} = 0.08 (0.07-0.10) (high recruitment)	Low recruitment scenario: Overfishing is not occurring* High recruitment scenario: Overfishing is not occurring*	Low recruitment scenario: Overfishing is not occurring* High recruitment scenario: Overfishing is not occurring*	2014
Atlantic bigeye tuna	F_{2014}/F_{MSY} = 1.28 (0.62 - 1.85)	F_{MSY} = †	Overfishing is occurring	Overfishing is occurring	2015
Atlantic yellowfin tuna	F_{2010}/F_{MSY}= 0.87 (0.68 - 1.40)	F_{MSY} †	Overfishing is not occurring	Overfishing is not occurring	2011
North Atlantic albacore tuna	F_{2011}/F_{MSY} = 0.72 (0.55 - 0.89)	F_{MSY} = 0.149	Overfishing is not occurring	Overfishing is not occurring	2013
West Atlantic skipjack tuna	F_{2013}/F_{MSY}: probably close to 0.7	F_{MSY} = 1.02 (0.78 - 1.25)	Overfishing is not occurring	Overfishing is not occurring	2014
North Atlantic swordfish	F_{2011}/F_{MSY} = 0.82 (0.73 - 0.91)	F_{MSY} = 0.21 (0.17 - 0.26)	Overfishing is not occurring	Overfishing is not occurring	
South Atlantic swordfish	F_{2011}/F_{MSY} = *Unknown but likely above 1*	*Unknown*	Overfishing is not occurring	Overfishing is not occurring	
Blue marlin	F_{2009}/F_{MSY} = 1.63 (1.11-2.16)	F_{MSY} = 0.07	Overfishing is occurring	Overfishing is occurring	2011
White marlin (and roundscale spearfish)	F_{2010}/F_{MSY} = 0.99 (0.75-1.27; low productivity) F_{2010}/F_{MSY} = 0.72 (0.51-0.93; high productivity)	F_{MSY} = 0.03 (0.027-0.035)	Overfishing is not likely occurring	Overfishing is occurring	2012
West Atlantic sailfish	$F_{2007}>F_{MSY}$: Possibly	*Unknown*	Overfishing is possibly occurring	Overfishing is occurring	2009
Longbill spearfish	*Unknown*	*Unknown*	*Unknown*	*Unknown*	*1997*
Northwest Atlantic porbeagle shark	F_{2008}/F_{MSY} = 0.03 – 0.36	0.025 - 0.075	Overfishing is not occurring	Overfishing is not occurring	2009

Species	Current Relative Fishing Mortality Rate	Maximum Fishing Mortality Threshold	International Stock Status	Domestic Stock Status	Most Recent Assessment
North Atlantic blue shark	F_{2013}/F_{MSY} = 0.04-0.75	0.19-0.20	Overfishing is not likely occurring	Overfishing is not occurring	2015
North Atlantic shortfin mako shark	F_{2010}/F_{MSY} = 0.16 - 0.92	0.029 - 0.104††	Overfishing is not occurring	Overfishing is not occurring	2012
Sandbar	F_{2009}/F_{MSY} = 0.29 - 2.62	0.004 - 0.06	Not assessed internationally	Overfishing is not occurring	2010
Gulf of Mexico blacktip	F_{2010}/F_{MSY} = 0.05 – 0.27	0.021 - 0.163	Not assessed internationally	Overfishing is not occurring	2012
Atlantic blacktip	*Unknown*	*Unknown*	Not assessed internationally	*Unknown*	2005/2006
Dusky shark	F_{2009}/F_{MSY} = 1.39 - 4.35	0.01 - 0.05	Not assessed internationally	Overfishing is occurring	2010
Scalloped hammerhead shark	F_{2005}/F_{MSY} =1.29	0.11	Not assessed internationally	Overfishing is occurring	2009
Bonnethead shark – Atlantic stock	*Unknown*	*Unknown*	Not assessed internationally	*Unknown*	2013
Bonnethead shark – Gulf of Mexico stock	*Unknown*	*Unknown*	Not assessed internationally	*Unknown*	2013
Atlantic sharpnose shark – Atlantic stock	F_{2011}/F_{MSY} = 0.23	0.184	Not assessed internationally	Overfishing is not occurring	2013
Atlantic sharpnose shark - Gulf of Mexico stock	F_{2011}/F_{MSY} = 0.57	0.331	Not assessed internationally	Overfishing is not occurring	2013
Atlantic blacknose shark – Atlantic stock	F_{2009}/F_{MSY} = 3.26 – 22.53	0.01 - 0.15	Not assessed internationally	Overfishing is occurring	2010
Atlantic blacknose shark – Gulf of Mexico stock	*Unknown*	*Unknown*	Not assessed internationally	*Unknown*	2010
Finetooth shark	F_{2005}/F_{MSY} = 0.17	0.03	Not assessed internationally	Overfishing is not occurring	2007
Atlantic smooth dogfish	F_{2012}/F_{MSY} = 0.61-0.99	0.129	Not assessed internationally	Overfishing is not occurring	2015
Gulf of Mexico smoothhound shark complex	F_{2012}/F_{MSY} = 0.07-0.35	0.106	Not assessed internationally	Overfishing is not occurring	2015

*Where F year refers to the geometric mean of the estimates for 2010-2012 (a proxy for recent F levels). †A value for F_{MSY} was not provided in the stock assessment. ††Both the BSP and catch-free model estimated F_{MSY}. The F_{MSY} range encompasses the lowest estimate of the 16 scenarios run of the BSP model and the highest estimate of the 10 scenarios run for the catch-free model. Sources: SCRS, 2007, 2008, 2009a, 2009b, 2010, 2011, 2012a, 2012b, 2013, 2014, 2015; Gibson and Campana, 2005; Cortés et al., 2006; NMFS, 2006; NMFS, 2007; Hayes et al., 2009; SEDAR 2011a, 2011b, 2011c, 2011d, 2013a, 2013b, 2015a, 2015b.

2.1 Stock Assessment Details

SCRS reports are available online at: http://www.iccat.int/en/meetings.asp. All SEDAR reports are available online at: http://www.sefsc.noaa.gov/sedar/. Detailed stock assessments for the species in Table 2.1 and Table 2.2 are available at these websites:

Western Atlantic Bluefin Tuna

Assessed by ICCAT's SCRS in 2014:
http://www.iccat.int/Documents/Meetings/Docs/2014_BFT_ASSESS-ENG.pdf

Atlantic Bigeye Tuna

Assessed by ICCAT's SCRS in 2015:
http://www.iccat.int/Documents/Meetings/Docs/2015_BET%20ASSESS_REPORT_ENG.pdf

Atlantic Yellowfin Tuna

Assessed by ICCAT's SCRS in 2011:
http://www.iccat.int/Documents/Meetings/Docs/2011_YFT_ASSESS_REP.pdf

North Atlantic Albacore Tuna

Assessed by ICCAT's SCRS in 2013:
http://www.iccat.int/Documents/Meetings/Docs/2013_ALB_ASSESS_REP_ENG.pdf

West Atlantic Skipjack Tuna

Assessed by ICCAT's SCRS in 2014:
http://iccat.int/Documents/Meetings/Docs/2014_SKJ_ASSESS_ENG.pdf
http://www.iccat.int/Documents/SCRS/DetRep/DET-YFT-SKJ.pdf

North Atlantic Swordfish

Assessed by ICCAT's SCRS in 2013:
http://www.iccat.int/Documents/Meetings/Docs/2013_SWO_ASSESS_REP_ENG.pdf

South Atlantic Swordfish

Assessed by ICCAT's SCRS in 2013:
http://www.iccat.int/Documents/Meetings/Docs/2013_SWO_ASSESS_REP_ENG.pdf

Blue Marlin

Assessed by ICCAT's SCRS in 2011:
http://www.iccat.int/Documents/Meetings/Docs/2011_BUM_ASSESS_ENG.pdf

White Marlin and Roundscale Spearfish

Assessed by ICCAT's SCRS in 2012:
http://www.iccat.int/Documents/Meetings/Docs/2012_WHM_ASSESS_ENG.pdf

West Atlantic Sailfish

Assessed by ICCAT's SCRS in 2009: http://www.iccat.int/Documents/Meetings/Docs/2009_SAI_ASSESS_ENG.pdf

Longbill Spearfish

Longbill spearfish have not been individually assessed by ICCAT's SCRS due to the paucity of data. Some information can be found in the 2009 sailfish stock assessment: https://www.iccat.int/Documents/SCRS/DetRep/DET-SAI.pdf

Sandbar Sharks

Assessed in 2010/2011 through the SEDAR process: http://sedarweb.org/sedar-21

Gulf of Mexico Blacktip Sharks

Assessed in 2012 through the SEDAR process: http://sedarweb.org/sedar-29

Atlantic Blacktip Sharks

Assessed in 2006 through the SEDAR process: http://sedarweb.org/sedar-11

Dusky Sharks

Assessed in 2010/2011 through the SEDAR process: http://sedarweb.org/sedar-21

Bonnethead Sharks (Atlantic and Gulf of Mexico)

Assessed in 2013 through the SEDAR process: http://sedarweb.org/sedar-34

Atlantic Sharpnose Sharks (Atlantic and Gulf of Mexico)

Assessed in 2013 through the SEDAR process: http://sedarweb.org/sedar-34

Blacknose Sharks (Atlantic and Gulf of Mexico)

Assessed in 2010/2011 through the SEDAR process: http://sedarweb.org/sedar-21

Finetooth Sharks

Assessed in 2007 through the SEDAR process: http://sedarweb.org/sedar-13

Northwest Atlantic Porbeagle Sharks

Assessed by ICCAT's SCRS in 2009: http://www.iccat.int/Documents/Meetings/Docs/2009_POR_ASSESS_ENG.pdf

North Atlantic Blue Sharks

Assessed by ICCAT's SCRS in 2015: http://www.iccat.int/Documents/Meetings/Docs/2015_BSH%20ASSESS_REPORT_ENG.pdf

North Atlantic Shortfin Mako Sharks

Assessed by ICCAT's SCRS in 2008: http://www.iccat.int/Documents/Meetings/Docs/2012_SHK_ASS_ENG.pdf

Scalloped Hammerhead Sharks

Assessed in Hayes et al. (2009).

Smoothhound Sharks (Atlantic and Gulf of Mexico)

Currently being assessed through the SEDAR process: http://sedarweb.org/sedar-39

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3. ESSENTIAL FISH HABITAT

3.1 Designations in the 2006 Consolidated Atlantic HMS FMP and its Amendments

The Magnuson-Stevens Act requires NMFS to identify and describe Essential Fish Habitat (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 EFH for Atlantic HMS with the publishing of Amendment 1 to the 2006 Consolidated HMS FMP (June 12, 2009, 74 FR 288018). In Amendment 1, NMFS updated and revised existing identifications and descriptions of EFH for Atlantic HMS, designated a 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.

In 2010, NMFS added the smoothhound management group (consisting of *Mustelus canis* or smooth dogfish, *M. Norrisi* or Florida smoothhound, and more recently *M. sinusmexicanus* or Gulf smoothhound) to the species under Secretarial management in Amendment 3 to the 2006 Consolidated HMS FMP (June 1, 2010, 75 FR 30484). As a Magnuson-Stevens Act condition of adding a species to federal management, NMFS designated EFH for smoothhound using the same methodology employed in Amendment 1. Details, including a map of the final EFH, are available 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, added 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 roundscale spearfish were not recognized as a distinct species until recently. NMFS determined that the designation of roundscale spearfish EFH is the same as the designation of EFH for white marlin in Amendment 1 to the Consolidated HMS FMP.

On March 24, 2014, NMFS published in the Federal Register (79 FR 15959) an announcement of its next 5-year review of EFH for Atlantic HMS as required under the Magnuson-Stevens Act. The 5-year review is based on the best data available regarding Atlantic HMS and their habitats; therefore, NMFS requested submission of any such information on Atlantic HMS EFH that has become available since publication of Amendment 1 in 2009; Amendment 3 in 2010; and the interpretive rule and final action that published on September 22, 2010 that defined EFH for roundscale spearfish (*Tetrapturus georgii*). On April 3, 2014 the HMS Management Division presented the EFH 5-Year Review Plan to the HMS AP and public and requested new information to support the review.

On March 5, 2015, NMFS announced the availability of a draft EFH 5-Year Review and solicited public feedback (80 FR 11981). The EFH 5-Year Review evaluated published scientific literature, unpublished scientific reports, information solicited from interested parties, a variety of delineation methods, and previously unavailable or inaccessible data. On March 10, 2015, the HMS Management Division presented the draft EFH 5-Year Review and a summary of initial findings at the 2015 Spring HMS Advisory Panel meeting. The public comment period for the draft EFH 5-Year Review ended on April 6, 2015.

On July 1, 2015, NMFS announced the availability of the final EFH 5-Year Review and the Agency's intent to initiate an amendment to the 2006 Consolidated Atlantic HMS FMP to revise certain Atlantic HMS EFH descriptions and designations (80 FR 37598). In reviewing literature that has become available since 2009, new data emerged for certain Atlantic HMS, which warrants revision to those species' EFH descriptions and designations. For other Atlantic HMS, new data were either unavailable or it was determined that the new data did not warrant revisions to EFH descriptions and designations. However, in the upcoming amendment, new observer, survey, and tag/recapture data collected since 2009 will be used to revise EFH geographic boundaries for all species. NMFS anticipates publishing Draft Amendment 10 in the late spring of 2016.

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 are available on the NMFS EFH Mapper at: http://www.habitat.noaa.gov/protection/efh/habitatmapper.html. A summary of the management history of HMS EFH is given in Table 3.1.

Table 3.1 Management History for HMS Essential Fish Habitat

FMP or Amendment	EFH and Species
1999 FMP for Atlantic Tunas, Swordfish, and Sharks	EFH first identified and described for Atlantic tunas, swordfish and sharks; HAPCs designated for sandbar sharks
1999 Amendment 1 to the 1988 Billfish FMP	EFH first identified and described for Atlantic billfishes
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 2006 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 2006 Consolidated Atlantic HMS FMP	EFH first defined for smoothhound sharks (smooth dogfish, Florida smoothhound, and Gulf smoothhound)
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 to the 2006 Consolidated Atlantic HMS FMP)
2015 Atlantic HMS EFH 5-Year Review	Comprehensive Review of EFH for all HMS. Changes to some EFH descriptions and boundaries are warranted.

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 FMPs, 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, Rhode Island, New York, New Jersey, Delaware, Virginia, 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, and Mississippi. Following is a summary of the results from the 2014 COASTSPAN and GULFSPAN surveys (Bethea et al., 2013; McCandless pers. comm.).

Massachusetts

Limited sampling was conducted in Plymouth Bay in August of 2014 by the Massachusetts Division of Marine Fisheries. The shark catch consisted entirely of immature sand tiger sharks. This area continues to provide important summer nursery habitat for this prohibited species.

Rhode Island

Juvenile sand tigers were caught off Point Judith, Rhode Island in June of 2014. These results continue to provide supporting evidence that Rhode Island waters are used at a minimum as transitional nursery habitat by this prohibited species during their migrations to northern waters.

New York

COASTSPAN sampling was conducted in Shinnecock Bay, New York in 2014 by Stony Brook University. No sharks have been caught in this bay during summer COASTSPAN sampling to date. Shinnecock Bay does not appear to provide sharks with summer nursery habitat or resources for any other life stage at this time. The COASTSPAN program previously provided sampling gear and tagging supplies for this survey, but the costs for running the survey are covered by the COASTSPAN cooperators. Even though the bay does not currently support shark populations, this multispecies survey has continued to provide data on the presence/absence of elasmobranchs in an attempt to document any changes in distribution, potentially resulting from climate change.

New Jersey and Delaware (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 2014, followed by smooth dogfish and sand tigers. In 2014, three adult male Atlantic sharpnose sharks were also caught in Delaware Bay and one juvenile spinner shark was caught near Brandywine Shoal in waters near ocean salinities. Additionally, three young-of-the-year dusky sharks were captured at three separate locations in August 2014, in waters near ocean salinities close to Brandywine Shoal next to the shipping channel and close to the mouth of the bay. As in previous years, the majority (94%) of sandbar sharks caught were immature, with just over 10% of these as young-of the-year; the remaining sandbar sharks caught were considered mature females based on length and girth measurements. Smooth dogfish were represented nearly equally by juvenile and adult fish in 2014, with young-of-the-year and adult females still dominating the catch. The sand tigers caught in 2013 were primarily immature sharks, but nearly 40% were considered mature based on clasper calcification for males and length and girth measurements for females. Delaware Bay continues to provide important nursery habitat for sandbar sharks, smooth dogfish and sand tigers. The extensive use of the Bay by all life stages of sand tigers and smooth dogfish continues to highlight the seasonal importance of this essential shark habitat.

Virginia

COASTSPAN sampling conducted by the Virginia Institute of Marine Science encompassed the mainstem of the lower Chesapeake Bay, as well as coastal inlet and lagoon habitats along the Eastern Shore of Virginia. Sampling was conducted using a stratified random design, with stratification based on depth and geographic location. Additional sampling was also conducted at historical fixed stations in the coastal waters of Virginia. Juvenile sandbar sharks dominated the catch in the bay, lagoon, and inlet habitats, and were second only to Atlantic sharpnose sharks in the coastal ocean sampling. Within the bay, inlets, and lagoons, the majority of sandbar sharks caught were young-of-the-year. Other sharks caught along the Eastern Shore of Virginia included five dusky sharks, two Atlantic sharpnose sharks, and one scalloped hammerhead. Within the Chesapeake Bay, 20 Atlantic sharpnose sharks, 15 spinner sharks, one scalloped hammerhead shark, and one smooth dogfish were also collected. Other species caught in the coastal ocean, in decreasing order of abundance, were: tiger, sand tiger, spinner, blacktip, dusky, scalloped hammerhead, and smooth hammerhead sharks. The majority of each species caught were immature, with the exception of the Atlantic sharpnose shark and the sand tiger. These findings highlight the importance of Virginia's coastal waters in providing nursery habitat for many coastal shark species. Virginia's estuarine waters continue to provide important nursery habitat for sandbar sharks.

North Carolina

Sampling conducted by the University of North Carolina in North Carolina's coastal waters occurred from May to November in 2014 at two fixed stations south of Shackleford Banks. Nine shark species were captured, the most abundant of which was Atlantic sharpnose. Other sharks captured, in order of abundance, were blacknose, spinner, blacktip, one juvenile scalloped hammerhead, one large juvenile tiger shark, and one adult female bonnethead. Additionally, one adult male smooth dogfish and an adult male spiny dogfish were captured in early May. The majority of sharks captured were mature (based on published length at maturity estimates), but juvenile Atlantic sharpnose, blacktip, and spinner sharks were also captured. Atlantic sharpnose sharks were also present as young of the year during 2014 sampling.

South Carolina

COASTSPAN sampling conducted by the South Carolina Department of Natural Resources took place in both nearshore and estuarine waters along the South Carolina coast including: Bulls Bay, Charleston Harbor, North Edisto, Port Royal Sound, St. Helena Sound, and Winyah Bay. Fourteen species of sharks were captured, the most abundant of which was Atlantic sharpnose. Other sharks captured, in order of abundance, were finetooth, bonnethead, sandbar, blacktip, blacknose, lemon, scalloped hammerhead, bull, spinner, smooth dogfish, nurse, and tiger sharks, and one of each great hammerhead and sand tiger. The majority of each shark species captured were immature, with the exception of these species: Atlantic sharpnose, bonnethead, and blacknose sharks, and the sand tiger. 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 conducted by the Georgia Department of Natural Resources took place in the estuarine waters of the St. Simon and St. Andrew sound systems. Of the twelve species of shark captured, Atlantic sharpnose was the most abundant. Other sharks in order of abundance were bonnethead, blacknose, sandbar, blacktip, tiger, scalloped hammerhead, finetooth, smooth dogfish, spinner, bull, and lemon sharks. Four species captured were also present as young-of-the-year in estuarine waters: sandbar, Atlantic sharpnose, and blacktip sharks, and one bull shark. In addition, Atlantic sharpnose, blacktip, sandbar, smooth dogfish, scalloped hammerhead, and tiger sharks were present as young-of-the-year in Georgia's nearshore waters. The majority of sharks captured were immature, highlighting the importance of these areas as potential nursery habitat for both small and large coastal shark species. In addition, the majority of blacknose sharks and bonnetheads were mature, indicating these waters continue to provide important adult habitat for these small coastal shark species.

Atlantic Coast of Florida

COASTSPAN sampling conducted by the University of North Florida occurred within 2 km of Florida's north Atlantic coast in and around the following locations: Cumberland Sound, Nassau Sound, Tolomato River, St. Johns River, St. Augustine Inlet, and Matanzas Inlet. Species represented in the 2014 catch included, in order of abundance: Atlantic sharpnose, blacknose, blacktip, sandbar, bull, finetooth, scalloped hammerhead, bonnethead, spinner, lemon, great hammerhead, and nurse sharks and one spinner and one tiger shark. Nassau and Cumberland Sounds continue to provide nursery habitat for juvenile Atlantic sharpnose, scalloped hammerhead, and blacktip sharks. Nassau and Cumberland Sounds also provided nursery habiat for juvenile sandbar, finetooth, and bull sharks in 2014. Cumberland Sound and northern Florida's nearshore waters continue to provide habitat for adult female bonnetheads and mature blacknose sharks, respectively, as well. Additionally, adult female and young-of-the-year spinner and lemon sharks were caught in the coastal waters off Mayport, Florida in 2014. The multi-year seasonal use of the waters around Pine Island in the Tolomato River by neonate scalloped hammerheads continues to provide supporting evidence of an inshore nursery area for this species.

U.S. Virgin Islands

Sampling for sharks took place in the waters surrounding the Buck Island Reef National Monument off of St. Croix in May 2015. This is part of an ongoing multi-species, multi-age study of community structure and habitat use within the national monument. Three shark species were captured, tagged, and released in May 2015: tiger, Caribbean reef and nurse sharks. Additionally, in September 2015, the National Park Service tagged and released one lemon shark. All tagged sharks were immature, but none were young-of-the-year. Sampling in 2016 will take place in the spring and later in the summer to target the arrival of immature lemon sharks to the national monument.

Panhandle of Florida

GULFSPAN sampling covered 5 areas in the Florida panhandle: Mississippi Sound, Florida-Alabama border (Pensacola Bay and Santa Rose Sound), St. Andrew Bay to St. Vincent Island, Big Bend of Florida (St. George Sound to Anclote Keys, FL), and Pine Island Sound, FL. Sampling took place monthly from April through October. In 2014, nine species of sharks and three species of rays were captured; the most abundant of which was Atlantic sharpnose shark. Others included bonnethead, blacktip, scalloped hammerhead and finetooth shark, as well as cownose stingrays. The majority of the sharks captured were immature; indicating that areas along the Florida panhandle should still be considered potentially important nursery areas for both large and small coastal shark species as well as hammerhead species. Benthic habitats sampled included shallow seagrass beds, sand and mud.

Big Bend of Florida

2014 GULFSPAN sampling by Florida State University covered more than 300 km of Florida's coastline from St. George Sound to Anclote Keys. Longlines and gillnets were used to collect data. Thirteen elasmobranch species were caught, with three species (Atlantic sharpnose, bonnethead, and blacktip sharks) comprising 98.3 percent of the catch. Others included blacknose, bull, lemon, tiger, great hammerhead, nurse, and Florida smoothound sharks, as well as clearnose skates, cownose rays and southern stingrays. Sampling indicates that this region serves as nurseries for one species of large coastal shark (blacktip), and several small coastal shark species (Atlantic sharpnose, bonnethead, and blacknose).

Florida-Alabama Border

GULFSPAN sampling by the University of West Florida took place from Big Lagoon to the west end of Santa Rosa Sound, with the majority of sets occurring in Pensacola Bay. In 2014, three species of elasmobranchs were caught (blacktip shark, bonnethead shark, and cownose ray). Of the three sharks caught, the two blacktip sharks two were juveniles and the bonnethead shark was an adult. During the sampling season salinities were lower than normal which may have been impacted from flooding in spring 2014.

Mississippi Sound

In 2014, GULFSPAN sampling by the University of Southern Mississippi Gulf Coast Research Laboratory covered six regions of the Mississippi Sound in Mississippi state waters: west, central, east, inshore west, inshore central, and inshore east. Seven species of shark (Atlantic sharpnose (most abundant), finetooth, blacktip, spinner, bull, scalloped hammerhead

and bonnethead) were encountered. The cownose ray was the only ray species encountered during this sampling year. The majority of the animals captured (66 percent) were immature.

St. Andrew Bay to St. Vincent Island, FL

In 2014, GULFSPAN sampling by the NOAA Fisheries SEFSC Panama City Laboratory covered four major areas along the panhandle of Florida: St. Andrew Bay, Crooked Island Sound, St. Joseph Bay, and the Gulf of Mexico-side of St. Vincent Island. Eleven species of shark (Atlantic sharpnose (most abundant), bonnethead, blacktip, scalloped hammerhead, spinner, finetooth, blacknose, bull, sandbar, tiger and Florida smoothhound) were encountered. Four ray species (cownose ray, spotted eagle ray, bluntnose stingray, and smooth butterfly ray) were encountered during this sampling year. The majority of the sharks captured (67 percent) were young-of-the-year indicating the region continues to be used as nursery habitat.

Pine Island Sound, FL

In 2014, GULFSPAN sampling by Mote Marine Laboratory covered two areas in Charlotte Harbor on the southwest Florida coast. Five species of shark (bonnethead, (most abundant), blacktip, scalloped hammerhead, Atlantic sharpnose spinner, and blacknose) were encountered. Two ray species (spotted eagle ray and Atlantic stingray) were encountered during this sampling year. The majority of the sharks captured (70 percent) were young-of-the-year indicating that Pine Island Sound is nursery habitat for coastal sharks.

Conclusion

The data obtained from both COASTSPAN and GULFSPAN surveys continues to provide the information necessary to identify new EFH areas and to further refine areas already designated as EFH by determining specific habitat characteristics associated with these EFH. Time series for both surveys continue to be used in the 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

Bethea, D.M., K. Smith, G. Casselberry, J. Carlson, J. Hendon, R. Grubbs, and T. Daly-Engel, M. Pfleger, R. Hueter, and J. Morris. 2015. Shark Nursery Grounds and Essential Fish Habitat Studies (GULFSPAN survey - 2014). Report to NOAA Fisheries, Highly Migratory Species Management Division.

4. FISHERY DATA UPDATE

In this chapter, HMS fishery data are analyzed by gear type. 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 5 of this document.

The list of authorized fisheries and fishing gear used in those fisheries became effective December 1, 1999 (64 FR 67511) and has been modified several times in subsequent final rules. The list applies to all U.S. marine fisheries, including Atlantic HMS fisheries. 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)."

HMS Fishery	Authorized Gear Types
Swordfish handgear	Rod and reel, harpoon, handline, bandit gear, buoy gear, green-stick (beginning in the 2014 fishing year)
Swordfish recreational	Rod and reel, handline
Pelagic longline	Longline, green-stick
Shark gillnet	Gillnet
Shark bottom longline	Longline
Shark handgear	Rod and reel, handline, bandit gear
Shark recreational	Rod and reel, handline
Tuna purse seine	Purse seine
Tuna recreational	Rod and reel, handline, speargun (allowed for tunas other than bluefin), green-stick (only for vessels possessing the Atlantic HMS Charter/Headboat permit)
Tuna handgear	Rod and reel, harpoon, handline, bandit gear
Tuna harpoon	Harpoon
Tuna green-stick	Green stick
Atlantic billfish recreational	Rod and reel only
HMS commercial Caribbean small boat	Rod and reel, handline, harpoon, bandit gear, green-stick, and buoy gear

The U.S. percentage of regional and total catch of HMS is presented to provide a basis for comparison of the U.S. catch relative to other nations/entities (Table 4.1). International catch levels and U.S. reported catches for HMS (other than sharks) are taken from the 2015 ICCAT Standing Report of the SCRS (SCRS, 2015). The SCRS data collection is reported by species; therefore, Table 4.1 depicts a summary of U.S. and international HMS catches by species rather than gear type. Catch of billfish includes both recreational landings and dead discards from commercial fisheries; bluefin tuna includes commercial landings and dead discards and recreational landings; and swordfish includes recreational landings and commercial landings and dead discards. International catch and landings data for the pelagic longline and purse seine fisheries are in Sections 4.1.3 and 4.2.3, respectively. Data necessary to compare the U.S. regional and total percentage of international catch levels for most Atlantic shark species are

currently limited; therefore, Table 4.1 provides information only on the species that have been assessed by the SCRS.

Table 4.1 U.S. vs. International Catch of HMS Reported to ICCAT (Calendar Year 2014)

Species	Total International Reported Catch (mt ww)	Region	Total Regional Catch (mt ww)	U.S. Catch (mt ww)	U.S. Percentage of Regional Catch	U.S. Percentage of Total Atlantic Catch
Atlantic swordfish	20,686	North Atlantic	10,801	1,812	16.7	8.75
		South Atlantic	9,885	0	0.0	
Atlantic bluefin tuna	14,870	West Atlantic	1,626	667	41.0	4.48
		East Atlantic/Med.	13243	0	0.0	
Atlantic bigeye tuna	72,585	Atlantic/Med.	72,585	866	1.2	1.2
Atlantic yellowfin tuna	103,443	West Atlantic	14,287	2,666	18.6	2.57
		East Atlantic/Med.	89,156	0	0.0	
Atlantic albacore tuna	42,593	North Atlantic	26,539	459	2.8	1.72
		South Atlantic/Med.	16,054	0	0.0	
Atlantic skipjack tuna	232,551	West Atlantic	26,317	77	0.29	0.03
		East Atlantic/Med.	206,234	0	0.0	
Atlantic blue marlin	1,981	North Atlantic	1,080	9	0.83	0.45
		South Atlantic	901	0	0.0	
Atlantic white marlin	361	North Atlantic	228	2	0.87	0.55
		South Atlantic	132	0	0.0	
Atlantic sailfish	1,452	West Atlantic	666	2	0.30	0.13
		East Atlantic	786	0	0.0	
Blue sharks	56,552	North Atlantic	37,137	32	0.08	0.05
		South Atlantic/Med.	19,415	0	0.0	
Porbeagle sharks	64	North Atlantic	26	7	27.0	11.0
		South Atlantic/Med.	38	0	0.0	
Shortfin mako sharks	6,058	North Atlantic	2,899	396	13.6	6.53
		South Atlantic/Med.	3160	0	0.0	

Source: SCRS, 2015.

4.1 Pelagic Longline

4.1.1 Current Management

The pelagic longline (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. PLL vessel operators are opportunistic, switching gear style and making subtle changes to target the best available economic opportunity on 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 that cannot be landed due to fishery regulations (or undersized catch of permitted species) is required to be released, regardless of whether the catch is dead or alive.

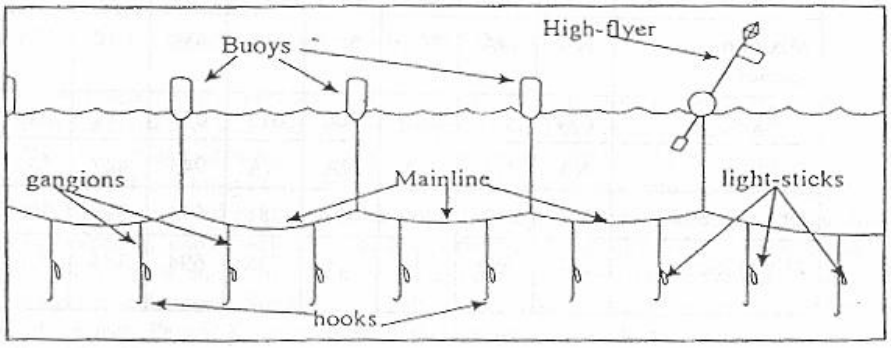

Figure 4.1 Typical U.S. Pelagic Longline Gear

Source: Arocha, 1997.

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. 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 Pelagic Longline Set (2005-2014)

Target Species	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Swordfish	747	742	672	708	687	759	728	683	735	780
Bigeye tuna	634	754	773	751	755	653	802	865	620	811
Yellowfin tuna	691	704	672	678	689	687	645	628	638	608
Mix of tuna species	692	676	640	747	744	837	786	728	694	670
Shark	542	509	494	377	354	455	348	525	NA	293
Dolphin	734	988	789	989	1,033	1,131	1,082	1,129	933	1,093
Other species	889	236	NA	NA	NA	467	400	300	NA	NA
Mix of species	786	777	757	749	781	761	749	758	717	722

Source: Fisheries Logbook System

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.

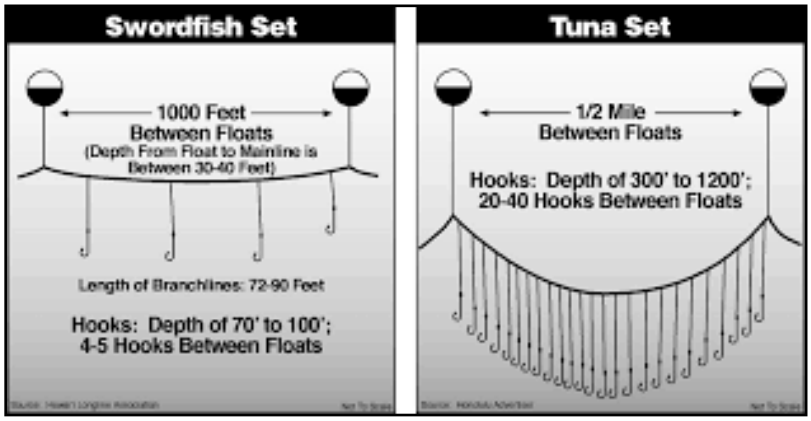

Figure 4.2 Pelagic Longline Gear Deployment Techniques

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. Source: Hawaii Longline Association and Honolulu Advertiser.

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 tunas 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 November 2015, approximately 280 tunas longline LAPs had been issued. In addition, approximately 188 directed swordfish LAPs, 72 incidental swordfish LAPs, 224 directed shark LAPs, and 275 incidental shark LAPs had been issued (see Table 8.1 for more detailed data on LAPs). Not all vessels with limited access swordfish and shark permits use PLL gear, but these are the only permits (other than handgear) that allow for the use of PLL gear in HMS fisheries.

Amendment 7 to the Consolidated Atlantic HMS FMP - Overview of Requirements for Pelagic Longline Vessels:

Amendment 7 to the 2006 Consolidated HMS FMP was developed to reduce and account for bluefin tuna dead discards in all categories; optimize fishing opportunities in all categories within the United States' quota; enhance reporting and monitoring; and adjust other management measures. Four components of Amendment 7 affect the U.S. PLL fishery: (1) Two new or

modified PLL Gear Restricted Areas (GRAs); (2) an Individual Bluefin Quota (IBQ) program; (3) mandatory electronic monitoring of PLL gear at haulback; and (4) catch reporting of each PLL set using vessel monitoring systems (VMS). The conservation and management measures in Amendment 7 became effective January 1, 2015, with two exceptions: electronic monitoring requirements in the PLL fishery became effective on June 1, 2015, and trip level accountability requirements in the IBQ Program will become effective on January 1, 2016.

An important aspect of Amendment 7 is the IBQ Program, which requires vessels fishing with pelagic longline gear to account for all bluefin tuna either retained or discarded dead using quota available to the individual vessel, either through quota shares or leased quota through the IBQ system. This program is intended to reduce bluefin tuna dead discards by capping the amount of catch (landings and dead discards) by individual vessels; provide strong incentives to reduce interactions with bluefin and to increase flexibility for vessels to continue to operate profitably; accommodate different fishing practices within the pelagic longline fleet; and create new potential for revenue (from a market for leasable IBQ allocation).

Eligible Atlantic Tunas Longline permit holders have been issued an IBQ share, which is a percentage of the overall Longline quota ("quota share"), and are eligible to receive annual associated quota allocations. Shareholders as well as other permit holders that did not receive a quota share may lease additional quota from other participants to account for landings of bluefin and dead discards and to resolve quota debt that accumulates when incidental catch occurs without quota available to the vessel.

Amendment 7 also implemented mandatory electronic monitoring of PLL gear at haulback. To effect this requirement, NMFS paid for the installation and equipment costs for electronic monitoring systems on the vessels that received quota shares and for other vessels to the extent funding was available. Amendment 7 also requires vessels fishing with PLL gear to report through VMS the following information within 12 hours of completion of each PLL set: date the set was made; area in which the set was made; the number of hooks in the set; and the approximate length of all bluefin tuna retained, discarded dead, or released alive (by standardized size ranges). If a vessel is fishing both inside and outside of the Northeast Distant Area (NED) on the same trip, that vessel must submit two VMS bluefin catch reports noting the location of the catch. Permit holders must also submit a landing notification at least 3 hours, but no more than 12 hours, prior to any landing.

Additional information regarding requirements for PLL vessels is in the HMS Commercial Fishing Compliance Guide (http://www.nmfs.noaa.gov/sfa/hms/compliance/guides), and in the Amendment 7 Compliance Guide and IBQ Program FAQ documents (http://www.nmfs.noaa.gov/sfa/hms/documents/fmp/am7/index.html).

PLL Observer Program

During 2014, NMFS observers recorded 1,230 PLL sets for overall non-experimental fishery coverage of 12.3 percent (Garrison, pers comm). Table 4.3 details the amount of observer coverage in past years for this fleet.

The Pelagic Longline Take Reduction Plan (PLTRP) (74 FR 23349, May 19, 2009) recommended that NMFS increase observer coverage to 12 to 15 percent throughout all Atlantic

PLL 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 Pelagic Longline Take Reduction Team (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 2014, total observer coverage, including experimental sets, was 12.5 percent (Table 4.3).

Table 4.3 Observer Coverage of the Atlantic Pelagic Longline Fishery (1999-2014)

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[1]	584	398	186	5.4	3.7	100
2002[1]	856	353	503	8.9	3.9	100
2003[1]	1,088	552	536	11.5	6.2	100
	Total	Non-EXP	EXP	Total	Non-EXP	EXP
2004[2]	702	642	60	7.3	6.7	100
2005[2]	796	549	247	10.1	7.2	100
2006	568	-	-	7.5	-	-
2007	944	-	-	10.8	-	-
2008[3]	1,190	-	101	13.6	-	100
2009[3]	1,588	1,376	212	17.3	15	100
2010[3]	884	725	159	11	9.7	100
2011[3]	879	864	15	10.9	10.1	100
2012[4]	1,060	945	115	9.5	8.6	100
2013	1,528	1,474	54	14.4	14.1	100
2014	1,247	1,230	17	12.5	12.3	100

NED – Northeast Distant Area; EXP – experimental. [1]100 percent observer coverage was required in the NED research experiment. [2]100 percent observer coverage in EXP. [3]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]100 percent observer coverage was required in a cooperative research program in the GOM to test the effectiveness of "weak hooks" on target species and bycatch rates, but these sets are not included in extrapolated bycatch estimates because they are not representative of normal fishing. Sources: 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, 2011, 2012, 2013, 2014; Garrison, pers. comm. 2015.

4.1.2 Recent Catch, Landings, Bycatch, and the Individual Bluefin Quota Program

U.S. Atlantic PLL catch (including bycatch, incidental catch, and target catch) is largely related to vessel characteristics and gear configuration. The reported catch, in numbers of fish, is summarized for the whole fishery in Table 4.4. Table 4.5 provides a summary of U.S. Atlantic PLL landings, as reported to the International Commission for the Conservation of Atlantic Tunas (ICCAT).

Table 4.4 Reported Numbers of Catch in the U.S. Atlantic Pelagic Longline Fishery (2006-2014)

Species	2006	2007	2008	2009	2010	2011	2012	2013	2014
Swordfish kept	38,241	45,933	42,800	45,378	33,831	38,721	51,544	44,556	32,908
Swordfish discarded	8,900	11,823	11,194	7,484	6,107	8,736	7,996	4,756	4,655
Blue marlin discarded	439	611	687	1,013	504	544	896	844	718
White marlin discarded	557	744	670	1,064	605	943	1,432	1,239	1,580
Sailfish discarded	277	321	506	774	312	581	795	456	445
Spearfish discarded	142	147	197	335	212	281	270	342	306
Bluefin tuna kept	261	337	343	629	392	347	392	273	379
Bluefin tuna discarded	833	1,345	1,417	1,290	1,488	765	563	266	390
Bigeye, albacore, yellowfin, and skipjack tunas kept	73,058	70,390	50,108	57,461	51,786	69,504	84,707	67,083	73,339
Pelagic sharks kept	2,098	3,504	3,500	3,060	3,872	3,732	2,794	3,384	3,804
Pelagic sharks discarded	24,113	27,478	28,786	33,721	45,511	43,806	23,038	28,151	38,496
Large coastal sharks kept	1,768	546	115	403	434	131	86	49	47
Large coastal sharks discarded	5,326	7,133	6,732	6,672	6,726	6,351	7,716	7,997	5,905
Dolphin kept	25,658	68,124	43,511	62,701	30,454	30,054	42,445	34,250	63,217
Wahoo kept	3,608	3,073	2,571	2,648	749	1,922	3,121	2,721	3,325
Sea turtle interactions	128	300	476	137	94	66	61	92	93
Number of Hooks(×1k)	5,662	6,291	6,498	6,979	5,729	6,035	7,679	7,306	7,125

Source: Fisheries Logbook System.

Table 4.5 Reported Landings (mt ww) in the U.S. Atlantic Pelagic Longline Fishery (2006-2014)

Species	2006	2007	2008	2009	2010	2011	2012	2013	2014
Yellowfin tuna	2,009.9	2,394.5	1,324.5	1,700.1	1,188.8	1,458.3	2,269.6	1,544.4	1,456.2
Skipjack tuna	0.2	0.02	1.45	0.5	1.4	0.6	0.4	0.5	0.31
Bigeye tuna	520.6	380.7	407.7	430.1	443.2	600.2	581.4	508.9	586.7
Bluefin tuna*	204.6	164.3	232.6	335.0	238.7	241.4	295.4	190.4	221.9
Albacore tuna	102.9	126.8	126.5	158.3	159.9	240.0	261.2	255.3	309.6
Swordfish N.*	1,960.8	2,474.0	2,353.6	2,691.3	2,206.5	2,570.9	3,346.6	2,812.1	1,832.3
Swordfish S.*	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.06	0.0

* Includes landings and estimated discards from scientific observer and logbook sampling programs. Source: NMFS, 2015.

Individual Bluefin Quota (IBQ) Program and Bluefin Tuna Bycatch

The IBQ Program implemented by Amendment 7 enhanced accountability for bluefin tuna at the individual vessel level and is supported by several reporting and monitoring requirements. The broad elements of Amendment 7 and the IBQ program were described above in the section

called “Bluefin Tuna - Amendment 7 to the 2006 Consolidated HMS FMP.” The following section provides 2015 data information on the program (for the first 3 quarters of 2015) as well as a summary narrative of the program operation.

On January 1, 2015, NMFS distributed 137.3 mt of Longline category bluefin tuna quota to IBQ shareholders associated with a vessel For shareholders that were not associated with a vessel, IBQ was not distributed to the permit holder unless/until the permit was associated with a vessel. The total amounts of quota distributed to the shareholder accounts were based on the eligible permit’s share percentage as determined by the Amendment 7 criteria (either high (1.2%), medium (0.6%), or low (0.37%) tier permits).

NMFS made several inseason adjustments to the Longline category quota during 2015. On July 28, 2015, using the “inseason adjustments” regulatory authority under 50 CFR § 635.27(a)(9), NMFS transferred 34 mt of bluefin tuna quota from the Reserve category to the Longline category and divided the amount equally among the IBQ shareholders. The purpose of that quota transfer and distribution was to enhance the ability of vessel owners to account for bluefin tuna catch, reduce quota debt, facilitate quota leasing, and reduce uncertainty in the fishery. On September 28, 2015, a final rule which increased the baseline U.S. annual bluefin tuna quota, including the Longline category quota, became effective (80 FR 52198; August 28, 2015), and, NMFS distributed an additional 11 mt of quota among the vessel accounts of IBQ shareholders based on the eligible permit’s share percentage). The amounts of IBQ distributed to IBQ vessel accounts, as well as the total amounts of quota allocated to the Longline category, are summarized in Table 4.6.

Table 4.6 IBQ Allocations (mt) to the Pelagic Longline Category by Share Tier (lb, 2015)

			IBQ (lb) to each Eligible Shareholder*		
Quota Distribution	IBQ (mt)	Date (2015)	High Tier (~1.2%)	Medium Tier (~0.6%)	Low Tier (~0.37%)
Annual Allocation	137.3	January 1	3,616	1,808	1,124
Transfer from Reserve Category	34.0	July 28	551	551	551
ICCAT Baseline Quota Increase	11.0	August 28	292	146	90
Total	182.3		4,459	2,505	1,765

* Only allocated to eligible shareholders, for which the valid permit was associated with a vessel.

Table 4.7 summarizes various IBQ Program metrics regarding allocation, catch, fishing effort, leasing of IBQ, and reporting and monitoring.

Table 4.7 IBQ Program Metrics (January - September 2015)

Overall Individual Bluefin Quota (IBQ) Allocation and Catch (not including NED)[1]			
IBQ Allocation Total[2] (mt)			182.3
Bluefin Tuna landings (mt and # of fish)	Atlantic	27.1 mt	152 fish
	Gulf of Mexico	3.7 mt	15 fish
	Total	30.8 mt	167 fish
Bluefin Tuna dead discards (real – time data) (mt)	Atlantic		1.2
	Gulf of Mexico		0.2
	Total		1.4
Remaining IBQ (mt)			150.1
Fishing Effort, Bluefin Tuna Catch Details, and IBQ Leasing Between Shareholders[1]			
Permits eligible for IBQ shares (#)			136
Vessels that landed target species[3] (#)			89
Vessels that landed bluefin tuna (#)			54
Trips with longline gear[3] (#)			562
IBQ leases (#)			29
Participants leasing (#)	Longline		27
	Purse Seine		4
Amount leased (mt)			47
Average amount leased (lb)			1,395
Average price ($ per lb) leased	Longline		3.67
	Purse Seine		3.25
Real Time Electronic Reporting[4]			
Trips based on VMS data (#)			788
Vessel Monitoring System (VMS) Reports (one per longline set) (#)			4,036
Hooks fished (#)			3,184,817
Reports indicating interactions with bluefin tuna (%)			5
Bluefin tuna discarded dead (#)			25
Bluefin tuna released alive (#)			157
Electronic Monitoring (EM; Video Cameras and Associated Equipment)			
Vessels with installed EM systems[5] (#)			111
Hard drives received (#, June to September)[6]			437
Vessels submitting hard drives[6] (#)			80

Sources: [1]IBQ System (https://portal.southeast.fisheries.noaa.gov/cs/main.html#); [2]80 FR 52198, August 28, 2015; [3]Edealer; [4]VMS data; [5]Saltwater, Inc. (NMFS contractor for installation and maintenance of electronic monitoring systems); [6]ERT Corp. (NMFS contractor for review and storage of electronic monitoring data)

Compliance with the Amendment 7 Regulations

The data indicate that, in general, compliance with the Amendment 7 regulations was strong. For example, one of the new reporting requirements is for dealers and vessel operators to input data on bluefin landings and dead discards in the online IBQ system at the point of sale. The amount of landings of bluefin tuna, as indicated by data entered into the IBQ online system, was very similar to the amount derived from the mandatory bluefin tuna dealer faxes to NMFS (a reporting system already in place, and continuing).

Compliance with the VMS catch reporting requirements increased over time during 2015, as shown in Figure 4.3.

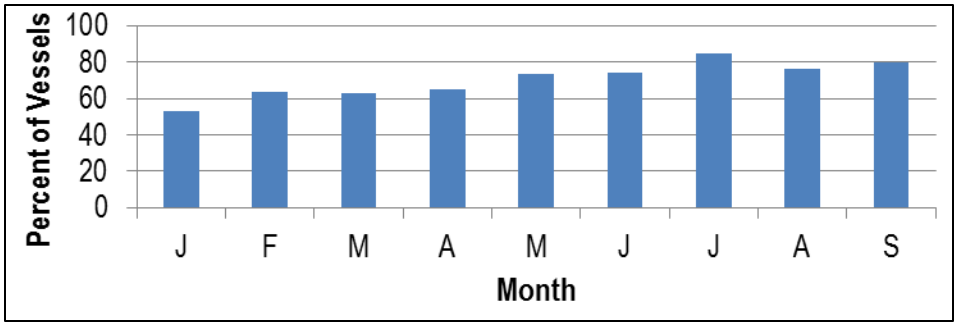

Figure 4.3 Percentage of Longline Vessels that Submitted Both Logbook Trip Summaries and VMS Bluefin Reports (Jan - Sep 2015)

Other Pelagic Longline Bycatch

Consistent with ICCAT Recommendations 09-07, 10-07, 10-08, and 11-08, the United States has prohibited the retention of bigeye thresher sharks in all fisheries (since 1999); prohibited retaining, transshipping, landing, storing, or selling oceanic whitetip sharks (*Carcharhinus longimanus*) or hammerhead sharks in the family Sphyrnidae (except for *Sphyrna tiburo*) caught in association with ICCAT fisheries (since 2011); and prohibited retaining on board, transshipping, or landing silky sharks (*C. falciformis*) since 2012. Additionally, in 2012, to be consistent with the oceanic whitetip and hammerhead shark prohibitions, the United States also prohibited the storing, selling, or purchasing of silky sharks caught in association with ICCAT fisheries. The data on the number of releases (and status) of ICCAT prohibited species from pelagic longline vessels during 2014 can be found in Table 4.8.

Table 4.8 ICCAT-Designated Prohibited Shark Interactions and Dispositions (2014)

Species	Kept	Released Dead	Released Alive	Released Unknown	Lost at Surface
Bigeye thresher	0	26	44	1	0
Silky	0	233	153	0	4
Great hammerhead	0	49	26	0	0
Oceanic whitetip	0	10	38	1	0
Smooth hammerhead	0	0	0	0	0
Scalloped hammerhead	0	53	47	0	0

Source: NMFS Pelagic Observer Program.

Bycatch mortality of marlins, sailfish, swordfish, and bluefin tuna from all fishing nations may significantly affect 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 4.4) and has banned the use of live bait and required the use of weak hooks by PLL vessels in the Gulf of Mexico.

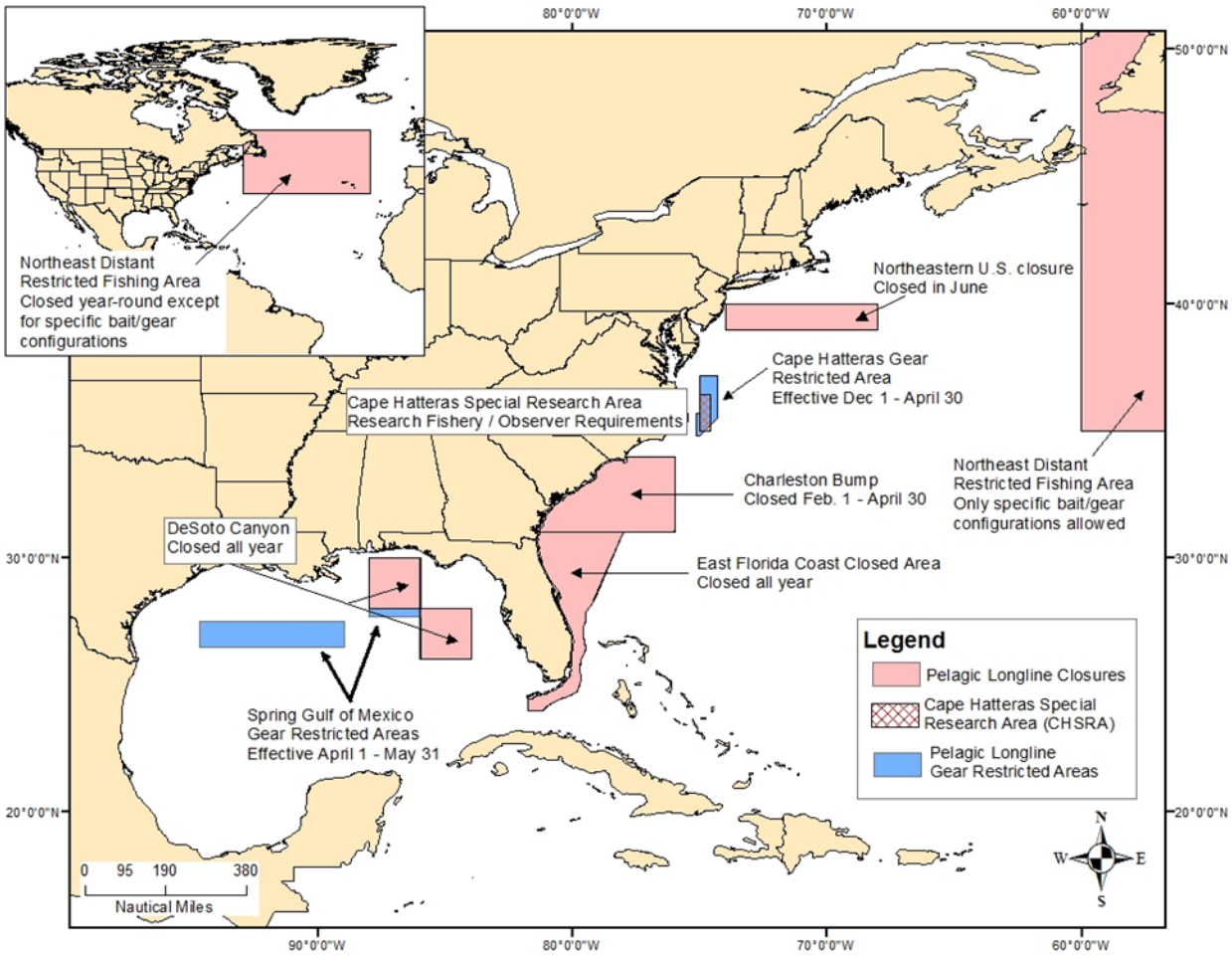

Figure 4.4 Areas Closed to Pelagic Longline Fishing by U.S. Flagged Vessels

Areas where the use of pelagic longline gear is restricted include "Pelagic Longline Closures" and "Gear Restricted Areas." The locations of the Pelagic Longline Gear Restricted Areas (GRAs) implemented by Amendment 7 are provided in Figure 4.4 above. The GRAs encompass regions with elevated bluefin interaction rates for PLL vessels, as determined from observer and logbook data. The primary objectives of the GRAs are to reduce bluefin interactions (and the potential for dead discards), and to minimize economic and social impacts on the PLL fishery.

The Cape Hatteras GRA is located off the coast of North Carolina and is effective from December through April. A vessel that has been issued, or is required to have been issued, an Atlantic tunas limited access longline permit (and other associated permits as required) may be granted conditional access to fish with PLL gear in the Cape Hatteras GRA provided the permit holder/ eligible vessel have demonstrated an ability to avoid bluefin and comply with reporting and monitoring requirements. The use of other gear types authorized for the pelagic longline permit, such as buoy gear, green-stick gear, or rod and reel gear would be allowed by pelagic longline vessels. Specifically, the criteria for access are: (1) ratio of bluefin interactions to designated species landings; (2) compliance with the Pelagic Observer Program requirements; and (3) compliance with HMS logbook reporting requirements.

In 2015, the first year of implementation, a total of 34 vessels were not qualified for access to the area. In 2016, a total of 16 vessels are not qualified for access to the area (a 47% reduction in vessels not qualified). In 2016, 10 vessels are not qualified due to either an inability to avoid bluefin tuna interactions (n=4) or lack of compliance with observer requirements (n=6), and six vessels are not qualified because there are insufficient data to assess performance due to permit transfers (there should be sufficient data after one year of fishing). Overall, there have been incremental improvements in bluefin tuna avoidance (10% reduction in the poorest performance), observer compliance (50% reduction in non-compliance), and logbook reporting compliance (10% reduction in late reporting). The initial assessment of performance metrics (i.e., effective date of the final rule through the end of 2015) was based on data from 2006 through 2012. Subsequent assessments (i.e., the 2016 fishing year) will be based on the most recent complete three-consecutive-year-period. Permit holders will be notified annually of the status of access for the relevant vessel. In order to access the Cape Hatteras GRA, permit holders must have the letter on board their vessel stating that the vessel is qualified to access the GRA.

The Spring Gulf of Mexico GRA consists of two areas in the Gulf of Mexico and limits access to these areas for vessels fishing with pelagic longline gear during the 2-month period from April through May of a given year. Other gear types authorized for use by PLL vessels such as buoy gear, green-stick gear, or rod and reel are allowed in these areas provided the vessel abides by any rules/regulations that apply to those gear types.

Protected Species - Marine Mammals

Many of the marine mammals that are hooked by U.S. PLL fishermen are released alive, although some animals suffer serious injuries and may die after being released. The observed and estimated marine mammal interactions for 2005 - 2014 are summarized in Table 4.9. Marine mammals are caught primarily during the third and fourth quarters in the Mid Atlantic Bight (MAB), and the South Atlantic Bight (SAB) in quarter 2. In 2014, the majority of observed interactions were with pilot whales (Garrison, unpublished data). NMFS monitors observed interactions with sea turtles and marine mammals on a quarterly basis and reviewed data for appropriate action, if any, as necessary.

Table 4.9 Marine Mammal Interactions in the Atlantic Pelagic Longline Fishery (2005–2014)

Year	Species	Total		Mortality		Serious Injury		Alive	
		Obs.	Est.	Obs.	Est.	Obs.	Est.	Obs.	Est.
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		1.0	-	-	-	1.0	-	-
	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	23.0	-	-	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	-	-
2010	Bottlenose dolphin	2	16.9	-	-	1	1.0	1	15.9
	Minke whale	1	24.4	-	-	-	-	2	24.4
	Pantropical spotted dolphin	3	6.1	-	-	-	-	2	5.1

Year	Species	Total		Mortality		Serious Injury		Alive	
		Obs.	Est.	Obs.	Est.	Obs.	Est.	Obs.	Est.
	Pilot whale	10	149.9	-	-	8	126.5	2	20.5
	Pygmy sperm whale	1	1.2	1	1.2	-	-	-	-
	Risso's dolphin	1	9.9	-	-	-	-	1	9.9
	Unidentified dolphin	1	1.5	-	-	-	-	1	1.5
	Unidentified marine mammal	4	27.5	1	5.5	3	21.9	-	-
2011	Bottlenose dolphin	3	40.5	-	-	1	12.2	2	28.3
	False killer whale	1	11.0	-	-	-	-	1	11.0
	Atlantic spotted dolphin	1	0.8	-	-	-	-	1	0.8
	Pilot whale	16	291.7	1	18.7	12	233.8	3	39.5
	Short-finned pilot whale	4	58.3	-	-	3	46.5	1	11.8
	Pygmy/Dwarf sperm whale	1	17.0	-	-	1	17.0	-	-
	Risso's dolphin	7	31.3	-	-	3	13.3	4	18.0
	Unidentified dolphin	1	1.1	-	-	1	1.1	-	-
2012	Bottlenose dolphin	6	101.0	-	-	4	77.5	2	23.5
	Pilot whale	19	242.6	-	-	14	170.1	5	72.4
	Short-finned pilot whale	1	10.0	-	-	-	-	1	10.0
	Pantropical spotted dolphin*	1	1.0	1	1	-	-	-	-
	Risso's dolphin	3	58.2	-	-	2	45.0	1	13.2
2013	Beaked whale	1	11.0	-	-	1	11.0	-	-
	Bottlenose dolphin	2	9.1	-	-	-	-	2	9.1
	Harbor porpoise	1	13.6	-	-	1	13.6	-	-
	Minke whale	1	12.4	-	-	1	12.4	-	-
	Pantropical spotted dolphin	3	8.8	-	-	1	3.1	2	6.7
	Pilot whale	24	189.6	-	-	15	126.3	9	63.3
	Pygmy sperm whale	1	3.6	-	-	-	-	1	3.6
	Risso's dolphin	2	17.1	-	-	2	17.1	-	-
	Unidentified dolphin	3	10.8	-	-	2	3.1	1	7.7
	Unidentified marine mammal	1	12.5	-	-	1	12.5	-	-
2014	Beaked Whale	1	10	-	-	0	0	1	10
	Minke whale	1	6	-	-	0	0	1	6
	Long-finned Pilot Whale	2	11	-	-	1	1	1	10
	Pantropical spotted Dolphin	1	10	-	-	0	0	1	10
	Risso's dolphin	1	8	-	-	1	8	0	0
	Rough-toothed dolphin	2	4	-	-	2	4	0	0
	Short-finned pilot whale	22	275	-	-	19	234	3	41
	Unidentified dolphin	1	14	-	-	1	14	0	0

Obs. – observed; Est. – estimated. * Pantropical spotted dolphin was observed dead in an experimental set.
Sources: Walsh and Garrison, 2006; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison, Stokes & Fairfield, 2009; Garrison and Stokes, 2010, 2011, 2012, 2013, 2014. Garrison 2015, unpublished data.

Protected Species - Sea Turtles

As a result of increased sea turtle interactions in 2001 and 2002, NMFS reinitiated consultation for the PLL fishery and completed a new biological opinion on June 1, 2004. The June 2004 biological opinion concluded that long-term continued operation of the Atlantic PLL 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 biological opinion included a 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, 2004). The estimated sea turtle takes for regular fishing and experimental fishing effort for 2005- 2014 are summarized in Table 4.11 and Table 4.12. Loggerhead interactions are more widely distributed; however, the NED and the NEC appear to be areas with high interaction levels each year.

Sea turtle bycatch in the U.S. Atlantic PLL fishery has decreased significantly in the last decade. From 1999 to 2003, the 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 2005, the fleet was estimated to have interacted with 275 loggerhead and 351 leatherback sea turtles outside of experimental fishing operations (Garrison, 2006). These numbers have been reduced and in 2014, the U.S Atlantic PLL fishery was estimated to have interacted with 259 loggerhead sea turtles and 268 leatherback sea turtles outside of experimental fishing operations (Garrison, unpublished data) (Table 4.12). In 2014, the majority of loggerhead sea turtle interactions occurred in the FEC, MAB, and SAR areas (Table 4.10). Interactions with leatherback sea turtles were highest in the GOM, SAB, and FEC areas (Table 4.11). The total interactions for the most recent 3-year ITS period (2010-12) were below the level established by the ITS in the 2004 biological opinion for both loggerheads and leatherbacks. 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.

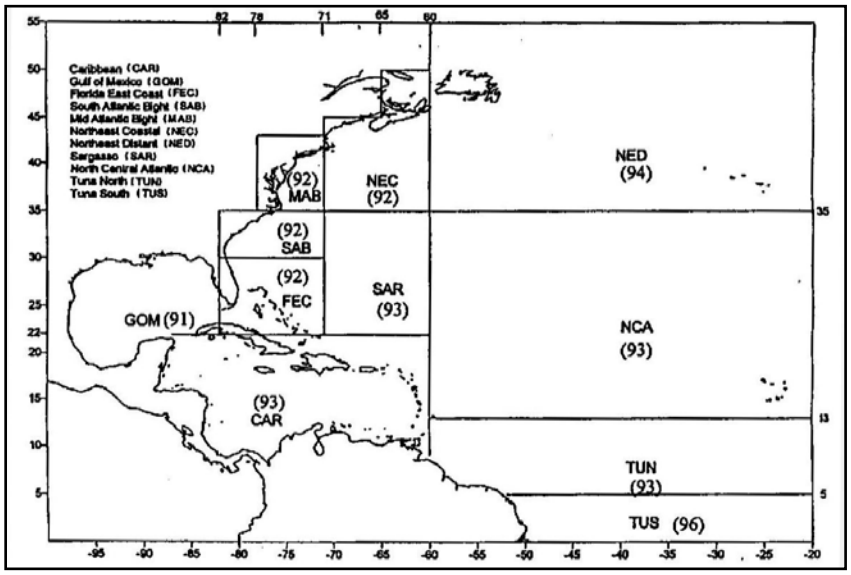

Figure 4.5 Geographic Areas Used in Summaries of Pelagic Logbook Data

Source: Cramer and Adams, 2000.

Table 4.10 Estimated Number of Loggerhead Sea Turtle Interactions in the U.S. Atlantic Pelagic Longline Fishery, by Statistical Area (2005-2014)

Area	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CAR	40	16	7	17	9	12	4	0	4	3
GOM	19	17	10	10	38	2	0	56	20	23
FEC	0	40	83	47	41	26	92	157	50	83
SAB	34	18	34	70	47	39	9	37	14	19
MAB	54	70	155	20	37	55	81	71	91	56
NEC	67	135	48	237	43	101	103	199	139	10
NED	20	235	200	352	22	97	105	161	49	27
SAR	38	19	4	16	7	13	44	0	11	28
NCA	3	10	2	1	0	0	0	0	0	0
TUN	0	0	0	0	9	0	0	0	0	0
TUS	0	0	0	0	0	0	0	0	0	0
Total	275	559	543	770	243	344	438	681	376	259
Experimental fishery (2005; 2008-14)	8	-	-	1	0	0	0	0	1	2
Total	283	559	543	771	243	344	438	681	377	261

Sources: Walsh and Garrison, 2006; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison et al., 2009; Garrison and Stokes, 2010, 2011, 2012, 2013, 2014. Garrison 2015, unpublished data.

Table 4.11 Estimated Number of Leatherback Sea Turtle Interactions in the U.S. Atlantic Pelagic Longline Fishery, by Statistical Area (2005-2014)

Area	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
CAR	2	4	1	2	1	10	3	0	3	2
GOM	179	109	212	144	93	26	33	250	144	235
FEC	62	28	7	30	19	20	17	75	41	9
SAB	7	39	0	0	31	13	12	119	11	11
MAB	11	30	114	43	31	0	140	46	52	0
NEC	6	73	76	140	73	40	26	60	93	9
NED	63	116	84	0	37	55	8	41	11	0
SAR	20	14	5	14	3	2	0	3	6	2
NCA	0	1	0	0	0	0	0	0	0	0
TUN	0	0	0	8	1	0	1	2	2	0
TUS	0	0	0	0	0	0	0	0	0	0
Total	351	415	499	381	286	166	239	596	363	268
Experimental fishery (2005; 2008-14)	17	-	-	4	4	2	1	2	3	2
Total	368	415	499	385	290	168	240	598	366	270

Sources: Walsh and Garrison, 2006; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison et al, 2009; Garrison and Stokes, 2010, 2011, 2012, 2013, 2014. Garrison 2015, unpublished data.

Table 4.12 Estimated Sea Turtle and Marine Mammal Interactions and Incidental Take Levels (ITS) in the US Atlantic Pelagic Longline Fishery (by Species, 2005-2014)

Species	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Total 3 year ITS (2010-12*)
Leatherback	368	415	499	385	290	168	240	598	366	270	1,764
Loggerhead	283	559	543	771	243	344	438	681	377	261	1,905
Other/unidentified sea turtles	0	11	1	0	0	3	4	15	0	6	105
Marine mammals	372	313	151	265	144	237	452	413	289	338	N/A

* Applies to all subsequent 3-year ITS periods

Protected Species - Seabirds

Observer data indicate that seabird bycatch is low in the U.S. Atlantic PLL fishery (Table 4.13 and Table 4.14). In 2014, there were 109 active U.S. PLL vessels fishing for swordfish in the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea that reportedly set approximately 6.7 million hooks. Two seabirds were observed taken, a brown pelican and a Corey's shearwater. These seabirds were released dead.

Table 4.13 Status of Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery (1992-2014)

	Release Status			
Species	Dead	Alive	Total	Percent Dead
Greater shearwater	29	3	32	90.6
Cory's shearwater	2	-	2	100.0
Unidentified shearwater	2	1	3	66.7
Herring gull	12	-	12	100.0
Great black-backed gull	9	1	10	90.0
Laughing gull	3	1	4	75.0
Unidentified gull	15	8	23	65.2
Northern gannet	3	9	12	25.0
Storm petrel	1	-	1	100.0
Unidentified seabird	41	19	60	68.3
Brown pelican	3	0	3	100.0
Parasitic jaeger	1	0	1	100.0
Total	121	42	163	74.2

Source: NMFS Pelagic Observer Program.

Table 4.14 Observed Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery (2004-2014)

Year	Quarter	Area	Type of Bird	Number Observed	Status
2004	1	MAB	Gull	5	dead
	3	MAB	Shearwater greater	1	alive
	3	MAB	Shearwater greater	4	dead
	4	NED	Seabird	1	dead
2005	1	SAB	Gull herring	1	dead
	1	SAB	Shearwater spp	1	dead
	3*	NEC	Shearwater greater	1	alive
	3*	NEC	Shearwater greater	1	dead
2006	4	MAB	Shearwater greater	1	dead
	4	NEC	Shearwater spp	1	alive
	4	NED	Shearwater greater	1	dead
2007	1	MAB	Gull blackbacked	6	dead
2008	2	GOM	Brown pelican	1	alive
2009	1	MAB	Northern gannet	2	alive
	1	MAB	Northern gannet	1	dead
	2	GOM	Brown pelican	1	dead
	3	MAB	Shearwater greater	3	dead
	3	MAB	Unidentified	1	dead
2010	4	MAB	Gull herring	1	dead
2011	3	NED	Northern gannet	1	dead
	3	NED	Unidentified	1	dead
	4	MAB	Herring gull	3	dead
	4	MAB	Unidentified gull	1	dead
	4	MAB	Greater shearwater	1	dead
2012	4	GOM	Laughing gull	1	dead
2013	2	GOM	Laughing gull	1	dead
	4	GOM	Parasitic jaeger	1	dead
2014	2	GOM	Brown pelican	1	dead
	3	MAB	Corey's shearwater	1	dead

* Experimental fishery takes. Source: NMFS Pelagic Observer Program.

In 2014, NMFS released a report titled "Implementation of the United States National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries." It highlighted advancements made by the United States toward the objectives of the 2001 U.S. "National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries." Since 2001, the United States has improved research, outreach and education on, and domestic management of incidental seabird catch, resulting in a significant decrease in seabird incidental catch in its domestic fisheries.

The Seabirds on the Western North Atlantic and Interactions with Fisheries project, as described in the 2014 report, was carried out at the Southeast Fisheries Science Center (SEFSC). This project aimed to improve the identification of incidental seabird catch on the Western North Atlantic U.S. pelagic longline fishery where, beginning in 2004, all birds observed caught were identified at least to genus and most to species. The project also worked to improve the estimation of incidental catch of the pelagic longline fleet based on observer reports of seabird interactions and allowed for preparation of the U.S. National Report on Seabird Bycatch of the

Western North Atlantic U.S. Pelagic Longline Fishery for ICCAT. Figure 4.6 provides extrapolated estimates of incidental seabird catch in U.S. Atlantic longline fisheries, which includes the Gulf of Mexico and Western North Atlantic fisheries.

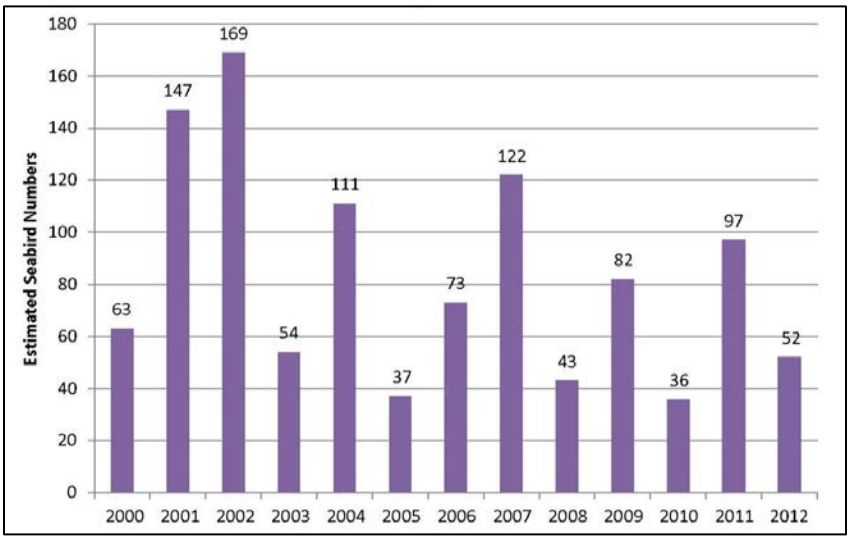

Figure 4.6 Incidental Seabird Catch in Atlantic Longline Fisheries

Source: Li, Y. and Y. Jiao, 2014.

4.1.3 International Issues and Catch

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 (2005 – 2014), U.S. longline landings have averaged 5.3 percent of total Atlantic longline landings, ranging from a high of 7.0 percent in 2012 to a low of 4.3 percent in 2010. Table 4.15 contains aggregate longline landings of HMS, other than sharks, for all countries in the Atlantic for the period 2005 – 2014.

Table 4.15 Estimated International Longline Landings (mt ww) of HMS (Excluding Sharks) for All Countries in the Atlantic (2005-2014)

Species (Region)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Swordfish (N. Atl + S. Atl)	24,765	24,778	26,806	22,343	23,703	23,179	22,909	23,687	19,399	20,090
Yellowfin tuna (W. Atl)[2]	14,449	14,249	13,557	13,192	12,782	13,038	10,677	12,558	12,405	7,765
Bigeye tuna	38,035	34,182	46,232	41,063	43,985	42,925	38,204	35,005	32,062	37,246
Bluefin tuna (W. Atl.)[2]	425	565	420	606	366	529	743	478	474	497
Albacore tuna (N. Atl + S. Atl)	19,888	22,963	18,324	15,865	14,732	17,390	20,111	21,605	20,377	11,867
Skipjack tuna (W. Atl)[2]	207	286	52	49	20	30	41	107	1,112	52
Blue marlin (N. Atl. + S. Atl.)[3]	2,065	1,825	2,503	2,584	2,336	2,053	1,611	1,503	931	1,385
White marlin (N. Atl. + S. Atl.)[3]	594	372	535	531	558	361	334	348	236	335
Sailfish (W. Atl.)[4]	1,065	651	838	1,038	975	662	704	731	523	551
Total International longline landings[6]	101,493	99,871	109,267	97,271	99,457	100,167	95,334	96,022	87,519	79,788
Total U.S. longline landings[5]	4,652	4,799	5,540	4,446	5,315	4,268	5,192	6,767	5,391	4,479
U.S. landings as a percent of total International landings	4.6%	4.8%	5.1%	4.6%	5.3%	4.3%	5.4%	7.0%	6.2%	5.6%

[1] Landings include those classified by the SCRS as longline landings. [2] Note 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. [3] Includes U.S. dead discards and Brazilian live discards. [4] Includes U.S. dead discards. [5] From U.S. National Reports to ICCAT, 2005-2014. Includes swordfish, blue marlin, white marlin, and sailfish longline discards. [6] From SCRS, 2015. Sources: U.S. ICCAT National Reports 2006 – 2015; SCRS, 2015.

Atlantic Sharks

Stock assessments and data collection for international shark fisheries have improved in recent years due to increased reporting requirements adopted by ICCAT. Since 2004, there have been several shark-related Recommendations and Resolutions (e.g., 04-10, 06-10, 07-06, 08-07, 08-08, 09-07, 10-06, 10-07, and 11-08, 12-05). 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 the ICCAT webpage (http://www.iccat.int/en/). Table 4.16 provides the most recent catch totals for blue, shortfin mako, and porbeagle sharks.

Table 4.16 Estimated International Longline Landings (mt ww)[1] of Pelagic Sharks for All Countries in the Atlantic (2005 - 2014)

Species (Region)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Blue shark (N. Atl + S. Atl + Med)	42,942	43,629	50,388	53,446	58.604	64,954	72,557	62,719	56,566	60,762
Shortfin mako (N. Atl + S. Atl + Med)	6,305	6,022	6,714	5,195	5,967	6,487	6,749	7,037	5,247	5,762
Porbeagle (N. Atl + S. Atl + Med)	572	508	525	611	484	137	89	149	184	64
Total International longline catches	49,819	50,159	57,627	59,252	65,055	71,578	79,395	69,905	61,997	66,588
U.S. blue shark catches[1]	68	47	55	138	107	176	271	162	131	105
U.S. shortfin mako catches[1]	469	386	382	354	385	394	392	430	411	406
U.S. porbeagle catches[1]	0	0	0	1	1	4	12	4	29	11
Total U.S. catches[1]	537	433	437	493	493	574	675	596	571	522
U.S. catches[1] as a percent of total International catch	1.1	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.8

[1]Includes catches and discards. Source: SCRS, 2015.

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 of this report. A brief history of the Atlantic purse seine fishery and regulations is available in Amendment 7 to the 2006 Consolidated HMS FMP.

Starting January 1, 2015, purse seine vessel owners are required to use VMS and must submit through a set report within 12 hours of completion of each purse seine set. Specifically, the report must include: date the set was made; area in which the set was made; and the approximate length of all bluefin tuna retained, discarded dead, or released alive (by standardized size ranges), including reporting of zero bluefin on a set. Purse seine vessel owners may be eligible to receive reimbursement funds (up to $3,100/unit) for procuring the Enhanced Mobile Transmitting Unit (E-MTU) VMS units. The reimbursement does not cover installation or communication costs.

The bluefin tuna baseline percentage quota share for the Purse Seine category is 18.6 percent of the U.S. quota. The purse seine fishery is managed under a limited entry system with transferable individual vessel quotas (IVQs), excluding any new entrants into this category.

Equal baseline quota allocations of bluefin tuna are assigned to individual fishery participants by regulation and those allocations are adjusted based on the individuals fishing activity in the previous year. According to criteria established in Amendment 7, NMFS annually will make allocations of quota to Purse Seine category participants through a two-step process: (1) NMFS will calculate equal amounts of quota for the participants (20% of the total quota for each participant) and (2) NMFS will make adjustments to the individual participant quotas based on the bluefin catch by such participants in the previous year. Thus, Purse Seine category participants will be allocated 100%, 75%, 50%, or 25% of their individual base allocation. Portions of the baseline Purse Seine quota not allocated to Purse Seine fishery participants will be reallocated to the Reserve category and may be made available for use by other fishing categories.

The quotas are transferable among the five purse seine fishery participants or, as authorized under Amendment 7, limited access pelagic longline permitted vessels through the IBQ program.

Vessels participating in the Atlantic tunas purse seine fishery may only target the larger size class bluefin tuna; more specifically, the giant size class (≥ 81 inches), and are granted a tolerance limit for large medium size class bluefin tuna (73 to < 81 inches) (i.e., large medium catch may not exceed 15 percent by weight of the total amount of giant bluefin tuna landed during a season). During the 2014 and 2015 fishing years, NMFS issued an Exempted Fishing Permit to one of the Purse seine vessels to investigate and gather data regarding reducing discards of large medium bluefin tuna in this fishery. The EFP granted an exemption to the 15 percent tolerance. Under 50 CFR § 635.32, and consistent with 50 CFR § 600.745, NMFS may authorize activities otherwise prohibited by the regulations for "the investigation of bycatch, economic discards and regulatory discards" and the acquisition of information and data. The EFP was only valid if a NMFS-approved observer was onboard the vessel. Therefore, in order to depart on a trip under this EFP, the owner/operator or another crew member had to notify the Northeast Fisheries Observer Program at least 48 hours before departing the dock. If an observer was not available, the vessel could have fished under current regulations (i.e., without any exemptions). Also, under this EFP, all BFT dead at haulback were required to be brought on board and/or made available to the observer for enumeration and sampling, when feasible.

Consistent with Amendment 7, NMFS will annually make a determination when the Purse Seine category fishery will start (between June 1 and August 15), based on variations in seasonal distribution, abundance or migration patterns of bluefin tuna, cumulative and projected landings in other commercial fishing categories, the potential for gear conflicts on the fishing grounds, or market impacts due to oversupply. Based on these considerations, NMFS determined that the 2015 Purse Seine bluefin tuna fishery would start on July 6, 2015 and continue through December 31, provided the vessel has not fully attained its IVQ.

4.2.2 Recent Catch and Landings

Table 4.17 shows purse seine landings of Atlantic tunas from 2006 through 2014. Purse seine landings historically made up approximately 20 percent of the total annual U.S. landings of bluefin tuna (about 25 percent of total commercial landings), but recently only account for a small percentage. 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 20 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 tuna; therefore, Table 4.17 only includes bluefin tuna.

Table 4.17 Domestic Atlantic Tuna Landings (mt ww) for the Purse Seine Fishery in the Northwest Atlantic Fishing Area (2006-2014)

Species	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bluefin tuna	3.6	27.9	0.0	11.4	0.0	0.0	1.7	29.0	37.6

Source: NMFS, 2015.

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 4.18 shows that since 2006, the U.S. purse seine fishery has contributed to less than 0.10 percent of the total purse seine landings reported to ICCAT. In Recommendation 10-10, ICCAT established a minimum standard for scientific fishing vessel observer programs and adopted a minimum of 5% observer coverage of fishing effort in the purse seine fishery, as measured in number of sets or trips.

Table 4.18 Estimated International Atlantic Tuna Landings (mt ww) for the Purse Seine Fishery in the Atlantic and Mediterranean (2006-2014)

Tuna Species	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bluefin	20,028	22,990	12,647	11,408	5,080	4,312	6,199	8,024	8,235
Yellowfin	61,187	50,285	73,657	81,819	79,739	70,204	72,386	68,989	74,408
Skipjack	79,179	83,804	81,675	104,142	128,881	150,222	170,501	190,555	172,017
Bigeye	18,604	14,995	18,045	27,052	30,761	32,402	36,894	25,642	24,079
Albacore	402	1,244	94	110	74	34	235	93	48
Total	179,400	173,318	186,118	224,531	244,535	253,174	286,215	293,303	278,787
U.S. total	4	28	0	11	0	0	2	29	38
U.S. percentage	<0.01	0.02	0	<0.01	0	0	<0.01	<0.01	0.01

Source: SCRS, 2015.

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 on private vessels, charter vessels, and headboat vessels. Rod and reel gear may be deployed from a vessel that is anchored, drifting, or underway (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 4.5.

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 tuna 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 tuna. Figure 4.7 shows bluefin tuna commercial landings, which are predominately handgear landings, in metric tons by geographic region (Gulf of Mexico, South Atlantic, Mid-Atlantic, and Northeast). The South Atlantic region ends at Cape Hatteras, and the Mid-Atlantic region ends at eastern Long Island (New York). Commercial landings declined from peak in 2001 until 2007, increased from 2007 through 2010, decreased slightly in 2011and in 2012, declined in 2013, and increased in 2014. Targeting bluefin tuna in the Gulf of Mexico is prohibited. 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.

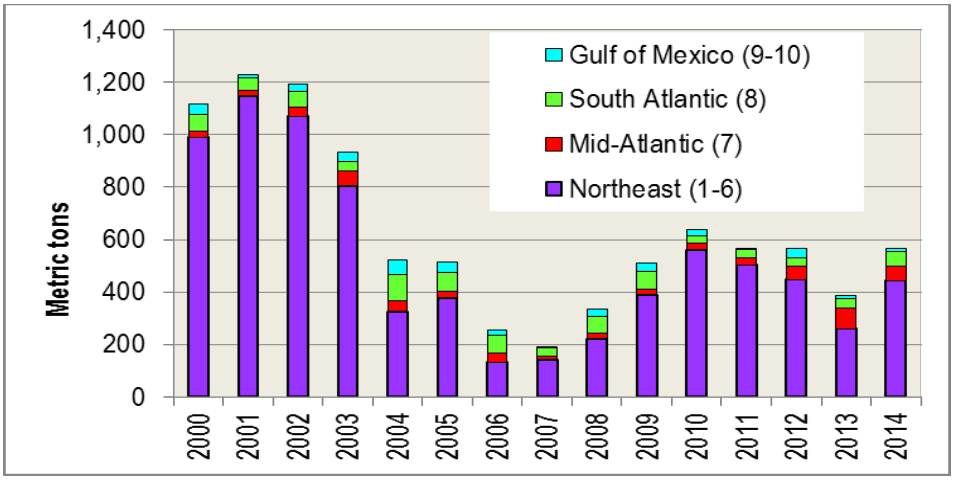

Figure 4.7 U.S. Atlantic and Gulf of Mexico Commercial Bluefin Tuna Landings by Geographic Area (2000 – 2014)

Source: NMFS Commercial BFT Landings Database.

The U.S. Atlantic tuna commercial handgear fisheries are currently 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 (handgear including 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 federally-permitted vessels may also need permits from the states they operate from in order to land and sell their catch, and are encouraged to check with their local state fish/natural resource management agency regarding these requirements. Federally-permitted vessels are required to sell Atlantic tunas only to federally-permitted Atlantic tunas dealers. Because the Atlantic tunas dealer permits are issued by the Greater Atlantic Region Permit Office, vessel owner/operators are encouraged to contact the permitting office directly, either by phone at (978) 281-9438 or online 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 fish commercially under the General category rules and regulations for Atlantic tunas. For instance, vessels that possess either of the two permits mentioned above have the ability to retain an Agency-specified daily bag limit of one to five bluefin tuna (measuring 73 inches or greater curved fork length per vessel per day while the General category bluefin tuna fishery is open). The bluefin tuna quota for the General category is divided into multiple subquotas associated with specific periods of the year. NMFS has the authority to transfer quota from one subquota period to another, including earlier in the calendar year. The General category bluefin tuna fishery opens on January 1 of each year and remains open until either the General category quota allocation has been caught, or until March 31, whichever comes first. The fishery then reopens on June 1 and remains open until December 31 or until the quota is filled. Vessel owners/operators should check with the agency online (http://www.hmspermits.com) or via telephone information line (978-281-9260) to verify the bluefin tuna retention limit on any given day. In accordance with the fishery management plan, the General category receives approximately 47 percent of the U.S. bluefin tuna quota. A brief history of the General category fishery in the United States is available in Amendment 7 to the 2006 Consolidated HMS FMP.

Vessels that are permitted in the Harpoon category fish under the Harpoon category rules and regulations. For instance, regarding bluefin tuna, vessels have the ability to keep a range of between two and four bluefin tuna measuring 73 inches to less than 81 inches curved fork length ("large medium") per vessel trip per day while the fishery is open. The default rention limit is two bluefin tuna, and NMFS has the authority to set the limit in the range of two to four fish. There is no limit on the number of bluefin tuna that can be retained measuring longer than 81 inches curved fork length ("giant"), 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 tuna quota is approximately 3.9 percent of the U.S. quota. A brief history of the harpoon fishery in the United States is available in Amendment 7 to the 2006 Consolidated HMS FMP.

Atlantic Tunas General, Harpoon, and HMS Charter/Headboat categories are required to report the length of all bluefin tuna retained or dead discards through an online catch reporting system (either through a website designated by NMFS or calling a phone number) within 24 hours of the landings or end of each trip. Specifically, vessels must report the number of bluefin tuna retained, and the number of bluefin tuna discarded dead, according to "Instructions for reporting bluefin tuna," available at: https://hmspermits.noaa.gov/library. The address of the website for reporting is: https://hmspermits.noaa.gov/catchReports.

A commercial swordfish fishery utilizing handgear (especially buoy-gear) exists primarily off the east coast of Florida, but also occurs in other locations of the Atlantic, Gulf of Mexico, and U.S. Caribbean. For information regarding the commercial buoy gear fishery, refer to Section 4.5.

The Swordfish General Commercial permit allows permit holders to retain and sell a limited number of swordfish caught on rod and reel, handline, harpoon, green-stick, or bandit gear. The HMS Charter/Headboat permit regulations also allow for the commercial retention of swordfish on non-for-hire trips, and regional swordfish retention limits exist for these permits, along with gear authorizations and reporting requirements.

The shark commercial handgear fishery plays a very minor role in contributing to the overall shark landing statistics. For information regarding the shark fishery, refer to Sections 4.3 and 1.2. Economic and social aspects of all the domestic handgear fisheries are described in Chapter 4.

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 Table 4.19. In 2014, bluefin tuna commercial handgear landings accounted for approximately 61 percent of the total U.S. bluefin tuna landings and 73 percent of commercial bluefin tuna landings. Figure 4.8 shows the U.S. Atlantic bluefin tuna landings in metric tons by category since 1998. Note that the commercial handgear landings are comprised of bluefin tuna landed by both the general and harpoon categories.

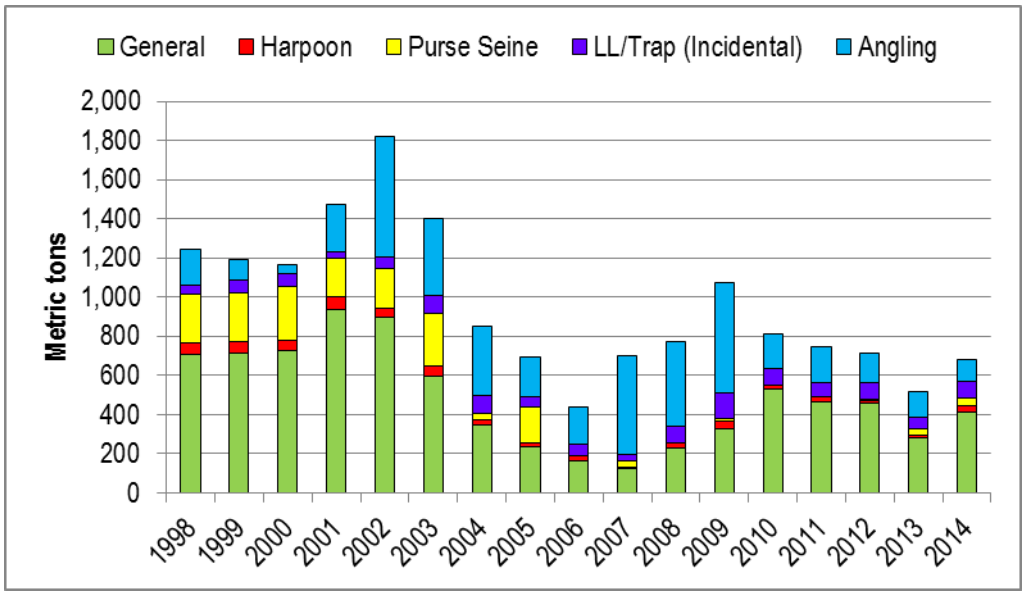

Figure 4.8 Landings of Bluefin Tuna by Category (1998 – 2014)

Source: NMFS Commercial BFT Landings Database.

Also in 2014, four percent of the total yellowfin catch, or seven percent of the commercial yellowfin catch, was attributable to commercial handgear. Commercial handgear landings of skipjack tuna accounted for approximately three percent of total skipjack landings, or about 17 percent of commercial skipjack landings. For albacore, commercial handgear landings accounted for approximately less than one percent of total albacore landings, and less than one percent of commercial albacore landings. Commercial handgear landings of bigeye tuna accounted for approximately two percent of total bigeye landings and three percent of total commercial bigeye landings. Updated landings for the commercial handgear fisheries by gear and by area for 2006 – 2014 are presented in the following tables.

Table 4.19 U.S. Atlantic Commercial Handgear Landings of Tunas and Swordfish (mt ww) by Gear Type (2006-2014)

Species	Gear	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bluefin tuna	Rod and Reel	164.1	120.8	226.6	301.7	515.1	418.6	419.5	249.5	378.9
	Handline	0.3	0.0	0.6	0.1	2.7	0.9	1.3	0.5	0.0
	Harpoon	30.3	22.5	30.2	65.6	29.0	70.1	52.3	45.0	67.5
	Total	194.7	143.3	257.4	367.4	546.8	489.6	473.1	295.0	446.4
Bigeye tuna	Troll	0.0	0.9	0.8	0.6	0.0	0.1	0.2	5.0	4.5
	Handline	21.5	16.8	6.6	4.6	1.8	3.4	7.9	16.1	16.4
	Total	21.5	17.7	7.4	5.2	1.8	3.5	8.0	21.1	20.9
Albacore tuna	Troll	0.0	0.2	0.2	0.07	0.04	0.0	0.0	0.2	0.2
	Handline	2.6	5.4	0.2	0.5	1.9	1.7	0.6	0.0	2.37
	Total	2.6	5.6	0.4	0.57	1.94	1.7	0.6	0.2	2.57
Yellowfin tuna	Troll	0.0	6.9	2.4	5.4	1.2	0.5	0.3	23.5	28.7
	Handline	105.1	113.2	30.1	58.7	43.5	34.0	66.0	67.4	82.7
	Total	105.1	120.1	32.5	64.1	44.7	34.5	66.3	90.9	111.4
Skipjack tuna	Troll	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Handline	0.2	0.3	0.4	2.8	1.2	1.5	2.0	1.2	2.01
	Total	0.2	0.3	0.4	2.8	1.2	1.5	2.0	1.2	2.01
Swordfish	Handline	32.5	125.2	83.2	123.0	126.9	120.4	151.3	104.6	87.5
	Harpoon	0.3	0.0	0.0	0.05	0.6	0.6	0.3	0.5	0.0
	Total	32.8	125.2	83.2	123.05	127.5	121.0	154.5	105.1	87.5

Source: NMFS, 2015.

Table 4.20 U.S. Atlantic Commercial Handgear Landings of Tunas and Swordfish (mt ww) by Region (2006-2014)

Species	Region	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bluefin tuna	NW Atl	194.7	143.3	257.3	366.3	546.8	489.6	473.1	295.0	446.4
Bigeye tuna	NW Atl	21.5	16.8	6.9	4.6	1.8	3.4	7.9	16.1	20.9
	GOM	1.5	1.01	0.0	0.07	1.8	0.0	0.0	0.0	0.0
	Caribbean	0.0	0.0	0.0	0.0	0.0	0.05	0.0	0.0	0.0
Albacore tuna	NW Atl	2.6	5.4	0.2	0.5	1.9	0.7	0.6	0.0	2.5
	GOM	0.07	0.0	0.0	0.01	0.0	0.0	0.0	0.0	0.07
	Caribbean	0.4	0.2	0.4	0.003	0.05	0.1	0.4	2.3	2.57
Yellowfin tuna	NW Atl	105.1	113.2	30.1	58.7	43.5	34.0	66.0	67.4	110.8
	GOM	49.9	26.2	11.2	21.6	2.9	8.7	17.5	6.8	0.0
	Caribbean	7.8	9.1	3.7	3.3	1.9	1.5	3.2	0.0	0.6
Skipjack tuna	NW Atl	0.2	0.3	0.4	2.8	1.2	1.5	2.0	1.2	1.3
	GOM	0.0	0.2	0.06	0.2	0.02	0.2	0.06	0.02	0.01
	Caribbean	10.0	13.7	16.0	8.8	6.2	6.6	4.0	0.0	0.7
Swordfish	NW Atl	32.8	125.2	83.2	123.05	126.9	120.4	151.6	105.1	86.9
	GOM	0.1	0.2	1.2	1.9	2.6	0.5	3.3	0.5	0.3

Source: NMFS, 2015.

Handgear Trip Estimates

Table 4.21 displays the estimated number of rod and reel and handline trips targeting large pelagic species (e.g., tunas, billfishes, swordfish, sharks, wahoo, dolphin, and amberjack) from Maine through Virginia, in 2004 through 2014. The trips include commercial and recreational trips, and are not specific to any particular species. It should be noted that the 2014 estimates are preliminary and subject to change.

Table 4.21 Estimated Number of Rod and Reel and Handline Trips Targeting Atlantic Large Pelagic Species, by State (ME-VA, 2004-2014)

	AREA							
Year	NH/ME	MA	CT/RI	NY	NJ (North)	NJ (South) and MD/DE	VA	Total
Private Vessels								
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
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
2010	6,102	19,679	2,276	6,737	3,898	12,493	2,591	53,776
2011	6,931	20,227	2,175	5,480	4,549	12,109	2,630	54,101
2012	8,408	19,096	6,189	6,425	5,447	13,682	2,445	61,692
2013	7,100	12,883	2,366	6,648	4,104	11,519	2,187	46,807
2014	4,289	12,758	3,639	6,777	4,589	11,575	1,972	45,559
Charter Vessels								
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
2010	917	3,581	549	1,432	1,111	2,679	511	10,780
2011	1,318	4,339	322	2,019	1,279	3,685	774	13,736
2012	1,570	4,248	465	1,211	1,437	2,910	619	12,462
2013	868	3,181	999	1,010	1,113	2,763	399	10,333
2014	836	3,294	592	1,220	1,199	2,172	345	9,658

Source: Large Pelagics Survey.

4.4 Recreational Handgear

The following section describes the recreational portion of the handgear fishery with a primary focus on rod and reel fishing.

4.4.1 Current Management

Domestic recreational fishermen target various HMS species, as permitted and specified in the regulations, using a variety of handgear including rod and reel gear. Recreational fishing for any HMS-managed species requires an HMS Angling permit or, for for-hire vessels taking passengers recreational fishing, an HMS Charter/Headboat permit (note that for Atlantic tunas, the HMS Charter/Headboat permit also allows for sale of the tunas). Two otherwise commercial permits, the General Commercial Swordfish permit and the Atlantic Tunas General permit, also authorize vessel occupants to fish recreationally for all HMS, but only in registered Atlantic HMS tournaments. 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. All recreational landings of Atlantic marlins, roundscale spearfish, sailfish, bluefin tuna (including dead discards), and swordfish must be reported to NMFS. All billfish and swordfish tournaments are selected for reporting, and anglers must self-report all recreational bluefin tuna landings and dead discards, as well as non-tournament recreational landings of swordfish and billfishes. Atlantic Tunas Angling and HMS Charter/Headboat categories are required to report the length of all bluefin tuna retained or dead discards through an online catch reporting system within 24 hours of the landings or end of each trip. Specifically, vessels must report the number of bluefin tuna retained, and the number of bluefin tuna discarded dead, according to "Instructions for reporting bluefin tuna," available at: https://hmspermits.noaa.gov/library. The address of the website for reporting is: https://hmspermits.noaa.gov/catchReports. For more information on recreational HMS handgear fisheries, please see the 2006 Consolidated HMS FMP.

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 Information Program (MRIP), Large Pelagics Survey (LPS), Southeast Headboat Survey (HBS), Texas Headboat Survey, Recreational Billfish Survey (RBS) tournament data, and the HMS Recreational Reporting Program (non-tournament swordfish, billfishes, and bluefin tuna). Descriptions of these surveys, the geographic areas they include, and their limitations are discussed in the 2006 Consolidated HMS FMP and previous HMS SAFE Reports.

Tuna and swordfish landings for HMS recreational rod and reel fisheries are presented below in Table 4.22 from 2005 through 2014.

Table 4.22 Domestic Landings (mt ww)* for the Atlantic Tunas and Swordfish Recreational Rod and Reel Fishery (2005-2014)

Species	Region	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Bluefin tuna*	NW Atlantic	254.4	158.2	398.6	352.2	143.3	111.4	173.3	148.7	131.4	99.6
	GOM	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Total	254.4	158.8	398.6	352.2	143.3	111.4	173.3	148.7	131.4	99.6
Bigeye tuna**	NW Atlantic	165.0	422.3	126.8	70.9	77.6	116.8	72.4	269.6	337.5	251.9
	GOM	0.0	24.3	0.0	0.0	0.0	0.8	34.9	0.1	7.0	0.1
	Caribbean	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	2.9
	Total	165.0	446.6	126.8	70.9	77.6	117.6	109.6	269.7	344.5	254.9
Albacore**	NW Atlantic	356.0	284.2	393.6	125.2	22.8	46.2	170.6	144.3	340.3	136.7
	GOM and Caribbean	0.0	0.0	0.0	0.0	0.0	103.4	0.0	0.7	0.0	0
	Total	356.0	284.2	393.6	125.2	22.8	149.6	170.6	145.0	340.3	136.7
Yellowfin tuna**	NW Atlantic	3,504.8	4,649.2	2,726.0	657.1	742.6	1,209.0	1,134	1,433	495.4	998.8
	GOM	146.9	258.4	227.6	366.3	264.7	18.0	362.8	294.1	191.8	73.2
	Caribbean	0.0	0.0	12.4	0.0	3.5	4.5	0.9	0.0	0.0	16.2
	Total	3,651.7	4,907.6	2,966.0	1,023.4	1,010.8	1,231.5	1,497.7	1,721.1	687.2	1,088.2
Skipjack tuna**	NW Atlantic	8.1	34.6	27.4	21.0	75.7	29.1	50.3	98.0	37.7	46.0
	GOM	3.1	6.4	23.9	16.3	22.0	15.5	23.7	2.5	77.1	9.8
	Caribbean	3.9	7.7	0.2	11.3	4.3	0.4	3.0	3.0	0.0	9.4
	Total	15.1	48.7	51.5	48.6	102.0	45.0	77.0	103.5	114.8	65.2
Swordfish	Total	61.2	52.7	68.2	75.7	31.6	49.3	53.6	70.8	22.0	37

* Rod and reel catch and landings estimates of bluefin tuna < 73 in curved fork length (CFL) based on statistical surveys of the U.S. recreational harvesting sector. Rod and reel catch of bluefin tuna > 73 in CFL are commercial and may also include a few metric tons of "trophy" bluefin (recreational bluefin ≥ 73 in). ** 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. Sources: NMFS, 2006; NMFS, 2007; NMFS, 2009; NMFS, 2010; NMFS, 2011; NMFS, 2012; NMFS, 2013; NMFS, 2014; NMFS, 2015.

Atlantic Billfish Recreational Fishery

Table 4.23 provides a summary of reported billfish and swordfish landings from 2009 through 2014. 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 Recreational Billfish Survey (RBS) provides a preliminary source for analyzing recreational billfish tournament landings ("Tournament" columns). Recreational report totals are developed from analysis of multiple datasets, including the HMS Recreational Reporting Program, the Large Pelagics Survey (LPS), Maryland and North Carolina Catch Cards, the RBS, and MRIP ("Non-Tournament" columns). In 2012, NMFS established a new accounting protocol that analyzes tournament and non-tournament landings reports of billfishes using all available programs (see sources in Table 4.23).

"Total landings of marlin and RSP" by year and "Balance Remaining (from 250 Marlin Limit)" rows summarize billfish monitoring as required under ICCAT and the Atlantic Tunas Convention Act. Under ICCAT Recommendation 06-09 and as specified in § 635.27(d)(1), the recreational billfish fishery is limited to maximum of 250 Atlantic blue and white marlin landings, combined, per year. Sailfish and swordfish are presented underneath the ICCAT accounting rows and do not count towards the 250 Marlin Limit.

Table 4.23 Atlantic HMS Recreational Billfish Landings, in Numbers of Fish (2009-2014)

Species	Recreational Reporting	2009	2010	2011	2012	2013	2014
Blue Marlin	Tournament*	35	18	27	45	44	49
	Non-Tournament**	5	3	3	18	11	5
	Total***	44	28	43	63	55	54
White Marlin	Tournament*	46	63	31	23	34	36
	Non-Tournament**	6	5	6	7	15	6
	Total***	53	72	56	30	49	42
Roundscale Spearfish (RSP)	Tournament*	5	10	3	4	1	2
	Non-Tournament**	-	0	0	0	0	0
	Total***	5	19	7	4	1	2
Total Landings of Marlin and RSP		97	119	106	97	100	98
Balance Remaining (from 250 Marlin Limit)		153	131	144	153	150	152
Sailfish	Tournament*	0	3	7	21	2	5
	Non-Tournament**	140	185	166	163	171	113
	Total***	140	192	173	184	173	118
Swordfish	Tournament*	85	46	29	29	16	23
	Non-Tournament**	389	285	318	386	263	281
	Total	474	331	347	415	279	304

– Prior to 2010, RSP was not included in the 250 Marlin Limit. Sources: 2009-2011 for all billfishes (2009-2013 for swordfish): * RBS; ** HMS Recreational Reporting Program; *** RBS, HMS Recreational Reporting Program, MD and NC HMS Catch Cards, LPS, and MRIP. 2012-2014 for all billfishes and 2014 for swordfish (excludes swordfish 2012-2013): * RBS, MD and NC HMS Catch Cards, LPS, and MRIP; ** HMS Recreational Reporting Program, MD and NC HMS Catch Cards, LPS, and MRIP. *** Sum total of tournament and non-tournament reports.

All recreational (both private and charter/headboat) non-tournament landings of billfish, including swordfish, must be reported to NMFS within 24 hours of landing by the permitted owner of the vessel landing the fish. In Maryland and North Carolina, vessel owners are required to report their billfish landings through the submission of catch cards at state-operated landings stations.

Table 4.24 Tournament Landings of Billfishes and Swordfish by State or Area (2014)

State(s)	Tournaments	White Marlin	Blue Marlin	Sailfish	Roundscale Spearfish	Swordfish
MA	3	-	-	-	-	1
RI/NY	3	-	-	-	-	1
NJ	12	5		-	-	-
DE/MD	10	31	8	-	2	1
VA	3	-	-	-	-	-
NC	12	-	14	-	-	-
SC/GA	7	-	1	-	-	-
FL	78	-	7	-	-	17
AL/MS	14	-	11	-	-	-
LA	14	-	5	-	-	2
TX	17	-	1	5	-	1
PR	13	-	2	-	-	-
VI	9	-	-	-	-	-

Some states are aggregated to protect tournament reporting privacy if at least three tournaments were not held in one or more state(s). States without tournaments are not shown. Sources: RBS, HMS Recreational Reporting Program, NC and MD HMS Catch Cards, LPS, and MRIP.

Shark Recreational Fishery

Unlike billfish or bluefin tuna, recreational shark landings are not required to be reported to NMFS unless an angler is required to participate in the LPS or MRIP. However, as of 2013 for vessel owners in Maryland, and 2014 for vessel owners in North Carolina, shark landings must be reported on catch cards at state-operated landings stations. Two shortfin mako sharks were landed and reported via North Carolina catch cards in 2014.

Table 4.25 Recreational Shark Landings Reported from the Maryland Catch Card Program (2013-2014)

Species	2013	2014
Atlantic sharpnose	13	13
Blue	0	7
Common thresher	8	12
Scalloped hammerhead	0	1
Shortfin mako	47	53
Spinner	1	0
Smoothhound	0	1
Total	69	87

Source: MD DNR.

The following tables provide estimated recreational landings for each of the three shark species groups: large coastal sharks (Table 4.26 and Table 4.27), pelagic sharks (Table 4.28), and small coastal sharks (Table 4.29 and Table 4.30).

Table 4.26 Estimated Recreational Harvest of Large Coastal Sharks in the Atlantic Region, in Number of Fish per Species (2009-2014)

Species	2009	2010	2011	2012	2013	2014
Basking[2]	0	0	0	0	0	0
Bignose[1]	0	0	0	0	0	0
Bigeye sand tiger[2]	0	0	0	0	0	0
Blacktip	1,902	1,656	754	1,164	962	1,729
Bull	2	1	698	68	77	3
Caribbean reef[1]	0	0	0	0	0	0
Dusky[1]	506	4	23	15	16	2
Galapagos[1]	0	0	0	0	0	0
Hammerhead, great	5	0	0	37	0	0
Hammerhead, scalloped	569	13	179	4	248	900
Hammerhead, smooth	0	0	0	0	352	0
Hammerhead, unclassified	0	0	0	0	0	0
Lemon	291	0	14	0	0	0
Night[1]	0	0	0	0	0	0
Nurse	156	209	301	706	13	418
Sandbar[3]	6,461	2,193	1,125	857	399	1,873
Sand tiger[2]	0	0	0	0	0	0
Silky[3]	208	13	0	232	0	176
Spinner	179	693	679	1,145	390	847
Tiger	4	2	1	2	8	324
Whale[2]	0	0	0	0	0	0
White[2]	0	0	0	0	0	0
Requiem shark, unclassified	8,794	2,966	4,949	6,069	97	4,513
Total	19,077	7,750	8,723	10,299	2,562	10,785

[1]Prohibited in the recreational fishery as of July 1, 1999. [2]Prohibited as of April 1997. [3]Prohibited as of July 2008.
Source: TX PWD, SE Headboat Survey, MRIP

Table 4.27 Estimated Recreational Harvest of Large Coastal Sharks in the Gulf of Mexico Region, in Number of Fish per Species (2009-2014)

Species	2009	2010	2011	2012	2013	2014
Basking[2]	0	0	0	0	0	0
Bignose[1]	0	0	0	0	0	0
Bigeye sand tiger[2]	0	0	0	0	0	0
Blacktip	12,600	23,781	16,083	22,530	105,315	10,336
Bull	6,957	260	581	2,415	2,786	3,497
Caribbean reef[1]	1	0	0	0	0	0
Dusky[1]	40	87	125	42	20	598
Galapagos[1]	0	0	0	0	0	0
Hammerhead, great	123	3	126	5	7	2
Hammerhead, scalloped	105	140	22	24	517	14
Hammerhead, smooth	0	0	0	0	0	0
Hammerhead, unclassified	0	0	0	0	0	0
Lemon	3	781	1,274	0	0	0
Night[1]	22	0	0	0	55	0
Nurse	729	25	1,098	2	2	0
Sandbar[3]	701	883	200	46	1,404	62
Sand tiger[2]	0	0	0	0	0	0
Silky[3]	0	64	74	0	615	0
Spinner	2,461	6,040	1,694	4,975	6,022	568
Tiger	0	366	52	0	3	4
Whale[2]	0	0	0	0	0	0
White[2]	0	0	0	0	0	0
Requiem shark, unclassified	24,972	68,134	38,876	16,454	17,606	2,440
Total	48,714	100,564	60,205	46,493	134,352	17,521

[1]Prohibited in the recreational fishery as of July 1, 1999. [2]Prohibited as of April 1997. [3]Prohibited as of July 2008.
Source: TX PWD, MRIP, Southeast Headboat Survey.

Table 4.28 Estimated Recreational Harvest of Pelagic Sharks in the Atlantic and Gulf of Mexico, in Number of Fish per Species (2009-2014)

Species	2009	2010	2011	2012	2013	2014
Bigeye thresher*	0	0	0	0	0	0
Bigeye sixgill*	0	0	0	0	0	0
Blue Shark	0	1,512	0	0	4,165	3,449
Mako, longfin*	0	0	0	0	0	0
Mako, shortfin	5,058	3,297	301	1,314	6,855	16,532
Mako, unclassified	213	161	396	14	12	5
Lamnidae (mackerel sharks)	1	345	3,090	5,706	24	19,898
Oceanic whitetip	0	0	0	0	0	0
Porbeagle	0	0	19	0	0	0
Sevengill*	0	0	0	0	0	0
Sixgill*	0	0	0	0	0	0
Thresher	3,422	214	0	0	0	3,165
Pelagic shark, unclassified	0	0	0	0	0	0
Total	8,694	5,529	3,806	7,034	11,056	43,049

*Prohibited in the recreational fishery as of July 1, 1999. Source: TX PWD, Southeast Headboat Survey, MRIP.

Table 4.29 Estimated Recreational Harvest of Small Coastal Sharks in the Atlantic Region, in Number of Fish per Species (2009-2014)

Species	2009	2010	2011	2012	2013	2014
Atlantic angel*	0	0	0		0	0
Blacknose	947	0	573	0	70	4,146
Bonnethead	8,009	10,073	8,598	9,798	14,375	28,533
Finetooth	0	239	0	0	0	2,896
Atlantic sharpnose	33,568	41,217	28,252	23,207	44,832	56,052
Caribbean sharpnose*	0	0	0	0	0	0
Smalltail*	0	0	0	0	0	0
Total	42,524	51,529	37,423	33,005	59,277	91,627

*Prohibited in the recreational fishery as of July 1, 1999. Source: TX PWD, MRIP, Southeast Headboat Survey.

Table 4.30 Estimated Recreational Harvest of Small Coastal Sharks in the Gulf of Mexico Region, in Number of Fish per Species (2009-2014)

Species	2009	2010	2011	2012	2013	2014
Atlantic angel*	0	0	0	0	0	0
Blacknose	5,276	1,463	1,533	2,638	232	4,380
Bonnethead	14,189	6,084	51,714	6,764	7,757	19,072
Finetooth	395	380	47	248	239	80
Atlantic sharpnose	31,237	29,494	19,072	40,302	45,616	25,409
Caribbean sharpnose*	0	0	0	0	0	0
Smalltail*	0	0	0	0	0	0
Total	51,097	37,421	72,366	49,952	53,844	48,941

*Prohibited in the recreational fishery as of July 1, 1999. Source: TX PWD, MRIP, Southeast Headboat Survey.

Table 4.31 Estimated Recreational Harvest of Smoothhound (Smooth Dogfish) in the Gulf of Mexico and Atlantic Regions, in Number of Fish per Species (2009-2014)

Region	2009	2010	2011	2012	2013	2014
Atlantic	18,099	19,659	21,040	31,666	17,309	49,834
Gulf of Mexico	0	190	0	1,258	214	7
Total	18,099	19,849	21,040	32,924	17,523	49,841

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 species. 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. 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. The number of kept and released fish reported or observed through the LPS dockside intercepts for 2005 – 2014 is presented in Table 4.32 and Table 4.33.

An outreach program to address bycatch and to educate anglers on the benefits of circle hooks has been implemented by NMFS. In January 2011, NMFS developed and released a brochure that provides guidelines on how to increase the survival of hook-and-line caught large pelagic species. This brochure is available at: http://www.nmfs.noaa.gov/sfa/hms/compliance/guides/careful_release_brochure.pdf.

Table 4.32 Observed or Reported Number of HMS Kept in the Rod and Reel Fishery (ME-VA, 2005-2014)

Species	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
White marlin[2]	5	8	4	13	8	9	17	5	14	8
Blue marlin[2]	3	2	2	3	3	3	1	3	6	1
Sailfish[2]	1	0	1	0	0	0	0	0	0	0
Swordfish	22	27	42	30	7	9	27	28	15	16
Giant bluefin tuna[3]	48	15	15	20	46	54	51	65	37	56
Large medium bluefin tuna[3]	12	1	5	11	0	36	28	23	14	7
Small medium bluefin tuna	22	48	69	48	205	11	14	21	29	26
Large school bluefin tuna	179	171	298	398	107	174	77	73	97	60
School bluefin	638	84	314	228	180	201	180	146	104	147
Young school bluefin	25	0	3	4	1	2	0	2	1	4
Bigeye tuna	32	35	59	55	58	36	66	97	250	215
Yellowfin tuna	3,700	3,572	2,988	1,029	1,886	1,906	3,474	3,296	2,719	2,072
Skipjack tuna	79	104	34	64	242	151	278	200	109	109
Albacore	835	542	934	168	67	154	550	358	1,040	444
Thresher shark	45	34	62	59	66	44	41	39	31	55
Mako shark	99	111	143	169	159	159	172	151	179	180
Sandbar shark	1	1	9	1	1	0	1	0	0	0
Dusky shark	0	3	6	1	0	1	0	0	0	0
Tiger shark	1	0	1	1	3	1	0	2	0	2
Porbeagle	1	1	0	0	0	2	2	2	6	3
Blacktip shark	1	1	0	-	-	0	0	0	0	0
Atlantic sharpnose shark	0	0	0	-	-	10	5	3	22	6
Blue shark	67	61	109	43	54	26	30	28	12	10
Hammerhead shark	0	0	0	1	0	0	0	0	0	0
Smooth hammerhead	0	0	0	1	0	0	0	0	0	0
Scalloped hammerhead	0	1	0	0	0	0	0	0	0	0
Unidentified hammerhead	0	0	0	0	0	0	0	0	0	0
Wahoo	112	85	190	172	69	111	63	206	92	59
Dolphin	6,366	3,921	2,536	5,739	3,317	6,063	4,935	3,055	3,902	5,904
King mackerel	376	170	82	67	14	14	3	3	7	2
Atlantic bonito	96	262	283	51	138	57	41	79	77	454
Little tunny	181	90	195	93	175	239	151	172	84	157
Amberjack	2	1	5	31	81	99	25	40	37	25
Spanish mackerel	4	1	2	67	9	8	24	146	66	44

[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 1 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. Source: Large Pelagics Survey.

Table 4.33 Observed or Reported Number of HMS Released in the Rod and Reel Fishery (ME-VA, 2005-2014)

Species	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
White marlin[2]	397	160	359	454	936	1,070	1,355	1,996	1,200	1,281
Blue marlin[2]	52	42	69	69	60	86	106	137	109	99
Sailfish[2]	6	3	1	6	69	11	11	61	15	16
Swordfish	23	52	40	45	13	15	27	12	18	15
Giant bluefin tuna[3]	0	3	0	0	0	1	0	0	2	0
Large medium bluefin tuna[3]	4	1	3	11	7	22	2	9	1	0
Small medium bluefin tuna	30	18	32	23	93	46	32	45	70	35
Large school bluefin tuna	141	85	99	286	77	172	53	64	87	40
School bluefin tuna[4]	1,917	290	347	358	173	392	345	184	135	84
Young school bluefin tuna[4]	282	117	83	55	52	68	44	21	14	6
Bigeye tuna	2	2	1	0	13	0	2	3	5	102
Yellowfin tuna[4, 5]	502	351	171	411	2,038	374	1,479	195	999	480
Skipjack tuna[4]	105	129	17	217	610	188	479	325	464	137
Albacore tuna	67	41	40	14	5	10	84	25	112	29
Thresher shark[5]	9	15	24	35	23	21	9	16	10	23
Mako shark	142	177	190	242	250	276	224	238	206	237
Sandbar shark	37	158	168	222	219	37	45	14	44	62
Dusky shark	49	73	87	128	152	116	84	76	90	57
Tiger shark	6	7	11	20	11	13	25	26	19	32
Porbeagle	6	8	2	2	6	11	31	18	22	21
Blacktip shark	19	9	31	-	-	34	10	346	89	33
Atlantic sharpnose shark	11	0	0	-	-	5	3	4	22	3
Blue shark[4, 5]	920	884	1,978	2,735	4,185	3,333	3,752	2,705	2,240	1,894
Hammerhead shark	5	0	0	0	0	0	1	2	0	1
Smooth hammerhead shark	0	1	2	0	1	1	3	3	0	6
Scalloped hammerhead shark	0	0	0	4	2	0	0	4	0	2
Unidentified hammerhead shark	0	11	14	27	31	32	10	30	20	23
Wahoo	7	6	9	4	4	6	2	5	2	0
Dolphin[5]	375	394	227	372	222	344	380	192	209	213
King mackerel	7	20	3	5	5	1	0	0	0	0
Atlantic bonito[4]	231	114	60	36	124	55	55	120	46	138
Little tunny	505	102	387	614	1,028	886	640	993	133	614
Amberjack	2	13	33	145	101	119	17	48	56	35
Spanish mackerel[4]	0	0	2	37	1	8	0	0	0	0

[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 HMS SAFE Reports. [2]Amendment 1 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]Includes dead releases in 2010. [5]Includes dead releases in 2011. Source: Large Pelagics Survey.

4.5 Bottom Longline

Bottom longline (BLL) gear 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. In 2014, hauls targeting LCS used BLL consisting of a longline between 0.9 to 12.0 km (0.6 – 7.5 miles) long with 47-401 hooks attached and the average soak duration was 7.8 hours. Depending on the species being targeted, both circle and J hooks are used. Fishermen targeting LCS with BLL gear most commonly used 18.0 circle hooks (63.3 percent of the time). Hauls targeting sandbar sharks used BLL consisting of longline average of 7.0 km (4.3 miles) long with 112-300 hooks attached and the average soak duration was 5.6 hours. The most commonly used hook was the 18.0 circle hook (51.9 percent) with 12.0 J hooks used 37 percent of the hauls (Enzenauer et al., 2015).

The overall BLL effort targeting sharks by region is available from 2008 through 2014 (Table 4.34). The Atlantic region has more vessels and trips targeting sharks, but the number of trips targeting sharks in the Gulf of Mexico region has surpassed the Atlantic region in 2012-2014. The number of trips is defined as targeting sharks if 75 percent of the landings, by weight, were sharks.

Table 4.34 Bottom Longline Effort Targeting Sharks (2008-2014)

Specifications	Region	2008	2009	2010	2011	2012	2013	2014
Number of Vessels	Gulf of Mexico	16	11	7	11	20	16	20
	Atlantic	17	26	32	26	21	24	19
Number of Trips	Gulf of Mexico	136	80	54	194	379	457	604
	Atlantic	289	498	486	434	281	329	369
Average Sets per Trip	Gulf of Mexico	1.8	2.5	1.2	1.4	1.2	1.1	1.1
	Atlantic	1.2	1.3	1.4	1.3	1.5	1.5	1.7
Total Number of Set Hooks	Gulf of Mexico	160,520	65,225	15,380	48,112	99,675	105,559	139,709
	Atlantic	121,353	260,883	239,952	183,465	98,094	136,475	193,561
Average Number of Hooks per Set	Gulf of Mexico	454.5	451.6	215.6	213.8	229.0	212.1	206.1
	Atlantic	389.2	414.1	327.3	330.3	237.1	253.5	276.7
Total Soak Time (Hours)	Gulf of Mexico	1,745.0	918.0	396.0	1,361.0	2,912.0	2,589.5	3,011.0
	Atlantic	2,150.0	3,275.5	3,490.5	3,331.0	2,289.5	2,438.0	2,649.5
Average Mainline Length (Miles)	Gulf of Mexico	7.6	5.6	2.6	3.0	2.8	2.1	1.9
	Atlantic	6.0	6.2	4.7	5.1	3.9	3.4	3.4

Source: Fisheries Logbook System.

4.5.1 Current Management

For a description of the history of bottom longline fishery management, please see the Amendment 6 to the 2006 Consolidated HMS FMP. Current commercial regulations include limited access vessel permits requirements, commercial quotas, vessel retention limits, a prohibition on landing 20 species of sharks (one of these species can be landed in the shark research fishery), numerous closed areas, gear restrictions, landing restrictions (including

requiring all sharks be landed with fins naturally attached), fishing regions, vessel monitoring system requirements, dealer permits, and vessel and dealer reporting requirements.

NMFS is currently working on two shark proposals, which could impact fishermen using BLL gear. Amendment 5b to the 2006 Consolidated HMS FMP could change certain shark regulations based on the latest stock assessment for dusky sharks. NMFS is also currently working on a rule that would consider a commercial retention limit for blacknose sharks in the Atlantic region in order to prevent quota exceedances.

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 have been required to take an observer if selected. Participants in the shark research fishery are required to take an observer when targeting sandbar sharks. Outside the research fishery and depending on the time of year and fishing season, vessels that target sharks, possessed current valid directed shark permit, and reported fishing with longline gear in the previous year were randomly selected for coverage with a target coverage level of 5-10% for shark directed (Enzenauer et al., 2015).

In 2014, the BLL observer program selected 8 vessels for the entire fishing season. These vessels were observed for a total of 126 BLL hauls (defined as setting gear, soaking gear for some duration of time, and retrieving gear) and a total of 94 trips (defined as from the time a vessel leaves the port until the vessel returns to port and lands catch, including multiple hauls therein). Gear characteristics of trips varied by area (Gulf of Mexico or the U.S. Atlantic Ocean) and target species (non-sandbar LCS or sandbar shark) (Enzenauer et al., 2015). In the non-research shark fishery, the BLL observer program observed trips from the southern U.S. Atlantic (the coastline from North Carolina to Florida) region. The observed non-research shark fishery hauls targeted coastal shark species in the southern U.S. Atlantic. Approximately 14 trips with 22 hauls were observed. These trips caught mostly Atlantic sharpnose sharks with blacknose, blacktip, and tiger sharks being the next most caught species (Table 4.35).

Table 4.35 Shark Species Caught on Observed Bottom Longline Targeting Coastal Shark Species in the Southern U.S. Atlantic (2014)

Species	Total Caught (#)	Kept (%)	Discarded Dead (%)	Discarded Alive (%)	Disposition Unknown (%)
Atlantic sharpnose shark	1,281	5.1	84.1	10.9	0.0
Blacknose shark	282	84.8	14.9	0.4	0.0
Blacktip shark	196	4.1	85.7	9.7	0.5
Tiger shark	21	81.0	0.0	14.3	4.8
Sandbar shark	18	11.1	0.0	88.9	0.0
Bonnethead shark	16	0.0	100.0	0.0	0.0
Bull shark	12	83.3	8.3	0.0	8.3
Lemon shark	8	75.0	0.0	0.0	25.0
Scalloped hammerhead shark	7	71.4	28.6	0.0	0.0
Spinner shark	4	0.0	100.0	0.0	0.0
Nurse shark	4	0.0	0.0	100.0	0.0
Sand tiger shark	3	0.0	0.0	100.0	0.0
Great hammerhead shark	2	100.0	0.0	0.0	0.0
Finetooth shark	1	0.0	0.0	100.0	0.0
Total	1,855				

Source: Enzenauer et al., 2015.

In 2014, the Shark Research Fishery commenced with 5 participants; however, a vessel withdrew from the fishery and NMFS divided its remaining quota between the four remaining participants. Due to the number of observed vessels, the observed data were combined for the Gulf of Mexico and southern Atlantic to protect confidentiality of vessels consistent with the requirements of the MSA. NMFS changed the regulations for vessels participating in the shark research fishery in 2014 by allowing fishing in the closed area and modified the regional dusky bycatch cap (Table 4.36).

Table 4.36 Summary of Shark Research Fishery Management Measures (2012-2014)

Management Measure	2012	2013	2014
Number of Vessels	5	6	5
Number of Trips per Month	1	1	1
Captain's Meeting Held	Yes	Yes	Yes
Retention Limits	None. All sharks, except for prohibited species, brought to vessel dead must be landed.	None. All sharks, except for prohibited species, brought to vessel dead must be landed.	None. All sharks, except for prohibited species, brought to vessel dead must be landed.
Gear Restrictions	Set limit: one longline set per trip Hook restriction: ≤ 150 or fewer hooks on board *Amendment 1* Set limit: two non-concurrent longline sets per trip: 1st set ≤ 75 hooks; soak time no more than 2 hours; 2nd set ≤ 150 hooks; no soak time limit Hook restriction: ≤ 250 hooks on board *Amendment 2* Set limit: two non-concurrent longline sets per trip: 1st set ≤ 150 hooks; soak time no more than 2 hours; 2nd set ≤ 300 hooks; no soak time limit Hook restriction: ≤ 500 hooks on board	Set limit: two non-concurrent longline sets per trip: 1st set ≤ 150 hooks; soak time no more than 2 hours; 2nd set ≤ 300 hooks; no soak time limit Hook restriction: ≤ 500 hooks on board	Set limit: two non-concurrent longline sets per trip: 1st set ≤ 150 hooks; soak time no more than 2 hours; 2nd set ≤ 300 hooks; no soak time limit Hook restriction: ≤ 500 hooks on board
Individual Vessel Quota	Sandbar quota and LCS research quota split equally among selected vessels Sandbar: 14.06 mt dw Non-sandbar LCS: 6.0 mt dw	Sandbar quota and LCS research quota split equally among selected vessels Sandbar: 15.5 mt dw Non-sandbar LCS: 6.7 mt dw	Sandbar quota and LCS research quota split equally among selected vessels Sandbar: 18.6 mt dw Non-sandbar LCS: 8.0 mt dw
Mid-Atlantic Closed Area	Vessels could fish in the closed area	Vessels could not fish in the closed area	Vessels could fish in the closed area only when the observer program intends to place a satellite archival tag(s) on a dusky shark(s)
Dusky Bycatch Cap	None	No more than five dusky shark interactions were allowed in any of the designated regions (North Carolina, Georgia/ South Carolina, east coast of Florida, the Florida Keys, west coast of Florida, and rest of the Gulf of Mexico) through the entire year	Once three dead dusky shark are observed, a three hour soak time restriction is implemented and no more than three dusky shark interactions were allowed in any of the designated regions (North Atlantic, North Carolina, South Atlantic, the Florida Keys, west coast of Florida, and the west coast of Florida) through the entire year (Figure 4.9)

Figure 4.9 Designed Regional Dusky Bycatch Cap Regions for the Shark Research Fishery

The Shark Research Fishery targeted sandbar sharks in the Gulf of Mexico and southern Atlantic. A total of 80 trips with 104 hauls were observed. These trips caught mostly sandbar sharks with blacktip, Atlantic sharpnose, and tiger sharks being the next most caught species (Table 4.37). All of the dusky sharks were observed on trips targeting sandbar sharks.

Table 4.37 Shark Species Caught on Observed Bottom Longline Trips in the Sandbar Shark Research Fishery in the Gulf of Mexico and Southern Atlantic (2014)

Species	Total Caught (#)	Kept (%)	Discarded Dead (%)	Discarded Alive (%)	Disposition Unknown (%)
Sandbar shark	2,842	98.9	0.0	0.1	1.0
Blacktip shark	741	98.9	0.4	0.1	0.5
Atlantic sharpnose shark	533	17.8	65.7	15.9	0.6
Tiger shark	396	42.7	0.8	55.3	1.3
Dusky shark	250	0.0	13.2	86.8	0.0
Scalloped hammerhead shark	155	90.9	2.6	6.5	0.0
Nurse shark	137	0.0	0.0	100.0	0.0
Blacknose shark	125	27.2	24.8	48.0	0.0
Bull shark	108	84.3	0.0	0.0	15.7
Great hammerhead shark	74	93.2	1.4	5.4	0.0
Sand tiger shark	48	0.0	0.0	100.0	0.0
Lemon shark	39	92.3	0.0	0.0	7.7
Spinner shark	30	96.7	3.3	0.0	0.0
Silky shark	15	73.3	6.7	13.3	6.7
Caribbean reef shark	2	0.0	50.0	50.0	0.0
Great white shark	1	0.0	0.0	0.0	100.0
Sharks	1	0.0	100.0	0.0	0.0
Total	5,497				

Source: Gulak et al., 2015.

4.5.3 Bottom Longline Bycatch

For more detailed information on the fishery classification and requirements under the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1361 et seq.) and the Endangered Species Act (ESA), please see the Final Environmental Assessment prepared for Amendment 6 to the 2006 Consolidated HMS FMP. On July 3, 2014, NMFS issued the final determination to list the Central and Southwest Atlantic Distinct Population Segment (DPS) of scalloped hammerhead shark as a threatened species pursuant to the Endangered Species Act (ESA) (79 FR 38214). The Central and Southwest Atlantic DPS of scalloped hammerhead sharks occur within the management area of Atlantic HMS commercial and recreational fisheries which are managed by NMFS's Office of Sustainable Fisheries, HMS Management Division. On August 27, 2014, NMFS published a final rule to list 7 coral species as threatened: five in the Caribbean including Florida and the Gulf of Mexico (*Dendrogyra cylindrus, Orbicella annularis, O. faveolata, O. franksi*, and *Mycetophyllia ferox*). Two Caribbean species currently listed as threatened (*Acropora cervicornis* and *A. palmata*) still warranted listing as threatened.

Table 4.38 provides information on observed interactions with protected resources for BLL vessels targeting sharks in the Gulf of Mexico and Atlantic regions. In 2014, five smalltooth sawfish and seven loggerhead sea turtles were observed on sets targeting sandbar sharks. No sea bird or marine mammal interactions were observed. No interactions with protected resources (sea bird, sea turtle, sawfish, or marine mammal) were observed for non-research BLL vessels fishing in the Gulf of Mexico and South Atlantic regions targeting LCS (Enzenauer et al., 2015). Per the ITS in the 2012 biological opinion, the incidental take of listed sea turtles, smalltooth sawfish, or Atlantic sturgeon has not been exceeded over any 3-yr period.

Table 4.38 Protected Species Interactions Observed Bottom Longline Trips Targeting Sharks in the Gulf of Mexico and Atlantic Ocean (2007-2014)

Year	Sea Turtles	Sea Birds	Marine Mammals	Smalltooth Sawfish	Total
2007	4 (2A, 2D)	-	-	3 (2A, 1D)	7
2008	1 (A)	-	-	2 (A)	3
2009	2 (D)	-	-	5 (A)	7
2010	4 (2A, 2D)	-	-	10 (A)	14
2011	4 (1A, 3D)	-	-	2 (A)	6
2012	2 (A)	-	-	1 (D)	3
2013	-	-	-	2 (A)	2
2014	7 (5A, 2D)	-	-	5 (A)	9
Total	24	0	0	30	51

Letters in parentheses indicate whether the animal was released alive (A), dead (D), or unknown (U).

4.6 Gillnet Fishery

Gillnet gear is the primary gear for vessels directing on small coastal sharks, although vessels directing on other species can also catch shark species. 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. The data presented in this chapter focus on the gillnet fisheries that occur in the southeast and Gulf of Mexico regions and target small coastal sharks or finfish.

The overall gillnet effort targeting sharks by region is available from 2008 through 2014 (Table 4.39). The majority of the vessels and trips targeting sharks occur in the south Atlantic region. Most of the data from the Gulf of Mexico region would be considered confidential since fewer than three vessels used gillnet gear targeting sharks in the region.

Table 4.39 Gillnet Gear Effort in the U.S. South Atlantic and Gulf of Mexico Regions Targeting Sharks (2008-2014)

Specifications	Region	2008	2009	2010	2011	2012	2013	2014
Number of Vessels	Gulf of Mexico	C	C	C	3	3	C	C
	Atlantic	38	37	37	35	33	22	23
Number of Trips	Gulf of Mexico	C	C	C	43	46	C	C
	Atlantic	342	357	241	291	366	305	348
Average Sets per Trip	Gulf of Mexico	C	C	C	2.9	2.0	C	C
	Atlantic	1.9	1.9	1.6	1.6	1.5	1.1	1.0
Total Soak Time (Hours)	Gulf of Mexico	C	C	C	743.0	945.0	C	C
	Atlantic	1,264.4	1,093.9	827.5	763.5	1,074.5	849.0	1,148.5
Average Gillnet Length (Yards)	Gulf of Mexico	C	C	C	1,830.2	1,443.5	C	C
	Atlantic	782.7	879.9	871.1	757.7	844.4	761.0	771.6
Average Mesh Size (Inches, Stretched Mesh)	Gulf of Mexico	C	C	C	7.3	7.9	C	C
	Atlantic	5.6	5.3	5.8	4.7	4.8	5.0	5.2

Note: Due to confidentiality requirements under the MSA (C), some of the data are not presented. Source: Fisheries Logbook System.

In addition to these southeast gillnet fisheries, in the northeast and mid-Atlantic regions, gillnet gear is the predominant gear type used in the smoothhound shark fishery. Federal management of smoothhound sharks was implemented through Amendment 9 to the 2006 Consolidated HMS FMP (November 24, 2015; 80 FR 46217). Amendment 9 included a variety of smoothhound shark-specific measures, such as permit and observer requirements, but also included measures that affect the larger shark gillnet fishery. Specifically, Amendment 9 requires Atlantic shark and smoothhound shark permit holders using gillnet gear to limit soak times to 24 hours when using sink gillnet gear and conduct a net check at least every 2 hours when using drift gillnet gear. Additionally, fishermen with a federal directed Atlantic shark limited access permit and gillnet gear on board are required to use a vessel monitoring system only in the vicinity of the Southeast U.S. Monitoring Area. The measures in Amendment 9 will become effective on March 15, 2016. Thus, the data presented in this chapter do not include smoothhound gillnet fisheries in the northeast or mid-Atlantic regions.

4.6.1 Current Management

Many of the commercial regulations for the Atlantic shark fishery are the same for both the bottom longline and gillnet fishery, including, but not limited to: seasons, quotas, species complexes, permit requirements, authorized/prohibited species, and retention limits. Examples of regulations that are specific to shark gillnet fishing include requiring that gillnets remain attached to the vessel and requiring vessel operators to conduct net checks every two hours when gear is deployed (CFR Title 50 Part 635.21(g)(2)).

4.6.2 Recent Catch, Landings, and Discards of the Southeast Gillnet Fisheries

In 2014, a total of 237 sets comprised of various southeast gillnet fisheries were observed by the Southeast Gillnet Observer Program. A total of 3 strike gillnet fishery vessels were observed making 11 strike sets on 7 trips in 2014. A total of 16 sink gillnet fishery vessels were observed making 220 sink net sets on 48 trips in 2014. A total of 19 trips making 57 sink net sets on 7 vessels were observed in 2014. Table 4.40 through Table 4.42 of this section outline shark species composition, disposition, and summary information for sharks caught during observed sink and strike gillnet trips with observers onboard in 2014 (Mathers et al., 2014).

Table 4.40 Shark Species Caught on Observed Southeast Sink Gillnet Trips Targeting Spanish Mackerel (2014)

Species	Total Caught (#)	Kept (%)	Discarded Alive (%)	Discarded Dead (%)
Atlantic sharpnose shark	209	2.9	66.2	30.9
Bonnethead shark	60	0.0	61.5	38.5
Blacktip shark	30	20.0	40.0	40.0
Blacknose shark	19	0.0	88.9	11.1
Sand tiger shark	5	0.0	100.0	0.0
Smooth dogfish	3	0.0	33.3	66.7
Scalloped hammerhead shark	2	0.0	100.0	0.0
Sandbar shark	1	0.0	100.0	0.0
Requiem shark family	1	0.0	100.0	0.0
Total	330			

Source: Mathers et al., 2014.

Table 4.41 Shark Species Caught on Observed Southeast Sink Gillnet Trips Targeting Mixed Teleosts and Sharks (2014)

Species	Total Caught (#)	Kept (%)	Discarded Alive (%)	Discarded Dead (%)
Atlantic sharpnose shark	217	73.7	26.3	0.0
Spinner shark	155	36.8	63.2	0.0
Smooth dogfish	114	60.0	40.0	0.0
Blacknose shark	49	100.0	0.0	0.0
Bonnethead shark	46	66.7	0.0	33.3
Scalloped hammerhead shark	38	75.0	25.0	28.6
Blacktip shark	20	50.0	50.0	0.0
Finetooth shark	2	100.0	0.0	0.0
Smooth dogfish	2	0.0	100.0	0.0
Sand tiger shark	1	0.0	100.0	0.0
Total	644			

Source: Mathers et al., 2014.

Table 4.42 Shark Species Caught on Observed Southeast Sink and Strike Gillnet Trips by Target Species (2014)

Shark Species Caught	Trip Type: Target Species			Total
	King Mackerel	Spanish Mackerel	Mixed Teleosts and Sharks	
Blacktip shark	4	30	20	54
Requiem shark family	1	1	-	2
Atlantic sharpnose shark	-	209	217	426
Bonnethead shark	-	60	46	106
Blacknose shark	-	19	49	68
Sand tiger shark	-	5	1	6
Spinner shark	-	3	-	3
Smooth dogfish	-	3	2	5
Scalloped hammerhead shark	-	2	38	40
Sandbar shark	-	1	-	1
Spiny dogfish	-	-	1,998	1,998
Finetooth shark	-	-	2	2
Common thresher shark	-	-	1	1
Total	5	333	2,374	2,712

Source: Mathers et al., 2014.

4.6.3 Gillnet Bycatch

This section describes the non-shark bycatch observed in the southeast sink gillnet fishery during trips targeting mixed sharks (Mathers et al., 2014).

There was a wider range of fish species caught in the sink gillnet fisheries due to the number of sets observed, gear deployment methods, and targeted species. Predominant species caught in sink gillnets included Atlantic croaker, Spanish mackerel, southern kingfish, and spot. All of the observed interactions with protected species between 2000 and 2014 in the observed gillnet fisheries are on Table 4.43.

Sea Turtles and Sea Birds

There were no sea turtles or sea birds observed caught in sink gillnet gear in 2014 (Mathers et al., 2014).

Marine Mammals

The MMPA Category II classification refers to occasional serious injuries and mortalities. In 2014, one bottlenose dolphin, *Tursiops truncates,* was caught and released dead (Mathers et al., 2014).

Smalltooth Sawfish and Atlantic Sturgeon

In 2014, there were no observed interactions with smalltooth sawfish or Atlantic sturgeon in gillnet gear. For sawfish, the last observed interaction occurred in 2003 and the sawfish was released with no visible injuries. There have been no interactions observed to date for Atlantic sturgeon. Given the high rate of observer coverage in these gillnet fisheries consistent with

Atlantic Large Whale Take Reduction Plan, NMFS believes that smalltooth sawfish and Atlantic sturgeon interactions in this fishery are rare.

Table 4.43 Protected Species Interactions in the Shark Gillnet Fishery Targeting Mixed Sharks Other than Smoothhounds (2007-2014)

Year	Sea Turtles	Sea Birds	Marine Mammals	Smalltooth Sawfish	Atlantic Sturgeon	Total
2007	4 (3A, 1D)	-	-	-	-	4
2008	-	-	-	-	-	0
2009	2 (A)	1 (A)	1 (D)	-	-	4
2010	-	1 (D)	-	-	-	1
2011	1 (A)	-	-	-	-	1
2012	2 (A)	-	-	-	-	2
2013	-	-	-	-	-	0
2014	-	-	1 (D)	-	-	1
Total	9	2	1	0	0	13

Letters in parentheses indicate whether the animal was released alive (A), dead (D), or unknown (U).

4.7 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.

4.7.1 Recent Catch, Landings, and Discards

Buoy gear effort and catch data are available for 2009 through 2014 (Table 4.44, Table 4.45, and Table 4.46). Buoy gear effort and catch data prior to 2008 may be found in earlier SAFE Reports. Prior to 2007, buoy gear catch data were included in handline catch data.

Table 4.44 Reported Buoy Gear Effort (2009-2014)

Specifications	2009	2010	2011	2012	2013	2014
Number of vessels	53	57	50	55	46	39
Number of trips	708	632	603	688	629	467
Average buoy gears deployed per trip	11.9	11.9	12.2	14.1	17.95	20.9
Total number of set hooks	11,595	8,855	8,858	11,639	12,557	10,740
Average number hooks per gear	1.4	1.2	1.2	1.2	1.1	1.1

Source: Fisheries Logbook System.

Table 4.45 Reported Buoy Gear Landings (lb dw, 2009-2014)

Species	2009	2010	2011	2012	2013	2014
Swordfish	154,674	153,520	138,041	178,088	140,038	114,153
Dolphin	1,427	419	1,269	1,324	486	996
Oilfish	245	270	338	719	693	362
Shortfin mako shark	932	466	812	2,295	1,194	1,117
Wahoo	623	75	198	163	70	35
Bigeye tuna	0	0	350	0	0	0
Blacktip shark	0	0	0	38	0	13
King mackerel	67	576	142	56	134	143
Yellowfin tuna	350	0	400	0	0	0
Hammerhead shark	350	1,190	575	400	0	0
Silky shark	20	48	0	120	0	0
Greater amberjack	10	201	0	0	0	0
Bonito	86	120	0	54	0	0
Blackfin tuna	0	115	70	97	32	84

Source: Fisheries Logbook System.

Table 4.46 Reported Buoy Gear Catches and Discards, in Numbers of Fish per Species (2009-2014)

Species	2009	2010	2011	2012	2013	2014
Swordfish	2,085	1,950	1,893	2,699	2,155	1,856
Dolphinfish	113	29	121	196	51	182
Oilfish	5	10	76	13	18	8
Bigeye tuna	0	0	4	0	0	0
Blackfin tuna	2	7	3	10	3	10
Wahoo	44	2	40	12	2	1
Bonito	11	6	0	1	0	0
King mackerel	4	7	130	2	14	5
Shortfin mako	8	4	7	14	13	9
Hammerhead shark	1	6	3	3	0	0
Blacktip shark	0	0	0	1	0	1
Silky shark	1	1	0	4	0	0
Yellowfin tuna	9	0	8	0	0	0
Greater amberjack	1	7	0	0	0	0
Thresher shark	0	0	0	1	0	0
Released Alive						
Swordfish	763	1,031	1,659	1,221	478	447
Dolphinfish	0	0	11	14	4	15
Blue marlin	1	1	2	2	1	0
White marlin	0	0	0	0	0	0
Sailfish	0	1	1	0	0	0
Hammerhead shark	35	52	81	93	68	32
Blue shark	1	0	30	5	0	0
Thresher shark	1	2	7	6	1	0
Dusky shark	0	12	2	9	97	1
Night shark	34	39	87	238	129	79
Oceanic whitetip shark	0	0	0	0	1	3
Bigeye thresher shark	0	0	2	2	1	0
Tiger shark	1	1	2	2	3	3
Sandbar shark	1	2	0	0	0	0
Longfin mako shark	2	7	5	6	4	2
Shortfin mako shark	2	6	4	5	6	6
Blacktip shark	8	4	19	39	11	4
Silky shark	13	12	14	12	33	8
Oilfish	1	0	1	0	0	0
Greater amberjack	1	0	0	0	0	0
Blackfin Tuna	0	0	3	0	0	0
Skipjack Tuna	0	0	1	0	0	0
Discarded Dead						
Swordfish	51	87	155	139	75	76
Silky shark	0	0	0	0	0	0
Hammerhead shark	0	1	1	0	0	0
Blackfin tuna	1	0	1	0	0	0
Blue marlin	1	0	0	0	0	0
Night shark	0	1	0	1	2	1
Longfin mako shark	0	0	0	1	0	0
Shortfin Mako	0	0	1	0	0	0

Source: Fisheries Logbook System.

4.8 Green-Stick Gear

Green-stick gear is defined at 50 CFR § 635.2 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 category, HMS Charter/Headboat, and Atlantic tunas Longline permitted vessels.

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.

4.8.1 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, with some success, also encouraged states to utilize the green-stick gear code in their trip ticket programs. Beginning in 2013, the HMS e-Dealer electronic reporting system was required to be used by Atlantic HMS dealers and Table 4.47 presents greenstick landings data from this system.

Table 4.47 Select Landings with Greenstick Gear (lb ww, 2013-2014)

Species	Region	2013	2014
Yellowfin tuna	Atlantic	43,175	57,064
	Gulf of Mexico	19,212	1,082

Additional landings of other species have occurred, but cannot be displayed due to confidentiality requirements.
Source: Atlantic HMS Electronic Dealer Reporting System

NMFS and the Louisiana Department of Wildlife and Fisheries continue to investigate the catch and bycatch of green-stick gear with a study in the northern Gulf of Mexico that is funded by the NOAA Bycatch Reduction Engineering Program. Sampling began in summer 2012 and is scheduled to continue through 2015 with a final report expected by the end of 2015.

4.9 Safety Issues

Commercial fishing is one of the most dangerous occupations in the United States (Lambert et al. 2015). The Bureau of Labor Statistics notes that the fishing industry has one of the highest mortality rates (104.4)[1] and indices of relative risk (21.3)[2] of the country professions (http://www.bls.gov/iif/oshwc/cfar0020.pdf). Preliminary Bureau of Labor Statistics data suggest that there were 24 fatalities in the fishing industry in 2014 (inclusive of finfish and shellfish fishing) (http://www.bls.gov/iif/oshcfoi1.htm#2014).

The following section highlights safety issues in fisheries. The USCG maintains websites for each of its regions (http://www.uscg.mil/top/units/), many of which provide regulatory and safety information, and region-specific statistics. Specific statistical data on vessel safety may also be obtained from the following U.S. Coast Guard (USCG) websites/documents: (1) "Analysis of Fishing Vessel Casualties – A Review of Lost Fishing Vessels and Crew Fatalities 1992-2010" (http://www.fishsafe.info/FVStudy_92_10.pdf) and (2) USCG Safety Program (http://www.uscgboating.org/default.aspx). A summary of previous findings can be found in the 2011 HMS SAFE Report.

Effective July 1, 2013, all newly constructed commercial fishing vessels must meet the following standards, as required by the Coast Guard Authorization Act of 2010 and the subsequent Coast Guard and Marine Transportation Act of 2012.

- **Vessels less than 50 feet** must be constructed in a manner that provides a level of safety equivalent to the minimum standards for recreational vessels;
- **Vessels that are 50 feet or longer** must meet a class society's construction standards, be issued class documents and remain in class if the vessel operates beyond 3 nm from the territorial sea baseline, or has more than 16 individuals on board;
- **Vessels that are 79 feet or longer** must be assigned a load line if operated outside the Boundary line.

Beginning October 15, 2015, the USCG requires that all commercial fishing vessels that operate or transit more than 3 nautical miles off shore must be fully compliant with existing fishing vessel safety regulations (46 CFR Subchapter E, "Load Lines" Parts 41 - 47). To meet this requirement, all commercial fishing vessels will be required to complete biennial dockside safety examinations. More information on the new requirement can be found at the USCG Commercial Fishing Safety website: http://www.uscg.mil/d13/cfvs/.

The National Institute for Occupational Safety and Health (NIOSH) Western States Division office in Alaska has completed studies of fishing safety to reduce the incidence of injury and fatality among U.S. fishermen. The NIOSH website presents research, evaluations and recommendations regarding the greatest dangers to fishermen: vessel disasters, falls overboard, and deck machinery (http://www.cdc.gov/niosh/topics/fishing/).

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[1] Fatality rate = ((Fatal work injuries/employment) x 100,000 workers) Employment based on 1995 CPS.
[2] Index of Relative Risk = Fatality Rate for a given group / Fatality rate for all workers

National Standard 10 of the Magnuson Stevens Act (MSA) mandates that measures enacted under the MSA promote the safety of human life at sea. In August 2015, NMFS finalized a Technical Memorandum titled "Guidance on Fishing Vessel Risk Assessments and Accounting for Safety at Sea in Fishery Management Design" which provides two tools, a safety checklist, and a risk assessment, which can be used by fishery managers to evaluate safety within fisheries, determine whether proposed management measures create a safety concern, and develop solutions for reducing risk and improving safety. NMFS will include these factors in future actions to ensure safety at sea is appropriately considered.

The safety checklist includes a set of 13 questions that can be used by fishery managers to assess risk. Will the proposed management measure:

1. Cause vessels to operate substantially further offshore?
2. Increase the distance between where vessels operate and search and rescue assets?
3. Shift fishing operations to occur when weather and ocean conditions are typically more hazardous?
4. Restrict transit through closed areas?
5. Create incentives for vessel operators or crew to work for prolonged periods of time?
6. Encourage unsafe stability practices such as deck loading of fish, extensive deck sorting of catch, or carrying excessive amounts of gear?
7. Increase the intensity of the fishing season (i.e., a derby)?
8. Prevent the adjustments of fishing seasons in the event of poor weather conditions?
9. Place restrictions on vessel size, vessel upgrades, or vessel replacement?
10. Require the delivery of fish products to ports or other strict measures without exceptions for safety concerns?
11. Deploy and observer where the facilities of the vessel for quartering the observer or carrying out observer functions would be inadequate or unsafe?
12. Cause the addition of an observer to a vessel which would impact the safe operation of the vessel?
13. Create other safety concerns?

The risk assessment includes the following steps:

1. Identification of the scale of the fishery to assess
2. Conduct a literature review
3. Describe the vessels and the work environment, including number of vessels, vessel size, crew size, water temperature, time and location of fishery, description of gear and known safety hazards, product storage and processing, loading, navigational challenges, and other operational characteristics of the fishery
4. Analyze marine and personnel casualties
5. Calculate casualty rates
6. Describe safety regulations
7. Summarize results

4.10 Fishery Data: Landings by Species

The following tables (Table 4.48 - Table 4.53) of Atlantic HMS landings are taken from the 2015 National Report of the United States to ICCAT (NMFS, 2015). 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 (Table 4.54- Table 4.58) were updated based on 2014 landings from eDealer.

Table 4.48 U.S. Landings (mt) of Atlantic Bluefin Tuna, by Area and Gear (2007-2014)

Area	Gear	2007	2008	2009	2010	2011	2012	2013	2014
NW Atlantic	Longline**	70.7	107.4	166.7	164.7	216.3	189.4	153.0	171.7
	Handline	0.0	0.6	0.1	2.7	0.9	1.3	0.5	0.0
	Purse seine	27.9	0.0	11.4	0.0	0.0	1.7	42.5	41.8
	Harpoon	22.5	30.2	65.6	29.0	70.1	52.3	45.0	67.5
	Rod and reel (>145 cm LJFL)*	235.4	305.7	717.1	570.8	-	-	-	-
	Rod and reel (<145 cm LJFL)*	398.6	352.2	143.3	111.4	-	-	-	-
	Unclassified	0.0	0.3	0.0	0.0	0.0	0.0	-	-
	Commercial rod and reel	-	-	-	-	419.5	419.5	249.5	378.9
	Recreational rod and reel	-	-	-	-	148.6	148.7	131.4	99.6
	Trawl	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
Gulf of Mexico	Longline	81.2	111.7	111.6	56.2	13.2	101.2	33.5	41.3
	Rod and reel*	0.0	0.0	0.0	0.0	-	-	-	-
NC Area 94a	Longline	12.4	13.5	56.7	17.8	11.3	3.9	3.5	8.9
Caribbean	Longline	0.0	0.0	0.0	0.0	0.6	0.9	0.4	0.0
All areas	All gears	848.7	919.9	1,272.6	952.6	904.7	919.0	658.9	810.0

* 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. ** Includes landings and estimated discards from scientific observer and logbook sampling programs. Source: NMFS, 2015.

Table 4.49 U.S. Landings (mt) of Atlantic Yellowfin Tuna, by Area and Gear (2007-2014)

Area	Gear	2007	2008	2009	2010	2011	2012	2013	2014
NW Atlantic	Longline	757.8	460.5	416.4	673.4	684.1	873.7	539.9	671.0
	Rod and reel*	2,726.0	657.1	742.6	1,209.0	1,133.8	1,433.0	495.4	999.8
	Troll	6.9	2.4	5.4	1.2	0.5	0.3	30.1	28.7
	Gillnet	4.2	0.6	0.0	0.5	0.06	1.5	0.8	1.3
	Trawl	2.4	0.0	0.0	1.4	1.3	0.2	0.0	0.3
	Handline	113.2	30.1	58.7	43.5	34	66.0	66.4	82.1
	Trap	0.0	0.05	0.1	0.5	0.0	0.0	0.0	0.0
	Unclassified	7.0	1.4	2.2	9.5	4.2	4.5	2.1	7.7
Gulf of Mexico	Longline	1,379.5	756.5	1,147.0	303.2	642.1	1,251.0	834.9	704.5
	Rod and reel*	227.6	366.3	264.7	18.0	362.8	294.1	191.8	73.2
	Handline	26.2	11.2	21.6	2.9	8.7	175	0.0	0.0
	Gillnet	0.0	0.0	0.0	0.0	-	-	-	-
	Unclassified	0.0	0.0	0.0	0.0	0.1	8.7	0.0	0.0
Caribbean	Longline	255.6	107.1	136.7	212.2	132.1	141.9	169.6	80.7
	Handline	9.1	3.7	3.3	1.9	1.5	3.2	0.6	0.6
	Gillnet	0.0	0.04	0.04	0.0	0.0	0.0	0.0	0.0
	Trap	0.0	0.0	0.0	0.0	-	-	-	-
	Rod and reel*	12.4	9.7	3.5	4.5	0.9	0.0	0.0	16.2
NC Area 94a	Longline	1.8	0.4	0.0	0.0	0.0	3	0.0	0.0
SW Atlantic	Longline	0.0	0.0	0.0	28.7	-	-	-	-
All areas	All gears	5,529.5	2,407.2	2,802.3	2,481.7	3,010.4	4,099.5	2,331.6	2,666.2

* 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. Source: NMFS, 2015.

Table 4.50 U.S. Landings (mt) of Atlantic Skipjack Tuna, by Area and Gear (2007-2014)

Area	Gear	2007	2008	2009	2010	2011	2012	2013	2014
NW Atlantic	Longline	0.0	0.1	0.4	1.4	0.4	0.3	0.5	0.3
	Rod and reel*	27.4	21.0	75.7	29.1	50.3	98.0	37.7	46.0
	Gillnet	0.05	0.04	3.3	0.2	0.04	1.6	0.27	6.7
	Trawl	0.005	0.003	0.0	0.0	0.0	0.006	0.0	0.0
	Handline	0.3	0.4	2.8	1.2	1.5	2.0	0.8	1.3
	Trap	0.0	0.0	0.0	0.0	-	-	-	-
	Pound net	0.0	0.0	0.0	0.0	-	-	-	-
	Unclassified	0.6	0.5	1.2	0.1	0.8	0.6	0.7	2.7
Gulf of Mexico	Longline	0.0	0.05	0.05	0.0	0.2	0.0	0.0	0.01
	Rod and reel*	23.9	16.3	22.0	15.5	23.7	0.06	77.1	9.8
	Handline	0.2	0.06	0.2	0.02	0.2	2.5	0.02	0.01
Caribbean	Longline	0.02	1.3	0.05	0.0	0.0	0.1	0.0	0
	Gillnet	0.0	0.01	0.6	0.0	0.0	-	0.0	0
	Rod and reel*	0.2	11.3	4.3	0.4	3.0	3.0	0.0	9.4
	Handline	13.7	16.0	8.8	6.2	4.5	4.0	0.0	0.7
	Trap	0.0	0.0	0.0	0.0	-	1	-	-
All areas	All gears	66.5	67.1	119.4	54.2	86.7	112.2	117.4	77.0

* Rod and reel catches and landings represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector. Source: NMFS, 2015.

Table 4.51 U.S. Landings (mt) of Atlantic Bigeye Tuna, by Area and Gear (2007-2014)

Area	Gear	2007	2008	2009	2010	2011	2012	2013	2014
NW Atlantic	Longline	331.9	380.2	384.7	431.1	397.2	564.9	490.9	574.5
	Gillnet	1.0	0.04	0.0	0.0	0.0	0.2	0.06	0.08
	Trap	-	-	0.3	1.2	0.0	0.0	0.0	0.0
	Rod and reel*	126.8	70.9	77.6	116.8	72.4	269.6	337.5	251.9
	Troll	0.9	0.8	0.6	0.0	0.9	0.2	5.0	4.5
	Handline	16.8	6.9	4.6	1.8	3.4	7.9	15.9	16.4
	Trawl	0.4	0.0	0.0	0.7	1.2	0.2	0.0	0.0
	Unclassified	0.9	2.1	1.9	6.7	4.7	7.3	6.2	3.5
Gulf of Mexico	Longline	37.0	14.0	19.5	6.9	2.2	13.5	9.2	6.8
	Rod and reel*	0.0	0.0	0.0	0.8	34.9	0.1	7.0	0.06
	Handline	0.01	0.0	0.07	0.09	0.0	0.0	0.0	0.0
	Unclassified	-	-	0.0	0.0	0.0	0.4	0.0	0.0
Caribbean	Longline	3.4	8.9	22.2	5.0	0.0	0.002	8.6	5.4
	Rod and reel*	0.0	0.0	0.0	0.0	2.3	0.0	0.0	2.9
	Handline	0.0	0.0	0.0	0.0	0.05	0.0	0.0	0.0
NC Area 94a	Longline	8.4	4.6	3.7	3.7	-	-	-	-
SW Atlantic	Longline	0.0	0.0	0.0	0.2	200.8	3.1	0.2	0.05
All areas	All gears	527.3	488.5	515.2	571.3	718.7	867.4	880.6	866.1

* Rod and reel catches and landings represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector. Source: NMFS, 2015.

Table 4.52 U.S. Landings (mt) of Atlantic Albacore Tuna, by Area and Gear (2007-2014)

Area	Gear	2007	2008	2009	2010	2011	2012	2013	2014
NW Atlantic	Longline	109.9	115.9	141.3	87.8	138.2	157.7	139.9	187.0
	Gillnet	1.0	2.1	5.6	0.5	0.2	5.7	0.02	3.7
	Handline	5.4	0.2	0.5	1.9	1.7	0.6	2.3	2.3
	Trawl	0.3	0.01	0.08	0.2	2.0	0.3	0.0	0.0
	Trap	0.4	0.005	0.01	0.01	0.0	0.0	0.0	0.0
	Troll	0.2	0.2	0.07	0.04	0.0	0.0	0.2	0.2
	Rod and reel*	393.6	125.2	22.8	46.2	170.6	144.3	340.3	136.7
	Unclassified	4.2	1.9	1.3	2.2	7.8	4.4	0.6	6.8
Gulf of Mexico	Longline	15.4	10.2	16.7	7.1	101.8	103.5	115.4	122.6
	Rod and reel*	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0
	Handline	0.0	0.0	0.01	0.01	0.1	0.5	0.02	0.07
Caribbean	Longline	1.2	0.4	0.3	0.7	**	**	**	**
	Gillnet	0.0	0.0	0.0	0.0	-	-	-	-
	Rod and reel*	0.0	0.0	0.0	103.6	**	**	**	**
	Trap	0.0	0.0	0.0	0.0	-	-	-	-
	Handline	0.2	0.4	0.003	0.05	**	**	**	**
NC Area 94a	Longline	0.3	0.8	0.3	0.6	-	-	-	-
SW Atlantic	Longline	0.0	0.0	0.0	0.0	-	-	-	-
All areas	All gears	532.1	256.7	188.8	314.5	422.4	417.7	598.7	459.4

* Rod and reel catches and landings represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector. ** Caribbean landings included in Gulf of Mexico total. Source: NMFS, 2015.

Table 4.53 U.S. Catches and Landings (mt ww) of Atlantic Swordfish, by Area and Gear (2009-2014)

Area	Gear	2009	2010	2011	2012	2013	2014
NW Atlantic	Longline*	1,696.0	1,647.7	1,741.8	1,987.0	1,720.5	1,200.4
	Gillnet	0.05	0.0	0.0	0.0	0.0	0.0
	Handline	123.0	126.9	120.4	151.3	104.8	86.9
	Trawl	23.7	21.2	17.9	26.8	2.9	5.3
	Harpoon	0.05	0.6	0.6	0.3	0.5	0
	Rod and reel**	19.0	47.6	48.7	64.3	21.7	35.1
	Trap	0.0	1.8	-	-	-	
	Unclassified	0.0	2.1	0.0	0.5	1.6	0.4
	Unclassified discards	3.0	3.6	5.8	3.6	0.0	0.0
Gulf of Mexico	Longline*	476.1	212.3	363.6	673.3	531.6	307.4
	Handline	1.9	2.6	0.5	3.3	0.5	0.3
	Rod and reel**	12.6	1.7	4.9	6.3	0.3	1.5
	Unclassified	2.9	-	-	-	-	
	Unclassified discards	3.5	1.3	2.5	6.8	0.0	0.0
Caribbean	Longline	22.6	41.4	14.2	3.7	20.8	16.5
	Trap*	-	-	-	-	-	
	Rod and reel**	0.0	0.0	0.0	0.2	0.0	0.07
	Handline	0.003	0.0	0.0	0.0	0.0	0.3
	Unclassified discards	0.2	0.04	0.9	0.0	0.0	0.0
NC Atlantic	Longline*	496.4	304.8	451.3	682.6	539.1	308.0
SW Atlantic	Longline*	0.0	0.3	0.0	0.0	0.06	0.0
All areas	All gears	2,878.0	2,412.1	2,773.7	3,609.6	2,944.4	1,962.2

* Includes landings and estimated dead discards from scientific observer and logbook sampling programs. ** Rod and reel catches and landings represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector. Source: NMFS, 2015.

Table 4.54 Commercial Landings of Large Coastal Sharks in the Atlantic Region (lb dw, 2009-2014)

Large Coastal Sharks	2009	2010	2011	2012	2013	2014
Aggregated Large Coastal Sharks						
Blacktip	229,267	246,617	176,136	215,403	256,277	282,009
Bull	61,396	56,901	49,927	24,504	33,980	32,372
Lemon	30,909	25,316	45,448	21,563	16,791	13,047
Nurse	0	71	0	81	0	0
Sandbar	54,141	84,339	94,295	46,446	46,868	82,308
Silky	1,386	1,049	992	29	186	289
Spinner	20,022	13,544	4,113	10,643	26,892	25,716
Tiger	15,172	43,145	36,425	23,245	16,561	29,062
Total Aggregated LCS carcass weight	358,152 (162 mt dw)	386,643 (175 mt dw)	313,041 (142 mt dw)	295,468 (134 mt dw)	350,687 (159 mt dw)	464,803 (211 mt dw)
Hammerhead Sharks						
Hammerhead, great	0	0	0	371	7,406	13,538
Hammerhead, scalloped	0	0	0	15,800	27,229	24,652
Hammerhead, smooth	4,025	7,802	110	3,967	1,521	601
Hammerhead, unclassified	62,825	43,345	35,618	9,617	0	0
Total Hammerhead carcass weight	66,850 (30 mt dw)	51,147 (23 mt dw)	35,728 (16 mt dw)	29,755 (13 mt dw)	36,156 (16 mt dw)	38,791 (18 mt dw)
Shark Research Fishery						
Sandbar	54,141 (25 mt dw)	84,339 (38 mt dw)	94,295 (43 mt dw)	46,446 (21 mt dw)	46,868 (21 mt dw)	82,293 (37 mt dw)
Unclassified Sharks						
Unclassified, assigned to large coastal	70,894 (32 mt dw)	2,229 (1 mt dw)	50,711 (23 mt dw)	53,705 (24 mt dw)	0 (0 mt dw)	0 (0 mt dw)
Total LCS carcass weight	550,037 (249 mt dw)	524,376 (238 mt dw)	493,809 (224 mt dw)	425,612 (193 mt dw)	433,710 (197 mt dw)	503,594 (228 mt dw)

Sources: 2009-2012 Cortés pers. comm.; 2013-2014 eDealer.

Table 4.55 Commercial Landings of Large Coastal Sharks in the Gulf of Mexico Region (lb dw, 2009-2014)

Large Coastal Sharks	2009	2010	2011	2012	2013	2014
Blacktip sharks						
Blacktip	374,573 (170 mt dw)	654,942 (297 mt dw)	384,662 (174 mt dw)	405,015 (184 mt dw)	531,440 (241 mt dw)	444,812 (202 mt dw)
Aggregated Large Costal Sharks						
Bull	150,094	165,894	178,595	255,892	279,379	259,825
Lemon	54,984	21,081	38,132	29,362	12,869	5,259
Nurse	147	0	27	11	0	0
Silky	4,087	270	643	0	1,714	7
Spinner	17,028	78,951	66,996	49,647	68,576	61,607
Tiger	7,874	8,825	21,594	26,209	14,062	16,796
Total Aggregated LCS carcass weight	234,214 (106 mt dw)	275,021 (125 mt dw)	305,987 (139 mt dw)	361,121 (164 mt dw)	376,600 (171 mt dw)	143,494 (65 mt dw)
Hammerhead Sharks						
Hammerhead, great	1,430	6,339	49	99	28,591	29,783
Hammerhead, scalloped	0	0	0	33,216	1,101	5,299
Hammerhead, smooth	0	0	0	0	0	0
Hammerhead, unclassified	95,678	51,149	68,709	8,005	0	0
Total Hammerhead carcass weight	97,108 (44 mt dw)	57,488 (26 mt dw)	68,758 (31 mt dw)	41,320 (19 mt dw)	29,692 (13 mt dw)	35,082 (16 mt dw)
Shark Research Fishery						
Sandbar	113,717 (52 mt dw)	54,914 (25 mt dw)	46,040 (21 mt dw)	23,854 (19 mt dw)	37,582 (13 mt dw)	38,036 (17 mt dw)
Unclassified Shark						
Unclassified, assigned to large coastal	163,320	0 (0 mt dw)	169,651	188,566	0 (0 mt dw)	0 (0 mt dw)
Total LCS carcass weight	982,932 (446 mt dw)	1,042,365 (473 mt dw)	975,098 (442 mt dw)	1,019,876 (463 mt dw)	975,315 (442 mt dw)	864,378 (392 mt dw)

Sources: 2009-2012 Cortés pers. comm.; 2013-2014 eDealer.

Table 4.56 Commercial Landings of Small Coastal Sharks in the Atlantic Region (lb dw, 2009-2014)

Small Coastal Sharks	2009	2010	2011	2012	2013	2014
Blacknose Sharks						
Blacknose	90,023 (41 mt dw)	30,287 (14 mt dw)	28,373 (13 mt dw)	37,873 (17 mt dw)	33,382 (15 mt dw)	38,437 (17 mt dw)
Non-Blacknose Small Coastal Sharks						
Bonnethead	53,912	9,069	28,284	19,907	22,845	13,221
Finetooth	63,359	76,438	52,318	15,922	19,452	19,026
Sharpnose, Atlantic	262,508	211,190	214,382	345,625	183,524	198,568
Total Non-Blacknose SCS carcass weight	379,779 (172 mt dw)	296,697 (135 mt dw)	294,984 (134 mt dw)	381,454 (173 mt dw)	225,821 (102 mt dw)	230,815 (105 mt dw)
Unclassified Shark						
Unclassified, assigned to small coastal	34,429 (16 mt dw)	851 (1 mt dw)	36,639 (17 mt dw)	492 (1 mt dw)	0 (0 mt dw)	0 (0 mt dw)
Total SCS carcass weight	504,231 (229 mt dw)	327,835 (149 mt dw)	359,996 (163 mt dw)	419,819 (190 mt dw)	259,203 (118 mt dw)	269,252 (122 mt dw)

Sources: 2009-2012 Cortés pers. comm.; 2013-2014 eDealer.

Table 4.57 Commercial Landings of Small Coastal Sharks in the Gulf of Mexico Region (lb dw, 2009-2014)

Small Coastal Sharks	2009	2010	2011	2012	2013	2014
Blacknose Sharks						
Blacknose	61,682 (28 mt dw)	4,204 (2 mt dw)	3,900 (2 mt dw)	14,379 (7 mt dw)	2,009 (1 mt dw)	3,160 (1 mt dw)
Non-Blacknose Small Coastal Sharks						
Bonnethead	3,444	2,672	12,986	2,601	4,436	8,391
Finetooth	95,705	45,001	159,558	130,278	60,118	64,023
Sharpnose, Atlantic	43,217	17,958	53,723	100,253	116,133	89,674
Total Non-Blacknose SCS carcass weight	142,366 (65 mt dw)	65,631 (30 mt dw)	226,267 (103 mt dw)	233,132 (106 mt dw)	180,687 (82 mt dw)	162,088 (74 mt dw)
Unclassified Shark						
Unclassified, assigned to small coastal	0 (0 mt dw)	0 (0 mt dw)	0 (0 mt dw)	0 (0 mt dw)	0 (0 mt dw)	0 (0 mt dw)
Total SCS carcass weight	204,048 (93 mt dw)	69,835 (32 mt dw)	230,167 (104 mt dw)	247,511 (112 mt dw)	182,695 (83 mt dw)	165,248 (75 mt dw)

Sources: 2009-2012 Cortés pers. comm.; 2013-2014 eDealer.

Table 4.58 Commercial Landings of Atlantic Pelagic Sharks (lb dw, 2009-2014)

Pelagic Sharks	2009	2010	2011	2012	2013	2014
Blue Sharks						
Blue	4,793 (2.2 mt dw)	9,135 (4.1 mt dw)	13,370 (6.1 mt dw)	17,200 (7.8 mt dw)	9,767 (4.4 mt dw)	17,806 (8 mt dw)
Porbeagle Sharks						
Porbeagle	3,609 (1.6 mt dw)	4,097 (1.9 mt dw)	5,933 (2.7 mt dw)	4,250 (1.9 mt dw)	54 (1 mt dw)	6,414 (3 mt dw)
Pelagic Sharks Other Than Blue or Porbeagle						
Mako, shortfin	141,456	220,400	207,630	198,841	199,177	218,295
Mako, unclassified	9,383	0	0	0	0	0
Oceanic whitetip	933	796	2,435	258	62	22
Thresher	33,333	61,290	47,462	63,965	48,768	116,012
Total Other Pelagic carcass weight	185,105 (84 mt dw)	282,486 (128 mt dw)	257,527 (117 mt dw)	263,064 (119 mt dw)	248,007 (112 mt dw)	334,329 (152 mt dw)
Unclassified Shark						
Unclassified, assigned to pelagic	6,650 (3 mt dw)	16,160 (7 mt dw)	33,884 (15 mt dw)	28,932 (13 mt dw)	0 (0 mt dw)	0 (0 mt dw)
Total Pelagic carcass weight	200,157 (91 mt dw)	311,878 (141 mt dw)	310,714 (141 mt dw)	313,446 (142 mt dw)	257,828 (117 mt dw)	358,549 (163 mt dw)

Sources: 2009-2012 Cortés pers. comm.; 2013-2014 eDealer.

Table 4.59 Commercial Landings of Shark Fins (lb dw, 2009-2014)

Fins	2009	2010	2011	2012	2013	2014
Atlantic Large Costal Shark and Small Coastal Shark Fins						
Blacktip	0	0	0	0	2,047	288
Bull	0	0	0	0	23	120
Hammerhead, great	0	0	0	0	82	518
Hammerhead, scalloped	0	0	0	0	7	0
Lemon	0	0	0	0	1,457	0
Spinner	0	0	0	0	3	0
Tiger	0	0	0	0	134	5
Unclassified LCS	33,173	20,545	21,535	15,370	0	0
Blacknose	0	0	0	0	3	4
Bonnethead	0	0	0	0	315	1
Finetooth	0	0	0	0	91	0
Sharpnose, Atlantic	0	0	0	0	202	2
Unclassified SCS	0	0	0	0	0	0
Unclassified	0	0	0	0	16,609	19,868
Total Atlantic Fin weight	33,173 (15 mt dw)	20,545 (9 mt dw)	21,535 (10 mt dw)	15,370 (7 mt dw)	20,973 (10 mt dw)	20,806 (9 mt dw)
Gulf of Mexico Large Costal Shark and Small Coastal Shark Fins						
Blacktip	0	0	0	0	20,939	16,141
Bull	0	0	0	0	12,019	10,132
Hammerhead, great	0	0	0	0	220	351
Hammerhead, scalloped	0	0	0	0	3	44
Lemon	0	0	0	0	61	23
Silky	0	0	0	0	58	0
Spinner	0	0	0	0	2,463	1,833
Tiger	0	0	0	0	76	150
Unclassified LCS	35,152	45,425	40,768	40,693	0	0
Bonnethead	0	0	0	0	14	196
Finetooth	0	0	0	0	2,866	2,092
Sharpnose, Atlantic	0	0	0	0	277	10
Unclassified SCS	0	0	0	0	0	0
Unclassified	0	0	0	0	6,103	6,209
Total Gulf of Mexico Fin weight	35,152 (16 mt dw)	45,425 (21 mt dw)	40,768 (18 mt dw)	40,693 (18 mt dw)	45,099 (20 mt dw)	37,256 (17 mt dw)
Pelagic Shark Fins						
Mako, shortfin	0	0	0	0	1,303*	451
Porbeagle	0	0	0	0	2*	0
Thresher	0	0	0	0	1,638	512
Unclassified Pelagic	0	0	0	0	0	0
Total Pelagic Fin weight	0 (0 mt dw)	0 (0 mt dw)	0 (0 mt dw)	0 (0 mt dw)	3,151 (1 mt dw)	963 (1 mt dw)
Total Fin weight	68,325 (31 mt dw)	65,970 (30 mt dw)	62,303 (28 mt dw)	56,063 (25 mt dw)	69,187 (30 mt dw)	59,025 (27 mt dw)

* NMFS determined that the porbeagle shark fins should have been reported as shortfin mako fins, which was determined after the 2014 SAFE Report was published. Sources: 2009-2012 Cortés pers. comm.; 2013-2014 eDealer.

Table 4.60 Commercial Landings of Prohibited Shark Species (lb dw, 2009-2014)

Prohibited Sharks	2009	2010	2011	2012	2013	2014
Previously Large Costal Shark and Small Coastal Sharks Landed in Atlantic						
Basking[2]	0	0	0	0	0	0
Bignose[1]	0	0	0	0	0	0
Bigeye sand tiger[2]	0	0	0	0	0	0
Caribbean reef[1]	0	0	0	0	0	0
Dusky[1]	0	0	14	172	0	0
Galapagos[1]	0	0	0	0	0	0
Narrowtooth[1]	0	0	0	0	0	0
Night[1]	0	0	0	0	0	0
Sand tiger[2]	0	18	20	66	0	0
Whale[2]	0	0	0	0	0	0
White[2]	0	0	0	0	0	0
Atlantic angel[1]	0	96	11	171	0	0
Sharpnose, Caribbean[1]	0	0	0	0	38	0
Total Atlantic carcass weight	0 (0 mt dw)	114 (1 mt dw)	45 (1 mt dw)	409 (1 mt dw)	38 (1 mt dw)	0 (0 mt dw)
Previously Large Costal Shark and Small Coastal Sharks Landed in Gulf of Mexico						
Basking[2]	0	0	0	0	0	0
Bignose[1]	0	0	0	109	0	0
Bigeye sand tiger[2]	0	0	0	0	0	0
Caribbean reef[1]	0	0	0	0	0	0
Dusky[1]	0	0	0	0	0	0
Galapagos[1]	0	0	0	0	0	0
Narrowtooth[1]	0	0	0	0	0	0
Night[1]	0	0	208	0	0	0
Sand tiger[2]	0	0	0	0	0	0
Whale[2]	0	0	0	0	0	0
White[2]	0	0	27	0	0	0
Atlantic angel[1]	0	0	0	0	0	0
Sharpnose, Caribbean[1]	0	0	0	0	0	0
Total Gulf of Mexico carcass weight	0 (0 mt dw)	0 (0 mt dw)	235 (1 mt dw)	109 (1 mt dw)	0 (0 mt dw)	0 (0 mt dw)
Previously Pelagic Sharks						
Bigeye thresher[1]	0	28	135	276	0	0
Bigeye sixgill[1]	0	0	0	0	0	0
Mako, longfin[1]	25,264	289	3,465	362	112	147
Sevengill[1]	0	0	0	0	0	0
Sixgill[1]	0	0	0	0	0	0
Total Pelagic carcass weight	25,264 (11 mt dw)	317 (<1 mt dw)	3,600 (2 mt dw)	638 (<1 mt dw)	112 (<1 mt dw)	147 (<1 mt dw)
Total Prohibited carcass weight	25,264 (11 mt dw)	431 (<1 mt dw)	3,880 (2 mt dw)	1,156 (<1 mt dw)	150 (<1 mt dw)	147 (<1 mt dw)

[1] Prohibited in the commercial fishery as of June 21, 2000. [2] Prohibited as of April 1997. Sources: 2009-2012 Cortés pers. comm.; 2013-2014 eDealer reports

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5. ECONOMIC STATUS OF HMS FISHERIES

Development of conservation and management measures for Atlantic HMS fisheries is facilitated when there is an economic baseline against which the action or fishery may be evaluated. In this analysis, NMFS used the past ten years of data to facilitate the analysis of 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 2007 to 2014 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.

Table 5.1 Inflation Price Indexes (2007-2014)

Year	CPI-U	GDP Deflator	PPI Unprocessed Finfish
2007	207.3	97.3	318.1
2008	215.3	99.2	301.6
2009	214.5	100.0	306.9
2010	218.1	101.2	381.5
2011	224.9	103.3	388.1
2012	229.6	105.2	367.4
2013	233.0	106.7	438.2
2014	236.7	108.7	525.6

Note: 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 (GDP) Implicit Price Deflator (2009=100) is produced by the U.S. Department of Commerce Bureau of Economic Analysis.

5.1 Commercial Fisheries

All of the information and data presented in this section were obtained from NMFS 2015. In 2014, 9.5 billion pounds valued at $5.4 billion were landed for all fish species by U.S. fisherman at U.S. ports. In 2013, 9.9 billion pounds valued at $5.5 billion were landed for all fish species by U.S. fisherman at U.S. ports. The overall value of landings between 2013 and 2014 decreased by 0.8 percent. The total value of commercial HMS landings in 2014 was $38.6 million (Table 5.3).

The estimated value of the 2014 domestic production of all fishery products was $10.1 billion, down $2.0 billion (16%) from 2013. The total import value of fishery products was $35.9 billion in 2014. This is an increase of $2.6 billion from 2013. The total export value of fishery products was $30.0 billion in 2014. This is an increase of $853 million from 2013.

5.1.1 Ex-Vessel Prices

The average ex-vessel prices per pound dressed weight (dw) for 2007 to 2014 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.

Average ex-vessel prices for bluefin tuna have declined 8.6 percent since 2013. 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 2014.

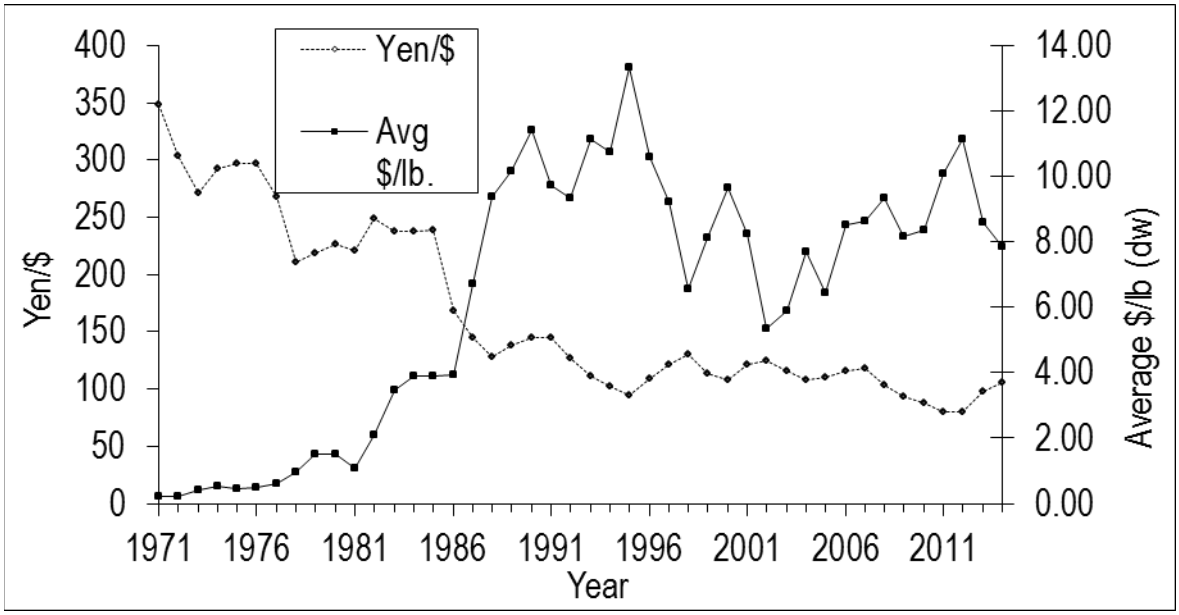

Figure 5.1 Average Annual Yen/$ Exchange Rate and Average U.S. Bluefin Tuna Ex-vessel $/lb (dw) for All Gears (1971-2014)

Source: Federal Reserve Bank (research.stlouisfed.org) and NMFS Northeast HMS Branch.

Table 5.2 Average Ex-vessel Prices per Pound for Atlantic HMS, by Area (2007-2014)

Species	Area	2007	2008	2009	2010	2011	2012	2013	2014
Bigeye tuna	Gulf of Mexico	$5.66	$6.12	$5.80	$5.79	$5.64	$6.19	$3.18	$3.54
	S. Atlantic	4.34	4.34	4.11	4.03	4.73	4.75	5.14	5.33
	Mid-Atlantic	5.48	5.70	5.42	5.86	6.38	6.90	6.35	6.72
	N. Atlantic	5.31	5.60	5.18	4.79	5.39	5.67	5.49	5.00
Bluefin tuna	Gulf of Mexico	5.63	4.51	4.65	5.42	6.38	7.16	6.72	6.49
	S. Atlantic	11.16	13.29	14.43	8.75	7.34	8.20	7.52	8.06
	Mid-Atlantic	6.95	7.94	10.10	8.94	10.64	10.95	9.02	7.66
	N. Atlantic	8.31	8.31	7.06	8.38	10.21	11.57	8.60	7.87
Yellowfin tuna	Gulf of Mexico	3.02	3.51	3.04	3.72	3.65	3.51	3.65	3.86
	S. Atlantic	2.69	2.99	2.90	3.53	3.93	4.63	3.64	3.68
	Mid-Atlantic	2.99	3.30	2.50	3.43	3.45	4.46	4.72	4.51
	N. Atlantic	3.17	3.82	2.86	2.80	3.39	4.22	3.89	3.61
Albacore tuna	Gulf of Mexico	0.53	0.49	0.55	1.40	1.09	0.68	0.77	0.77
	S. Atlantic	1.24	1.21	1.29	1.36	1.42	1.64	2.06	1.89
	Mid-Atlantic	0.86	0.97	1.10	1.30	1.19	1.25	1.41	1.26
	N. Atlantic	1.37	2.00	1.26	1.56	1.55	1.34	1.80	1.13
Skipjack tuna	Gulf of Mexico	-	-	0.50	-	0.90	0.75	-	-
	S. Atlantic	0.73	0.95	0.95	1.13	1.25	1.10	0.80	0.77
	Mid-Atlantic	2.22	4.50	-	-	0.60	1.06	0.88	1.02
	N. Atlantic	-	-	-	-	-	-	0.93	-
Swordfish	Gulf of Mexico	3.07	2.93	2.69	3.53	4.15	3.42	3.46	3.39
	S. Atlantic	4.24	4.11	4.12	4.63	4.84	4.97	4.99	4.86
	Mid-Atlantic	4.07	3.50	3.40	4.43	4.44	4.51	4.45	4.64
	N. Atlantic	4.11	4.20	3.49	4.61	4.22	4.49	4.61	4.31
Large coastal sharks	Gulf of Mexico	0.42	0.67	0.52	0.48	0.38	0.40	0.46	0.51
	S. Atlantic	0.54	0.72	0.55	0.65	0.61	0.75	0.77	0.72
	Mid-Atlantic	0.56	0.71	0.57	0.64	0.54	0.67	0.65	0.78
	N. Atlantic	-	-	-	-	-	-	-	-
Pelagic sharks	Gulf of Mexico	1.29	1.18	1.25	1.47	1.54	1.33	1.45	1.27
	S. Atlantic	1.29	1.29	1.25	1.27	1.46	1.74	1.66	1.47
	Mid-Atlantic	1.06	1.20	1.16	1.19	1.30	1.39	1.69	1.35
	N. Atlantic	0.85	0.96	1.23	1.28	1.48	1.68	2.03	1.96
Small coastal sharks	Gulf of Mexico	0.58	0.62	0.69	0.55	0.58	0.66	0.33	0.37
	S. Atlantic	0.80	0.78	0.71	0.79	0.81	0.99	0.71	0.75
	Mid-Atlantic	0.43	0.48	0.57	0.57	0.59	0.68	0.83	0.80
	N. Atlantic	-	-	-	-	-	-	-	-
Shark fins	Gulf of Mexico	13.22	14.94	15.09	16.48	15.11	14.97	11.05	9.75
	S. Atlantic	11.44	12.73	13.15	15.35	14.91	11.00	6.04	9.64
	Mid-Atlantic	6.12	3.74	3.62	6.83	3.50	2.79	1.45	1.76
	N. Atlantic	3.24	3.00	3.67	2.40	1.60	1.86	1.90	-

Sources: HMS eDealer, Dealer weighout slips from the Southeast Fisheries Science Center (SEFSC), Northeast Fisheries Science Center (NEFSC), 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 SEFSC. Mid-Atlantic includes: NC dealers reporting to NEFSC, VA, MD, DE, NJ, NY, and CT. N. Atlantic includes: RI, MA, NH, and ME. For bluefin tuna, all NC landings are included in Mid-Atlantic.

5.1.2 Revenues

Table 5.3 summarizes the average annual revenues of the Atlantic HMS fisheries based on average ex-vessel prices. Data for Atlantic HMS landings weight is as reported per eDealer in 2013 and 2014, the U.S. National Report (NMFS, 2015a), the information used in the shark stock assessments, information given to ICCAT (Cortés pers. comm., 2015), 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 decreased in 2014 to $38.6 million from $43.6 million in 2013. From 2013 to 2014, the Atlantic tuna fishery's total revenue increased by $2.2 million. A majority of that increase can be attributed to the increase in commercial landings of bluefin tuna. From 2013 to 2014, the annual revenues for the shark fisheries increased by $125 thousand. Finally, the annual revenues for swordfish declined by $7.3 million from 2013 to 2014 due to a decrease in landings.

Table 5.3 Estimates of the Total Ex-vessel Annual Revenues of Atlantic HMS Fisheries (2007-2014)

Species		2007	2008	2009	2010	2011	2012	2013	2014
Bigeye tuna	Ex-vessel $/lb dw	$5.20	$5.26	$5.09	$5.22	$5.77	$6.42	$5.72	$5.86
	Weight (lb dw)	706,361	736,520	774,087	799,934	1,122,619	1,039,585	851,669	942,659
	Fishery revenue	$3,673,077	$3,874,095	$3,940,103	$4,175,655	$6,477,512	$6,674,136	$4,673,419	$5,063,822
Bluefin tuna	Ex-vessel $/lb dw	$8.63	$9.35	$8.18	$8.35	$10.08	$11.15	$8.58	$7.84
	Weight (lb dw)	515,176	720,823	899,477	1,119,937	996,661	995,583	682,533	1,002,549
	Fishery revenue	$4,445,969	$6,739,695	$7,357,722	$9,351,474	$10,046,343	$11,100,750	$5,826,566	$7,810,287
Yellowfin tuna	Ex-vessel $/lb dw	$2.90	$3.22	$2.87	$3.52	$3.60	$4.16	$3.91	$3.95
	Weight (lb dw)	4,521,240	2,423,498	3,159,665	2,154,728	2,676,682	4,349,482	2,580,759	2,573,419
	Fishery revenue	$13,111,596	$7,803,664	$9,068,239	$7,584,643	$9,636,055	$18,093,845	$11,214,871	$10,933,557
Skipjack tuna	Ex-vessel $/lb dw	$0.75	$1.01	$0.91	$1.13	$1.17	$1.06	$0.85	$0.93
	Weight (lb dw)	26,455	32,628	30,688	16,269	12,931	17,804	3,857	16,053
	Fishery revenue	$19,793	$32,950	$28,057	$18,451	$15,164	$18,949	$3,204	$12,650
Albacore tuna	Ex-vessel $/lb dw	$0.97	$1.15	$1.11	$1.36	$1.29	$1.31	$1.70	$1.49
	Weight (lb dw)	244,272	216,759	291,187	290,827	491,133	489,800	402,400	496,030
	Fishery revenue	$237,681	$248,400	$324,439	$394,754	$632,450	$639,370	$583,230	$713,871
Total tuna	Fishery revenue	$21,488,116	$18,698,804	$20,718,559	$21,524,977	$26,807,524	$36,527,050	$22,301,290	$24,534,187
Swordfish	Ex-vessel $/lb dw	$3.99	$3.68	$3.46	$4.40	$4.50	$4.41	$4.66	$4.64
	Weight (lb dw)	3,643,926	3,414,513	3,762,280	3,676,324	4,473,140	5,561,605	4,099,851	2,532,434
	Fishery revenue	$14,544,604	$12,577,768	$13,031,079	$16,186,878	$20,130,595	$24,534,334	$19,178,743	$11,870,516
Large coastal sharks	Ex-vessel $/lb dw	$0.48	$0.70	$0.54	$0.60	$0.53	$0.59	$0.64	$0.64
	Weight (lb dw)	2,329,272	1,451,423	1,532,969	1,566,741	1,469,142	1,445,597	1,392,440	1,339,826
	Fishery revenue	$1,122,051	$1,009,138	$828,003	$938,044	$779,993	$854,916	$683,359	$743,176
Pelagic sharks	Ex-vessel $/lb dw	$1.12	$1.21	$1.18	$1.23	$1.35	$1.43	$1.67	$1.45
	Weight (lb dw)	262,179	234,546	225,575	312,195	314,314	314,084	247,833	335,368
	Fishery revenue	$294,036	$284,113	$266,548	$382,527	$425,831	$449,759	$384,419	$470,404
Small coastal sharks	Ex-vessel $/lb dw	$0.70	$0.69	$0.69	$0.69	$0.75	$0.87	$0.54	$0.55
	Weight (lb dw)	618,191	639,842	708,279	397,766	590,174	667,501	439,704	425,439
	Fishery revenue	$432,816	$440,108	$488,374	$272,590	$441,269	$578,126	$275,346	$336,700
Shark fins*	Ex-vessel $/lb dw	$11.63	$12.43	$12.45	$14.02	$11.90	$8.96	$6.08	$7.71
	Weight (lb dw)	160,482	116,291	123,341	113,835	118,682	121,359	150,853	108,789
	Fishery revenue	$1,865,900	$1,444,918	$1,535,469	$1,596,472	$1,412,129	$1,086,979	$738,189	$655,796
Total sharks	Fishery revenue	$3,714,802	$3,178,277	$3,118,394	$3,189,633	$3,059,222	$2,969,779	$2,081,313	$2,206,076
Total HMS	Fishery revenue	$39,747,522	$34,454,849	$36,868,033	$40,901,488	$49,997,341	$64,031,163	$43,561,346	$38,610,779

* Shark fin total weight for 2007 through 2012 was estimated using 5% of all sharks landed. In 2013 and 2014, it was based on reported shark fin landings reported to eDealer. Sources: HMS eDealer Program, NMFS Northeast Commercial Fisheries Database Service; Pelagic Dealer Compliance Program; and NMFS, 2013.

A variety of fishing gears are used to harvest Atlantic HMS. Figure 5.2 displays the percent composition of the $38.6 million ex-vessel annual revenues landed in 2014 by fishing gear category. Based on eDealer and Atlantic bluefin tuna bi-weekly dealer report data, approximately 70 percent of 2014 total revenues in the fishery were landed by pelagic longline gear. In addition, 16 percent of landings by value were from vessels using commercial rod and reel gear, 4 percent from bottom longline gear, 3 percent from harpoon, and 6.8 percent from other gear categories. These other gear categories include gill net, purse seine, buoy gear, green-stick, hand line, and other miscellaneous gears.

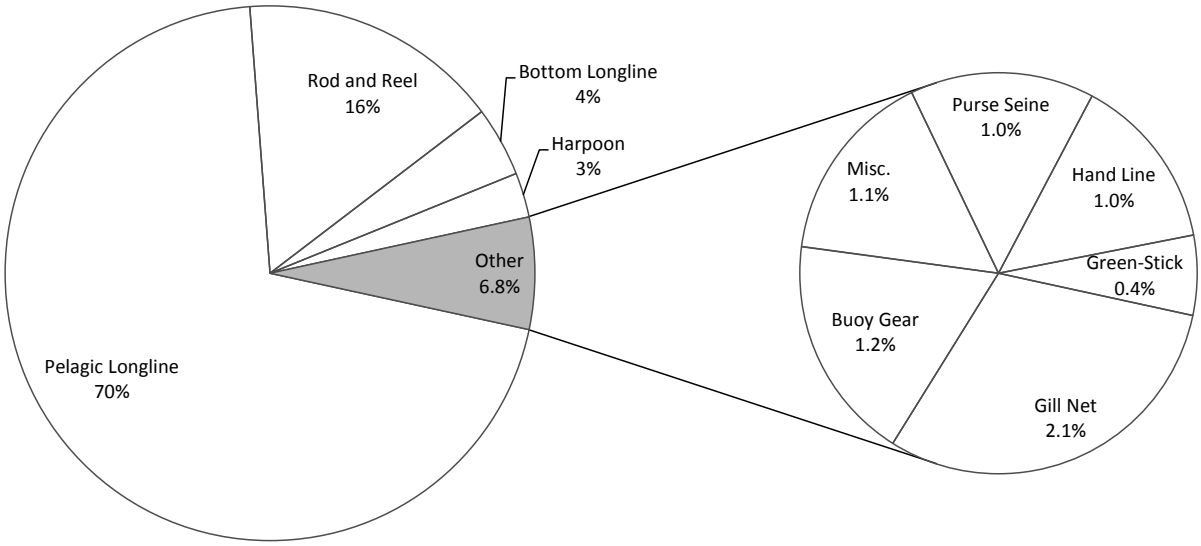

Figure 5.2 Percent of 2014 Total Ex-vessel Revenues of Atlantic HMS Fisheries By Gear

Sources: HMS eDealer and Atlantic bluefin tuna dealer reports from the Northeast Regional Office.

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 Coastal 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 PLL 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 decreased over 1.5 percent from 2013 to 2014 while the cost per pound for bait decreased 5.7 percent from 2013 to 2014. The unit cost per light sticks has remained the same from 2013 to 2014.

Table 5.4 Pelagic Longline Vessel Median Unit Costs for Fuel, Bait, and Light Sticks (2007–2014)

Input Unit Costs ($)	2007	2008	2009	2010	2011	2012	2013	2014
Fuel (per gallon)	2.31	3.50	2.00	2.50	3.40	3.50	3.35	3.30
Bait (per lb)	0.85	0.81	0.81	0.90	1.31	1.50	1.59	1.50
Light sticks (per stick)	0.36	0.37	0.37	0.25	0.25	0.30	0.30	0.30

Source: Fisheries Logbook System.

Table 5.5 provides the median total cost per trip for the major variable inputs associated with Atlantic HMS trips taken by pelagic longline vessel. Fuel costs are one of the largest variable expenses. While fuel price decreased slightly in 2014, total median pelagic longline vessel fuel costs per trip increased 48 percent from 2013 to 2014 to a level similar to 2010-2012 levels.

Table 5.5 Median Input Costs for Pelagic Longline Vessel Trips (2007–2014)

Input Costs ($)	2007	2008	2009	2010	2011	2012	2013	2014
Fuel	2,200	2,905	1,800	1,120	1,306	1,500	948	1,399
Bait	1,400	1,459	1,745	1,900	3,105	3,000	3,000	2,940
Light sticks	670	595	560	500	640	725	750	740
Ice costs	540	479	500	450	600	675	585	648
Grocery expenses	800	761	880	780	900	900	900	900
Other trip costs	1,500	1,758	1,654	1,500	1,622	1,274	1,200	150

Source: Fisheries Logbook System.

Labor costs are also an important component of operating costs for HMS pelagic longline vessels. Table 5.6 lists the number of crew on a typical pelagic longline trip. The median number of crew members has been consistently three from 2007 to 2014. 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 24 percent share and crew in 2014 received 25 percent on average. These shares are typically paid out after costs are netted from gross revenues. Median total shared costs per trip on pelagic longline vessels have ranged from $6,000 to $9,976 from 2007 to 2014.

Table 5.6 Median Labor Inputs for Pelagic Longline Vessel Trips (2007–2014)

Labor	2007	2008	2009	2010	2011	2012	2013	2014
Number of crew	3	3	3	3	3	3	3	3
Owner share (%)	47	45	47	50	50	50	50	50
Captain share (%)	20	20	20	23	23	25	23	24
Crew share (%)	15	18	25	25	25	30	25	25
Total shared costs ($)	6,000	6,500	6,500	7,245	9,976	8,160	8,045	7,703

Source: Fisheries Logbook System.

In 2014, median reported total trip sales were $18,233. In 2013, median reported total trip sales were $14,325. After adjusting for operating costs, median net earnings per trip were $6,137 in 2013. Median net earnings per trip increased to $10,737 in 2014.

The primary expenses associated with operating an Atlantic HMS-permitted BLL commercial vessel include labor, fuel, bait, ice, groceries, and other miscellaneous expenses. These expenses are reported in the Coastal Fisheries Logbook for vessels that have been selected for reporting economic information. HMS BLL trips primarily target shark species and are of short duration. Table 5.7 provides the median reported trip input costs from 2007 to 2014.

Table 5.7 Median Input Costs for Bottom Longline Vessel Trips (2007–2014)

Input Costs	2007	2008	2009	2010	2011	2012	2013	2014
Fuel	$357	$146	$106	$130	$184	$175	$124	$151
Bait	$300	$50	$20	$50	$50	$100	$75	$85
Ice costs	$100	$50	$20	$50	$50	$36	$40	$44
Grocery expenses	$100	$25	$20	$50	$50	$50	$25	$50
Misc. trip costs	$75	$20	$15	$15	$34	$26	$30	$24
Number of crew	3	2	2	2	2	2	2	2
Days at sea	2	1	1	1	2	1	1	1

Source: Fisheries Logbook System.

In 2014, median reported total trip sales were $900 for vessels using BLL gear. In 2013, median reported total trip sales were $1,010. After adjusting for operating costs, median net earnings per BLL trip were $721 in 2013. Median net earnings per trip decreased to $582 in 2014.

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, fishing gear, target species, and geographic location, among other things.

5.2 Fish Processing and Wholesale Sectors

Consumers spent an estimated $91.7 billion for fish products in 2014, including $61.4 billion at food service establishments, $29.9 billion in retail sales for home consumption, and $375 million for industrial fish products. The commercial marine fishing industry contributed $45.3 billion (in value added) to the U.S. Gross National Product in 2014 (NMFS, 2015).

5.2.1 Dealers

NMFS does not currently have specific 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; 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, 2015). Table 5.8 provides a summary of available information.

Table 5.8 Processors and Wholesalers: Plants and Employment (2013)

Area and State	Processing[1]		Wholesale[2]		Total	
	Plants	Employment	Plants	Employment	Plants	Employment
New England						
Maine	38	741	170	1,287	208	2,028
New Hampshire	10	241	10	111	20	352
Massachusetts	51	2,193	158	2,158	209	4,351
Rhode Island	10	*	37	-	47	*
Connecticut	4	75	15	186	19	261
Total	113	3,250	390	3,742	503	6,992
Mid-Atlantic						
New York	20	408	277	2,016	297	2,424
New Jersey	17	578	81	926	98	1,504
Pennsylvania	3	*	31	663	34	663
Delaware	2	*	4	18	6	18
District of Columbia	-	-	1	*	1	*
Maryland	16	388	52	547	68	935
Virginia	36	1,441	62	476	98	1,917
Total	94	2,815	508	4,646	602	7,461
South U.S. Atlantic						
North Carolina	28	651	56	408	84	1,059
South Carolina	3	*	24	158	27	158
Georgia	6	616	31	584	37	1,200
Florida	43	1,473	300	2,288	343	3,761
Total	80	2,740	411	3,438	491	6,178
Gulf of Mexico						
Alabama	33	1,346	16	251	49	1,597
Mississippi	23	2,224	20	99	43	2,323
Louisiana	62	1,883	96	622	158	2,505
Texas	38	1,524	114	1,090	152	2,614
Total	156	6,977	246	2,062	402	9,039
Inland States or Other						
Areas**, Total	56	1,830	232	2,833	288	4,663

[1] Based on North American Industry Classification System (NAICS) 3117 as reported to the Bureau of Labor Statistics. [2] Based on North American Industry Classification System (NAICS) 42446 as reported to the Bureau of Labor Statistics. *Included with Inland States. **Includes Puerto Rico and U.S. Virgin Islands. Source: NMFS, 2015b.

5.2.2 Processing Sector

NMFS does not currently collect wholesale price information from dealers.

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 5.9. Primary wholesalers and processors on average received a 62 percent margin on sales in 2014, which is lower than margins in 2013.

Table 5.9 Summary of the Mark-Up and Consumer Expenditures for the Primary Wholesale and Processing of Domestic Commercial Marine Fishery Products

	2012	2013	2014
Purchase of fishery inputs ($)	8,687,636,000	9,690,909,000	10,924,641,000
Percent mark-up of fishery inputs (%)	90	77	62
Total mark-up ($)	7,803,257,000	7,510,336,000	6,791,794
Value added as percent of total mark-up (%)	60	60	60
Value added within sector ($)	4,714,590,000	4,534,951,000	4,101,187,000
Total value of sales within sector ($)	16,490,893,000	17,201,245,000	17,716,435,000

Source: NMFS, 2015b.

5.3 International Trade

Several Regional Fishery Management Organizations (RFMOs), including ICCAT, have taken steps to improve the collection of international trade data in order to estimate landings related to these fisheries, and to identify potential compliance problems with certain RFMO management measures. This section describes the 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.

NMFS implemented the HMS International Trade Permit (ITP) in 2005 (69 FR 67268, November 17, 2004) to identify importers and exporters of HMS products that require trade monitoring documentation (i.e., bluefin tuna, swordfish, and frozen bigeye tuna). Traders of shark fins must also be permitted. Currently there are 259 permit holders distributed among 25 U.S. states and territories (Table 5.10). 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 in the 2011 HMS SAFE Report.

Table 5.10 Number of International Trade Permits (ITPs) by State (as of November 2015)

State	Number of ITPs	State	Number of ITPs
AR	1	NH	2
AS	1	NJ	7
CA	70	NV	1
DC	1	NY	31
FL	59	OH	1
GA	2	OR	1
HI	14	PA	1
IL	2	RI	6
LA	2	SC	1
MA	30	TX	5
MD	1	VA	1
ME	9	WA	8
NC	2		
Total			259

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

CITES is an international agreement that regulates the global trade in endangered plants and 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 that confirm the trade of specific species is legal. Species listed on Appendix I are considered to be at risk of extinction, and are prohibited from international commercial trade, except in special circumstances. 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. During the sixteenth meeting of the Conference of Parties to CITES (CoP16), the United States and Brazil cosponsored a successful Columbian proposal to list oceanic whitetip shark under Appendix II. The United States cosponsored this listing because of concerns that over-exploitation to supply the international fin trade negatively affects the population status of this species. Three species of hammerhead shark (scalloped, smooth, and great) were also added to Appendix II during CoP16, where they joined previously listed whale, basking, and great white sharks, along with oceanic whitetip shark. These Appendix II listings were effective September 14, 2014.

On June 27, 2012, the CITES Secretariat sent a Notification to the Parties regarding the inclusion of two shark species, scalloped hammerhead (*Sphyrna lewini*) and porbeagle (*Lamna nasus*), in CITES Appendix III. Their inclusion in Appendix III requires member parties to issue CITES permits or certificates for the import, export, and re-export of these species (or any of their parts or products). It also means that any U.S. import, export, or re-export of these species requires a declaration to and clearance from the U.S. Fish and Wildlife Service. In accordance with provisions of Article XVI, paragraph 2 of the CITES Convention, the inclusion of these species in Appendix III took effect 90 days after the Notification (i.e., effective as of September 25, 2012).

5.3.1 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 that 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 FAS (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 export.

Atlantic and Pacific Bluefin Tuna Exports

Table 5.11 gives bluefin tuna export data for exports from the United States since 2004 and includes data from the NMFS BCD program and Census Bureau data. The Census Bureau usually reports a greater amount of bluefin tuna exported when compared to the amount reported by NMFS. Additional quality control measures are taken by NMFS to ensure data for other species (e.g., Southern bluefin tuna) or other transaction types (e.g., re-exports) are not erroneously included with bluefin tuna export data. Bluefin tuna re-export data are listed separately later in this section (Table 5.19).

Table 5.11 United States Exports of Atlantic and Pacific Bluefin Tuna (2004-2014)

Year	Atlantic BFT Commercial Landings[1] (mt dw)	Atlantic BFT Exports[2] (mt dw)	Pacific BFT Exports[2] (mt dw)	Total U.S. Exports[2] (mt dw)	Total U.S. Exports[3] (mt)	Value of U.S. Exports[3] ($ million)
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
2010	509.5	334.2	0.0	334.2	346	4.90
2011	453.6	329.5	0.8	330.5	293	4.03
2012	452.2	334.5	0.0	334.5	511	4.91
2013	310.4	139.0	0.0	139.0	296	2.92
2014	567.7	195.3	160.8	356.1	381	3.36

Note: most exports of Pacific bluefin tuna (BFT) 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. Sources: [1] Northeast Regional Office, [2] NMFS Bluefin Tuna Catch Document Program, and [3] U.S. Census Bureau.

In the time series shown in Table 5.11 and depicted in Figure 5.3, U.S. exports of Atlantic bluefin tuna generally increased when commercial landings increased, while domestic consumption of U.S. landings remained fairly constant (i.e., between 100 and 200 mt) from year

to year, except in 2014 when domestic consumption increased to almost 400 mt. Most U.S. bluefin tuna exports are destined for the sushi markets in Japan. As shown in Figure 5.3 and Figure 5.4, the percentage of the commercial U.S. bluefin tuna catch that was exported was relatively low for the last two years and was also low when landings declined to their lowest point in 2007.

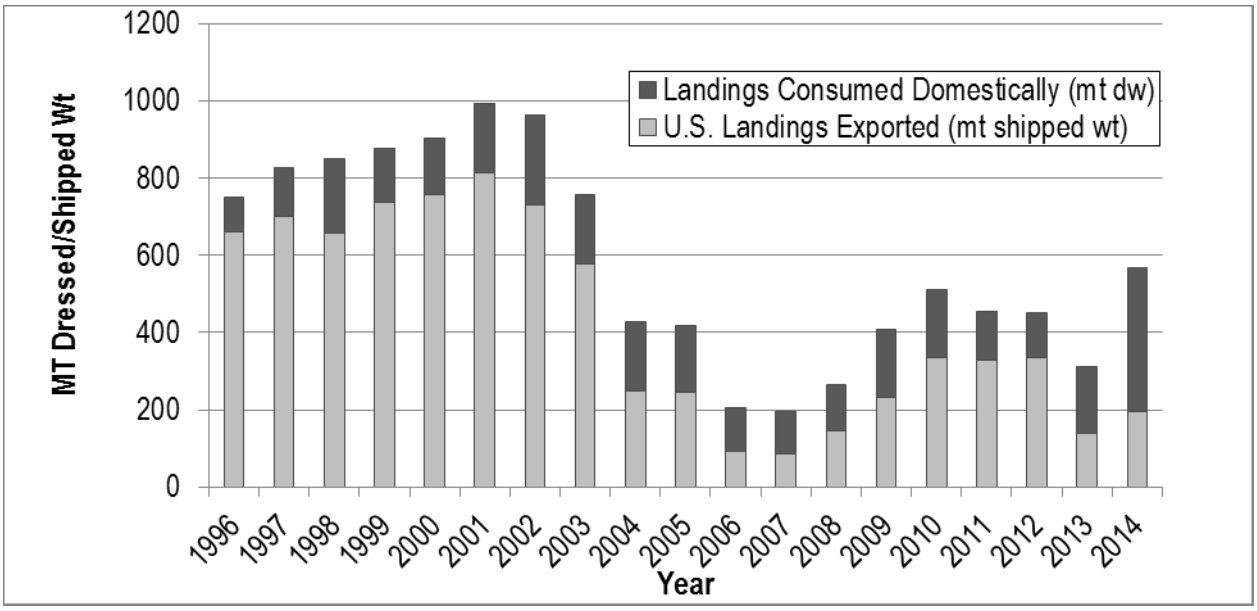

Figure 5.3 Annual U.S. Domestic Landings of Atlantic Bluefin Tuna, Divided into U.S. Export (mt shipped weight) and U.S. Domestic Consumption (mt dw) (1996-2014)

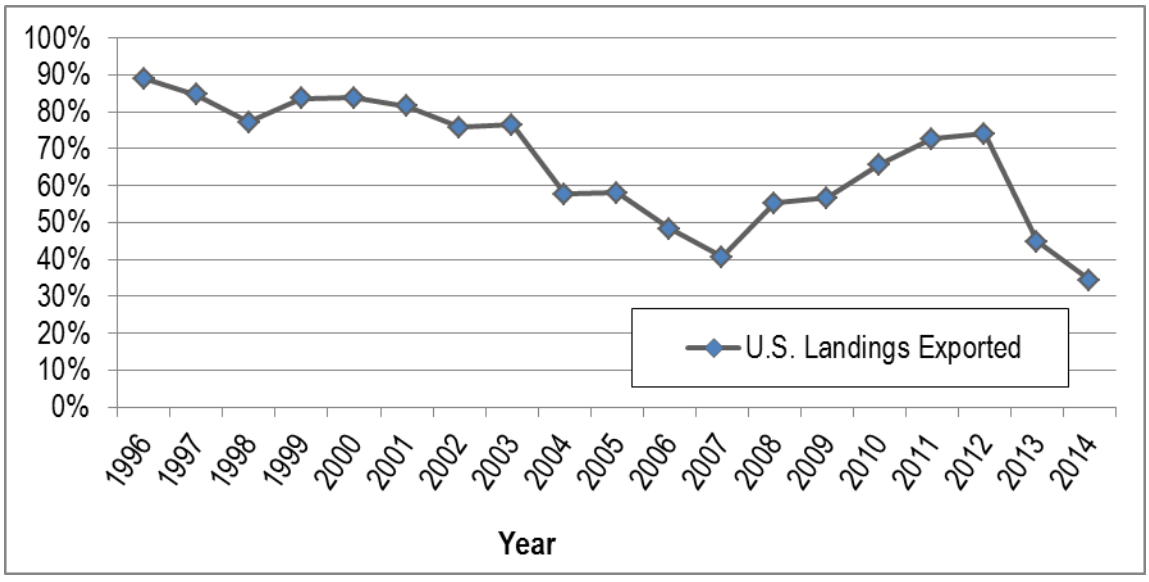

Figure 5.4 Annual Percentage (by weight) of Commercially-Landed U.S. Atlantic Bluefin Tuna that was Exported (1996-2014)

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. The value of annual albacore exports has exceeded the value for any other tuna export since the beginning of the time series. The total value of albacore exports has remained over $20 million per year for the last nine years (Table 5.12) and over $30 million for the last three years. Most albacore exports are Pacific in origin, as Atlantic landings have ranged between 189 mt and 640 mt during the time series in Table 5.12, but total U.S. exports has ranged from 15,251 mt in 2013 to a low of 7,951 mt in 2005.

Table 5.12 U.S. Atlantic Landings and Total U.S. Exports of Albacore Tuna (2004–2014)

		U.S. Exports (from all ocean areas)[2]					
		Fresh		Frozen		Total for all Exports	
Year	Atlantic Landings (mt ww)[1]	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
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	257	997	2.69	7,958	22.54	8,955	25.23
2009	189	417	1.02	9,903	22.58	9,510	23.60
2010	315	1,269	3.25	8,528	23.31	9,798	26.56
2011	422	531	1.47	9,807	23.73	10,338	25.20
2012	418	1,256	4.46	9,787	26.51	11,043	30.97
2013	599	1,481	4.88	13,770	34.73	15,251	39.62
2014	459	2,970	8.56	8,905	27.52	11,875	36.09

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. Sources: [1]NMFS, 2015, [2]U.S. Census Bureau.

Table 5.13 and Table 5.14 show U.S. Atlantic landings and U.S. exports from all ocean areas for yellowfin and skipjack tuna, respectively. Yellowfin exports were greater and more valuable than exports for skipjack or bigeye tuna (Table 5.15) and were unusually high in 2008. Amounts of frozen yellowfin were the lowest of the time series in 2011, but increased dramatically over the last three years, making total exports over the last three years, three out of the four highest values in the time series. Table 5.14 shows that the amount and value of exported fresh and frozen skipjack tuna has varied over the eleven year time series without any perceptible pattern. Fresh skipjack exports had fallen consistently over the last several years, but increased in 2014. In 2009, the amount of exported product, and in 2013 the exported value ($3.43 million), peaked for the time series.

Table 5.13 U.S. Atlantic Landings and Total U.S. Exports of Yellowfin Tuna (2004-2014)

Year	Atlantic Landings (mt ww)[1]	U.S. Exports (from all ocean areas)[2]					
		Fresh		Frozen		Total for all Exports	
		Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
2004	6,437	306	1.54	242	0.31	549	1.86
2005	5,562	158	1.70	291	0.97	449	2.67
2006	7,090	183	1.96	108	0.37	291	2.32
2007	5,529	148	1.75	138	0.44	286	2.19
2008	2,407	198	2.09	4,140	9.06	4,338	11.16
2009	2,802	221	2.51	274	0.66	495	3.17
2010	2,482	211	2.31	70	0.33	281	2.64
2011	3,010	278	3.03	56	0.23	334	3.26
2012	4,100	311	3.35	535	1.91	846	5.26
2013	2,332	224	2.55	624	1.88	848	4.43
2014	2,666	332	2.46	554	1.33	886	3.79

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. Sources: [1]NMFS, 2015, [2]U.S. Census Bureau.

Table 5.14 U.S. Atlantic Landings and Total U.S. Exports of Skipjack Tuna (2004-2014)

Year	Atlantic Landings (mt ww)[1]	U.S. Exports (from all ocean areas)[2]					
		Fresh		Frozen		Total for all Exports	
		Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
2004	102	55	0.30	140	0.18	196	0.48
2005	30	35	0.14	-	-	35	0.14
2006	61	6	0.02	23	0.04	30	0.06
2007	67	17	0.06	77	0.12	94	0.18
2008	67	31	0.15	350	0.41	381	0.56
2009	119	206	0.54	530	0.71	737	1.25
2010	54	194	0.57	126	0.17	319	0.73
2011	87	162	0.47	14	0.05	176	0.52
2012	112	46	0.17	293	1.17	334	1.34
2013	117	10	0.04	575	3.40	585	3.43
2014	77	152	0.23	77	0.52	228	0.75

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. Sources: [1] NMFS, 2015, [2] U.S. Census Bureau.

Bigeye tuna exports and Atlantic landings are given in Table 5.15. Atlantic landings have generally been increasing since 2008, but are still below the 2006 high of 991 mt. Annually, bigeye tuna exports include more fresh than frozen product, except in 2008 and 2012 when exports of frozen product were greater (318 mt and 386 mt, respectively). Amounts of both fresh and frozen exports in 2013 (147 mt, 25 mt respectively) dropped substantially from values in 2012 (293 mt and 386 mt, respectively), and then again in 2014 (66 mt and 8 mt, respectively).

Table 5.15 U.S. Atlantic Landings and Total U.S. Exports of Bigeye Tuna (2004-2014)

Year	Atlantic Landings (mt ww)[1]	U.S. Exports (from all ocean areas)[2]					
		Fresh		Frozen		Total for all Exports	
		Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
2004	419	361	1.40	48	0.10	410	1.51
2005	484	431	1.95	50	0.12	481	2.07
2006	991	223	1.69	76	0.20	299	1.89
2007	527	128	1.38	65	0.14	193	1.52
2008	489	145	1.72	318	0.96	462	2.68
2009	515	121	1.53	78	0.19	199	1.72
2010	571	141	1.96	37	0.11	179	2.07
2011	719	199	2.13	44	0.13	243	2.26
2012	867	293	2.38	386	1.14	679	3.52
2013	880	147	1.36	25	0.13	172	1.49
2014	866	66	0.66	8	0.85	73	0.74

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. Sources: [1]NMFS, 2015, [2]U.S. Census Bureau.

Shark Exports

Export data for sharks are gathered by the Census Bureau, and include trade data for sharks from any ocean area of origin. Shark exports are not categorized to the species level, with the exception of spiny 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 5.16 indicates the magnitude and value of shark exports by the United States from 2004 – 2014. The amount and value of exports have decreased annually over the last two years. The price per kg of frozen product has consistently risen since 2010, and reached a high for the time series in 2014. Exports of shark fins were lowest in 2008 and 2012 (11 mt), followed by 2013 (12 mt). The price of shark fins was greatest in 2011 ($100.67/kg). Also of note is the variability in price and amount of frozen exports. Frozen exports dramatically increased in 2008 (4,122 mt), dropped to a low in 2011 (59 mt), and increased again in 2013 (1,043 mt). The amount of exports have decreased annually over the last two years, but the price per kg of total product has consistently risen since 2011, and reached a high for the time series in 2014 ($6.42/kg).

Table 5.16 Amount and Value of U.S. Shark Products Exported (2004-2014)

Year	Dried Shark Fins			Non-specified Fresh Shark			Non-specified Frozen Shark			Total for All Exports	
	Amount (mt)	Value ($ MM)	Value ($/kg)	Amount (mt)	Value ($ MM)	Value ($/kg)	Amount (mt)	Value ($ MM)	Value ($/kg)	Amount (mt)	Value ($ MM)
2004	63	3.02	47.53	536	1.18	2.21	472	0.98	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	4,122	7.21	1.75	4,692	9.11
2009	56	2.82	50.36	254	0.72	2.83	320	1.33	4.16	630	4.87
2010	36	2.89	80.28	222	0.67	3.02	244	0.52	2.11	502	4.08
2011	15	1.51	100.67	333	0.89	2.66	59	0.22	3.77	407	2.62
2012	11	0.99	91.75	436	1.08	2.47	106	4.52	4.28	1,501	6.58
2013	12	0.79	65.63	196	0.57	2.90	1,043	5.21	5.00	1,250	6.57
2014	18	0.98	54.44	217	0.57	2.63	827	5.31	6.42	1,064	6.86

$ MM – millions of dollars. Note: Exports may be in whole (ww) or product weight (dw); data are preliminary and subject to change. Source: U.S. Census Bureau.

Swordfish Exports

Swordfish harmonized tariff schedule (HTS) categories were modified in 2007 and again in 2012. The low cost and year round availability of swordfish imports into the United States are believed to have reduced the marketability of U.S. domestic swordfish. A modest export market for U.S. product has been available since 2007, Table 5.17 but total exports have generally decreased over the course of the time series.

Table 5.17 Amount and Value of U.S. Swordfish Product Exported (2007-2014)

Year	Swordfish Fillet				Swordfish				Swordfish Meat				Total	
	Fresh		Frozen		Fresh		Frozen		Fresh		Frozen			
	Amount (mt)	Value ($MM)	Amount (mt)	Value ($ MM)	Amount (mt)	Value ($ MM)	Amount (mt)	Value ($ MM)	Amount (mt)	Value ($ MM)	Amount (mt)	Value ($ MM)	Amount (mt)	Value ($ MM)
2007	38	0.33	11	0.08	135	0.91	11.0	0.04	-	-	216.0	0.69	412	2.1
2008	24	0.25	48	0.34	121	0.89	1.2	0.01	-	-	154.0	0.88	349	2.4
2009	43	0.38	19	0.23	133	0.81	12.1	0.04	-	-	24.0	0.13	231	1.6
2010	98	0.71	16	0.15	134	0.78	0.6	0.01	-	-	3.0	0.02	252	1.7
2011	32	0.26	31	0.28	134	0.80	72.4	0.45	-	-	0.5	0.01	269	1.8
2012	0	0.01	4	0.05	141	0.82	10.8	0.09	7.0	0.09	4.5	0.03	168	1.1
2013	0	0	18	0.09	160	0.87	13.0	0.13	2.6	0.04	2.4	0.02	196	1.2
2014	1.0	0.01	14	0.14	115	0.63	22.2	0.06	3.1	0.04	1.4	0.01	156	0.9

$ MM – in millions of dollars. Source: U.S. Census Bureau.

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 1,000 mt and/or one million dollars annually. Re-exports of yellowfin tuna (fresh or frozen) and shark fins most frequently exceed these values. Annual re-export figures in excess of these relative reference points are given in Table 5.18.

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 ITP regulations in 2005 (69 FR 67268, November 17, 2004) changed the way re-exports and transshipments were distinguished. Table 5.19 shows re-exports of bluefin tuna since 2004, and is updated to reflect these changes for previous years. Re-exports of bluefin tuna in 2013 were particularly high.

Table 5.18 Re-exports of HMS (Excluding Bluefin Tuna) in Excess of 1000 mt and/or One Million U.S. Dollars (2004–2014)

Year	Product	Amount (mt)	Value ($ million)
2004	Shark fins, dried	29	1.84
2005	Yellowfin tuna, fresh	123	2.30
	Shark fins, dried	34	1.53
2006	Yellowfin tuna, fresh	208	2.62
2007	Yellowfin tuna, fresh	208	2.91
	Yellowfin tuna, frozen	506	1.80
2008	Yellowfin tuna, fresh	224	3.40
	Shark fins, dried	26	1.37
2009	Yellowfin tuna, fresh	162	2.18
2010	Yellowfin tuna, fresh	130	1.88
	Yellowfin tuna, frozen	340	1.12
2011	Yellowfin tuna, fresh	117	1.85
	Swordfish fillet, frozen	302	2.70
	Shark fins, dried	23	1.42
2012	Yellowfin tuna, fresh	123	2.26
	Yellowfin tuna, frozen	515	1.63
	Shark fins*	41	1.86
	Shark, unspecified, frozen	405	1.46
2013	Yellowfin tuna, fresh	102	1.80
2014	Yellowfin tuna, fresh	65	1.17

* In 2012, the product classification "shark fin, dried" in the HTS was renamed "shark fins." Source: U.S. Census Bureau.

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 2014, fresh and frozen tuna products

accounted for 15,133 mt dw or 1.1 percent of the 1,420,708 mt dw of fresh and frozen seafood products exported from the United States, as indicated in *Fisheries of the United States, 2014.* The value of these HMS products accounted for $51.6 million, out of a national total of $5.8 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 2013 were reported in the 2014 U.S. National Report to ICCAT as 599 mt (Table 5.12). National trade data show that over 15,251 mt of albacore were exported in 2013, 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.

5.3.2 U.S. Imports of HMS

All import shipments must be reported to and cleared by CBP. "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.

Atlantic and Pacific Bluefin Tuna Imports

United States imports and re-exports of bluefin tuna for 2004 through 2014, as reported through both CBP and BCD program data, are shown in Table 5.19.

Table 5.19 U.S. Imports and Re-exports of Atlantic and Pacific Bluefin Tuna (2004–2014)

	NMFS BFT Catch Document Program		U.S. Customs and Border Protection	
Year	Imports (mt)	Re-exports (mt)	Imports (mt)	Value ($ million)
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
2010	569.5	61.6	682.5	15.75
2011	442.5	35.1	555.4	14.01
2012	400.2	25.9	770.4	14.74
2013	568.9	71.3	1,177.5	20.52
2014	670.4	40.7	1,087.2	20.75

Note: Most imports of bluefin tuna (BFT) 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 BFT trade was included in figures for Atlantic and Pacific BFT trade prior to 2002. Sources: NMFS Bluefin Tuna Catch Document Program and U.S. Customs and Border Protection.

The rise in popularity of sashimi in the United States may have generated the increase in imports of Atlantic and Pacific bluefin tuna in the mid part of the decade, as seen in Table 5.19. Dealers have reported an expanded domestic market for both locally-caught and imported raw tuna.

U.S. consumption of Atlantic bluefin tuna (landings + imports – exports – re-exports) generally increased from 1996 to a high of approximately 800 mt in 2005, and generally ranged between 400 and just over 500 mt from 2008 through 2012 (Figure 5.5). Consumption was higher in 2013 and increased again in 2014. Consumption of domestic landings has been fairly consistent, ranging between about 100 mt to 200 mt per year until 2014 when domestic landings consumption climbed to almost 400 mt. Consumption of imported bluefin tuna was more variable and ranged from a low in 1997 of less than 50 mt to a high in 2006 of almost 700 mt.

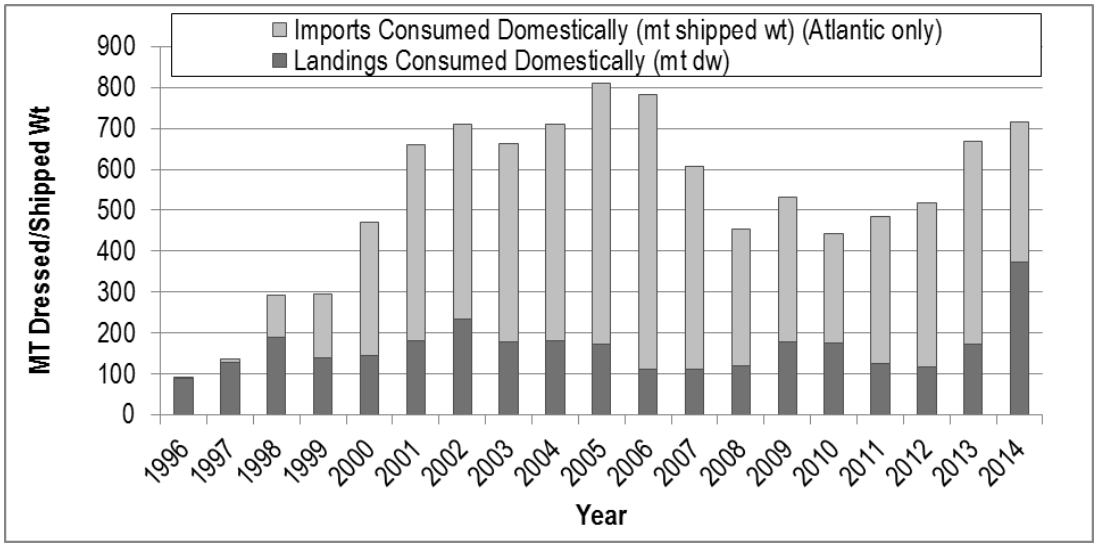

Figure 5.5 U.S. Annual Consumption of Atlantic Bluefin Tuna, by Imports and U.S. Landings (1996-2014)

Annual U.S. imports, re-exports, exports (mt shipped wt), and landings (mt dw) are also depicted. Consumption = landings + imports – exports – re-exports.

Figure 5.6 shows U.S. domestic landings of Atlantic bluefin tuna and trade of bluefin tuna since 1996. From 2004 through 2013, the United States imported more bluefin tuna than it exported (except for 2010). This trade gap was greatest between 2005 and 2007, and increased again in 2013.

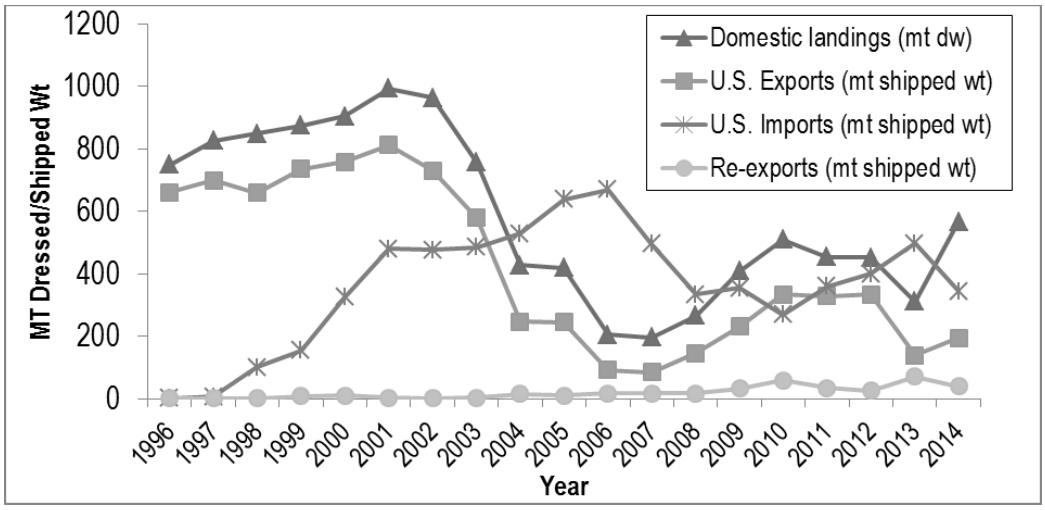

Figure 5.6 U.S. Domestic Landings (mt dw) and Trade (mt shipped weight) of Bluefin Tuna (1996-2014)

Other Tuna Imports

CBP collects species-specific import information for bigeye tuna, grouped to include all ocean areas. The total amount of bigeye tuna imports has ranged between 3,498 (2011) and 8,059 mt (2008) over the time series, as shown in Table 5.20. Total imports of fresh bigeye since 2010 have been below the eleven year annual average of 5,804 mt.

Table 5.20 U.S. Imports of Bigeye Tuna from All Ocean Areas Combined (2004-2014)

	Fresh		Frozen		Total for all Imports	
Year	Amount (mt)	Value ($ MM)	Amount (mt)	Value ($ MM)	Amount (mt)	Value ($ MM)
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
2010	4,025	32.39	316	0.73	4,340	33.12
2011	3,011	26.72	487	1.01	3,498	27.73
2012	3,723	33.43	580	1.22	4,304	34.65
2013	4,023	35.51	498	1.02	4,521	36.52
2014	4,126	35.61	338	0.68	4,465	36.30

$ MM – in millions of dollars. Note: Imports may be whole weight (ww) or product weight (dw); data are preliminary and subject to change. Source: U.S. Census Bureau.

Annual yellowfin tuna imports into the United States for all ocean areas combined are given in Table 5.21. As indicated by the data in this section, yellowfin tuna products are imported in the greatest quantity of all fresh and frozen tuna products. The annual value and total amount of yellowfin imports generally increased from 2004 to 2007 and were lower since then. Most imported yellowfin products were fresh. The least amount of yellowfin imported during this time series was in 2009.

Table 5.21 U.S. Imports of Yellowfin Tuna from All Ocean Areas Combined (2004–2014)

	Fresh		Frozen		Total for all Imports	
Year	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
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	2,868	24.73	17,067	137.07
2010	15,985	128.69	2,077	16.91	18,062	145.60
2011	15,635	141.83	2,398	17.56	18,033	159.39
2012	15,829	152.66	2,076	25.84	17,905	178.52
2013	16,031	156.58	2,602	24.69	18,633	181.27
2014	16,160	155.73	2,029	13.94	18,189	169.67

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

The amount of fresh and frozen albacore product imported from all ocean areas was greatest in 2004 (Table 5.22), and has remained relatively low compared to 2004 quantities. In 2004, albacore imports were valued at $14.8 million while in 2005 the value dropped to $5.3 million, and has remained relatively low. Import amounts and value have been fairly stable over the last several years, with a small uptick in 2011. Products in airtight containers (e.g., cans or foil pouches) are not included in these data.

Table 5.22 U.S. Imports of Albacore Tuna from All Ocean Areas Combined (2004-2014)

	Fresh		Frozen		Total for all Imports	
Year	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
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
2010	519	2.19	1,860	5.17	2,380	7.36
2011	669	3.05	3,794	7.17	4,462	10.22
2012	748	3.53	1,178	2.61	1,926	6.14
2013	858	3.57	2,199	4.27	3,057	7.84
2014	843	3.49	1,362	3.14	2,205	6.63

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

Skipjack tuna imports into the United States are comprised mainly of frozen product (Table 5.23). The amount of skipjack imports is variable over this time series, ranging from a low of 112 mt in 2004 to a high of 1,023 mt in 2006. Import value was the highest for 2012 ($1.21 million), which was the year with the second largest import amount (890 mt) for the time series. Products in airtight containers (e.g., cans or foil pouches) are not included in these data.

Table 5.23 U.S. Imports of Skipjack Tuna from All Ocean Areas Combined (2004–2014)

	Fresh		Frozen		Total for all Imports	
Year	Amount (mt)	Value ($ MM)	Amount (mt)	Value ($ MM)	Amount (mt)	Value ($ MM)
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	0.04	498	0.63	519	0.67
2010	36	0.09	542	0.79	578	0.87
2011	2	0.05	594	0.92	595	0.96
2012	23	0.05	866	1.16	890	1.21
2013	38	0.11	272	0.51	310	0.62
2014	70	0.13	395	0.62	465	0.75

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

Swordfish Imports

Table 5.24 indicates the amount and value of swordfish products imported by the United States from 2004 to 2014, 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 are fairly consistent over the time series. Total imports have been fairly stable but fallen slightly since their peak in 2003.

Table 5.24 Imported Swordfish Products (2004-2014)

	Fresh (mt)				Frozen (mt)					Total for All Imports	
Year	Steaks			Other	Fillets	Steaks			Other	(mt)	($ million)
2004	157			6,568	3,261	387			351	10,726	70.95
2005	172			6,388	2,957	367			304	10,187	77.17
2006	77			6,830	2,875	351			201	10,334	75.63
							Meat				
	Fillets*	Steaks	Meat	Other	Fillets	Steaks	> 6.8 kg*	≤ 6.8 kg*	Other		
2007	174	84		5,412	2,520	171	118	737	205	9,422	70.85
2008	96	13		5,658	2,673	170	55	207	88	8,962	68.98
2009	53	10		5,312	1,632	112	96	23	33	7,272	55.85
2010	125	2		5,228	2,077	153	277	45	31	7,939	68.33
2011	74	1		5,060	2,116	139	1,384	471	12	9,258	68.64
2012	13	2	66	5,478	2,013	604	825	43	15	8,993	77.01
2013	31	2	62	6,011	1,394	457	182	4	12	8,093	71.38
2014	31	0	24	7,137	1,545	512	153	<1	32	9,442	81.99

* HTS classification changed as of 2007. NOTE: Imports may be whole weight (ww) or product weight (dw); data are preliminary and subject to change. Source: U.S. Census Bureau.

Table 5.25 summarizes swordfish import data collected by NMFS' Swordfish Statistical Document Program for the 2014 calendar year. According to these data, most swordfish imports were Pacific Ocean product from Central and South America. For Atlantic product, most North

Atlantic imports came from Canada, and South Atlantic product came from 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 5.25 U.S. Imports of Swordfish, by Flag of Harvesting Vessel and Area of Origin (2014)

Flag of Harvesting Vessel	Ocean Area of Origin							Total (mt dw)
	Atlantic (mt dw)	North Atlantic (mt dw)	South Atlantic (mt dw)	Pacific (mt dw)	Western Pacific (mt dw)	Indian (mt dw)	Not Provided (mt dw)	
Australia	-	-	-	27.79	251.54	-	17.49	296.82
Brazil	1.32	0.48	315.30	-	-	-	3.66	320.76
Canada	-	731.01	-	-	-	-	-	731.01
Chile	-	-	-	284.09	-	-	-	284.09
China	-	-	-	16.64	-	-	-	16.64
Costa Rica	-	-	-	712.22	-	-	0.19	712.41
Ecuador	-	-	-	2,220.50	-	2.93	3.50	2,226.93
Fiji Islands	-	-	-	7.85	15.57	-	1.03	24.45
French Polynesia	-	-	-	7.60	-	-	-	7.60
Indonesia	-	-	-	-	-	191.52	-	191.52
Marshall Islands	-	-	-	2.76	-	-	-	2.76
Mexico	-	-	-	447.29	-	-	35.09	482.38
New Zealand	-	-	-	-	254.44	-	-	254.44
Nicaragua	-	-	-	19.20	-	-	-	19.20
Not Provided	-	-	-	8.91	-	-	0.87	9.78
Panama	-	-	-	702.15	-	-	-	702.15
Portugal	-	-	1.45	-	-	-	-	1.45
Seychelles	-	-		-	-	2.46	-	2.46
South Africa	8.51	-	71.29	-	-	33.04	2.18	115.02
Spain	-	5.65	0.79	125.36	-	15.95	-	147.75
Sri Lanka	-	-	-	-	-	13.83	-	13.83
Trinidad & Tobago	-	12.29	-	-	-	-	-	12.29
Turks and Caicos Island	-	2.38	-	-	-	-	-	2.38
Vanuatu	-	-	-	513.69	-	-	-	513.69
Vietnam	-	-	-	254.20	-	-	-	254.20
Total Imports Reported by SDs	9.83	751.81	388.83	5,322.46	521.55	259.73	64.01	7,346.01
Total Imports Reported by U.S. Customs & Border Protection								9,719.79
Total Imports Not Reported by SDs								2,373.78

Source: NMFS Swordfish Statistical Document (SD) Program.

Shark Imports

Similar to HMS imports other than bluefin tuna, swordfish, 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.

Table 5.26 summarizes Census Bureau data on shark imports for 2004 through 2014. Imports of fresh and frozen shark have decreased significantly over the time series. Imports of shark fins have been variable between a range of 14 mt and 63 mt, but since 2011 imports have been greater than the time series average of 34.6 mt per year. As of July 2, 2008, shark fin importers, exporters, and re-exporters are required to be permitted under NMFS' HMS ITP regulations (73 FR 31380). Permitting of shark fin traders was implemented to assist in enforcement and monitoring trade of this valuable commodity.

Table 5.26 U.S. Imports of Shark Products from All Ocean Areas Combined (2004-2014)

	Shark Fins Dried		Non-specified Fresh Shark		Non-specified Frozen Shark		Total for All Imports	
Year	(mt)	($ million)	(mt)	($ million)	(mt)	($ million)	(mt)	($ million)
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
2010	34	1.18	114	0.33	34	1.16	182	2.66
2011	58	1.79	72	0.22	32	1.20	162	3.21
2012*	43	0.77	88	0.30	9	0.07	141	1.14
2013	63	0.74	153	0.46	3	0.05	219	1.25
2014	35	0.45	103	0.34	8	0.20	146	0.99

Note: Imports may be whole weight (ww) or product weight (dw); data are preliminary and subject to change. * In 2012, the product classification "shark fin, dried" in the HTS was renamed "shark fins." Source: U.S. Census Bureau.

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. 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. For examples of the use of trade data, please see this section of the 2011 HMS SAFE Report.

Table 5.27 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 tuna	1996	1997	1999	2000
Honduras	Bluefin tuna	1996	1997	2001	2004
	Bigeye tuna	2000	2002	2002	2004
	Swordfish	1999	2000	2001	2004
Belize	Bluefin tuna	1996	1997	2002	2004
	Swordfish	1999	2000	2002	2004
	Bigeye tuna	2000	2002	2002	2004
Equatorial Guinea	Bluefin tuna	1999	2000	2004	2005
	Bigeye tuna	2000	2002	2004	2005
Cambodia	Bigeye tuna	2000	2002	2004	2005
St. Vincent & the Grenadines	Bigeye tuna	2000	2002	2002	2004
Bolivia	Bigeye tuna	2002	2004	2011	2012
Sierra Leone	Bluefin tuna	2002	2004	2004	2005
	Bigeye tuna	2002	2004	2004	2005
	Swordfish	2002	2004	2004	2005
Georgia	Bigeye tuna	2003	2004	2011	2012

5.4 Recreational Fisheries

HMS recreational fishing provides significant positive economic impacts to coastal communities that are derived from individual angler expenditures, recreational charters, tournaments, and the shoreside businesses that support those activities.

5.4.1 Recreational Angling

A report summarizing the results of the 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was released in August 2012. This report, which is the 12th regarding a series of surveys that has been conducted about every 5 years since 1955, provides relevant information such as the number of anglers, expenditures by type of fishing activity, number of participants and days of participation by animal sought, and demographic characteristics of participants. The final national report and the data CD-ROM are available from the U.S. Fish and Wildlife Service (USFWS). More information on the 2011 national survey is available at http://www.fws.gov/pacific/news/news.cfm?id=2144375111.

In 2011, NMFS conducted the National Marine Recreational Fishing Expenditure Survey to collect national level data on trip and durable good expenditures related to marine recreational fishing, and estimate the associated economic impact (Lovell et al., 2013). Nationally, marine anglers were estimated to have spent $4.4 billion on trip related expenses (e.g., fuel, ice, and bait), and $19 billion on fishing equipment and durable goods (e.g., fishing rods, tackle, and boats). Using regional input-output models, these expenditures were estimated to have generated $56 billion in total economic impacts, and supported 364 thousand jobs in the United States in 2011.

This survey also included a separate survey of HMS Angling permit holders from the LPS region (Maine to Virginia) plus North Carolina (Hutt et al., 2014). Estimated trip-related expenditures and the resulting economic impacts for HMS recreational fishing trips are presented in Table 5.28. For the HMS Angler Expenditure Survey, randomly selected HMS Angling permit holders were surveyed every two months, and asked to provide data on the most recent fishing trip in which they targeted HMS. Anglers were asked to identify the primary HMS they targeted, and their expenditures related to the trip. Of the 2,068 HMS anglers that returned a survey, 1,001 anglers indicated they targeted a species of tuna (i.e., bluefin, yellowfin, bigeye, or albacore tuna) on their most recent private boat trip, or simply indicated they fished for tuna in general without identifying a specific species. Of the rest of those surveyed, 88 reported on trips targeting billfish (i.e., blue marlin, white marlin, sailfish), 105 reported on trips targeting shark (i.e., shortfin mako, thresher shark, blacktip shark), and 874 either reported on trips that did not target HMS or failed to indicate what species they targeted. Average trip expenditures ranged from $534/trip for tuna trips to $900 for billfish trips. Boat fuel was the largest trip-related expenditure for all HMS trips, and made up about 73 percent of trip costs for billfish trips, which is not unexpected given the predominance of trolling as a fishing method for billfish species such as marlin. Total trip-related expenditures for 2011 were estimated by expanding average trip-related expenditures by estimates of total directed boat trips per species group from the LPS and MRIP. Total expenditures were then divided among the appropriate economic sectors, and entered into an input-output model to estimate total economic output and employment supported by the expenditures within the study region (coastal states from Maine to North Carolina). Overall, $23.2 million of HMS angling trip-related expenditures generated approximately $31.3 million in economic output, and supported 216 full time jobs from Maine to North Carolina in 2011.

Table 5.28 HMS Recreational Fishing Trip Related Expenditures and Economic Impacts for Directed HMS Private Boat Trips (ME - NC, 2011)

Variable	Tuna Trips	Billfish Trips	Shark Trips	All HMS Trips
Sample size by species targeted	1,001	88	105	1,194
Average trip expenditures	$534	$900	$567	$587
Total directed HMS private boat trips *	27,648	5,123	6,669	39,440
Total trip-related expenditures	$14,775,000	$4,612,000	$3,781,000	$23,168,000
Total economic output	$19,864,000	$6,036,000	$5,443,000	$31,343,000
Employment (Full time job equivalents)	136	39	41	216

Sources: 2011 mail survey of Atlantic HMS Angling permit holders and *Large Pelagics Survey.

In addition to collecting data on HMS angling trip expenditures and economic impacts, the 2011 expenditure survey also collected data on HMS angler expenditures on durable goods used for marine angling (e.g., boats, vehicles, tackle, electronics, second homes). HMS anglers were found to spend $10,410 on average for durable goods and services related to marine recreational fishing, of which $5,516 could be attributed to HMS angling (based on their ratio of HMS trips to total marine angling trips). The largest expenditures items for marine angler durable goods among HMS anglers were for new boats ($3,178), boat storage ($1,258), and boat maintenance ($1,085). HMS anglers were estimated to have spent a total of $76 million on durable goods for HMS angling which in turn were estimated to generate $116 million in economic output, and support 727 jobs from Maine to North Carolina in 2011 (Hutt et al., 2014).

On May 9, 2014, NMFS announced that it would conduct a National Marine Recreational Fishing Expenditure Survey. The survey was conducted in two parts. The first part of the survey collected information on expenditures and durable goods from randomly selected anglers with saltwater fishing licenses in coastal states. The second part of the survey, focusing on trip-related expenditures, will be conducted in 2016. The 2014 expenditure included a targeted survey of approximately 1,200 Atlantic Highly Migratory Species (HMS) Angling permit holders. Such a targeted survey will provide expenditure data on a unique group of anglers that are typically under-represented in national surveys.

5.4.2 Atlantic HMS Tournaments

For detailed information about HMS tournaments, please see Sections 4.4.2 (landings) and 8.2 (HMS tournament characterization) of this document, the 2006 Consolidated HMS FMP, and the 2011 HMS SAFE Report.

5.4.3 Atlantic HMS Charter and Party Boat Operations

At the end of 2004 and 2012, NMFS collected market information regarding advertised charterboat rates. The analysis of this data focused on advertised rates for full day charters. Full day charters vary from 6 to 14 hours long with a typical trip being 10 hours. The average price for a full day boat charter was $1,053 in 2004 and $1,200 in 2012. 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 and 2012, it is apparent that there has been a significant increase in charterboat rates.

In 2013, NMFS executed a logbook study to collect cost and earnings data on charter and headboat trips targeting HMS throughout the entire Atlantic HMS region (Maine to Texas) (Hutt and Silva, 2015). The HMS Cost and Earning Survey commenced in July 2013, and ended in November 2013. Data from the survey indicate that 47 percent of HMS Charter/Headboat permit that responded to the survey did not plan to take for-hire trips to target HMS from July to November of 2013.

The HMS most commonly targeted by for-hire vessels varied by region and between charter and headboats (Table 5.29). Overall, the HMS most commonly targeted by charter boats were yellowfin tuna (45%), sailfish (37%), marlin (32%), and coastal sharks (32%). The reported percentages add to greater than 100% as most HMS for-hire trips targeted multiple species. This was especially true of trips targeting tuna or billfish species as the majority of these trips reported targeting at least two other species. The exception was HMS trips targeting coastal sharks with only 5% or fewer reporting targeting other species. Of the 19 headboat trips that reported targeting coastal sharks, none reported targeting any other species. The HMS most commonly targeted by headboats were yellowfin tuna (37%), bigeye tuna (45%), swordfish (34%), and coastal sharks (33%). In the North Atlantic region, the two HMS most commonly targeted by both charter and head boats were yellowfin tuna (57%, 100%) and bigeye tuna (48%, 100%). The third HMS most commonly targeted in the North Atlantic by charter boats were bluefin tuna (35%) which were not targeted on any reported headboat trips. HMS charters in the

South Atlantic were most likely to report targeting sailfish (56%), yellowfin tuna (44%), and marlins (40%). In the Gulf of Mexico, HMS charter and head boats were most likely to report targeting coastal sharks (64%, 48%), yellowfin tuna (35%, 53%), and marlins (23%, 30%).

Table 5.29 Percent of HMS Charter/Headboat Trips by Region and Target Species (2013)

	N. Atlantic		S. Atlantic		Gulf of Mexico		Overall	
Species	CH	HB	CH	HB	CH	HB	CH	HB
Bluefin tuna	35.0	0.0	3.0	-	0.0	3.0	9.0	2.0
Yellowfin tuna	57.0	100.0	44.0	-	35.0	53.0	45.0	67.0
Albacore tuna	14.0	89.0	6.0	-	0.0	0.0	7.0	28.0
Bigeye tuna	48.0	100.0	2.0	-	5.0	20.0	12.0	45.0
Skipjack tuna	3.0	0.0	10.0	-	2.0	0.0	7.0	0.0
Marlin	14.0	17.0	40.0	-	23.0	30.0	32.0	26.0
Swordfish	13.0	89.0	3.0	-	10.0	10.0	6.0	34.0
Sailfish	0.0	0.0	56.0	-	15.0	10.0	37.0	7.0
Pelagic sharks	27.0	6.0	0.0	-	0.0	8.0	5.0	7.0
Coastal sharks	7.0	0.0	30.0	-	64.0	48.0	32.0	33.0
Other species	11.0	83.0	40.0	-	14.0	13.0	30.0	34.0

North Atlantic includes: RI, MA, NH, and ME. Mid-Atlantic includes: CT, NY, NJ, DE, MD, and VA. South Atlantic includes: NC, SC, and GA. Gulf of Mexico includes: AL, MS, LA, and TX. Florida was reported separately as currently available data did not permit separating Atlantic and Gulf of Mexico trips. * Percentages exceed 100 percent as most trips targeted multiple species.

In the Northeast, the average net return per HMS charter boat trip was $969 (Table 5.30). Inflows from charter fees averaged $2,450 per trip. Northeast charter boat trips averaged $1,229 in material costs with their greatest material expenditures being for fuel ($966) and bait ($129). In the Southeast, the average net return per HMS charter boat trip was $534. Inflows from charter fees averaged $1,223 per trip. Southeast charter boat trips averaged $496 in material costs with their greatest material expenditures being for fuel ($376) and bait ($46). The lower costs and revenues reported for this region were likely due to the fact that only one over-night trip was reported in the Southeast for the survey. In the Gulf of Mexico, the average net return per HMS charter boat trip was $1,028. Inflows from charter fees averaged $2,111 per trip. Gulf of Mexico charter boat trips averaged $858 in material costs with their greatest material expenditures being for fuel ($631) and bait costs ($70).

Table 5.30 Average costs and revenues for HMS charter boat trips by region in 2013.

	Northeast Region (n = 95)	Southeast Region (n = 297)	Gulf of Mexico (n = 86)
	Maine to Virginia	North Carolina to east Florida	West Florida to Texas
Outflow			
Material costs	$1,228.62	$495.66	$857.56
Fuel costs	966.79	376.32	631.03
Fuel price	3.96	3.74	3.64
Gallons used	244.14	100.62	173.36
Bait costs	129.05	45.76	69.99
Tackle costs	61.01	37.74	58.22
Ice costs	56.28	13.52	42.95
Other costs	15.49	22.32	55.37
Payouts			
Captain	109.16	101.56	111.34
Crew	144.11	97.42	114.13
Inflow			
Total fare	2,450.40	1,223.02	2,111.44
Daily fare	1,791.67	1,201.55	1,422.19
Net return	968.51	528.38	1,028.41

In the Northeast, the LPS estimated that there were 4,936 charter trips from July to November, 2013, that targeted HMS. Extrapolating the average gross revenue per HMS trip in the Northeast resulted in an estimate of $12.1 million in gross revenue from July through November, 2013. Of that gross revenue, $7.3 million went towards covering trip expenditures (fuel, bait, ice, crew, etc.), and $4.8 million went to owner net return and other annual operation costs (Table 5.31). An input-output analysis in IMPLAN estimated that these expenditures generated $31.9 million in total economic output, $8.0 million in labor income, and 460 full and part-time jobs (Table 5.32).

In the Southeast, the MRIP estimated that there were 3,008 charter trips from July to November, 2013, that targeted HMS. Extrapolating the average gross revenue per HMS trip in the Southeast resulted in an estimate of $3.7 million in gross revenue from July through November, 2013. Of that gross revenue, $2.1 million went towards covering trip expenditures (fuel, bait, ice, crew, etc.), and $1.6 million went to owner net return and other annual operation costs (Table 5.31). Analysis in IMPLAN estimated that these expenditures generated $10.6 million in total economic output, $2.9 million in labor income, and 243 full and part-time jobs (Table 5.32).

In the Gulf of Mexico, excluding Texas, the MRIP estimated that there were 1,505 charter trips from July to November, 2013, that targeted HMS. Extrapolating the average gross revenue per HMS trip in the Gulf of Mexico resulted in an estimate of $3.2 million in gross revenue from July through November, 2013. Of that gross revenue, $1.6 million went towards covering trip expenditures (fuel, bait, ice, crew, etc.), and $1.5 million went to owner net return and other annual operation costs (Table 5.31). Analysis in IMPLAN estimated that these expenditures generated $8.8 million in total economic output, $2.2 million in labor income, and 428 full and part-time jobs (Table 5.32).

Table 5.31 Total Costs and Earnings for HMS Charter Boats by Region (July-November 2013)

		Northeast	Southeast	Gulf of Mexico[2]
Total HMS charter trips[1]		4,936	3,008	1,505
Inflow (gross revenue)		12,095,174	3,678,938	3,176,799
Outflow (expenses)	Fuel	4,772,097	1,131,996	949,426
	Bait	636,991	137,996	105,305
	Tackle	301,145	113,525	87,596
	Ice	277,798	40,669	64,621
	Other	76,459	67,140	83,308
	Hired captain	538,814	305,500	167,518
	Crew / mates	711,327	293,047	171,716
Owner net return plus fixed costs		4,780,544	1,589,411	1,547,309

[1]Charter boat trips that indicated HMS were their primary or secondary target species. Excludes head boat trips.
[2]The estimate of HMS for-fire trips in the Gulf of Mexico does not include trips originating from Texas, as the state does not participate in the MRIP survey.

Table 5.32 Estimated Total Expenditures and Economic Impacts Generated by Atlantic HMS Charter Boat Trip Operations by Region (July-November 2013)

		Economic Impacts		
Region	Total Expenses ($1,000)	Employment	Labor Income ($1,000)	Total Output ($1,000)
Northeast	$12,095	460	$8,011	$31,929
Southeast	$3,679	243	$2,848	$10,587
Gulf of Mexico	$3,177	428	$2,226	$8,847
Total	$18,951	1,131	$13,085	$51,363

This study estimated 1,131 jobs were generated as a result of HMS charter vessel operations during the study period (Table 5.32). This number is a conservative estimate, and does not include jobs created by additional travel expenditures generated by the HMS anglers that charter HMS for-hire vessels. Furthermore, most HMS for-hire vessels also take out trips targeting other species, and these trips were not included in this study's analysis, and are not reflected in the estimated employment figures.

5.5 Review of Regulations under Section 610 of the Regulatory Flexibility Act

The Regulatory Flexibility Act, 5 U.S.C. 601, requires that Federal agencies take into account how their regulations affect "small entities," including small businesses, small governmental jurisdictions and small organizations. In order to assess the continuing effect of an agency rule on small entities, The Regulatory Flexibility Act contains a provision in Section 610 that requires Federal agencies to review existing regulations on a periodic basis that had or will have a significant economic impact on a substantial number of small entities. Regulations must be reviewed within 10 years of the publication date of the final rule.

NMFS published the most recent plan for this required periodic review of regulations in the Federal Register in 2014 (79 FR 53151, September 8, 2014). This plan required review of rules issued during 2007 and 2008. The review of 2007 and 2008 rules was completed in the 2014 HMS SAFE Report. NMFS is currently revising its guidelines for review of rules for which a Final Regulatory Flexibility Analysis was prepared, and expects to release updated

guidelines in 2016. Since the guidelines are being revised, and since reviews have been completed through 2008, NMFS did not publish a plan for review of regulations in 2015.

Chapter 5 References

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6. COMMUNITY PROFILES

This chapter updates the community information on the HMS fishing communities identified and described in the 2006 Consolidated HMS FMP and its amendments. Background information on the legal requirements and summary information on the community studies conducted to choose the communities profiled in this document is not repeated here and can be found in previous HMS SAFE Reports, and was most recently updated in the 2011 HMS SAFE Report. Additionally, the 2011 and 2012 HMS SAFE Reports contain modified demographic profile tables from previous documents to include the same baseline information for each community profiled, and use 1990, 2000, and 2010 Bureau of the Census data for comparative purposes. A profile for the U.S. Virgin Islands was not created because of the limited availability of 1990, 2000, and 2010 Census data for the region. The descriptive community profiles in the 2011 HMS SAFE Report include information provided by Wilson, et al. (1998) and Kirkley (2005), Impact Assessment, Inc. (2004), and information obtained from MRAG Americas, Inc. (2008), along with 2010 Bureau of the Census data.

Of the communities profiled in previous SAFE Reports, 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. The list of communities profiled 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.

6.1 Community Impacts from Hurricanes

This section is an overview of the impacts on HMS communities caused by hurricanes during 2014. Please refer to prior SAFE reports for hurricane impact information prior to 2014.

The 2014 Atlantic hurricane season was below average (Pasch 2015). The 2014 hurricane season had an average number of hurricanes (6). However, only two hurricanes, Edouard and Gonzalo, intensified into major hurricanes based on the Saffir-Simpson Hurricane Wind Scale and there were also eight named storms, which is less than the long-term averages. Hurricane Arthur was the only hurricane in 2014 that made landfall in the United States. It arrived about five miles west of Cape Lookout, North Carolina on July 4, 2014. After landfall, the hurricane moved northeastward over eastern Carteret county and Pamlico Sound, crossing the Outer Banks just north of Oregon Inlet then accelerated northeastward over into the western Atlantic. One of the hardest hit areas was the Outer Banks which experienced property damage to numerous residences, businesses, and campgrounds from high winds and flooding from the sound-side storm surge. In New England, heavy rainfall caused flooding in parts of southeastern Massachusetts and in Maine strong winds and rain helped to topple numerous large trees and power lines, causing extensive damage and knocking out power for about 20,000 customers. While the hurricane resulted in minor property damage, the insured amounts were less than the $25 million threshold used to declare a catastrophe.

6.2 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. Between May and November 2010, NMFS closed additional portions of the Gulf of Mexico to fishing. The maximum closure was implemented on June 2, 2010, when fishing was prohibited in approximately 37 percent of the Gulf of Mexico EEZ. Significant portions of state territorial waters in Alabama (40%), Florida (2%), Louisiana (55%), and Mississippi (95%) were closed to fishing (Upton, 2011). After November 15, 2010, approximately 0.4 percent (1,041 square miles) of the federal fishing area was kept closed immediately around the Deepwater Horizon wellhead through April 19, 2011, when the final oil spill closure area was lifted (NOAA 2011c).

Socioeconomic impacts from the oil spill on HMS communities include losses in HMS revenue and negative psychological impacts. One study (Sumaila et al, 2012) estimated loss in commercial pelagic fish revenue, which includes HMS species, at $35-58 million over the next seven years. The study also estimated that Gulf of Mexico recreational fisheries could lose between 11,000-18,000 jobs, and have an overall economic loss between $2.5-4.2 billion (Sumaila et al, 2012).

On April 20, 2011, BP agreed to provide up to $1 billion toward Early Restoration projects in the Gulf of Mexico (*Deepwater Horizon* Oil Spill Final Phase IV Early Restoration Plan and Environmental Assessments, 2015). The agreement intends to expedite the start of restoration in the Gulf in advance of the completion of the injury assessment process.

One of the restoration projects is the Pelagic Longline (PLL) Bycatch Reduction Project, which was released in September 2015 and will restore pelagic fish that were affected by the spill. The project aims to reduce the number of fish (including marlin, sharks, bluefin tuna, and smaller individuals of the target species) incidentally caught and killed in PLL fishing gear by compensating PLL fishermen who agree to voluntarily refrain from PLL fishing in the Gulf during an annual six-month "repose" period that coincides with the bluefin tuna spawning season. The project will also provide participating fishermen with two alternative gear types (green-stick gear and/or bouy gear) to allow for the continued harvest of yellowfin tuna and swordfish during the repose period when PLL gear is not used.

Demographic data for coastal counties was evaluated, taking into consideration communities that could be disproportionately affected by this action. It found that while there are dispersed low income, minority Vietnamese-American populations in Louisiana that actively participate in the Gulf of Mexico PLL fishery and commute to fishing ports, the PLL project would not disproportionately affect minority or low income populations. The project is voluntary in nature, and as such, any fishermen in the Gulf of Mexico PLL fishery would choose whether to participate in the repose and alternative gear provisioning. During the repose project, fish dealers, fuel suppliers, and ice/bait/equipment suppliers may experience negative economic effects; however, these effects are anticipated to be minor and short term due to the limited

duration of the repose period. Furthermore, negative economic effects may be partially mitigated by the use of alternative fishing gear. For more information see: http://www.gulfspillrestoration.noaa.gov/wp-content/uploads/Final-Phase-IV-ERP-EA.pdf http://www.noaa.gov/deepwaterhorizon/index.html and http://sero.nmfs.noaa.gov/deepwater_horizon/index.html.

6.3 Community Impacts of Impediments to Navigation

Access to HMS may be hindered when ocean inlets become difficult to navigate. For example, severe shoaling has been observed in the Oregon Inlet and Hatteras Inlet, NC, causing fishermen and other mariners to either make difficult maneuvers through the shallow inlets or to reroute to Teaches Hole Channel at Ocracoke Inlet to the south or the Intracoastal Waterway via Chesapeake Bay to the north, resulting in higher fuel costs.

Dare County, NC, commissioned a study of the economic impacts of the Oregon Inlet navigability (Moffatt & Nichol, 2014). The study examined the impacts of reduced navigability on five sectors: commercial fishing, seafood packing/processing, boat building and support services, and the recreational fishing (both charter and private sectors). The study found that with the Oregon inlet in its current condition, the five sectors provide a total annual economic impact of 3,319 jobs and $403.5 million to Dare County and a total of 4,348 jobs and $548.4 million to North Carolina, including Dare County (Moffatt & Nichol, 2014). If the inlet were fully open, the five sectors studied could potentially provide a total annual economic impact of 5,120 jobs and $642.2 million to Dare County and a total of 5,397 jobs and $693 million to the rest of North Carolina (Moffatt & Nichol, 2014).

Commercial fishermen were interviewed about the navigability of Oregon Inlet. If the inlet is not maintained, the interview responses indicated that most commercial fishing vessels would choose to remain in the fishing business but would relocate their fishing operations to other ports (Moffatt & Nichol, 2014).

6.4 Social Indicators of Fishing Community Vulnerability and Resilience

The NMFS Office of Science and Technology presents community profiles by region (e.g., Northeast, mid-Atlantic, Southeast, Gulf of Mexico) at on the following website: http://www.st.nmfs.noaa.gov/humandimensions/community-profiles/index. The NMFS Office of Science and Technology presents information on community vulnerability and resilience on its webpage: http://www.st.nmfs.noaa.gov/humandimensions/social-indicators/index.

Jepsen and Colburn (2013) developed social indicators of vulnerability and resilience for 25 communities selected for having a greater than average number of HMS permits associated with them. The series of indices they developed used social indicator variables that could assess a coastal community's vulnerability or resilience to potential economic disruptions such as those resulting from drastic changes in fisheries quotas and seasons, or natural and anthropogenic disasters. Indices and index scores were developed using factor analyses of data from the United States Census, permit sales, landings reports, and recreational fishing effort estimates from the MRIP survey (Jepsen and Colburn, 2013). Their results were presented in the 2014 SAFE Report. An update of the 2013 study is forthcoming and will contain updated and new data

including a scope that encompasses communities from the entire United States. Once complete, this update will be included in a future SAFE report.

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7. 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 NMFS'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. Further discussion of fishery bycatch, incidental catch, and protected species, including standardized reporting of bycatch, bycatch reduction in HMS fisheries, and evaluation and monitoring of bycatch, is available in this chapter of the 2011 HMS SAFE Report. The bycatch in each HMS fishery is summarized and reported annually in the HMS SAFE Report. The effectiveness of bycatch reduction measures is evaluated based on this summary.

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.

7.1.1 Standardized Bycatch Reporting Methodology

Section 303(a)(11) of the MSA requires all FMPs to "establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery" (16 U.S.C. § 1853(11)). The scope of the Standardized Bycatch Reporting Methodology (SBRM) requirement is limited to the MSA definition of "bycatch." The MSA defines bycatch as "fish which are harvested in a fishery, but which are not sold or kept for personal use, and includes economic discards and regulatory discards" (16 U.S.C. § 1802(2)). As clarified in the definition, bycatch "does not include fish released alive under a recreational catch and release fishery management program" (16 U.S.C. § 1802(2)).

The MSA definition of "fish" includes "finfish, mollusks, crustaceans, and all other forms of marine animal and plant life other than marine mammals and birds" (16 U.S.C. §

1802(12)). Therefore, the SBRM requirement applies to bycatch of finfish, shellfish, coral, all other marine invertebrates, marine plants, sea turtles, etc., but does not include marine mammals or seabirds. The National Standard 9 Guidelines (50 C.F.R. § 600.350) provides further clarification of the MSA's definition of bycatch. The Endangered Species Act and the Marine Mammal Protection Act create additional important bycatch-related responsibilities for NOAA Fisheries.

In 2004, NMFS published a technical memorandum that provided information that could be used to develop standardized reporting methodologies, including recommended objectives, protocols, and precision goals (NMFS 2004). The development and documentation of this methodology establishes the SBRM for a fishery. Appendix 5 of the report specifies the protocols for SBRMs established by NMFS throughout the country. NMFS published the First Edition of the U.S. National Bycatch Report in 2011 (NMFS 2011b), which documented bycatch estimates, using observer data and self-reported logbook data, for all fisheries for which this information was available in 2005. The First Edition Update 1 (data through 2010) to the U.S. National Bycatch Report became available in 2014. The 2014 update, as well as the First Edition of the report, is available at: http://www.fisheries.noaa.gov/by_catch/bycatch_nationalreport.htm. NMFS anticipates the next update to the National Bycatch Report, which will include data through 2013, will be publicly available late in 2015. The U.S. National Bycatch Report includes descriptions of the Atlantic and Gulf of Mexico shark bottom longline fishery, pelagic longline fishery, and southeast large coastal and small coastal shark drift, strike, and bottom gillnet fisheries; gear types; some methods used to reduce bycatch and bycatch mortality in each fishery; and bycatch data sources as well as bycatch estimations and estimation methodology.

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. The incidental catch of bluefin tuna in the pelagic longline fishery is also monitored via electronic monitoring (camera array) and catch reporting via vessel monitoring systems and dead discards of bluefin tuna in the harpoon and hook and line fisheries are self-reported via reporting. All bycatch data are collected with respect to fishing gear type. 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 are 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 PLL 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.

A review of the bycatch reporting methodologies for all HMS fisheries through 2010 was provided in the 2011 SAFE Report (NMFS 2011a). Updates for bycatch reporting methodologies (where changes in methodologies have occurred) and updated information on observer coverage rates (for fisheries with observer coverage) are provided in the respective Fishery Data Update sections: Section 4.1 (Pelagic Longline); Section 4.2 (Purse Seine); Section 4.3 (Commercial Handgear); Section 4.5 (Bottom Longline); and Section 4.6 (Gillnet Fishery). Future adjustments may be implemented as needed due to changing conditions in the fisheries or based on additional research. Further analyses of bycatch in the various HMS fisheries may be conducted as warranted.

7.2 Evaluation and Monitoring of Bycatch in HMS Fisheries

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. A summary of bycatch species, data collection methods, and management measures by fishery/gear type is found in Table 7.1.

Pelagic longline fishery dead discards of swordfish, bluefin tuna, billfish, large coastal sharks, and pelagic sharks are estimated using data from NMFS observer reports and logbook reports. Shark bottom longline and shark gillnet fishery discards can be estimated using logbook data and observer reports as well.

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. Effective in 2015, Amendment 7 to the 2006 Consolidated HMS FMP implemented requirements for commercial handgear fishermen, including General and Harpoon category fishermen, to report bluefin tuna dead discards online, which will allow for estimates of those geartypes' bycatch in the future.

The accuracy of discard estimates in the recreational rod and reel fishery for Atlantic HMS is uncertain due to the low number of observations by the Large Pelagics Survey (LPS) and the Marine Recreational Information Program (MRIP). 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 may develop bycatch estimates (live and dead discards) and estimates of uncertainty for the recreational fishery from the LPS. These data will be included in future HMS SAFE Reports. Bycatch estimates may also be examined for the recreational fishery with the use of tournament data.

Table 7.1 Summary of Bycatch Species, Marine Mammal Protection Act Category, Endangered Species Act Requirements, Data Collection, and Management Measures (Year Implemented) for HMS Fisheries, by Fishery/Gear Type

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; Consultation reinitiated in 2014	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 requirements in Cape Hatteras Spec. Research Area (CHSRA), increased observer coverage in Atl PLL fishery (2009), weak hook requirement in GOM (2011); Amendment 7 Individual Bluefin Quotas, Gear Restricted Areas, Electronic Monitoring, VMS reporting (2015)
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	Category II	ITS, Terms & Conditions, RPMs	Permit requirement (1993); logbook requirement (1993);	Quotas (1993); trip limit (1994); gear marking (1999); deployment restrictions (1999); 30-day closure for leatherbacks (2001); handling & release guidelines

Fishery/Gear Type	Bycatch Species	MMPA Category	ESA Requirements	Bycatch Data Collection	Management Measures
	Marine mammals Non-target finfish Smalltooth sawfish			observer coverage (1994)	(2001); net checks (2002); whale sighting (2002); VMS (2004; revised 2016); closure for right whale mortality (2006); shark identification workshops for dealers (2007); gillnet soak time limits (2016)
Bluefin tuna 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); Amendment 7 VMS requirements and reporting (2015)
Bluefin tuna & swordfish harpoon	Undersize target species	Category III	ITS, Terms & Conditions	Permit requirement (BFT - 1982; SWO - 1987); SWO logbook requirement (1987)	Quotas (BFT - 1982; SW0 - 1985); minimum size (BFT - 1982; SWO - 1985); Amendment 7 online catch reporting (2015)
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; Amendment 7 online catch reporting (2015)
Handgear - recreational	Undersize target species Non-target finfish	Category III	ITS, Terms & Conditions	Large Pelagics Survey (1992); MRFSS (1981)	Regulations vary by species, including minimum sizes, retention limits, landing form; BFT quotas

MMPA – Marine Mammal Protection Act; ESA – Endangered Species Act; ITS – Incidental take statement; MRFSS – Marine Recreational Fishing Statistics Survey; EFPs – Exempted fishing permits; BFT – Bluefin tuna; SWO – Swordfish; SHK – Shark; GOM – Gulf of Mexico; NED – North East Distant; MAB – Mid Atlantic Bight; PLL – Pelagic longline; VMS – Vessel monitoring system.

7.2.1 Bycatch Mortality

The reduction of bycatch mortality is an important component of National Standard 9. Physical injuries to fish may not be apparent to the fisherman who is quickly releasing the 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 HMS 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 PLL 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).

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 BLL fishery has relatively low observed bycatch rates. Historically, finfish bycatch has averaged approximately five percent in the BLL 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 been targeting finfish rather than sharks as a result of Amendments 2 and 3 to the Consolidated Atlantic Highly Migratory Species Management Plan (NMFS 2007, 2010). Disposition of discards is recorded by observers and can be used to estimate discard mortality. There was one protected species interaction observed in any gillnet sets in 2014 (Mathers et al. 2015).

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. Effective in 2015,

Amendment 7 to the 2006 Consolidated HMS FMP implemented requirements for commercial handgear fishermen, including Harpoon category fishermen, to report bluefin tuna dead discards online, which will allow for estimates of this gear type's bycatch in the future. Bycatch in the swordfish harpoon fishery is expected to be 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 2006 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. A more detailed review of the three acts (Marine Mammal Protection Act (MMPA), Endangered Species Act (ESA), and Migratory Bird Treaty Act (MBTA)) affecting protected species, along with a description of the Pelagic Longline Take Reduction Team (http://www.nmfs.noaa.gov/pr/interactions/trt/pl-trt.htm), Take Reduction Plan, and measures to address protected species concerns, is available in the 2011 HMS SAFE Report. The interaction of seabirds and longline fisheries are also considered under the United States "National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries" (NPOA – Seabirds). Bycatch of HMS in other fisheries is also discussed in the 2011 HMS SAFE Report, and estimates of blacknose shark bycatch in the shrimp fisheries are available in the most recent stock assessment, SEDAR 21 (Cortés and Baremore, 2011).

Protected Species – Reinitiation of ESA Section 7 Consultation in HMS Fisheries

On March 31, 2014, NMFS requested reinitiation of Section 7 consultation under the Endangered Species Act (ESA) on actions in the Atlantic pelagic longline fishery. Despite sea turtle takes that were lower than specified in the ITS, leatherback mortality rates and total mortality levels had exceeded the level specified in the reasonable and prudent alternatives (RPAs) in the 2004 biological opinion. Additionally, new information has become available about leatherback and loggerhead sea turtle populations and sea turtle mortality. While the mortality rate measure will be re-evaluated during consultation, the overall ability of the RPA to avoid jeopardy is not affected, and NMFS is continuing to comply with the terms and conditions of the RPA and RPMs pending completion of consultation. NMFS also has confirmed that there will be no irreversible or irretrievable commitment of resources that would foreclose the formulation or implementation of any reasonable and prudent alternative measures pending completion of consultation, consistent with section 7(d) of the Act.

On July 3, 2014, NMFS issued the final determination to list the Central and Southwest Atlantic Distinct Population Segment (DPS) of scalloped hammerhead shark (*Sphyrna lewini*) as threatened species pursuant to the ESA. On August 27, 2014, NMFS published a final rule to list the following 20 coral species as threatened: five in the Caribbean including Florida and the Gulf of Mexico (*Dendrogyra cylindrus*, *Orbicella annularis*, *O. faveolata*, *O. franksi*, and *Mycetophyllia ferox*); and 15 in the Indo-Pacific (*Acropora globiceps*, *A. jacquelineae*, *A. lokani*, *A. pharaonis*, *A. retusa*, *A. rudis*, *A. speciosa*, *A. tenella*, *Anacropora spinosa*, *Euphyllia paradivisa*, *Isopora crateriformis*, *Montipora australiensis*, *Pavona diffluens*, *Porites napopora*, and *Seriatopora aculeata*). Additionally, in that August 2014 rule, two species that had been previously listed as threatened (*A. cervicornis* and *A. palmata*) in the Caribbean were found to still warrant listing as threatened.

The Central and Southwest Atlantic DPS of scalloped hammerhead sharks and seven Caribbean species of corals have been determined to occur within the management area of Atlantic HMS fisheries. Therefore, on October 30, 2014, NMFS requested reinitiation of ESA Section 7 consultation on the continued operation and use of several HMS gear types (bandit gear, bottom longline, buoy gear, handline, and rod and reel) and associated fisheries management actions in the 2006 Consolidated Atlantic HMS FMP and its amendments. These management actions were previously consulted on in the 2001 Atlantic HMS biological opinion and the 2012 Shark and Smoothhound biological opinion, to assess potential adverse effects of these gear types on the Central and Southwest DPS of scalloped hammerhead sharks and seven threatened coral species. NMFS has preliminarily determined that the ongoing operation of the fisheries is consistent with existing biological opinions and is not likely to jeopardize the continued existence or result in an irreversible or irretrievable commitment of resources which would foreclose formulation or implementation of any reasonable and prudent alternative measures on the threatened coral species.

With regard to the ongoing reinitiation of ESA Section 7 consultation on the Atlantic PLL fishery, the effects of HMS fishery interactions with the central and southwest Atlantic DPS of scalloped hammerhead shark and the seven threatened coral species will be considered in the ongoing PLL consultation. This will most effectively evaluate the effects of the PLL fishery on all listed species in the action area.

7.3.1 Interactions and the Marine Mammal Protection Act

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 2015 MMPA LOF was published on January 28, 2015 (79 FR 77919); the proposed 2016 MMPA LOF was published on September 29, 2015 (80 FR 58427). The Atlantic

Ocean, Caribbean, and Gulf of Mexico large PLL 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). A summary of the observed and estimated marine mammal interactions with the PLL fishery is presented in Table 4.9. 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 BLL; 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.

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).

7.3.2 Interactions and the Endangered Species Act (ESA)

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.

Smalltooth Sawfish

NMFS designated critical habitat for smalltooth sawfish in September 2009 (74 FR 45353). 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 biological opinion 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 2012.

Interactions with Seabirds

The NPOA-Seabirds (http://www.nmfs.noaa.gov/ia/species/seabirds/us_npoa.pdf) was released in February 2001, and 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. Because interactions appear to be relatively low in Atlantic HMS fisheries, the adoption of immediate measures is unlikely. The 2014 Report on the Implementation of the United States National Plan of Action for Reducing the Incidental Catch of Seabirds in Longline

Fisheries was submitted to the UN FAO in June 2014 and can be found here http://www.nmfs.noaa.gov/ia/resources/publications/ccrf/longline_fisheries.pdf.

Gannets, gulls, greater shearwaters, and storm petrels are occasionally hooked in the Atlantic pelagic longline fishery. These species and all other seabirds are protected under the MBTA. 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 BLL fishery has been virtually non-existent. A single pelican has been observed killed from 1994 through 2013. No expanded estimates of seabird bycatch or catch rates for the BLL fishery have been made due to the rarity of seabird takes.

7.4 Bycatch of HMS in Other Fisheries

The following section summarizes the bycatch of HMS in any federal or state-managed fishery which captures them. More detailed information, including a description of HMS bycatch in the menhaden purse seine fishery, was presented in the 2011 HMS SAFE Report. NMFS continues to solicit bycatch data on HMS from all state, interjurisdictional, and Federal data collection programs.

7.4.1 Squid Mid-Water Trawl

U.S. squid trawl fishermen, using mid-water gear, landed 5.6 mt ww of yellowfin tuna, skipjack tuna, albacore tuna, bigeye tuna, and swordfish in 2014 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 increased from 2013 for swordfish; however, pre-2013 swordfish landings were an order of magnitude higher. Swordfish landings remain low relative to the directed fishery landings. An Incidental HMS Squid Trawl permit allows squid trawl fishermen with an *Illex* squid trawl moratorium permit to land up to 15 swordfish per trip, although regulatory discards may still occur.

Table 7.2 Atlantic HMS Landed (mt ww) Incidental to Trawl Fisheries (2007-2014)

Species	2007	2008	2009	2010	2011	2012	2013	2014
Yellowfin tuna	2.40	0.00	0.0	1.4	1.3	0.2	0.0	0.3
Skipjack tuna	<0.01	<0.01	0.0	0.0	0.0	0.006	0.0	0.0
Bigeye tuna	0.40	0.00	0.0	0.7	1.2	0.2	0.0	0.0
Albacore tuna	0.30	0.01	0.08	0.2	2.0	0.3	0.0	0.0
Swordfish	6.50	7.60	22.7	21.2	17.9	26.8	2.9	5.3
Total	9.61	7.61	22.8	22.5	22.4	27.6	2.9	5.6

Source: NMFS, 2014.

7.4.2 Shrimp Trawl Fishery

For a summary of shark bycatch in the shrimp trawl fishery, please see the 2011 HMS SAFE Report. More recent estimates of blacknose shark bycatch in the shrimp fisheries can be found in the most recent blacknose stock assessment, SEDAR 21 (Cortés, E. and I. Baremore, 2011). Estimates of Atlantic sharpnose and bonnethead shark bycatch in the shrimp fisheries can be found in the most recent stock assessment reports for each (SEDAR 34).

7.5 Existing Pelagic Longline Time/Area Closures and Gear Restriction Efficacy 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, sharks, sea turtles, etc.). Circle hooks are required for the entire PLL fishery since July 2004. In May 2011, NMFS implemented a requirement that only "weak" circle hooks be used in the Gulf of Mexico PLL fishery in order to reduce the bycatch of bluefin tuna. Weak hooks are made with thinner wire (no larger than 3.65 mm in diameter) than standard hooks, which allows them to bend more easily and release large bluefin tuna quickly, thus allowing them to escape. Preliminary analyses of the effectiveness of the closures and combined closures and circle hook requirement are summarized here. Preliminary analysis of the effectiveness of weak hooks is being conducted. A brief summary of the prohibition of live bait in the Gulf of Mexico PLL fishery is available in the 2011 HMS SAFE Report. Amendment 7, effective January 1, 2015, implemented gear restricted areas for the PLL fishery in the Gulf of Mexico and Atlantic in order to reduce interactions between PLL gear and bluefin tuna. The Amendment 7 Gulf of Mexico GRAs prohibit the use of PLL gear during April and May, and the Amendment 7 Cape Hatteras GRA provides conditional access to the area for vessels fishing with PLL during December through April. Data from the PLL fishery from 2015 will be available during 2016, which may contribute toward evaluation of the efficacy of the GRAs.

The combined effects of the individual area closures and gear restrictions were examined by comparing the reported catch and discards from 2005-2014 to the averages for 1997-1999 throughout the 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 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 23.7 percent during 2005-2014 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 and bluefin tuna, large coastal sharks, and spearfish discards. The reported number of bluefin tuna kept increased by 57.9 percent for 2005-2014 compared to 1997-1999 (Table 7.3). The number of reported discards of bluefin tuna increased by 3.9 percent between the same time periods, which is less than the predicted 10.7 percent increase from the analyses in Regulatory Amendment 1. The number of dolphin kept increased by 7.2 percent (Table 7.3). Reported billfish (blue marlin, white marlin, and sailfish) discards decreased by 50 - 64 percent from 1997-1999 to 2005-2013 (Table 7.4). The reported discards of spearfish increased by 12 percent, although the absolute number of discards was low. The reported number of turtle interactions decreased by 73 percent from 1997-1999 to 2005-2014.

The reported declines in swordfish kept and discarded, large coastal sharks kept, and BAYS tuna 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 turtle interactions also

declined more than the predicted values. The number of large coastal shark discards increased slightly from 1997-1999 to 2005-2014. The numbers of bluefin tuna discards and dolphin kept have increased.

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 all areas with the exception of the Sargasso (SAR) area, where reported effort has increased more than ten-fold from the period between 1997 and 1999. However, this effort represents only 2.7 percent of the overall effort reported in the fishery. Effort also increased in the Florida East Coast (FEC) area by 15.5 percent and in the South Atlantic Bight (SAB) by 6.9. Overall, reported effort decreased by 23.7 percent from 1997-1999 to 2005-2014. Reported effort declined by 40 percent or more in all other areas with the exception of the Gulf of Mexico. As a result of the Deepwater Horizon/BP oil spill in the Gulf of Mexico and the subsequent closures, reported effort for 2010 was dramatically reduced, less than one third of the reported effort of the previous year (2009). Reported effort in 2012 increased since 2011, but declined slightly in 2013 and declined further in 2014. Reported effort declined by 62.7 percent in the SAT area (Tuna North and Tuna South combined), but this represents less than three percent of total reported effort. Reported effort in the Caribbean area (CAR) declined by over 80 percent in 2005-2014 from 1997-99, but this area accounts for less than one percent of the total effort.

Concern over the status of bluefin tuna and the effects of the PLL fishery on bluefin tuna 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 had been increasing from 2006-2010 but decreased beginning in 2011 and has stayed low since. The number of bluefin tuna kept decreased to 55 in 2013 and was up to 104 in 2014. The discards from the other areas have remained relatively constant, fluctuating between 100 and 300 for the past 10 years. The level of bluefin tuna discards in the MAB/NEC does not appear to be effort-related as the reported number of hooks set has been relatively stable (MAB) or in decline (NEC).

Table 7.3 Number of Swordfish, Bluefin Tuna, Yellowfin Tuna, Bigeye Tuna, and Total BAYS (Bigeye, Albacore, Yellowfin and Skipjack Tuna) Reported Landed or Discarded in the U.S. Atlantic Pelagic Longline Fishery (1997–2014) and Percent Changes Since 1997-99

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
2010	5,729.1	33,813	6,107	392	1,488	32,567	748	12,561	476	51,786	1,590
2011	5,914.5	38,012	8,510	355	764	40,993	728	16,338	453	68,401	2,850
2012	7,678.5	51,544	7,996	392	563	59,188	1,046	14,841	459	84,707	3,113
2013	7,305.9	44,556	4,765	273	266	39,988	941	15,472	513	67,073	2,376
2014	7,125.2	32,908	4,655	379	380	41,799	647	17,020	459	73,339	1,973
(B) 2005-14	6,510.5	41,962	8,282	376	911	44,494	1,172	12,765	399	65,356	2,733
% dif (A)	-13.7	-26.5	-38.5	-10.9	-30.8	-23.7	-26.6	-36.5	-65.1	-25.0	-27.3
% dif (B)	-23.7	-39.3	-61.5	57.9	3.9	-38.5	-52.9	-40.1	-64.8	-35.6	-35.3
Pred [1]		-24.6	-41.5		-1.0					-5.2	
Pred [2]		-13.0	-31.4		10.7					10.0	

(A) and (B) are average values for the years indicated. Predicted values from Regulatory Amendment 1, where Pred 1 = without redistribution of effort, Pred 2 = with redistribution of effort. Source: Fisheries Logbook System.

Table 7.4 Number of Pelagic Sharks, Large Coastal Sharks, Dolphinfish, and Wahoo Reported Landed or Discarded and Number of Billfish (Blue and White Marlin, Sailfish, and Spearfish) and Sea Turtles Reported Caught and Discarded in the U.S. Atlantic Pelagic Longline Fishery (1997–2014) and Percent Changes Since 1997-99

Year	Pelagic Sharks Kept	Pelagic Shark Discards	Large Coastal Sharks Kept	Large Coastal Shark Discards	Dolphinfish Kept	Dolphinfish 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
2010	3,872	45,511	434	6,726	30,454	174	749	26	504	605	312	212	94
2011	3,694	43,778	130	6,085	29,442	335	1,848	50	539	921	556	281	66
2012	2,794	23,038	86	7,716	42,445	432	3,121	92	843	1,432	767	270	61
2013	3,394	28,800	50	8,629	34,250	181	2,721	59	844	1,239	456	342	92
2014	3,851	38,496	47	5,880	63,217	205	3,235	74	718	1,580	445	306	93
(B) 2005-14	3,297	31,531	694	6,705	42,551	424	2,693	90	682	982	488	239	160
% diff (A)	-17.0	-55.8	-40.1	-27.4	-26.1	-47.0	-27.0	-57.7	-49.7	-47.0	-74.6	-34.7	-28.0
% diff (B)	-15.6	-39.5	-92.2	6.3	7.2	-30.3	-47.9	-47.4	-57.9	-50.2	-64.0	12.0	-73.1
Pred [1]	-9.5	-2.0	-32.1	-42.5	-29.3				-12.0	-6.4	-29.6		-1.9
Pred [2]	4.1	8.4	-18.5	-33.3	-17.8				6.5	10.8	-14.0		7.1

(A) and (B) are average values for the years indicated. Predicted values from Regulatory Amendment 1 where Pred [1] = without redistribution of effort, Pred [2] = with redistribution of effort. Source: Fisheries Logbook System.

Table 7.5 Reported Distribution of Hooks Set by Area (1997-2014) and Percent Change Since 1997-99

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
2010	77,710	1,005,764	1,097,929	1,002,748	1,295,242	657,892	211,465	141,713	3,096	235,553	5,729,112
2011	29,600	1,247,892	1,129,555	984,858	1,330,542	665,706	173,038	206,923	11,270	135,069	5,914,453
2012	7,200	2,655,468	1,285,060	937,946	1,513,367	787,681	127,044	171,177	3,300	190,211	7,678,454
2013	38.090	2,304,802	1,239,326	1,185,433	1,450,434	516,159	152,896	242,920	11,758	164,079	7,305,897
2014	21,390	2,219,684	1,171,402	1,133,640	1,232,857	507,525	343,220	367,598	10,530	117,377	7,125,223
(B) 2005-14	58,327	2,336,8864	834,674	868,933	1,268,502	528,474	258,220	173,149	18,773	162,780	6,508,715
% diff (A)	-46.6	10.0	-32.3	-29.9	-25.4	-30.7	-11.5	431.9	16.0	-70.8	-13.7
% diff (B)	-82.2	-30.2	15.5	6.9	0.1	-41.4	-49.5	1,109.8	-90.2	-62.7	-23.7

(A) and (B) are average values for the years indicated. 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; SAT - Tuna North & Tuna South. Source: Fisheries Logbook System.

Table 7.6 Number of Bluefin Tuna, Swordfish, Pelagic and Large Coastal Sharks, Billfish, and Sea Turtles Reported Kept and/or Discarded in the Mid-Atlantic Bight and Northeast Coastal Areas Combined (1997-2014)

Year	Hooks Set (x1000)	BFT Kept	BFT Discards	SWO Kept	SWO Discards	PEL Shark Kept	PEL Shark Discards	LCS Kept	LCS Discards	Billfish Discards	Sea 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
2010	1,953.1	155	1,301	9,090	1,546	3,326	17,033	408	2,293	376	32
2011	1,996.3	168	583	9,995	2,474	2,793	19,867	90	1,809	497	28
2012	2,301.1	102	270	12,597	1,396	2,199	13,535	9	1,972	650	16
2013	1,966.6	55	107	9,806	2,766	2,711	17,958	9	1,366	693	31
2014	1,740.4	104	122	5,027	1,015	3,115	16,405	6	1,050	710	18

BFT - Bluefin tuna; SWO – Swordfish; PEL – Pelagic sharks; LCS - Large coastal sharks; MAB - Mid-Atlantic Bight; NEC - Northeast Coastal. Source: Fisheries Logbook System.

Table 7.7 Number of Bluefin Tuna, Swordfish, Pelagic and Large Coastal Sharks, Billfish, and Sea Turtles Reported Kept and/or Discarded in All Areas Other than the Mid-Atlantic Bight and Northeast Coastal (1997-2014)

Year	Hooks Set (x1000)	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	5,767.0	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
2010	3,775.9	237	187	24,723	4,561	546	28,478	26	4,433	1,257	62
2011	3,918.2	187	181	28,017	6,036	901	23,911	40	4,276	1,800	38
2012	5,377.4	290	293	38,947	6,600	595	9,503	77	5,744	2,743	45
2013	5,339.3	218	159	34,750	2,583	683	9,842	41	7,263	2,190	61
2014	5,384.8	275	258	27,881	3,640	689	22,101	41	4,855	2,339	77

BFT - Bluefin tuna; SWO – Swordfish; PEL – Pelagic sharks; LCS - Large coastal sharks; MAB - Mid-Atlantic Bight; NEC - Northeast Coastal. Source: Fisheries Logbook System.

7.5.1 Conclusion

The time/area closures and live bait prohibition in the Gulf of Mexico have been successful at reducing bycatch in the HMS pelagic longline fishery. Reported discards of all species of billfish except spearfish have declined. The reported number of turtles caught, swordfish discarded, and pelagic and large coastal shark discards have also declined. However, the number of bluefin tuna discarded has increased.

7.6 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 VMS.

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8. HMS PERMITS AND TOURNAMENTS

This section provides updates the number of permits for Atlantic HMS fisheries and the number of dealer permits for sharks, swordfish, and tunas in Tables 8.1 - 8.8. Section 8.2 reports the historical number, locations, and target species of HMS tournament registrations.

8.1 HMS Permits

Detailed information about HMS permits and regulations associated with those permits are available in the most recent HMS Recreational, Commercial, and Dealer Compliance Guides on the internet at http://www.nmfs.noaa.gov/sfa/hms/Compliance_Guide/index.htm.

Limited Access Permits

The LAP program includes six different permit types: Swordfish Directed, Swordfish Incidental, Swordfish Handgear, Shark Directed, Shark Incidental, and Atlantic Tuna Longline. 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 LAPs are required to make a Swordfish Handgear or any of the shark permits valid.

Table 8.1 Number of Shark, Swordfish, and Atlantic Tunas Longline Limited Access Permits and Permit Holders by State (2008-2015)

State	Directed Swordfish	Incidental Swordfish	Swordfish Handgear	Directed Shark	Incidental Shark	Tunas Longline	Permit Holders / Permits
ME	4	1	1	2	6	5	9 / 19
MA	5	1	9	2	10	8	22 / 35
RI	1	-	11	1	3	2	13 / 18
CT	1	-	1	-	1	1	2 / 4
NY	16	3	4	10	12	20	27 / 65
PA	2	-	-	1	2	2	3 / 7
NJ	27	11	2	22	27	41	53 / 130
DE	2	-	1	2	2	2	5 / 9
MD	3	-	-	1	3	3	4 / 10
VA	1	1	-	-	2	4	4 / 8
NC	10	6	-	18	10	16	28 / 60
SC	3	2	-	7	9	5	16 / 26
GA	-	-	-	2	2	-	4 / 4
FL	83	35	53	124	135	122	315 / 552
AL	-	-	-	4	2	-	6 / 6
MS	-	-	-	-	1	-	1 / 1
LA	28	5	-	24	33	37	63 / 127
TX	1	7	1	3	13	10	20 / 35
OR					1		1/1
Canada	-					1	1/1
Trinidad/ Tobago	1	-	-	1		1	1/3
Annual Totals							
2015*	188	72	83	224	275	280	599 / 1,122
2014	183	66	77	206	258	246	536 / 1,036
2013	185	71	81	220	265	252	556 / 1,074
2012	184	73	77	215	271	253	555 / 1,073
2011	178	67	78	217	262	242	555 / 1,044
2010	177	72	75	215	265	248	566 / 1,052
2009	187	72	81	223	285	259	636 / 1,107
2008	181	76	81	214	285	241	628 / 1,079

* As of October 2015. Number of permits and permit holders in each category and state is subject to change as permits are renewed or expire.

Incidental HMS Squid Trawl Permit

On August 10, 2011, NMFS published a final rule (76 FR 49368) that established a new Incidental HMS Squid Trawl Permit, available to all valid Illex squid moratorium permit holders. The permit authorizes the retention of up to 15 swordfish North Atlantic swordfish to be retained per trip, provided that squid constitute not less than 75 percent, by weight, of the total catch on board. The distribution of squid trawl permits by state can be found in Table 8.2.

Table 8.2 Number of Incidental HMS Squid Trawl Permits by State (as of October 2015)

State	Incidental HMS Squid Trawl Permits
ME	2
NH	1
MA	10
RI	9
CT	2
NY	4
NJ	27
VA	4
NC	7
Total	66

Commercial Caribbean Small Boat Permit

The final rule (October 1, 2012; 77 FR 59842) to Amendment 4 to the Consolidated HMS FMP established the Caribbean Small Boat Permit. This permit allows the commercial retention of tunas, swordfish, and sharks for boats fishing in the Caribbean region. Currently, the shark retention limit with this permit is zero; however, if the retention limit were increased, permit holders could be allowed to retain and sell non-prohibited species of sharks. As of October 2015, 20 permits have been issued with the majority (14) in Florida. Alabama, Georgia, North Carolina, U.S. Virgin Islands, and Puerto Rico each have one permit. There are two permits in the state of Texas.

Swordfish General Commercial Permit

The General Commercial Swordfish permit was established pursuant to the final rule (August 21, 2013, 78 FR 52012) that implemented Amendment 8 to the 2006 Consolidated HMS FMP. This permit is open access and can be held in conjunction with the Harpoon and General category Atlantic tunas permits. The distribution of General Commercial Swordfish permits is compiled in Table 8.3.

Table 8.3 Number of General Commercial Swordfish Permits by State (as of October 2015)

State	General Commercial Swordfish Permits	State	General Commercial Swordfish Permits
AL	4	MS	3
CA	-	NC	63
CT	16	NH	23
DE	7	NJ	27
FL	90	NY	53
GA	1	PA	2
HI	1	PR	9
LA	3	RI	46
MA	169	SC	8
MD	4	TX	11
ME	98	VA	12
Total			651

Atlantic Tunas Permits

Commercial Atlantic tunas permits are categorized by gear type (longline, harpoon, trap, purse seine, and General category) (Table 8.4). The Atlantic Tunas General category permit authorizes the use of rod and reel, handline, harpoon, green-stick, and bandit gear, and distribution of the permit by state can be found in Table 8.5. HMS Charter/Headboat permit holders (Table 8.6) may also participate in the commercial tuna fishery.

Table 8.4 Number of Commercial Atlantic Tunas Permits by Category (2008-2015)

Category	2008	2009	2010	2011	2012	2013	2014	2015*
Longline	241	259	248	242	253	252	246	280
Harpoon	26	23	29	24	13	14	14	17
Trap	9	4	6	6	8	7	3	3
General	4,031	3,824	3,849	3,764	4,084	3,783	3,396	3,129
Purse seine	4	3	3	3	3	3	5	5
Total	4,311	4,113	4,135	4,039	4,361	4,059	3,664	3,434

* As of October 2015. The actual number of 2015 permit holders in each category is subject to change as individuals renew their permits or allow them to expire. The General and Harpoon categories listed include those held in conjunction with a Swordfish General Commercial permit. All purse seine permits were eligible to receive Atlantic bluefin tuna purse seine category quota.

Of the 14 Atlantic Tunas Harpoon category permit issued in 2015, 7 were issued to vessels whose homeport state was Maine and 10 were issued to vessels whose homeport state was Massachusetts.

Table 8.5 Number of Tunas General Category Permits by State or Territory (as of October 2015)

State	Tunas General Category Permits	State	Tunas General Category Permits
AZ	1	NH	198
CO	1	NJ	145
CT	58	NU	1
DE	21	NY	169
FI	17	PA	7
FL	189	PR	67
GA	3	RI	143
HI	1	SC	23
KY	1	TX	21
LA	25	VA	60
MA	981	VI	7
MD	39	VT	2
ME	555	WA	1
MI	3	Canada	1
NC	344	Total	3,129

HMS Charter/Headboat Permit

Owners of charterboats or headboats that are used to fish for, take, retain, or possess Atlantic tunas, sharks, swordfish, or billfish must obtain an Atlantic HMS Charter/Headboat (CHB) permit. The distribution of 2015 Atlantic HMS Charter/Headboat permits is presented in Table 8.6.

Table 8.6 Number of Atlantic HMS Charter/Headboat Permits by State (as of October 2015)

State/Territory	HMS CHB Permits	State/Territory	HMS CHB Permits
AL	67	NC	326
CT	82	NH	105
DE	89	NJ	457
FI	48	NY	290
FL	527	OH	2
GA	23	OK	1
ID	1	PA	16
IL	2	PR	22
KY	1	RI	134
LA	78	SC	117
MA	704	TX	119
MD	118	VA	99
ME	120	VI	22
MN	1	WV	1
MS	24	Total	3,596

HMS Angling Permit

The HMS Angling Permit is required to recreationally fish for, retain, or possess (including catch-and-release fishing) any federally-regulated HMS, including sharks, swordfish, white and blue marlin, sailfish, spearfish, bluefin tuna, and BAYS (bigeye, albacore, yellowfin, and skipjack) tunas. It does not authorize the sale or transfer of HMS to any person for a commercial purpose. Atlantic HMS Angling permit distribution is reported in Table 8.7.

Table 8.7 Number of Atlantic HMS Angling Permits by State or Country (as of October 2015)

State/Country	Permits by Home Port*	Permits by Residence**	State/Country	Permits by Home Port*	Permits by Residence**
AK	4	1	NC	1,319	1,218
AL	415	362	ND	1	2
AR	13	13	NE	-	2
AZ	1	3	NH	218	278
BV	1	2	NJ	2,708	2,329
CO	2	5	NV	5	2
CT	591	682	NY	1,856	1,914
DC	2	5	OH	15	29
DE	808	519	OK	7	15
FL	3,896	3,615	OR	1	1
GA	109	188	PA	170	976
HI	1	1	PR	425	437
IA	2	4	RI	528	383
ID	-	1	SC	511	493
IL	12	30	SD	1	4
IN	7	14	TN	19	47
KS	1	3	TX	674	708
KY	8	19	UT	2	4
LA	689	693	VA	918	988
MA	2,470	2,456	VI	45	25
MD	1,035	1,004	VT	18	31
ME	419	347	WA	4	5
MI	16	27	WI	7	12
MN	5	11	WV	5	7
MO	9	13	WY	1	5
MS	193	222	Canada	13	24
MT	1	2	Not Reported	12	12
Total				20,193	20,193

* The vessel port or other storage location. ** The permit holder's billing address.

Atlantic Tunas, Swordfish, and Shark Dealer Permits

HMS Dealer permits are open access and required for the "first receiver" of Atlantic tunas, swordfish, and sharks. 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. Atlantic tunas, swordfish and sharks dealer permits (by state) are reported in Table 8.8.

Table 8.8 Number of Domestic Atlantic Tunas, Swordfish, and Sharks Dealer Permits (2015 by State; 2008-2015 Totals by Permit)

State/Territory	Bluefin Only	BAYS Only	Bluefin and BAYS	Atlantic Swordfish	Atlantic Sharks	Total
AL	-	1	3	5	2	11
CA	2	-	-	2	-	4
CT	-	1	4	1	-	6
DE	-	1	2	-	-	3
FL	2	8	16	88	31	145
GA	-	-	1	-	1	2
HI	-	-	2	-	-	2
LA	-	1	6	9	8	24
MA	6	11	79	17	7	120
MD	-	-	6	3	3	12
ME	14	-	13	2	1	30
NC	3	4	24	17	21	69
NH	1	-	5	1	-	7
NJ	1	12	37	10	8	68
NY	3	21	45	7	4	80
PA	-	-	2	1	-	3
PR	-	3	1	1	-	5
RI	1	5	27	7	2	42
SC	-	1	3	9	10	23
TX	-	3	-	2	1	6
VA	-	5	10	1	3	19
VI	-	2	1	-	-	3
VT	-	-	1	-	-	1
Annual Totals						
2015*	33	79	289	184	102	687
2014	32	79	308	195	96	710
2013	35	72	318	183	97	705
2012	30	67	313	179	92	681
2011	33	67	316	191	117	724
2010	32	58	323	181	108	702
2009	32	55	289	177	106	659
2008	30	62	303	171	128	694

* As of October 2015. The actual number of permits per state may change as permit holders move or sell their businesses.

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

EFPs, SRPs, and display permits 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. EFPs are issued to individuals for the purpose of conducting research or other fishing activities aboard private (non-NOAA) vessels, whereas SRPs are issued to agency scientists who are conducting research aboard NOAA vessels. Similar to SRPs, LOAs are issued to individuals conducting research from "bona fide" research vessels on species that are only regulated by Magnuson-Stevens Act and not ATCA. Display permits are issued to individuals who are fishing for, catching, and then transporting HMS to certified aquariums for public display. Chartering permits are issued to HMS-permitted vessel owners that wish to fish under a chartering arrangement outside U.S. waters. The number of EFPs, display permits, and SRPs issued from 2011 – 2015 by category and species are listed in Table 8.9. Amendment 2 to the 2006 Consolidated HMS FMP implemented the shark research fishery. In 2015, NMFS received 9 applications for entrance into the shark research fishery. Based on the qualification criteria, 7 were chosen to participate.

Table 8.9 Number of Atlantic HMS Exempted Fishing Permits (EFPs), Display Permits, and Scientific Research Permits (SRPs) (2011-2015)

Permit Type		2011	2012	2013	2014	2015*
Exempted Fishing Permit	Sharks for display	3	4	4	3	3
	HMS** for display	2	2	2	3	1
	Tunas for display	0	0	0	0	0
	Shark research on a non-scientific vessel	8	10	10	10	11
	Tuna research on a non-scientific vessel	5	5	4	2	2
	HMS** research on a non-scientific vessel	2	3	3	3	4
	Billfish research on a non-scientific vessel	2	1	1	0	0
	Shark fishing	0	0	0	0	0
	HMS** chartering	0	0	0	0	0
	Tuna fishing	0	0	0	1	1
	Total	22	25	24	22	22
Scientific Research Permit	Shark research	3	4	3	2	4
	Tuna research	1	3	2	2	1
	Billfish research	0	0	0	0	0
	HMS** research	6	4	3	3	1
	Total	10	11	8	7	6
Letters of Acknowledgement	Shark research	7	7	6	8	8
	Total	7	7	6	8	8

*As of October 31, 2015. **Multiple species.

8.2 Atlantic HMS Tournaments

An Atlantic HMS tournament is 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. Atlantic HMS tournaments are conducted from ports along the U.S. Atlantic coast, Gulf of Mexico, and U.S. Caribbean. Some foreign tournaments (e.g., those held in the Bahamas, Bermuda, and the Turks and Caicos) may voluntarily register because their participants are mostly U.S. citizens. Since 1999, Federal regulations have required that tournaments register with NMFS at least four weeks prior to the commencement of tournament fishing activities. Tournament operators may be selected by NMFS for reporting, in which case a record of tournament catch and effort must be submitted to NMFS within seven days of the conclusion of the tournament. Tournament landings of billfishes and swordfish are presented in Section 4.4.2.

Atlantic HMS tournaments vary in size. They may range from relatively small, "members-only" club 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). Larger tournaments often involve corporate sponsorship from tackle manufacturers, marinas, boat dealers, marine suppliers, beverage distributors, resorts, radio stations, publications, chambers of commerce, restaurants, and other local businesses.

Tournament registration and reporting forms are available at http://www.nmfs.noaa.gov/sfa/hms/compliance/tournaments/. Tournament operators may also request HMS regulation booklets and other outreach materials (e.g., shark identification guides and careful catch and release brochures) to distribute to tournament participants. In 2015, more than 140 tournaments requested and received more than 10,850 copies of these materials from the HMS Management Division. The number of HMS tournaments that registered each year from 2005 to 2015 is reported in Figure 8.1. Since 2005, an average of 260 HMS tournaments have registered each year. The highest number of HMS tournament registrations occurred in 2007. The number of registered tournaments in 2014 is the highest since 2007, possibly due to increased outreach and compliance monitoring, and may also be influenced by an improving U.S. economy and lower fuel prices. The following tables and figures are summary data from the HMS Atlantic Tournament Registration database.

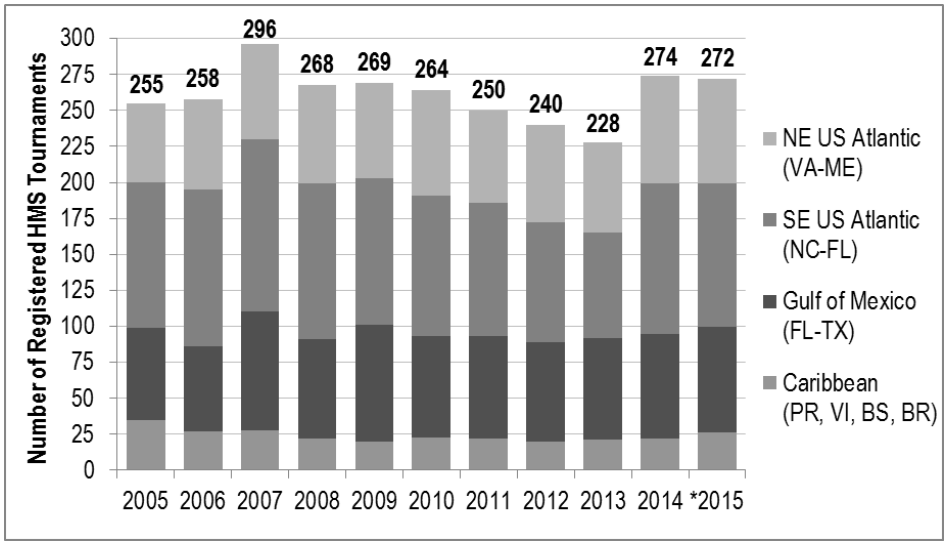

Figure 8.1 Number of Registered Atlantic HMS Tournaments by Year and Area (2005-2015)

*As of November 2015

The average distribution of HMS fishing tournaments along the Atlantic and Gulf of Mexico coastal states and the Caribbean is represented in Figure 8.2.

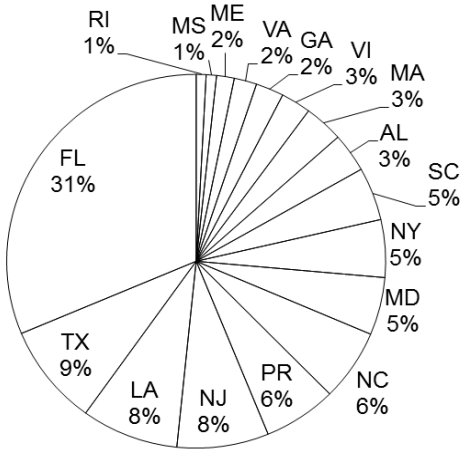

Figure 8.2 Percentage of Atlantic HMS Tournaments Held in each State (2005-2015)

Areas excluded (< 1%) are Bermuda (0.03%), Connecticut (0.1%), Delaware (0.24%), and the Bahamas (0.5%).

Table 8.10 provides the number of HMS tournaments in 2013 and 2014 that registered to award points or prizes for the catch or landing of each HMS. Figure 8.3 shows that sailfish, blue marlin, yellowfin tuna, and white marlin are the predominant target species in HMS fishing tournaments.

Table 8.10 Number of Atlantic HMS Tournaments per Species (2013 & 2014)

Species	2013	2014
Blue marlin	142	153
White marlin	128	138
Longbill spearfish	43	52
Roundscale spearfish	43	44
Sailfish	138	158
Swordfish	42	74
Bluefin tuna	36	96
Bigeye tuna	63	81
Albacore tuna	36	49
Yellowfin tuna	101	164
Skipjack tuna	30	33
Pelagic sharks	69	72
Small coastal sharks	16	19
Non-ridgeback sharks	16	17
Ridgeback sharks	11	12

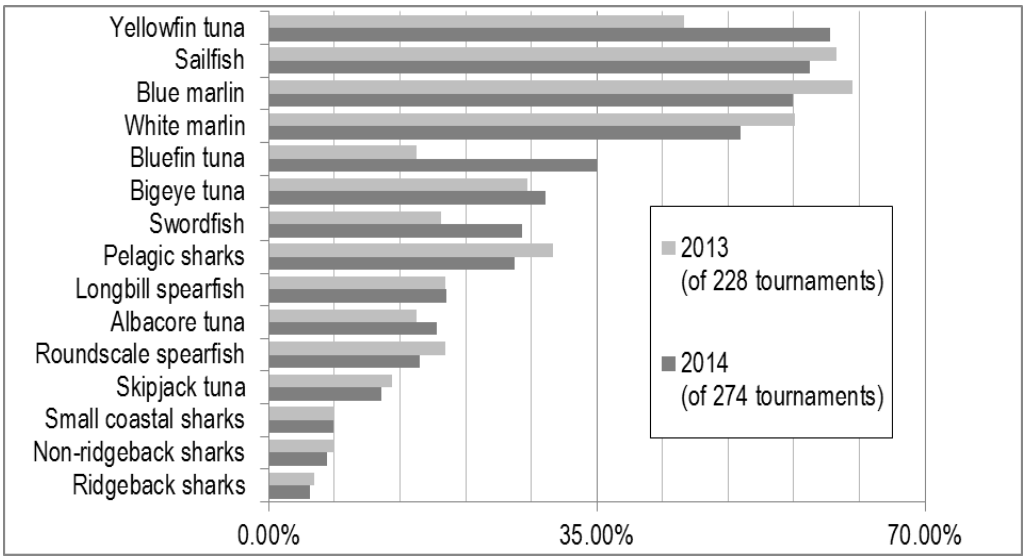

Figure 8.3 Percent of HMS Tournaments by Species (2013 & 2014)

Billfish Tournaments

A significant number 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. All billfish tournaments are selected for reporting to the Recreational Billfish Survey (RBS), including numbers of released fish.

Anglers fishing from an HMS-permitted vessel in any tournament awarding points or prizes for Atlantic billfish are required to deploy only non-offset circle hooks when using natural bait or natural bait/artificial lure combinations. The use of non-offset circle hooks increases the likelihood of post-release survival for billfish.

Figure 8.4 depicts the time of year that billfish tournaments are most prevalent in regions of the U.S. Atlantic, Gulf of Mexico, and Caribbean. The majority of the billfish tournaments occurring in January are sailfish tournaments along the Atlantic coast of Florida (Figure 8.5).

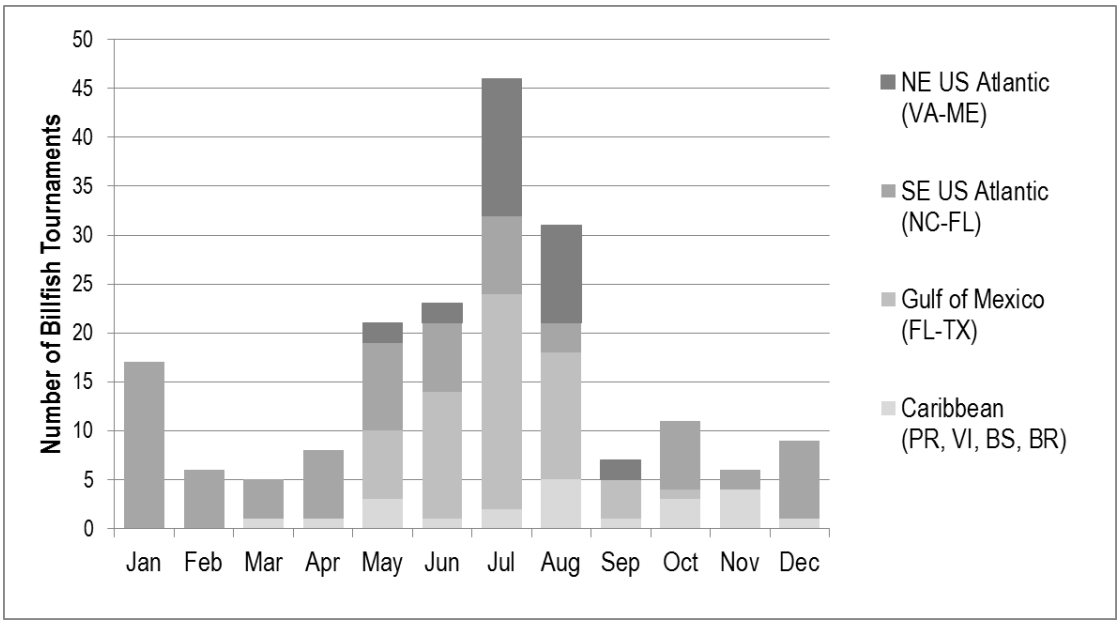

Figure 8.4 Number of Billfish Tournaments by Region and Month (2014)

Figure 8.5 shows the number of tournaments in 2014 that selected white marlin, blue marlin, sailfish, longbill spearfish, or roundscale spearfish as categories on the HMS tournament registration form. The figure illustrates that the Atlantic coast of Florida is the leading location for sailfish tournaments, and that white marlin and blue marlin tournaments occur in states all along the Atlantic and Gulf coasts, including the Caribbean.

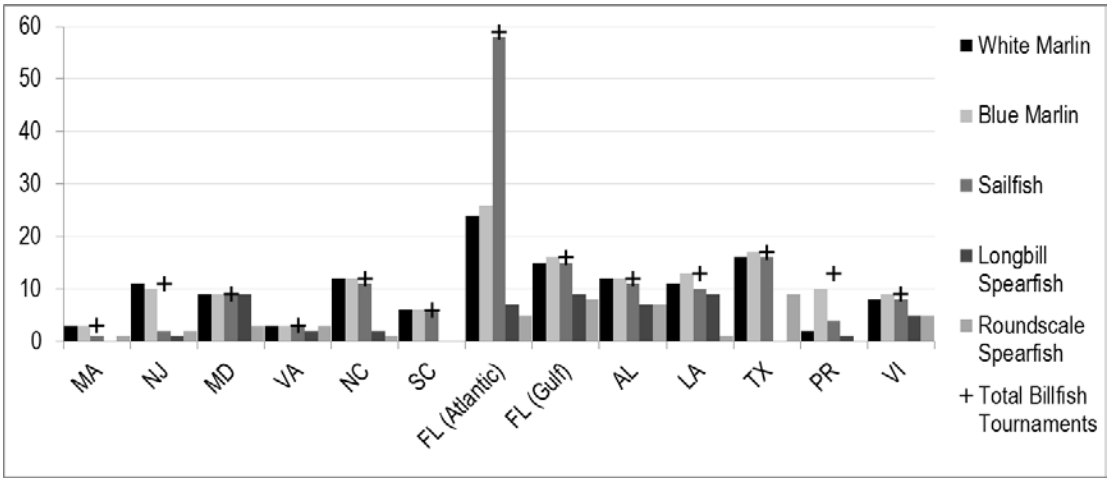

Figure 8.5 Number of BillfishTournaments by Species and State (2014)

Due to confidentiality requirements, states in which fewer than three tournaments were held are not included. Note: Landing longbill spearfish is prohibited; however, they are authorized for catch-and-release fishing.