

2013

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



**NOAA**  
**FISHERIES**

**2013**

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



Atlantic Highly Migratory Species Management Division  
January 2014

For HMS permitting information and regulations:  
*HMS Recreational, Commercial, and Dealer compliance guides*  
[http://www.nmfs.noaa.gov/sfa/hms/Compliance\\_Guide/index.htm](http://www.nmfs.noaa.gov/sfa/hms/Compliance_Guide/index.htm)

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

*Atlantic shark, Swordfish, and Tunas longline (limited access permits)*  
NOAA Fisheries Southeast Regional Office, (727) 824-5326  
[http://sero.nmfs.noaa.gov/operations\\_management\\_information\\_services/constituency\\_services\\_branch/permits/index.html](http://sero.nmfs.noaa.gov/operations_management_information_services/constituency_services_branch/permits/index.html)

*Tuna dealer permits*  
NOAA Fisheries Northeast Regional Office, (978) 281-9370  
<http://www.nero.noaa.gov/permits/dealerpermit.html>

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For HMS SAFE Reports (2000 – current):  
[http://www.nmfs.noaa.gov/sfa/hms/hmsdocument\\_files/SAFEreports.htm](http://www.nmfs.noaa.gov/sfa/hms/hmsdocument_files/SAFEreports.htm).

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   | EIS              | Environmental impact statement   |
| ABC              | Acceptable biological catch   | EO               | Executive order  |
| ACCSP            | Atlantic Coastal Cooperative Statistics Program                                 | ESA              | Endangered Species Act   |
| ACL              | Annual catch limit  | F                | Instantaneous fishing mortality  |
| ACS              | Angler consumer surplus   | FAD              | Fish aggregating device  |
| ACT              | Annual catch target   | FAO              | Food and Agriculture Organization  |
| ALWTRT/P         | Atlantic Large Whale Take Reduction Team/Plan                                   | FEC              | Florida East coast   |
| AM               | Accountability measure  | FEIS             | Final environmental impact statement   |
| ANPR             | Advanced notice of proposed rulemaking  | FL               | Fork length  |
| AOCTRP           | Atlantic Offshore Cetacean Take Reduction Plan                                  | FMP              | Fishery management plan  |
| AP               | Advisory panel  | F <sub>MSY</sub> | Instantaneous fishing mortality rate expected to yield maximum sustainable yield |
| APA              | Administrative Procedure Act  | FMU              | Fishery management unit  |
| ASMFC            | Atlantic States Marine Fisheries Commission                                     | F <sub>OY</sub>  | Fishing mortality rate expected to yield optimum yield                           |
| ATCA             | Atlantic Tunas Convention Act   | FR               | Federal Register   |
| B                | Biomass   | FRFA             | Final regulatory flexibility analysis  |
| BAYS             | Bigeye, albacore, yellowfin, skipjack tunas                                     | GOM              | Gulf of Mexico   |
| BFT              | Bluefin tuna  | GSAFF            | Gulf and South Atlantic Fishery Foundation                                       |
| BiOp             | Biological opinion  | GMFMC            | Gulf of Mexico Fishery Management Council  |
| B <sub>MSY</sub> | Biomass expected to yield maximum sustainable yield                             | GULFSPAN         | Gulf of Mexico Shark Pupping and Nursery survey                                  |
| B <sub>OY</sub>  | Biomass expected to yield optimum yield   | GSMFC            | Gulf States Marine Fisheries Commission  |
| CAR              | Caribbean   | HAPC             | Habitat area of particular concern   |
| CFMC             | Caribbean Fishery Management Council  | HMS              | Highly migratory species: Atlantic sharks, tunas, swordfish, and billfish        |
| CFL              | Curved fork length  | HMS FMP          | Consolidated Highly Migratory Species Fishery Management Plan                    |
| CFR              | Code of Federal Regulations   | ICCAT            | International Commission for the Conservation of Atlantic Tunas                  |
| CHB              | Charter/headboat  | IMO              | International Maritime Organization  |
| CIE              | Center for Independent Experts  | IPOA             | International plan of action   |
| CITES            | Convention on International Trade in Endangered Species of Wild Fauna and Flora | IRFA             | Initial regulatory flexibility analysis  |
| COASTSPAN        | Cooperative Atlantic States Shark Pupping and Nursery survey                    | ITP              | International trade permit   |
| CPC              | Contracting parties, non-contracting parties, entities, or fishing entities     | ITQ              | Individual transferable quota  |
| CPUE             | Catch per unit effort   | ITS              | Incidental take statement  |
| CSFOP            | Commercial shark fishery observer program                                       | IUU              | Illegal, unreported, unregulated   |
| CZMA             | Coastal Zone Management Act   | LAP              | Limited access permit  |
| DEIS             | Draft environmental impact statement  | LCS              | Large coastal sharks   |
| DPS              | Distinct population segment   | LOA              | Letter of acknowledgment   |
| dw               | Dressed weight  | LPS              | Large Pelagics Survey  |
| EA               | Environmental assessment  | LWTRT/P          | Large Whale Take Reduction Team/Plan   |
| EEZ              | Exclusive economic zone   | MAB              | Mid Atlantic Bight   |
| EFH              | Essential fish habitat  | MAFMC            | Mid-Atlantic Fishery Management Council  |
| EFP              | Exempted fishing permit   |                  |  |

|                      |  |       |  |
|----------------------|--|-------|--|
| Magnuson-Stevens Act | Magnuson-Stevens Fishery Conservation and Management Act | RIR   | Regulatory Impact Review                       |
| MFMT                 | Maximum fishing mortality threshold                      | RPAs  | Reasonable and Prudent Alternatives            |
| MMPA                 | Marine Mammal Protection Act                             | RPMs  | Reasonable and Prudent Measures                |
| MPA                  | Marine protected area                                    | SAB   | South Atlantic Bight                           |
| MRFSS                | Marine Recreational Fishing Statistics Survey            | SAFE  | Stock Assessment and Fishery Evaluation        |
| MRIP                 | Marine Recreational Information Program                  | SAFMC | South Atlantic Fishery Management Council      |
| MSST                 | Minimum stock size threshold                             | SAR   | Sargasso                                       |
| MSY                  | Maximum sustainable yield                                | SBRM  | Standardized bycatch reporting methodology     |
| mt                   | Metric tons  | SCRS  | Standing Committee for Research and Statistics |
| NCA                  | North Central Atlantic                                   | SCS   | Small coastal sharks                           |
| NEC                  | Northeast Coastal  | SDC   | Status determination criteria                  |
| NED                  | Northeast Distant Waters                                 | SEFSC | Southeast Fisheries Science Center             |
| NEFMC                | New England Fishery Management Council                   | SEIS  | Supplemental environmental impact statement    |
| NEFSC                | Northeast Fisheries Science Center                       | SERO  | Southeast Regional Office                      |
| NEPA                 | National Environmental Policy Act                        | SEW   | Stock evaluation workshop                      |
| NERO                 | Northeast Regional Office                                | SFA   | Sustainable Fisheries Act                      |
| NGO                  | Non-governmental organization                            | SFL   | Straight fork length                           |
| nmi                  | Nautical mile  | SRP   | Scientific research permit                     |
| NOA                  | Notice of Availability                                   | SSB   | Spawning stock biomass                         |
| NMFS                 | National Marine Fisheries Service                        | SWO   | Swordfish                                      |
| NOAA                 | National Oceanographic and Atmospheric Administration    | TAC   | Total allowable catch                          |
| NOI                  | Notice of Intent   | TAL   | Total allowable landings                       |
| NPOA                 | National Plan of Action                                  | TCs   | Terms and Conditions                           |
| NS                   | National Standards                                       | TL    | Total length                                   |
| NWGB                 | National Working Group on Bycatch                        | TUN   | Tuna North                                     |
| OSF                  | Office of Sustainable Fisheries                          | TUS   | Tuna South                                     |
| OY                   | Optimum yield  | USCG  | United States Coast Guard                      |
| PLTRT/P              | Pelagic Longline Take Reduction Team/Plan                | USFWS | United States Fish and Wildlife Service        |
| PLL                  | Pelagic longline   | UVI   | Unique Vessel Identifier                       |
| POP                  | Pelagic observer program                                 | VMS   | Vessel monitoring system                       |
| OPR                  | Office of Protected Resources                            | VTR   | Vessel trip report                             |
| PRA                  | Paperwork Reduction Act                                  | WTP   | Willingness to pay                             |
| Reg Flex Act         | Regulatory Flexibility Act                               | ww    | Whole weight                                   |
| RFMO                 | Regional Fishery Management Organization                 | YOY   | Young of the year                              |

## EXECUTIVE SUMMARY

This 2013 Stock Assessment and Fisheries Evaluation (SAFE) Report is produced by the National Marine Fisheries Service (NMFS) 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 last HMS SAFE Report (December 2012), the HMS Management Division: held two HMS Advisory Panel meetings; published several rules regarding HMS fisheries, including a final rule creating a new commercial swordfish permit and additional swordfish management measures (Final Amendment 8), a final rule that established a rebuilding plan for scalloped hammerhead sharks and implemented other shark management measures (Final Amendment 5a), a proposed rule to modify and implement new bluefin tuna management measures, with a focus on reducing bluefin tuna dead discards (Draft Amendment 7), and a final rule to modify vessel monitoring system (VMS) requirements and allowing for long-term hail out of the HMS fishery for vessels required to use VMS; implemented specifications to adjust quotas for Atlantic bluefin tuna, North and South Atlantic swordfish, and sharks; and enacted several inseason actions for HMS.

In November 2013, the 23<sup>rd</sup> 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 Western Atlantic and Eastern Atlantic/Mediterranean bluefin tunas; North and South Atlantic albacore tunas; North and South Atlantic swordfish; prohibited sharks; sea turtles; and fishery monitoring, control, and surveillance measures.

Three stocks of HMS underwent international stock assessments in 2013: North Atlantic albacore tuna, North Atlantic swordfish, and South Atlantic swordfish. A Southeast Data, Assessment, and Review (SEDAR) assessment of bonnethead and Atlantic sharpnose sharks was also conducted (SEDAR 34). NMFS continued shark nursery grounds research and essential fish habitat (EFH) studies through two programs (COASTSPAN and GULFSPAN) along the U.S. Atlantic, Gulf of Mexico, and Caribbean, and initiated the HMS EFH five-year review process.

Much of the data in this report is based on final reports of 2012 data that were completed and/or published in 2013. 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, Southeast Fisheries Science Center's dealer reporting programs 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.

The Regulatory Flexibility Act requires periodic review of existing regulations that had or will have a significant economic impact on a substantial number of small entities. Thus, consistent with NMFS's recently published plan for this periodic review, this SAFE Report analyzes the 2005 Atlantic Bluefin Tuna Quota Specifications and the 2006 Consolidated HMS FMP.

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 2012 are presented in this report. Finally, twenty-five HMS fishing communities were assessed for vulnerability or resilience to potential economic disruptions resulting from regulations, social changes, or natural disasters, and the results of these assessments are presented here.

Feedback and comments on this SAFE Report are encouraged and should be sent to the HMS Management Division, 1315 East West Highway, Silver Spring, MD 20910, phone: (301) 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 2013 SAFE Report for Atlantic HMS managed under the 2006 Consolidated Atlantic HMS FMP and its amendments.

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

NMFS uses the SAFE Report as a method to introduce new information and identify potential management issues. This SAFE Report 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). The report also includes the latest domestic shark stock assessment information. In compliance with the NS 2 guidelines, the report presents a comprehensive summary of the most recent Atlantic HMS fisheries-related data from a variety of sources across a wide range of disciplines.

### 1.1 Agency Activities and Regulatory Actions for HMS

From January through December, 2013, 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 1.1. Actions published from December 2, 2012 – January 1, 2013 are also included, as they were published after release of the 2012 HMS SAFE Report. 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 a one-day HMS Advisory Panel meeting on January 8, 2013, in Silver Spring, MD, to discuss Draft Amendment 5 to the Consolidated HMS FMP, and an Advisory Panel meeting September 9 – 12, 2013, in Silver Spring, MD. These meetings provided valuable opportunities for comments on a suite of management actions that NMFS pursued or considered in 2013. Meeting presentations and transcripts are posted on the HMS website.

On April 24, 2013 (78 FR 24148), NMFS published a notice of intent to prepare an Environmental Impact Statement to examine management alternatives to rebuild dusky sharks and end overfishing. These alternatives were analyzed in the proposed rule for Amendment 5 to the 2006 Consolidated HMS FMP (77 FR 70552), which also contained management measures for sandbar, scalloped hammerhead, blacknose, and Gulf of Mexico blacktip sharks. After reviewing all of the comments received on the proposed rule, NMFS decided to analyze further those measures pertaining to dusky sharks in a separate but related FMP amendment, EIS, and

proposed rule. For clarity in referring to the two related rulemaking processes, the FMP amendment for non-dusky shark species included in draft Amendment 5--specifically, scalloped hammerhead, sandbar, blacknose, and Gulf of Mexico blacktip sharks--is called "Amendment 5a," and the FMP amendment for dusky sharks is referred to as "Amendment 5b."

On July 3, 2013, NMFS published a final rule (78 FR 40318) to implement Amendment 5a, which included shark fishery management measures and established the scalloped hammerhead shark rebuilding program. The final rule established several new regional shark management groups and quotas for the commercial fishery and a new minimum size limit for recreational fishermen (for HH?). This final rule addressed annual regional quotas for the aggregated large coastal sharks complex (LCS), hammerhead sharks, and Gulf of Mexico blacktip, blacknose, and non-blacknose sharks. Amendment 5a implemented regional quota linkages between management groups whose species are often caught together in the same fisheries to prevent exceeding the newly established quotas through discarded bycatch. When landings of either of two linked management groups reach, or are expected to reach, 80 percent of the quota, fishing for both management groups will close. In addition, Amendment 5a established a new minimum size limit for the large hammerhead shark species (great, smooth, and scalloped) of 78 inches (6.5 feet) fork length (FL). The size limit for other shark species and the retention limits did not change.

On August 21, 2013, NMFS published a final rule (78 FR 52012) to implement Amendment 8 to the 2006 Consolidated HMSFMP. The final rule established a new commercial fishing vessel permit (the Swordfish General Commercial permit) that allows permit holders to retain and sell a limited number of swordfish caught on rod and reel, handline, harpoon, greenstick, or bandit gear. Other management measures included the modification of HMS Charter/Headboat permit regulations to allow for the commercial retention of swordfish on non-for-hire trips, regional swordfish retention limits for the new and modified permits, gear authorizations, and reporting requirements. The new and modified permits became available to interested participants in November 2013 for the 2014 fishing year.

On August 21, 2013, NMFS also proposed a rule for Amendment 7 to the 2006 Consolidated HMS FMP. Amendment 7 would establish measures to ensure sustainable management of bluefin tuna consistent with the 2006 Consolidated HMS FMP addressing ongoing management challenges in the Atlantic bluefin tuna fisheries. Draft Amendment 7 also proposed minor regulatory changes otherwise related to the management of Atlantic HMS. The proposed measures would reallocate the U.S. bluefin tuna quota among domestic fishing categories. The rule would also implement several actions applicable to the pelagic longline fishery, including: Individual Bluefin Quotas (IBQs); two new gear-restricted areas and access to current closed areas based on performance criteria; closure of the pelagic longline fishery when annual bluefin tuna quota is reached; elimination of target catch requirements associated with retention of incidental bluefin tuna; mandatory retention of legal-sized bluefin tuna caught as bycatch; expanded monitoring requirements, including electronic monitoring via cameras and bluefin tuna catch reporting via Vessel Monitoring System (VMS); and transiting provisions for pelagic and bottom longline vessels. The proposed rule would also require VMS use and reporting by the Purse Seine category; change the start date of the Purse Seine category to June 1; expand the Automated Catch Reporting System use to the General and Harpoon categories; provide additional flexibilities for inseason adjustment of the General category quota and

Harpoon category retention limits; and allocate a portion of the Angling category Trophy South subquota to the Gulf of Mexico. Finally, it proposed several measures not directly related to bluefin tuna management, including implementing a U.S. North Atlantic albacore tuna quota; modifying rules regarding permit category changes; and implementing minor changes in the HMS regulations for administrative or clarification purposes. The comment period for Draft Amendment 7 was extended until December 10, 2013 (78 FR 57340), and then extended again until January 10, 2014 (78 FR 75327).

On November 15, 2013, NMFS published a final rule (78 FR 68758) that requires vessel owners or operators who have been issued HMS permits and are required to use VMS, to provide hourly position reports 24 hours a day, 7 days a week (24/7) via VMS. The final rule also allows the vessel owners or operators of such vessels to declare out of the HMS fishery when not fishing for or retaining HMS for a period of time encompassing two or more trips. This final action continues to provide NMFS Office of Law Enforcement needed information on the target fishery and gear possessed in order to facilitate enforcement of closed areas and other HMS regulations, while reducing the reporting burden on vessel owners and operators. This action also brings HMS fisheries regulations in line with VMS regulations in other fisheries.

The Magnuson-Stevens Act requires that all EFH be reviewed and updated every five years. NMFS last updated existing essential fish habitat (EFH) for swordfish, billfish, tunas, and sharks in 2009. Thus, in 2013, NMFS initiated the five-year review of EFH for these species.

**Table 1.1 Summary of NMFS' Atlantic HMS Federal Management Actions from December 5, 2012 to December 13, 2013**

| <b>Federal Register Cite</b>   | <b>Date</b> | <b>Rule or Notice</b>  |
|--------------------------------|-------------|--|
| <b>HMS Fisheries (General)</b> |             |  |
| 78 FR 13864                    | 3/1/2013    | EFP Notice of Intent Comments Received   |
| 78 FR 15709                    | 3/12/2013   | Notice for Atlantic Shark Identification Workshops, and Protected Species, Release, Disentanglement, and Identification Workshops  |
| 78 FR 25255                    | 4/30/2013   | Public Conference Call to Discuss Updating the Atlantic HMS Recreational Fishing Action Agenda   |
| 78 FR 34349                    | 6/7/2013    | Notice for Atlantic Shark Identification Workshops, and Protected Species, Release, Disentanglement, and Identification Workshops  |
| 78 FR 44095                    | 7/23/2013   | Notice of Public Meeting for the Atlantic HMS Advisory Panel   |
| 78 FR 53397                    | 8/29/2013   | Proposed Rule to Modify Vessel Monitoring System Requirements in Atlantic HMS Fisheries  |
| 78 FR 54456                    | 9/4/2013    | Notice for Atlantic Shark Identification Workshops, and Protected Species, Release, Disentanglement, and Identification Workshops  |
| 78 FR 66684                    | 11/6/2013   | Nominations for the Atlantic HMS Advisory Panel  |
| 78 FR 68757                    | 11/15/2013  | Final Rule to Modify Vessel Monitoring System Requirements in Atlantic HMS Fisheries   |
| 78 FR 69823                    | 11/21/2013  | Notice of Intent to Issue Exempted Fishing Permits (EFPs), Scientific Research Permits (SRPs), Display Permits, Letter of Acknowledgement (LOAs), and Chartering Permits |

| <b>Federal Register Cite</b>  | <b>Date</b> | <b>Rule or Notice</b>  |
|-------------------------------|-------------|--|
| <b>Bluefin and BAYS Tunas</b> |             |  |
| 78 FR 11788                   | 2/20/2013   | Inseason Action to Close the Atlantic Bluefin Tuna General Category Fishery  |
| 78 FR 20258                   | 4/4/2013    | Inseason Action to Adjust the Angling Category Atlantic Bluefin Tuna Retention Limit and Close the Southern Area Trophy Fishery                        |
| 78 FR 21584                   | 4/11/2013   | Proposed Rule for the 2013 Bluefin Tuna Quota Specifications   |
| 78 FR 26709                   | 5/8/2013    | Inseason Action to Adjust the General Category (Commercial) Atlantic Bluefin Tuna Retention Limit for June-August 2012                                 |
| 78 FR 36685                   | 6/19/2013   | Final 2013 Atlantic Bluefin Tuna Quotas and Close the Incidental Longline Category Northern and Southern Area Fisheries                                |
| 78 FR 50346                   | 8/19/2013   | Inseason Action to Maintain the Three-Fish General Category Daily Retention Limit for September-December 2013  |
| 78 FR 52012                   | 8/21/2013   | Proposed Rule for Amendment 7 to the 2006 Consolidated HMS FMP   |
| 78 FR 52123                   | 8/22/2013   | Public Hearings for Draft Amendment 7 to the 2006 Consolidated HMS FMP   |
| 78 FR 53754                   | 8/30/2013   | Draft Environmental Impact Statement for Amendment 7 to the 2006 Consolidated HMS FMP  |
| 78 FR 57340                   | 9/18/2013   | Comment Period Extension for Draft Amendment 7 to the 2006 Consolidated HMS FMP  |
| 78 FR 66327                   | 11/5/2013   | Rescheduled Public Hearings for Draft Amendment 7 to the 2006 Consolidated HMS FMP   |
| 78 FR 72584                   | 12/3/2013   | Inseason Action to Adjust the General Category (Commercial) Atlantic Bluefin Tuna Retention Limit for December 2013                                    |
| 78 FR 75327                   | 12/11/2013  | Comment Period Extension for Draft Amendment 7 to the 2006 Consolidated HMS FMP  |
| <b>Sharks</b>                 |             |  |
| 77 FR 73608                   | 12/11/2012  | Public Hearings for Draft Amendment 5 to the 2006 Consolidated HMS FMP   |
| 77 FR 75896                   | 12/26/2012  | Final Rule Regarding the 2013 Atlantic Shark Commercial Fishing Season   |
| 78 FR 279                     | 1/3/2013    | Two Additional Public Hearings and a Change in Date of One Public Hearing for Draft Amendment 5 to the 2006 Consolidated HMS FMP                       |
| 78 FR 14515                   | 3/6/2013    | Public Meeting for Selected Participants of the 2013 Shark Research Fishery  |
| 78 FR 20718                   | 4/5/2013    | Proposed Rule for Endangered, Threatened, and Not Warranted Listing Determinations for Six Distinct Population Segments of Scalloped Hammerhead Sharks |
| 78 FR 24148                   | 4/24/2013   | Notice of Intent to Prepare an Environmental impact Statement and Associated Rulemaking for Dusky Shark Management Measures                            |
| 78 FR 24701                   | 4/26/2013   | 90-Day Finding on Petitions to List the Great Hammerhead Sharks as Threatened or Endangered under the Endangered Species Act                           |
| 78 FR 24743                   | 4/26/2013   | Availability of the Final EIS for Amendment 5a to the 2006 Consolidated HMS FMP  |
| 78 FR 25685                   | 5/2/2013    | Proposed Rule to Implement Provisions of the Shark Conservation Act of 2010  |
| 78 FR 29100                   | 5/17/2013   | 90-Day Finding on Petitions to List Dusky Shark as Threatened or Endangered Under the Endangered Species Act   |
| 78 FR 40318                   | 7/3/2013    | Final Rule for Amendment 5a to the 2006 Consolidated HMS FMP and   |

| Federal Register Cite         | Date       | Rule or Notice  |
|-------------------------------|------------|---|
| 78 FR 42021                   | 7/15/2013  | Closure of the Gulf of Mexico Blacktip Shark Management Group   |
| 78 FR 50032                   | 8/16/2013  | NMFS Closes the Gulf of Mexico Aggregated LCS and Hammerhead Shark Management Groups  |
| 78 FR 52487                   | 8/23/2013  | Negative 90-Day Finding for Whale Sharks  |
| 78 FR 54195                   | 9/3/2013   | Proposed Rule to Establish the Quotas and Opening Dates for the 2014 Atlantic Shark Commercial Fishing Season                               |
| 78 FR 59878                   | 9/30/2013  | Regional Non-Blacknose SCS Quota Transfer from the Atlantic to the Gulf of Mexico   |
| 78 FR 65974                   | 11/4/2013  | Closure of the Commercial Aggregated LCS, Hammerhead Shark, Blacknose Shark, and Non-Blacknose SCS Management Groups in the Atlantic Region |
| 78 FR 70018                   | 11/22/2013 | Nominations for the Atlantic HMS SEDAR Pool   |
| 78 FR 70500                   | 11/26/2013 | Notice of Intent for Applications to the 2014 Shark Research Fishery  |
|                               |            | Final Rule Regarding the 2014 Atlantic Shark Commercial Fishing Season  |
| <b>Swordfish and Billfish</b> |            |   |
| 78 FR 6299                    | 1/30/2013  | 90-Day Finding on two Petitions to List White Marlin as Threatened or Endangered Under the Endangered Species Act                           |
| 78 FR 12273                   | 2/22/2013  | Draft Amendment 8 to the 2006 Consolidated HMS FMP for Management of Atlantic Swordfish   |
| 78 FR 12705                   | 2/25/2013  | Proposed Rule to Adjust the 2013 North and South Atlantic Swordfish Quotas  |
| 78 FR 17625                   | 3/22/2013  | Additional Public Hearings and Comment Period Extension for Draft Amendment 8 to the 2006 Consolidated HMS FMP                              |
| 78 FR 20291                   | 4/4/2013   | Advance Notice of Proposed Rulemaking to Implement the 2012 Billfish Conservation Act   |
| 78 FR 28758                   | 5/16/2013  | Final Rule to Adjust the 2013 North and South Atlantic Swordfish Quotas   |
| 78 FR 52012                   | 8/21/2013  | Final Rule for Amendment 8 to the 2006 Consolidated HMS FMP for Management of Atlantic Swordfish  |

## 1.2 2013 Accomplishments of the International Commission for the Conservation of Atlantic Tunas

The International Commission for the Conservation of Atlantic Tunas (ICCAT) is an international regional fishery management organization (RFMO) with 47 members, including the United States. The 23rd Annual Meeting of ICCAT was held in Cape Town, South Africa, November 18-25, 2013. The United States helped develop recommendations aimed at promoting the conservation, management, and rebuilding of Atlantic highly migratory fish stocks (*e.g.*, tunas, swordfish, sharks), including those critical to U.S. fishermen. ICCAT made progress on a number of issues, including bluefin tuna, swordfish, sea turtles, compliance issues, and monitoring, control and surveillance measures.

*Western Atlantic Bluefin Tuna:* In 2013, Recommendation 13-09 was adopted, maintaining the western Atlantic bluefin tuna total allowable catch (TAC) at 1,750 metric tons (mt) whole weight (ww) for 2014, and calling on Parties to prepare research plans to obtain reliable stock abundance indices for review at the 2<sup>nd</sup> meeting of the Working Group of Fishery Managers and Scientists in Support of the Western Atlantic Bluefin Tuna Stock Assessment,

planned for July 2014. ICCAT's SCRS will be informed of the outcomes of these activities. ICCAT maintained this TAC taking into account two divergent recruitment scenarios presented by the scientific advice, i.e., the low recruitment scenario, under which the stock is at the biomass level that can support MSY, and the high recruitment scenario, under which higher sustainable yields are possible in the future but the stock remains overfished with overfishing occurring. Recommendation 13-09 continues the current 20-year rebuilding program through 2018, maintains all Parties' current allocation shares, and includes provisions for the transfer of quota specifically to support cooperative research. It continues to call on Parties to contribute to ICCAT's Atlantic-wide Bluefin Tuna Research Program, including the enhancement of biological sampling. It also maintains the request that SCRS, in preparation for the 2015 stock assessment, thoroughly review the evidence that initially was used in support of each recruitment scenario, as well as any additional information available, as a means of informing ICCAT which scenario is more likely to reflect the current stock recruitment potential. It requests that, if the evolving science is unable to support one scenario over the other, management advice be provided that takes into consideration the risks that would be associated with opting to manage the stock under a scenario that does not accurately reflect the stock-recruitment relationship. For greater consistency with the language in the eastern Atlantic/Mediterranean BFT Recommendation, Recommendation 13-09 clarifies that sale of recreationally harvested western Atlantic bluefin tuna is prohibited, although such sale has already been prohibited in the United States. As the recommended TAC is for 2014 only, ICCAT will renegotiate the recommendation in November 2014.

*Eastern Atlantic and Mediterranean Bluefin Tuna:* The Commission adopted Recommendation 13-07, amending the recovery plan for eastern Atlantic and Mediterranean bluefin tuna. Recommendation 13-07 maintains the eastern Atlantic/Mediterranean TAC at 13,400 mt ww for 2014 onward, until changed, with an additional allocation of 100 mt ww in 2014 for Algeria. It also makes changes to the open seasons provisions that will allow Norway to fish its quota within its EEZ and establishes a standardized protocol and common procedures for implementation of stereoscopic cameras in the eastern Atlantic/Mediterranean bluefin tuna caging operations.

For both bluefin tuna stocks, an assessment update will be conducted in 2014, with the next full assessment scheduled in 2015.

*North Atlantic Albacore:* The Commission adopted Recommendation 13-05, which continues the rebuilding plan for North Atlantic albacore and maintains the annual TAC at 28,000 mt ww for 2014 through 2016. The U.S. allocation for North Atlantic albacore is maintained at 527 mt ww.

*South Atlantic Albacore:* Recommendation 13-06 maintains the annual TAC for South Atlantic Albacore (caught south of 5° N. latitude) of 24,000 mt ww, and ends the use of aspirational catch limits and a sharing system that had provided the five participants actively fishing for southern albacore – Chinese Taipei, South Africa, Namibia, Brazil and Uruguay – with individual catch limits that totaled an amount greater than the TAC. All of these CPCs now have a set quota. The United States, which does not have a directed southern albacore fishery and has not reported bycatch of southern albacore since 2005, received a quota of 25 mt ww, the same as all other countries that are not actively fishing for southern albacore.

*North Atlantic Swordfish:* The Commission adopted Recommendation 13-02, which extends the current TAC of 13,700 mt ww for 2014 through 2016. This measure maintained the current base quota allocations for all countries including the United States. The maximum underharvest carryover provision was reduced for those countries that have quotas of more than 500 mt ww from 25% to 15% for 2014 through 2016. However, a provision was added to maintain the 25% underharvest carryover for 2013 underharvests since the previous measure (Recommendation 11-02) included catches from 2013. The requirement for all countries to submit swordfish development/management plans was maintained for the duration of the measure. Finally, this measure includes a transfer of 25 mt ww from the United States, as well as transfers from other countries, to Mauritania for a total of 100 mt ww.

*South Atlantic Swordfish:* The Commission adopted Recommendation 13-03, which extends the current TAC of 15,000 mt ww for 2014 through 2016. This Recommendation maintains the provision that allows the United States to carryover underharvests up to the entire amount of the base quota allocation of 100 mt. Quota transfers from the United States of 50 mt ww to Namibia, 25 mt ww to Cote D'Ivoire and 25 mt ww to Belize were maintained.

*Sharks:* The Commission adopted Recommendation 13-10, which provides for the biological sampling of shark species that are currently prohibited from retention in ICCAT fisheries, including oceanic whitetip, bigeye thresher, silky, and scalloped, smooth and great hammerhead sharks, if they are dead at haulback. Countries wanting to retain these prohibited shark species for scientific sampling must notify the SCRS of the research plan taking into consideration the research priorities of the SCRS Shark Species Group and must report annually on the progress and/or results achieved by the research project.

*Sea Turtles:* The Commission adopted Recommendation 13-11 to reduce mortality of incidentally captured sea turtles in ICCAT fisheries through safe handling practices, such as the use of line cutters and the use of de-hooking devices based on the outcomes of the SCRS sea turtle ecological risk assessment.

*Monitoring, Control and Surveillance Measures:* The Commission adopted Recommendation 13-17 updating the schedule for the implementation of the electronic bluefin tuna catch document (eBCD) program. According to this schedule, countries will be required to fully implement and use the electronic system by March 1, 2015. Until this time, both paper and electronic BCDs will be accepted. ICCAT also adopted Recommendation 13-13, which requires commercial fishing vessels greater than 20 meters on the ICCAT Authorized Vessel List to obtain unique vessel identifiers. This requirement will be effective beginning January 1, 2016.

### **1.3 State Regulations**

Table 1.2 outlines the state regulations regarding HMS species as of November 1, 2013. While the HMS Management Division updates this table periodically throughout the year, persons interested in the current regulations for any state should contact that state directly.

Atlantic tunas (bluefin, bigeye, albacore, yellowfin, and skipjack tunas) are under federal jurisdiction from the outer boundary of the exclusive economic zone (EEZ) to the shoreline, including state waters, with the following three exceptions: state waters of Maine, Connecticut,

and Mississippi (50 CFR 635.1(b)). Federal HMS regulations apply in all other state waters of the Atlantic, Gulf of Mexico, and Caribbean. NMFS periodically reviews state tuna regulations for federal consistency as required under the Atlantic Tuna Convention Act (ATCA). Table 1.2 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 to reorganize some shark complexes consistent with federal regulations. All management measures for coastal shark species in the FMP and Addendum I have been implemented by ASMFC members, unless they have been granted *de minimus* status (Maine, 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 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 bans on the possession and trade of shark fins, but not all are effective as of November 1, 2013. Currently, Delaware, Maryland, and New York have restrictions on shark fin possession, although some allow limited exemption 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 1.2 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.

| State | Species |           |          |        | Cite Reference   | Regulatory Details   | Contact Information   |
|-------|---------|-----------|----------|--------|--|--|---|
|       | Tunas   | Swordfish | Billfish | Sharks |  |  |   |
| ME    | X       |           |          | X      | Tuna - ME Rev. Stat. Ann. tit. 12, " 6001, 6502, and 6551<br>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.<br>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<br>Phone: (207) 624-6550<br>Fax: (207) 624-6024 |
| NH    |         |           | X        | X      | Billfish - FIS 603.13<br>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, personal use only<br>Sharks – See list for prohibited sharks – 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; Head, fins and tail must remain attached to all shark species through landing  | NH Fish and Game<br>Douglas Grout<br>Phone: (603) 868-1095<br>Fax: (603) 868-3305 |

| State | Species |           |          |        | Cite Reference                                       | Regulatory Details   | Contact Information  |
|-------|---------|-----------|----------|--------|--|--|--|
|       | Tunas   | Swordfish | Billfish | Sharks |  |  |  |
| MA    | X       |           |          | X      | Bluefin Tuna - 322 CMR 6.04<br>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.<br><br>Sharks – ASMFC Coastal Shark Plan (no shark species may be landed with tails or fins removed 322 CMR 6.37(3)(d))<br><br>All MA commercial and recreational fishing regulations are available online at:<br><a href="http://www.mass.gov/dfwele/dmf/commercialfishing/cmriindex.htm">http://www.mass.gov/dfwele/dmf/commercialfishing/cmriindex.htm</a> | MA Division of Marine Fisheries<br>Jared Silva<br>Phone: (617) 626-1534<br>Fax: (617) 626-1509         |
| RI    |         |           |          | X      | Sharks - RIMFC Regulations part VII 7.24             | Sharks – ASMFC Coastal Shark Plan<br><br>RI commercial fishing license and/or landing permit required to harvest and/or land HMS species<br><br>All RI commercial and recreational marine fisheries regulations are available online at:<br><a href="http://www.dem.ri.gov/pubs/regs/regs/fishwild/rimftoc.htm">http://www.dem.ri.gov/pubs/regs/regs/fishwild/rimftoc.htm</a><br><br>RIMFC Regulations part VII 7.24 are available online at:<br><a href="http://www.dem.ri.gov/pubs/regs/regs/fishwild/rimf7.pdf">http://www.dem.ri.gov/pubs/regs/regs/fishwild/rimf7.pdf</a>   | RI Dept of Environment Management, Div of Fish and Wildlife<br>Eric Schneider<br>Phone: (401) 423-1933 |

| State | Species |           |          |        | Cite Reference  | Regulatory Details  | Contact Information   |
|-------|---------|-----------|----------|--------|---|---|---|
|       | Tunas   | Swordfish | Billfish | Sharks |   |   |   |
| CT    |         |           |          | X      | Sharks – Regulations of Connecticut State Agencies § 26-159a-1; Connecticut General Statutes §26-142a(d) Declarations: 10-03, 10-05, 10-07                                | Sharks – Prohibited species same as federal regulations; No commercial fishing for large coastal sharks; No commercial small coastal shark fishing until further notice   | CT Department of Environmental Protection<br>David Simpson<br>Phone: (860) 434-6043<br>Fax: (860) 434-6150      |
| NY    |         |           | X        | X      | Billfish - NY Environmental Conservation ' 13-0339 (5)<br>Sharks - NY Environmental Conservation ' 13-0338; State of New York 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<br><br>Sharks – ASMFC Coastal Shark Plan | NY Department of Environmental Conservation<br>Stephen W. Heins<br>Phone: (631) 444-0430<br>Fax: (631) 444-0449 |
| NJ    |         |           |          | X      | Sharks - NJ Administrative Code, Title 7. Department of Environmental Protection, NJAC 7:25-18.1 and 7:25-18.12(d)  | Sharks – ASMFC Coastal Shark Plan   | NJ Fish and Wildlife<br>Russ Babb<br>Phone: (609)748-2020<br>Fax: (609) 748-2032                                |
| DE    |         |           | X        | X      | Billfish - DE Code Ann. tit. 7, ' 1310<br>Sharks - DE Code Regulations 3541   | Billfish - Prohibition on sale of Atlantic sailfish and blue/white/striped marlin<br><br>Sharks – ASMFC Coastal Shark Plan  | DE Division of Fish and Wildlife<br>John Clark<br>Phone: (302) 739-9914   |

| State | Species      |                  |                 |               | Cite Reference  | Regulatory Details  | Contact Information   |
|-------|--------------|------------------|-----------------|---------------|---|---|---|
|       | <i>Tunas</i> | <i>Swordfish</i> | <i>Billfish</i> | <i>Sharks</i> |   |   |   |
| MD    | X            | X                | X               | X             | Bluefin tuna - Code of Maryland Regulations 08.02.12.03 and 08.02.05.23<br>Swordfish - Code of Maryland Regulations 08.02.12.03 and 08.02.05.27<br>Billfish - Code of Maryland Regulations 08.02.12.03 and 08.02.05.26<br>Sharks - Code of Maryland Regulations 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<br><br>Swordfish - Federal regulations used to control size and seasons and recreational catch required to be tagged<br><br>Billfish (blue/white marlin and sailfish) - Federal regulations control size and seasons and recreational catch required to be tagged<br>Sharks – Recreational catch required to be tagged; ASMFC Coastal Shark Plan | MD Department of Natural Resources<br>Gina Hunt<br>Phone: (410) 260-8326                          |
| VA    |              |                  | X               | X             | Billfish - 4 VA Administrative Code 20-350-10<br>Sharks - 4 VA Administrative Code 20-490-10  | Billfish - Prohibition on sale of billfish<br>Sharks – ASMFC Coastal Shark Plan   | VA Marine Resources Commission<br>Robert O'Reilly<br>Phone: (757) 247-2247<br>Fax: (757) 247-2002 |

| State | Species |           |          |        | Cite Reference   | Regulatory Details   | Contact Information   |
|-------|---------|-----------|----------|--------|--|--|---|
|       | Tunas   | Swordfish | Billfish | Sharks |  |  |   |
| NC    | X       |           | X        | X      | <p>Tuna - NC<br/>Administrative Code<br/>tit. 15A 03M.0520</p> <p>Billfish -NC<br/>Administrative Code<br/>tit. 15A, r.3M.0507 and<br/>15A 03M.0507</p> <p>Sharks -NC<br/>Administrative Code<br/>tit. 15A, NCAC, 03M<br/>.0512 Compliance with<br/>Fishery Management<br/>Plans</p> | <p>Tuna – Commercial and recreational minimum size:<br/>yellowfin tuna – 27” CFL, bigeye tuna - 27” CFL, bluefin<br/>tuna – 73” CFL; Recreational bag limit: 3 yellowfin<br/>tuna/day</p> <p>Billfish - Recreational possession limit - 1 blue or white<br/>marlin/vessel/trip; 1 sailfish/person/day; Minimum size -<br/>blue marlin - 99", white marlin - 66", sailfish - 63";<br/>Unlawful to sell or offer for sale blue or white marlin and<br/>sailfish</p> <p>Sharks - Director may impose restrictions for size,<br/>seasons, areas, quantity, etc. via proclamation; ASMFC<br/>Coastal Shark Plan; additionally: longline in the shark<br/>fishery shall not exceed 500 yd or have more than 50<br/>hooks</p> | <p>NC Division of Marine<br/>Fisheries<br/>Randy Gregory<br/>Phone: (252) 726-7021<br/>Fax: (252) 726-0254</p>      |
| SC    | X       | X         | X        | X      | <p>Tuna/Swordfish - SC<br/>Code Ann. ' 50-5-2725<br/>and 2730</p> <p>Billfish - SC Code Ann.<br/>' 50-5-1700, 1705,<br/>2725 and 2730 ; 50-1-<br/>30 (6)</p> <p>Sharks - SC Code<br/>Ann. ' 50-5-2725, 2730</p>  | <p>Tuna/Swordfish – Defer to federal regulations</p> <p>Billfish – Defer to federal regulations; Unlawful to sell<br/>billfish; Hook and line gear only; Unlawful to possess<br/>while transporting gillnets, seines, or other commercial<br/>gear</p> <p>Sharks – Defer to federal regulations; Gillnets may not<br/>be used in the shark fishery in state waters; State permit<br/>required for shark fishing in state waters</p>  | <p>SC Department of<br/>Natural Resources<br/>Wallace Jenkins<br/>Phone: (843) 953-9835<br/>Fax: (843) 953-9386</p> |

| State | Species      |                  |                 |               | Cite Reference  | Regulatory Details   | Contact Information   |
|-------|--------------|------------------|-----------------|---------------|---|--|---|
|       | <i>Tunas</i> | <i>Swordfish</i> | <i>Billfish</i> | <i>Sharks</i> |   |  |   |
| GA    |              |                  | X               | X             | Gear Restrictions/Prohibitions - GA Code Ann. ' 27-4-7;<br>Billfish - GA Code Ann. ' 27-4-130.2; GA Comp. R. & Regs. ' 391-2-4-.04<br>Sharks - GA Code Ann. ' 27-4-130.1; GA Comp. R. & Regs. ' 391-2-4-.04 | Gear Restrictions/Prohibitions - Use of gillnets and longlines is prohibited in state waters<br>Billfish - Possession prohibited in state waters, except for catch and release<br>Sharks – Commercial/Recreational: 1/person/boat for sharks from the Small Shark Composite (bonnethead, sharpnose, and spiny dogfish, min size 30" FL; All other sharks - 1 shark/person or boat, whichever is less, min size 54" FL Prohibited Species: 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<br>Carolyn Belcher<br>Phone: (912) 264-7218<br>Fax: (912) 262-3143 |

| State | Species |           |          |        | Cite Reference  | Regulatory Details   | Contact Information  |
|-------|---------|-----------|----------|--------|---|--|--|
|       | Tunas   | Swordfish | Billfish | Sharks |   |  |  |
| FL    |         | X         | X        | X      | Sharks - FL Administrative Code 68B-44<br>Billfish and Spearfish - FL Administrative Code 68B-33<br>Swordfish – FL Administrative Code 68B-58 | Billfish – Longbill and Mediterranean– harvest/possession/landing/purchase/sale/exchange prohibited<br>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)<br>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)<br>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 lemon, sandbar, tiger, great hammerhead, smooth hammerhead, and scalloped hammerhead sharks, direct and continuous transit through state waters to place of landing for lemon, sandbar, tiger, great hammerhead, smooth hammerhead, and scalloped hammerhead sharks legally caught in federal waters is allowed. | FL Fish and Wildlife Conservation Commission<br>Martha Bademan<br>Phone: (850) 487-0554<br>Fax: (850) 487-4847 |

| State | Species |           |          |        | Cite Reference  | Regulatory Details  | Contact Information   |
|-------|---------|-----------|----------|--------|---|---|---|
|       | Tunas   | Swordfish | Billfish | Sharks |   |   |   |
| AL    | X       | X         | X        | X      | Tunas/Swordfish/Billfish/Sharks – AL Administrative Code r.220-3-.30<br>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<br>Tuna - Recreational and commercial fishermen must have a federal permit to fish for tunas; Yellowfin and bigeye – 27” CFL min size<br>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<br>Major Scott Bannon<br>Phone: (251) 861 2882<br>www.outdooralabama.com |

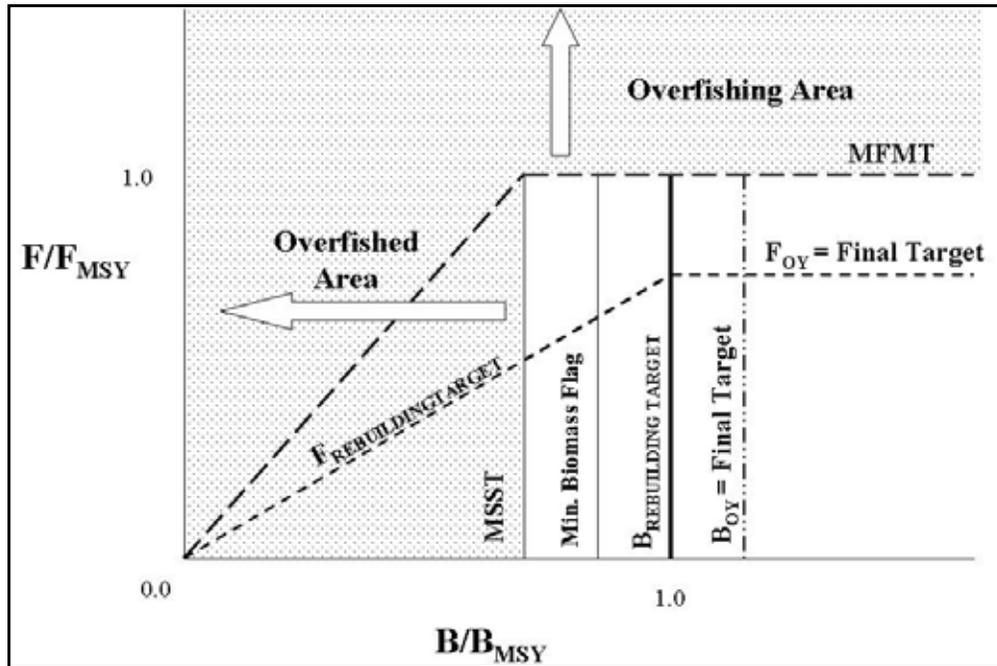
| State | Species |           |          |        | Cite Reference  | Regulatory Details  | Contact Information  |
|-------|---------|-----------|----------|--------|---|---|--|
|       | Tunas   | Swordfish | Billfish | Sharks |   |   |  |
| LA    | X       | X         | X        | X      | <p>Tunas - LA<br/>Administrative Code<br/>Title 76, Pt. VII, Ch. 3,<br/>§ 361</p> <p>Swordfish/Billfish - LA<br/>Administrative Code<br/>Title 76, Pt. VII, Ch. 3,<br/>§ 355</p> <p>Sharks - LA<br/>Administrative Code<br/>Title 76, Pt. VII, Ch. 3,<br/>§ 357</p> | <p>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."</p> <p>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</p> <p>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: 33/vessel/day limit (36/vessel/day by mid-2013); no min size; Com &amp; 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.</p> | <p>LA Department of<br/>Wildlife and Fisheries<br/>Jason Adriance<br/>Phone: (504) 284-2032<br/>or 225 765-2889<br/>Fax: ( 504) 284-5263<br/>or (225) 765-2489</p> |

| State | Species |           |          |        | Cite Reference   | Regulatory Details   | Contact Information  |
|-------|---------|-----------|----------|--------|--|--|--|
|       | Tunas   | Swordfish | Billfish | Sharks |  |  |  |
| MS    | X       |           | X        | X      | Tunas/Billfish/Sharks - MS Code Title-22 part 7  | <p>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)</p> <p>Billfish – Unlawful to sell blue and white marlin and sailfish without proper federal documentation; Recreational minimum size: blue marlin 99" LJFL; white marlin 66" LJFL; sailfish 63" LJFL; No possession for longbill spear fish; No limit for recreational take</p> <p>Sharks – Recreational min size: LCS/Pelagics 37" TL; SCS 25" TL; possession limit: LCS/Pelagics 1/person up to 3/vessel; SCS 4/person; Commercial and prohibited species same as federal regulations; Prohibition on finning</p> | MS Department of Marine Resources<br>Kerwin Cuevas<br>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 | <p>Blue marlin, white marlin, sailfish, sharks, longbill spearfish, and broadbill swordfish are gamefish and may only be taken with pole and line (including rod and reel); Blue marlin, white marlin, sailfish, and longbill spearfish may not be sold for any purpose</p> <p>Billfish - Bag limit none; min size blue marlin – 131" TL; white marlin – 86" TL; sailfish – 84" TL</p> <p>Sharks - Commercial/recreational: bag limit - 1 shark/person/day; Commercial/recreational possession limit is twice the daily bag limit (i.e., 2 sharks/person/day); min size 24" TL for Atlantic sharpnose, blacktip, and bonnethead sharks and 64" TL for all other lawful sharks. Prohibited species: same as federal regulations</p>   | TX Parks & Wildlife Department<br>Mark Lingo<br>Phone: (956) 350-4490<br>Fax: (956) 350-3470 |

| State               | Species |           |          |        | Cite Reference   | Regulatory Details  | Contact Information  |
|---------------------|---------|-----------|----------|--------|--|---|--|
|                     | Tunas   | Swordfish | Billfish | Sharks |  |   |  |
| Puerto Rico         | X       | X         | X        | X      | Regulation #6768<br>Article 8 – General Fishing Limits<br>Article 13 – Limitations<br>Article 17 – Permits for Recreational Fishing (March 2004) | <p>Illegal to sell, offer for sale, or traffic in any billfish or marlin, either whole or processed, captured in jurisdictional waters of Puerto Rico.<br/>Swordfish or billfish, tuna, and shark are covered under the federal Atlantic HMS regulations (50 CFR, Part 635); Fishers who capture these species are required to comply with said regulation; billfish captured incidentally with long line must be released by cutting the line close to the fishhook, avoiding the removal of the fish from the water; in the case of tuna and swordfish, fishers shall obtain a permit according to the requirements of the federal government; Year-round closed season on nurse sharks.</p> <p><a href="http://www.caribbeanfmc.com/REGULATIONS%20PR-USVI/reg%20pesca%20pr/RqI6768-%20feb%202004.pdf">http://www.caribbeanfmc.com/REGULATIONS%20PR-USVI/reg%20pesca%20pr/RqI6768-%20feb%202004.pdf</a></p> | <p>Puerto Rico Department of Natural and Environmental Resources<br/>Craig Lilyestrom<br/>Phone: (787) 999-2200 x2689<br/>Fax: (787) 999-2271</p>                          |
| U.S. Virgin Islands | X       | X         | X        | X      | V.I.C., Title 12, Chapter 9A.  | <p>Federal regulations and federal permit requirements apply in territorial waters.</p> <p><a href="http://caribbeanfmc.com/pdfs/booklet%20usvi%20Commercial%202009.pdf">http://caribbeanfmc.com/pdfs/booklet%20usvi%20Commercial%202009.pdf</a></p>  | <p>6291 Estate Nazareth<br/>St. Thomas, VI 00802<br/>Phone: (340) 775-6762</p> <p>45 Mars Hill Complex<br/>Frederiksted, St. Croix, VI 00840<br/>Phone: (340) 773-1082</p> |

## 2. STATUS OF THE STOCKS

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



**Figure 2.1 Illustration of the Status Determination Criteria and Rebuilding Terms**

In summary, a species is considered overfished when the current biomass ( $B$ ) is less than the minimum stock size threshold ( $B < B_{MSST}$ ). The minimum stock size threshold ( $MSST$ ) is determined based on the natural mortality of the stock and the biomass at maximum sustainable yield ( $B_{MSY}$ ). Maximum sustainable yield ( $MSY$ ) is the maximum long-term average yield that can be produced by a stock on a continuing basis. The biomass can be lower than  $B_{MSY}$ , and the stock not be declared overfished as long as the biomass is above  $B_{MSST}$ . 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  $B/B_{MSY} < 1.0$ , 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 a species is declared overfished or overfishing is occurring, action to rebuild the stock and/or prevent further overfishing is required by law. A species is considered rebuilt when  $B$  is greater than  $B_{MSY}$  and  $F$  is less than  $F_{MSY}$ . A species is considered healthy when  $B$  is greater than or equal to the biomass at optimum yield ( $B_{OY}$ ) and  $F$  is less than or equal to the fishing mortality at optimum yield ( $F_{OY}$ ).

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

- Maximum Fishing Mortality Threshold (MFMT) =  $F_{\text{limit}} = F_{\text{MSY}}$ ;
- Overfishing is occurring when  $F_{\text{year}} > F_{\text{MSY}}$ ;
- Minimum Stock Size Threshold (MSST) =  $B_{\text{limit}} = (1-M)B_{\text{MSY}}$  when  $M < 0.5$ ;  $MSST = 0.5B_{\text{MSY}}$  when  $M \geq 0.5$  (for billfish, the specific MSST values are: blue marlin =  $0.9B_{\text{MSY}}$ ; white marlin =  $0.85B_{\text{MSY}}$ ; west Atlantic sailfish =  $0.75B_{\text{MSY}}$ );  $M$  = natural mortality. In many cases an average  $M$  across age classes or sensitivity runs from a stock assessment model is used to calculate MSST. It is important to note that other fishery management organizations may apply different thresholds for stock status determination. For example, ICCAT's SCRS defines an overfished status as  $B/B_{\text{MSY}} < 1.0$ , rather than  $B_{\text{year}}/B_{\text{MSY}} < MSST$ , which is the standard NMFS applies in domestic fishery management actions.
- Overfished when  $B_{\text{year}}/B_{\text{MSY}} < MSST$ ;
- Biomass target during rebuilding =  $B_{\text{MSY}}$ ;
- Fishing mortality during rebuilding  $< F_{\text{MSY}}$ ;
- Fishing mortality for healthy stocks =  $0.75F_{\text{MSY}}$ ;
- Biomass for healthy stocks =  $B_{\text{OY}} = \sim 1.25$  to  $1.30B_{\text{MSY}}$ ;
- Minimum biomass flag =  $(1-M)B_{\text{OY}}$ ; 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 (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 mature sharks at age multiplied by pup-production at age.

With the exception of many Atlantic sharks stocks, stock assessments for Atlantic HMS are conducted by ICCAT's SCRS. In 2013, the SCRS completed stock assessments for North Atlantic swordfish, South Atlantic swordfish, and North Atlantic albacore tuna. All SCRS final stock assessment reports can be found at <http://www.iccat.int/en/assess.htm>.

Atlantic shark stock assessments for large coastal sharks and small coastal sharks are generally completed by the Southeast Data, Assessment, and Review (SEDAR) process. SEDAR assessments for bonnethead and sharpnose sharks were conducted in 2013. 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 scalloped hammerhead sharks that was completed by Hayes et al. (2009). The results of all these assessments are shown below in Table 2.1.

Table 2.1 summarizes stock assessment information and the current status of Atlantic HMS as of November 2013. NMFS updates all U.S. fisheries stock statuses each quarter and provides a Status of U.S. Fisheries Report to Congress on an annual basis. The status of the stock reports are available at: <http://www.nmfs.noaa.gov/sfa/statusoffisheries/SOSmain.htm>.

**Table 2.1 Stock Assessment Summary Table for Atlantic HMS**

| Species                      | Current Relative Biomass Level  | B <sub>MSY</sub>   | Minimum Stock Size Threshold                                   | Current Relative Fishing Mortality Rate                                       | Maximum Fishing Mortality Threshold                       | Outlook – From Status of Stocks for U.S.-Managed Species                 | Years to Rebuild | Rebuilding Start Date (Rebuilding End Date) |
|------------------------------|---|--|--|---|---|--|------------------|---|
| West Atlantic bluefin tuna   | SSB <sub>11</sub> /SSB <sub>MSY</sub> * = 1.4 (1.14-1.72) (low recruitment)   | SSB <sub>MSY</sub> = 12,943 mt (low recruitment; 12,717-13,268 mt)   | 0.86 SSB <sub>MSY</sub> (11,131 mt; low recruitment)           | F <sub>08-10</sub> /F <sub>MSY</sub> ** = 0.61 (0.49-0.74) (low recruitment)  | F <sub>MSY</sub> = 0.17 (0.14-0.19) (low recruitment)     | *Low recruitment scenario: Not overfished; overfishing is not occurring. | 20               | 5/1/1999 (2019)                             |
|                              | SSB <sub>11</sub> /SSB <sub>MSY</sub> * = 0.19 (0.13-0.29) (high recruitment) | SSB <sub>MSY</sub> = 93,621 mt (high recruitment; 77,288-116,679 mt) | (80,514 mt; high recruitment)                                  | F <sub>08-10</sub> /F <sub>MSY</sub> ** = 1.57 (1.24-1.95) (high recruitment) | F <sub>MSY</sub> = 0.064 (0.056-0.074) (high recruitment) | *High recruitment scenario: Overfished; overfishing is occurring         |                  |   |
| Atlantic bigeye tuna         | B <sub>09</sub> /B <sub>MSY</sub> = 1.01 (0.72-1.34)                          | 422,630 mt   | 0.6 B <sub>MSY</sub> (253,578 mt)                              | F <sub>09</sub> /F <sub>MSY</sub> = 0.95 (0.65-1.55)                          | F <sub>MSY</sub> = 0.17                                   | Not overfished (Rebuilding); overfishing not occurring.                  | Not available††  | 1/1/1999                                    |
| Atlantic yellowfin tuna      | B <sub>10</sub> /B <sub>MSY</sub> = 0.85 (0.61-1.12)                          | <i>Unknown</i>   | 0.5 B <sub>MSY</sub> (age 2+)                                  | F <sub>current</sub> /F <sub>MSY</sub> = 0.87 (0.68-1.40)                     | F <sub>MSY</sub>  | Not overfished; overfishing not occurring.                               |                  |   |
| North Atlantic albacore tuna | SSB <sub>current</sub> /SSB <sub>MSY</sub> = 0.94 (0.74-1.14)                 | SSB <sub>MSY</sub> = 81,110 mt                                       | 0.7 B <sub>MSY</sub> (56,777 mt; based on SSB <sub>MSY</sub> ) | F <sub>current</sub> /F <sub>MSY</sub> = 0.72 (0.55-0.89)                     | F <sub>MSY</sub> = 0.1486                                 | Overfished; overfishing not occurring.                                   | 10               | 1/1/2010 (2020)                             |
| West Atlantic skipjack tuna  | B <sub>08</sub> /B <sub>MSY</sub> : most likely > 1                           | <i>Unknown</i>   | <i>Unknown</i>   | F <sub>08</sub> /F <sub>MSY</sub> : most likely < 1                           | F <sub>MSY</sub>  | <i>Unknown</i>   |                  |   |
| North Atlantic swordfish     | B <sub>11</sub> /B <sub>MSY</sub> = 1.14 (1.05-1.24)                          | 65,060 mt  | 0.8 B <sub>MSY</sub> ; (52,048 mt)                             | F <sub>11</sub> /F <sub>MSY</sub> = 0.82 (0.73-0.91)                          | F <sub>MSY</sub> = 0.21 (0.17-0.26)                       | Not overfished; overfishing not occurring                                |                  |   |

| Species                                 | Current Relative Biomass Level                          | B <sub>MSY</sub>   | Minimum Stock Size Threshold                                      | Current Relative Fishing Mortality Rate   | Maximum Fishing Mortality Threshold | Outlook – From Status of Stocks for U.S.-Managed Species | Years to Rebuild | Rebuilding Start Date (Rebuilding End Date) |
|---|---|--|---|---|-------------------------------------|--|------------------|---|
| South Atlantic swordfish                | $B_{11}/B_{MSY} =$<br><i>Unknown but likely above 1</i> | <i>Unknown</i>   | <i>Unknown</i>  | $F_{11}/F_{MSY} =$<br><i>Unknown but likely above 1</i>   | <i>Unknown</i>                      | Not overfished; overfishing not occurring                |                  |   |
| Blue marlin                             | $B_{09}/B_{MSY} = 0.67$<br>(0.53-0.81)                  | 25,411 mt (SSB <sub>MSY</sub> )                                | 0.9 B <sub>MSY</sub><br>(22,870 mt; based on SSB <sub>MSY</sub> ) | $F_{09}/F_{MSY} = 1.63$<br>(1.11-2.16)  | $F_{MSY} = 0.07$                    | Overfished; overfishing is occurring                     | Not available††  | 6/1/2001                                    |
| White marlin (and roundscale spearfish) | $B_{2010}/B_{MSY} = 0.5$<br>(0.42-0.60)                 | 29,240 mt (27,260-30,720 mt)                                   | 0.85 B <sub>MSY</sub><br>(23,171-26,112 mt)                       | $F_{2010}/F_{MSY} = 0.99$ (0.75-1.27; low productivity)<br><br>$F_{2010}/F_{MSY} = 0.72$ (0.51-0.93; high productivity) | $F_{MSY} = 0.03$<br>(0.027-0.035)   | Overfished; overfishing may not be occurring             | Not available††  | 6/1/2001                                    |
| West Atlantic sailfish                  | $B_{07} < B_{MSY}$ :<br>Possibly                        | <i>Unknown</i>   | 0.78 B <sub>MSY</sub> <i>Unknown</i>                              | $F_{07} > F_{MSY}$ :<br>Possibly  | <i>Unknown</i>                      | Overfished; overfishing is occurring                     | Not available††  | 1/1/1999                                    |
| Longbill spearfish                      | <i>Unknown</i>  | <i>Unknown</i>   | <i>Unknown</i>  | <i>Unknown</i>  | <i>Unknown</i>                      | <i>Unknown</i>   |                  |   |
| Large coastal shark complex             | <i>Unknown</i>  | <i>Unknown</i>   | (1-M) B <sub>MSY</sub>  | <i>Unknown</i>  | <i>Unknown</i>                      | <i>Unknown</i>   |                  |   |
| Sandbar                                 | $SSF_{09}/SSF_{MSY} = 0.51 - 0.72$                      | SSF <sub>MSY</sub> = 349,330-1,377,800 (numbers of sharks)     | 301,821 – 1,190,419 (based on SSF <sub>MSY</sub> )                | $F_{09}/F_{MSY} = 0.29-2.62$  | 0.004-0.06                          | Overfished; overfishing is not occurring                 | 66               | 1/1/2005 (2070)                             |
| Gulf of Mexico blacktip                 | $SSF_{2010}/SSF_{MSY} = 2.00-2.66$                      | SSF <sub>MSY</sub> = 1,570,000 - 6,440,000 (numbers of sharks) | 1,327,697 - 5,446,093 (1-M)*SSF <sub>MSY</sub>                    | $F_{2010}/F_{MSY} = 0.05-0.27$  | 0.021-0.163                         | Not overfished; overfishing not occurring                |                  |   |
| Atlantic blacktip                       | <i>Unknown</i>  | <i>Unknown</i>   | (1-M) B <sub>MSY</sub>  | <i>Unknown</i>  | <i>Unknown</i>                      | <i>Unknown</i>   |                  |   |
| Dusky sharks                            | $SSB_{09}/SSB_{MSY} = 0.41-0.50$                        | <i>Unknown</i>   | (1-M) B <sub>MSY</sub>  | $F_{09}/F_{MSY} = 1.39-4.35$  | 0.01-0.05                           | Overfished; overfishing is occurring                     | 100              | 7/24/2008 (2108)                            |

| Species                             | Current Relative Biomass Level       | B <sub>MSY</sub>   | Minimum Stock Size Threshold              | Current Relative Fishing Mortality Rate | Maximum Fishing Mortality Threshold | Outlook – From Status of Stocks for U.S.-Managed Species | Years to Rebuild | Rebuilding Start Date (Rebuilding End Date) |
|-------------------------------------|--------------------------------------|--|---|---|-------------------------------------|--|------------------|---|
| Scalloped hammerhead sharks         | $N_{05}/N_{MSY} = 0.45$              | $N_{MSY} = 62,000$<br>(numbers of sharks)                    | (1-M) B <sub>MSY</sub>                    | $F_{05}/F_{MSY} = 1.29$                 | 0.11                                | Overfished; overfishing is occurring                     | 10               | 7/3/2013 (2023)                             |
| Small coastal shark complex         | $N_{05}/N_{MSY} = 1.69$              | $N_{MSY} = 30,000,000$<br>(numbers of sharks)                | 21,000,000 (based on $N_{MSY}$ )          | $F_{05}/F_{MSY} = 0.25$                 | 0.09                                | Not overfished; overfishing not occurring                |                  |   |
| Bonnethead sharks†                  | <i>Unknown</i>                       | <i>Unknown</i>   | <i>Unknown</i>                            | <i>Unknown</i>                          | <i>Unknown</i>                      | <i>Unknown</i>   |                  |   |
| Atlantic sharpnose sharks†          | $SSF_{2011}/SSF_{MSY} = 0.53 - 3.75$ | $SSF_{MSY} = 4,860,000 - 165,000,000$<br>(numbers of sharks) | 3,732,480 – 126,720,000 (1-M) $SSF_{MSY}$ | $F_{2011}/F_{MSY} = 0.03 - 1.06$        | 0.18 – 0.43                         | Not overfished; overfishing not occurring                |                  |   |
| Atlantic blacknose sharks           | $SSF_{09}/SSF_{MSY} = 0.43 - 0.64$   | $SSF_{MSY} = 77,577 - 288,360$<br>(numbers of sharks)        | 62,294-231,553 (based on $SSF_{MSY}$ )    | $F_{09}/F_{MSY} = 3.26 - 22.53$         | 0.01-0.15                           | Overfished; overfishing is occurring                     | 30               | 7/3/2013 (2043)                             |
| Gulf of Mexico blacknose sharks     | <i>Unknown</i>                       | <i>Unknown</i>   | (1-M) B <sub>MSY</sub>                    | <i>Unknown</i>                          | <i>Unknown</i>                      | <i>Unknown</i>   |                  |   |
| Finetooth sharks                    | $N_{05}/N_{MSY} = 1.80$              | $N_{MSY} = 3,200,000$<br>(numbers of sharks)                 | 2,400,000 (based on $N_{MSY}$ )           | $F_{05}/F_{MSY} = 0.17$                 | 0.03                                | Not overfished; overfishing not occurring                |                  |   |
| Northwest Atlantic porbeagle sharks | $B_{08}/B_{MSY} = 0.43 - 0.65$       | 29,382-40,676 mt   | (1-M) B <sub>MSY</sub>                    | $F_{08}/F_{MSY} = 0.03 - 0.36$          | 0.025-0.075                         | Overfished; overfishing not occurring                    | 100              | 7/24/2008 (2108)                            |
| North Atlantic blue sharks          | $B_{07}/B_{MSY} = 1.87 - 2.74$       | <i>Unknown</i>   | (1-M) B <sub>MSY</sub>                    | $F_{07}/F_{MSY} = 0.13-0.17$            | 0.15                                | Not overfished; overfishing not occurring                |                  |   |
| North Atlantic shortfin mako sharks | $B_{2010}/B_{MSY} = 1.15 - 2.04$     | 183,612 mt - 863,655 mt†                                     | (1-M) B <sub>MSY</sub>                    | $F_{2010}/F_{MSY} = 0.16-0.92$          | 0.029-0.104†                        | Not overfished; overfishing not occurring                |                  |   |
| Pelagic sharks                      | <i>Unknown</i>                       | <i>Unknown</i>   | <i>Unknown</i>                            | <i>Unknown</i>                          | <i>Unknown</i>                      | <i>Unknown</i>   |                  |   |

\*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 no strong evidence to favor either scenario over the other and notes that both are reasonable (but not extreme) lower and upper bounds on rebuilding potential. \*\*Where F year refers to the geometric mean of the estimates for 2008-2010 (a proxy for recent F levels). †Only the BSP model provided BMSY values. The BMSY range encompasses the 16 scenarios run of the BSP model. Both the BSP and catch-free model estimated FMSY. The FMSY 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. ††There is insufficient information to estimate how many years it will take this stock to rebuild. ‡ The results indicated here are preliminary and are based on the assessment conducted in 2013 and delivered, with a peer review, to the agency in November 2013. At the time of writing this document, NMFS was reviewing the results of that assessment and its review and had not yet made any determination on whether to accept the assessment.

Sources: SCRS, 2007, 2008, 2009a, 2009b, 2010, 2011, 2012a, 2012b, 2013; Gibson and Campana, 2005; Cortés et al., 2006; NMFS, 2006; NMFS, 2007; Hayes et al., 2009; SEDAR 2011a, 2011b, 2011c, 2011d, 2013.

## 2.1 Stock Assessment Details

The 2012 SCRS report (i.e., the summary report) is available online at:  
[http://www.iccat.int/Documents/Meetings/SCRS2012/2012\\_SCRS\\_REP\\_EN.pdf](http://www.iccat.int/Documents/Meetings/SCRS2012/2012_SCRS_REP_EN.pdf)

Detailed stock assessments for the species in Table 2.1 are available at these websites:

### *Western Atlantic Bluefin Tuna*

Assessed by ICCAT's SCRS in 2012:

[http://www.iccat.int/Documents/Meetings/Docs/2012\\_BFT\\_ASSESS.pdf](http://www.iccat.int/Documents/Meetings/Docs/2012_BFT_ASSESS.pdf)

### *Atlantic Bigeye Tuna*

Assessed by ICCAT's SCRS in 2010:

[http://www.iccat.int/Documents/Meetings/Docs/2010\\_BET\\_Assessment\\_REP\\_ENG.pdf](http://www.iccat.int/Documents/Meetings/Docs/2010_BET_Assessment_REP_ENG.pdf)

### *Atlantic Yellowfin Tuna*

Assessed by ICCAT's SCRS in 2011:

[http://www.iccat.int/Documents/Meetings/Docs/2011\\_YFT\\_ASSESS\\_REP.pdf](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](http://www.iccat.int/Documents/Meetings/Docs/2013_ALB_ASSESS_REP_ENG.pdf)

### *West Atlantic Skipjack Tuna*

Assessed by ICCAT's SCRS in 2008:

<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](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](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](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](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](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 2001 sailfish stock assessment:

[http://www.iccat.int/Documents/SCRS/DetRep/DET\\_sai.pdf](http://www.iccat.int/Documents/SCRS/DetRep/DET_sai.pdf)

### *Large Coastal Shark (LCS) Complex*

Assessed in 2006 through the SEDAR process:

[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=11](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=11)

### *Sandbar Sharks*

Assessed in 2010/2011 through the SEDAR process:

[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=21](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=21)

### *Gulf of Mexico Blacktip Sharks*

Assessed in 2012 through the SEDAR process:

[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=29](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=29)

### *Atlantic Blacktip Sharks*

Assessed in 2006 through the SEDAR process:

[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=11](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=11)

### *Dusky Sharks*

Assessed in 2010/2011 through the SEDAR process:

[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=21](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=21)

### *Small Coastal Shark (SCS) Complex*

Assessed in 2007 through the SEDAR process:

[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=13](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=13)

### *Bonnethead Sharks*

Assessed in 2013 through the SEDAR process:

[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=34](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=34)

### *Atlantic Sharpnose Sharks*

Assessed in 2013 through the SEDAR process:

[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=34](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=34)

*Blacknose Sharks (Atlantic and Gulf of Mexico)*

Assessed in 2010/2011 through the SEDAR process:

[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=21](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=21)

*Finetooth Sharks*

Assessed in 2007 through the SEDAR process:

[http://www.sefsc.noaa.gov/sedar/Sedar\\_Workshops.jsp?WorkshopNum=13](http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=13)

*Northwest Atlantic Porbeagle Sharks*

Assessed by ICCAT's SCRS in 2009:

[http://www.iccat.int/Documents/Meetings/Docs/2009\\_POR\\_ASSESS\\_ENG.pdf](http://www.iccat.int/Documents/Meetings/Docs/2009_POR_ASSESS_ENG.pdf)

*North Atlantic Blue Sharks*

Assessed by ICCAT's SCRS in 2008:

[http://www.iccat.int/Documents/Meetings/Docs/2008\\_SHK\\_Report.pdf](http://www.iccat.int/Documents/Meetings/Docs/2008_SHK_Report.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](http://www.iccat.int/Documents/Meetings/Docs/2012_SHK_ASS_ENG.pdf)

*Scalloped Hammerhead Sharks*

Assessed in Hayes et al. (2009).

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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.

NMFS has also published a Final Environmental Impact Statement (FEIS) for Amendment 3 to the 2006 Consolidated HMS FMP (June 1, 2010, 75 FR 30484) which, among other things, added the smoothhound management group (consisting of *Mustelus canis* or smooth dogfish, *M. norrisi* or Florida smoothhound, and more recently *M. sinusmexicanus* or Gulf smoothhound) under Secretarial management. 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 the roundscale spearfish were not recognized as a distinct species until recently. Therefore, 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.

In late 2013, NMFS initiated the next EFH five-year review.

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

| <b>FMP or Amendment</b>  | <b>EFH and Species</b>  |
|--|---|
| 1999 FMP for Atlantic Tunas, Swordfish, and Sharks                         | EFH first identified and described for Atlantic tunas, swordfish and sharks   |
| 1999 Amendment 1 to the Billfish FMP                                       | EFH first identified and described for Atlantic billfish  |
| 2003 Amendment 1 to the FMP for Atlantic Tunas, Swordfish and Sharks       | EFH updated for five shark species (blacktip, sandbar, finetooth, dusky, and nurse sharks)  |
| 2006 Consolidated Atlantic HMS FMP   | Comprehensive review of EFH for all HMS. EFH for all Atlantic HMS consolidated into one FMP; no changes to EFH descriptions or boundaries |
| 2009 Amendment 1 to the Consolidated Atlantic HMS FMP                      | EFH updated for all federally managed Atlantic HMS. HAPC for bluefin tuna spawning area designated in the Gulf of Mexico                  |
| 2010 Amendment 3 to the Consolidated Atlantic HMS FMP                      | EFH first defined for 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)  |

### **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 2012 COASTSPAN and GULFSPAN surveys (Bethea, pers. comm.; McCandless et al., 2013).

### *Massachusetts*

COASTSPAN sampling was conducted in Plymouth, Kingston, and Duxbury Bays in 2012. The shark catch consisted entirely of immature sand tiger sharks, with one age 1 shark and the remaining catch were young-of-the-year. This area continues to provide important summer nursery habitat for this prohibited species.

### *Rhode Island*

Many young-of-the-year sand tigers were caught off Point Judith, Rhode Island in the late spring of 2012. 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 2012. No elasmobranchs were caught during the limited summer sampling this year.

### *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 2012, followed by smoothhound and sand tigers. One adult male Atlantic sharpnose shark and one juvenile male blacktip shark were also caught in Delaware Bay in 2012. The majority of sandbar sharks caught were immature, with over a quarter of these as young-of-the-year; the remaining sandbar sharks caught were considered mature females based on length and girth measurements. Smoothhounds were represented nearly equally by juvenile and adult fish in 2012, with the overwhelming majority of immature and mature fish as young-of-the-year and females, respectively. The sand tigers caught in 2012 were primarily immature sharks, but several mature male and female sand tigers were also captured. Delaware Bay continues to provide important nursery habitat for sandbar shark, smoothhound and sand tiger sharks. The extensive use of the Bay by all life stages of sand tiger and smoothhound continues to highlight the seasonal importance of this essential shark habitat.

### *Virginia*

COASTSPAN sampling encompassed the lower Chesapeake Bay and inlets along the Eastern Shore of Virginia using a random stratified design based on depth and geographic location. Additional sampling was also conducted at historical fixed stations near the mouth of Chesapeake Bay and in coastal Virginia waters. Juvenile sandbar sharks dominated the catch in all areas sampled. Within the bay and inlets, the majority of sandbar sharks caught were young-of-the-year. The sandbar shark was the only shark species caught within the inlets along the Eastern Shore of Virginia. Within the bay, an additional adult male spiny dogfish and an adult male Atlantic sharpnose shark were caught. The second most abundant species caught in Virginia's coastal waters was the Atlantic sharpnose shark consisting primarily of adult males.

Other species caught in coastal waters, in order of abundance, were: spinner, dusky, tiger, blacktip, scalloped hammerhead, blacknose, and bignose sharks and one adult female bonnethead shark. The majority of each species caught were immature, with the exception of the Atlantic sharpnose shark and the bonnethead. 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 occurred year round in inland (Pamlico Sound and Pungo, Neuse, New, and Cape Fear Rivers) and nearshore waters along the southern coast of North Carolina from New River Inlet to the South Carolina border. Two bull sharks were captured in the Pamlico/Pungo and Neuse river systems in 2012. In the New and Cape Fear River systems, Atlantic sharpnose shark was the most abundant species, followed by bonnetheads. In the Atlantic coastal waters, the catch was seasonally dominated by spiny dogfish and smoothhound in the cooler months. Atlantic sharpnose sharks dominated the catch in the warmer months, followed by blacknose sharks and bonnetheads in much lower numbers.

### *South Carolina*

COASTSPAN sampling 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. Thirteen 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, scalloped hammerhead, blacknose, spinner, nurse, and lemon sharks, and one of each great hammerhead, smoothhound, and spiny dogfish. The majority of each shark species captured were immature, with the exception of these species: Atlantic sharpnose, bonnethead, and blacknose sharks, and the great hammerhead and spiny dogfish. These findings continue to highlight the importance of South Carolina estuarine and nearshore waters as nursery habitat for many small and large coastal shark species and indicate the extensive use of these waters as habitat for several adult small coastal shark species.

### *Georgia*

COASTSPAN sampling took place in both estuarine (St. Simon and St. Andrew sound systems) and nearshore waters along the Georgia coast from Sapelo Island to the Florida border. Of the ten species of shark captured, Atlantic sharpnose was the most abundant. Other sharks included bonnethead, blacknose, sandbar, blacktip, scalloped hammerhead, spinner, finetooth, smoothhound, and tiger sharks. Four species captured were also present as young-of-the-year in estuarine waters: Atlantic sharpnose, sandbar, and blacktip sharks, and one scalloped hammerhead. In addition, Atlantic sharpnose, blacktip, sandbar, smoothhound, 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 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 2012 catch included, in order of abundance: Atlantic sharpnose, bonnethead, blacktip, sandbar, finetooth, scalloped hammerhead, spinner, blacknose, nurse, and lemon sharks and one nurse shark. Nassau and Cumberland Sounds continue to provide nursery habitat for juvenile Atlantic sharpnose, scalloped hammerhead, and blacktip sharks. Cumberland Sound and northern Florida's nearshore waters continue to provide habitat for adult female bonnetheads and mature blacknose sharks, respectively, as well. Cumberland Sound also provided nursery habitat for juvenile sandbar, finetooth, and spinner sharks in 2012. 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*

COASTSPAN sampling took place in Coral Bay and Fish Bay of St. John in June 2012. Two species of shark were captured, blacktip and lemon sharks. All sharks captured were immature and were also present as young-of-the-year in both bays. Long-term passive tracking data indicates strong site fidelity towards these two bays. Distinct habitat partitioning is present in Coral Bay, with lemon sharks occupying the areas of Johnson's Bay and blacktip sharks occupying areas of inner Coral Bay to the north with little overlap. Inner Fish Bay has a higher degree of overlap between species and may be due to the relatively small size of the bay and limited habitat. These results continue to highlight Coral and Fish Bay as important nursery habitat for blacktip and lemon sharks, particularly areas like Johnson's Bay, inner Coral Bay, and inner Fish Bay.

### *Panhandle of Florida*

GULFSPAN sampling covered 5 areas in the Florida panhandle: St. Andrew Bay, Crooked Island Sound, St. Joseph Bay, and the Gulf of Mexico side of St. Vincent Island. In 2012, ten species of sharks and three species of rays were captured; the most abundant of which was Atlantic sharpnose shark. Others included blacknose, blacktip, bonnethead, finetooth, Florida smoothhound, sandbar, scalloped hammerhead, and spinner sharks, as well as cownose, smooth butterfly, and southern stingrays. The majority of the sharks captured were immature, indicating that areas along the Florida panhandle are potentially important nursery areas for both large and small coastal shark species. In general, young-of-the-year sharks were more often collected in shallower water with higher temperature, lower salinity, and more turbid conditions compared to juveniles and adults. Benthic habitat included shallow seagrass beds, clay, sand, mud and oyster shoals.

### *Big Bend of Florida*

2012 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. Twelve elasmobranch species were caught; the majority of which was Atlantic

sharpnose, bonnethead, blacktip, and blacknose sharks. Others included bull, lemon, tiger, great hammerhead, nurse, and Florida smoothhound sharks, as well as cownose and smooth butterfly rays. Sampling indicates that this region serves as a primary nursery for at least three species of small coastal sharks (Atlantic sharpnose, bonnethead sharks, and blacknose) and one species of large coastal shark (blacktip).

### *Alabama*

GULFSPAN sampling took place in Mississippi Sound (Point Aux Pins, Dauphin island), Mobile Bay (Dog River, Fairhope and Cedar Point south to Pelican Bay), and the Perdido system (Perdido Bay to Orange Beach and Perdido Pass). In 2012, seven species of sharks were collected; the most abundant of which was Atlantic sharpnose. Others included finetooth, blacktip, bull, bonnethead, scalloped hammerhead, and spinner sharks. Immature individuals made up majority of the catch, indicating potential nursery areas for the species captured. Similar to previous surveys, western and southern sites of coastal Alabama (i.e., Mississippi Sound) had higher levels of observed shark abundance, occupying a wide range of habitats and environmental conditions within those areas.

### *Mississippi*

In 2012, GULFSPAN sampling by the University of Southern Mississippi Gulf Coast Research Laboratory covered five regions of the Mississippi Sound in Mississippi state waters: west (including Cat Island), central (including Ship and Horn islands), east (including Horn, Petit Bois and Round islands), inshore central (Deer Island, Davis Bayou, Katrina Reef), and inshore east (Pascagoula Beach, Singing River Island, Point Au Chenes). Five species of shark (Atlantic sharpnose, blacktip, bull, finetooth, and spinner) and one species of ray (cownose) were encountered. Over half of the sharks captured were of juvenile or young of the year stature indicating the region is being used as nursery habitat. Shark abundances were higher and more diverse in the eastern waters sampled including both the “east” and “inshore east” sampling regions.

### *Conclusion*

The data obtained from both COASTSPAN and GULFSPAN surveys continues to provide the needed information to identify new EFH areas and to further refine areas already designated as EFH by determining specific habitat characteristics associated with these EFH. 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.

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## 4. FISHERY DATA UPDATE

In this chapter, HMS fishery data, with the exception of some data on Atlantic sharks, 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 7 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. 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).”

| <b>HMS Fishery</b>                  | <b>Authorized Gear Types</b>  |
|-------------------------------------|---|
| 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   |
| Atlantic billfish recreational      | Rod and reel only   |
| Tuna green-stick                    | Green stick   |
| 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 species 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 2013 ICCAT Standing Report of the SCRS (SCRS, 2013). 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 0 and 4.1. 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 2012)**

| 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      | 24,152                                     | North Atlantic      | 13,972                       | 3,651              | 26.1                              | 15.10                                   |
|                         |  | South Atlantic      | 10,180                       | 0                  | 0.0                               |   |
| Atlantic bluefin tuna   | 12,602                                     | West Atlantic       | 1,750                        | 915                | 52.2                              | 7.20                                    |
|                         |  | East Atlantic/Med.  | 10,852                       | 0                  | 0.0                               |   |
| Atlantic bigeye tuna    | 70,536                                     | Atlantic/Med.       | 70,536                       | 869                | 1.2                               | 1.20                                    |
| Atlantic yellowfin tuna | 101,866                                    | West Atlantic       | 20,409                       | 4,109              | 20.1                              | 4.00                                    |
|                         |  | East Atlantic/Med.  | 81,457                       | 0                  | 0.0                               |   |
| Atlantic albacore tuna  | 53,048                                     | North Atlantic      | 26,237                       | 425                | 1.6                               | 0.80                                    |
|                         |  | South Atlantic/Med. | 26,811                       | 0                  | 0.0                               |   |
| Atlantic skipjack tuna  | 240,821                                    | West Atlantic       | 33,219                       | 112                | 0.33                              | 0.04                                    |
|                         |  | East Atlantic/Med.  | 207,603                      | 0                  | 0.0                               |   |
| Atlantic blue marlin    | 1,834                                      | North Atlantic      | 1,086                        | 53                 | 4.8                               | 2.90                                    |
|                         |  | South Atlantic      | 748                          | 0                  | 0.0                               |   |
| Atlantic white marlin   | 403  | North Atlantic      | 285                          | 22                 | 7.7                               | 5.50                                    |
|                         |  | South Atlantic      | 118                          | 0                  | 0.0                               |   |
| Atlantic sailfish       | 2,044                                      | West Atlantic       | 891                          | 25                 | 2.8                               | 1.20                                    |
|                         |  | East Atlantic       | 1,153                        | 0                  | 0.0                               |   |
| Blue sharks             | 60,953                                     | North Atlantic      | 36,131                       | 162                | 0.45                              | 0.26                                    |
|                         |  | South Atlantic/Med. | 24,823                       | 0                  | 0.0                               |   |
| Porbeagle sharks        | 188  | North Atlantic      | 157                          | 21                 | 13.3                              | 11.20                                   |
|                         |  | South Atlantic/Med. | 31                           | 0                  | 0.0                               |   |
| Shortfin mako sharks    | 7,277                                      | North Atlantic      | 4,488                        | 429                | 9.5                               | 5.90                                    |
|                         |  | South Atlantic/Med. | 2,789                        | 0                  | 0.0                               |   |

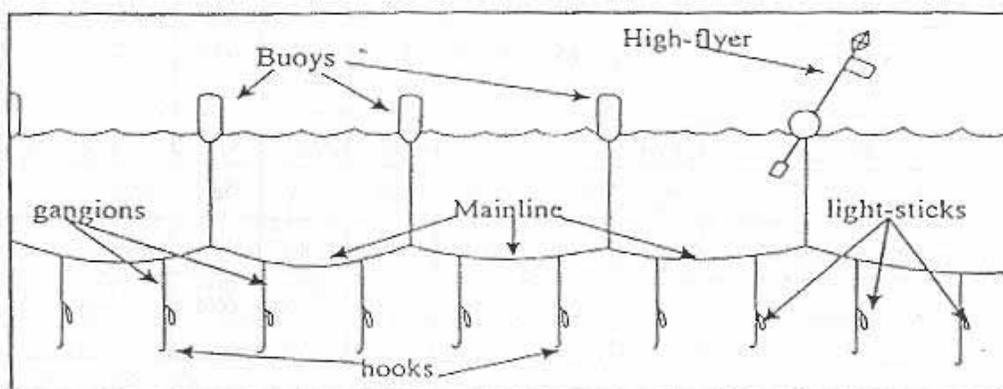
Source: SCRS, 2013.

#### 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, 1996.

PLL gear is composed of several parts (Figure 4.1). The primary fishing line, or mainline of the longline system, can vary from five to 40 miles in length, with approximately 20 to 30 hooks per mile. 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).

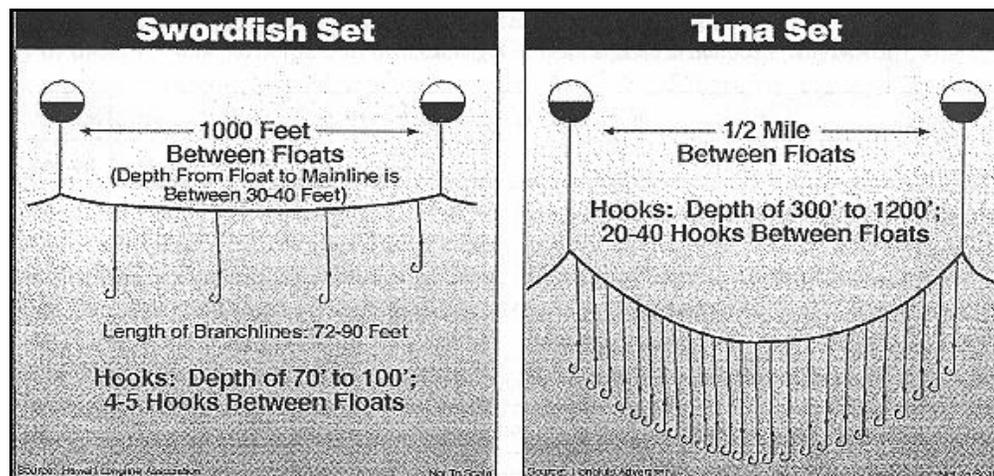
When targeting swordfish, PLL gear is generally deployed at sunset and hauled at sunrise to take advantage of swordfish nocturnal near-surface feeding habits (NMFS, 1999). In general, longlines targeting tunas are set in the morning, fished deeper in the water column, and hauled back in the evening. 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 (2002-2012)**

| Target Species      | 2003 | 2004  | 2005 | 2006 | 2007 | 2008 | 2009  | 2010  | 2011  | 2012  |
|---------------------|------|-------|------|------|------|------|-------|-------|-------|-------|
| Swordfish           | 711  | 701   | 747  | 742  | 672  | 708  | 687   | 759   | 728   | 683   |
| Bigeye tuna         | 967  | 400   | 634  | 754  | 773  | 751  | 755   | 653   | 802   | 865   |
| Yellowfin tuna      | 720  | 696   | 691  | 704  | 672  | 678  | 689   | 687   | 645   | 628   |
| Mix of tuna species | 765  | 779   | 692  | 676  | 640  | 747  | 744   | 837   | 786   | 728   |
| Shark               | 696  | 717   | 542  | 509  | 494  | 377  | 354   | 455   | 348   | 525   |
| Dolphin             | 692  | 1,033 | 734  | 988  | 789  | 989  | 1,033 | 1,131 | 1,082 | 1,129 |
| Other species       | 865  | 270   | 889  | 236  | NA   | NA   | NA    | 467   | 400   | 300   |
| Mix of species      | 747  | 777   | 786  | 777  | 757  | 749  | 781   | 761   | 749   | 758   |

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 tuna longline permit is valid only if the permit holder also holds both a swordfish (directed or incidental, not handgear) and a shark permit. This allows limited retention of species that might otherwise have been discarded.

As of October 2013, approximately 252 tuna longline LAPs had been issued. In addition, approximately 185 directed swordfish LAPs, 71 incidental swordfish LAPs, 220 directed shark LAPs, and 265 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 ((1) tuna longline; (2) shark LAP; and, (3) swordfish LAP (other than handgear)) that allow for the use of PLL gear in HMS fisheries.

### *PLL Observer Program*

During 2012, NMFS observers recorded 945 PLL sets for overall non-experimental fishery coverage of 8.6 percent (Garrison and Stokes, 2013). 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 2012, total observer coverage, including experimental sets, was 9.5 percent (Table 4.3).

**Table 4.3 Observer Coverage of the Atlantic Pelagic Longline Fishery (1999-2012)**

| 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 <sup>1</sup> | 584                     | 398     | 186 | 5.4                                | 3.7     | 100 |
| 2002 <sup>1</sup> | 856                     | 353     | 503 | 8.9                                | 3.9     | 100 |
| 2003 <sup>1</sup> | 1,088                   | 552     | 536 | 11.5                               | 6.2     | 100 |
|                   | Total                   | Non-EXP | EXP | Total                              | Non-EXP | EXP |
| 2004 <sup>2</sup> | 702                     | 642     | 60  | 7.3                                | 6.7     | 100 |
| 2005 <sup>2</sup> | 796                     | 549     | 247 | 10.1                               | 7.2     | 100 |
| 2006              | 568                     | -       | -   | 7.5                                | -       | -   |
| 2007              | 944                     | -       | -   | 10.8                               | -       | -   |
| 2008 <sup>3</sup> | 1,190                   | -       | 101 | 13.6                               | -       | 100 |
| 2009 <sup>3</sup> | 1,588                   | 1,376   | 212 | 17.3                               | 15.0    | 100 |
| 2010 <sup>3</sup> | 884                     | 725     | 159 | 11.0                               | 9.7     | 100 |
| 2011 <sup>3</sup> | 879                     | 864     | 15  | 10.9                               | 10.1    | 100 |
| 2012 <sup>4</sup> | 1,060                   | 945     | 115 | 9.5                                | 8.6     | 100 |

NED – Northeast Distant Area; EXP – experimental. <sup>1</sup>In 2001, 2002, and 2003, 100 percent observer coverage was required in the NED research experiment. <sup>2</sup>In 2004 and 2005, there was 100 percent observer coverage in EXP. <sup>3</sup>In 2008- 2011, 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. <sup>4</sup>In 2012, 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.

#### 4.1.2 Recent Catch, Landings, and Bycatch

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 Catch Reported in the U.S. Atlantic Pelagic Longline Fishery, in Number of Fish per Species (2003-2012)**

| <b>Species</b>                                       | <b>2003</b>  | <b>2004</b>  | <b>2005</b>  | <b>2006</b>  | <b>2007</b>  | <b>2008</b>  | <b>2009</b>  | <b>2010</b>  | <b>2011</b>  | <b>2012</b>  |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Swordfish kept                                       | 51,835       | 46,440       | 41,139       | 38,241       | 45,933       | 42,800       | 45,378       | 33,831       | 38,721       | 51,544       |
| Swordfish discarded                                  | 11,829       | 10,675       | 11,134       | 8,900        | 11,823       | 11,194       | 7,484        | 6,107        | 8,736        | 7,996        |
| Blue marlin discarded                                | 595          | 712          | 567          | 439          | 611          | 687          | 1,013        | 504          | 544          | 896          |
| White marlin discarded                               | 809          | 1,053        | 989          | 557          | 744          | 670          | 1,064        | 605          | 943          | 1,432        |
| Sailfish discarded                                   | 277          | 424          | 367          | 277          | 321          | 506          | 774          | 312          | 581          | 795          |
| Spearfish discarded                                  | 108          | 172          | 150          | 142          | 147          | 197          | 335          | 212          | 281          | 270          |
| Bluefin tuna kept                                    | 273          | 475          | 375          | 261          | 337          | 343          | 629          | 392          | 347          | 392          |
| Bluefin tuna discarded                               | 881          | 1,031        | 765          | 833          | 1,345        | 1,417        | 1,290        | 1,488        | 765          | 563          |
| Bigeye, albacore, yellowfin, and skipjack tunas kept | 63,321       | 76,962       | 57,132       | 73,058       | 70,390       | 50,108       | 57,461       | 51,786       | 69,504       | 84,707       |
| Pelagic sharks kept                                  | 3,037        | 3,440        | 3,149        | 2,098        | 3,504        | 3,500        | 3,060        | 3,872        | 3,732        | 2,794        |
| Pelagic sharks discarded                             | 21,705       | 25,355       | 21,550       | 24,113       | 27,478       | 28,786       | 33,721       | 45,511       | 43,806       | 23,038       |
| Large coastal sharks kept                            | 5,326        | 2,292        | 3,362        | 1,768        | 546          | 115          | 403          | 434          | 131          | 86           |
| Large coastal sharks discarded                       | 4,813        | 5,230        | 5,877        | 5,326        | 7,133        | 6,732        | 6,672        | 6,726        | 6,351        | 7,716        |
| Dolphin kept   | 29,372       | 38,769       | 25,707       | 25,658       | 68,124       | 43,511       | 62,701       | 30,454       | 30,054       | 42,445       |
| Wahoo kept   | 3,919        | 4,633        | 3,348        | 3,608        | 3,073        | 2,571        | 2,648        | 749          | 1,922        | 3,121        |
| Sea turtle interactions                              | 399          | 369          | 152          | 128          | 300          | 476          | 137          | 94           | 66           | 61           |
| <i>Number of Hooks (x 1,000)</i>                     | <i>7,008</i> | <i>7,276</i> | <i>5,911</i> | <i>5,662</i> | <i>6,291</i> | <i>6,498</i> | <i>6,979</i> | <i>5,729</i> | <i>6,035</i> | <i>7,679</i> |

Source: Fisheries Logbook System.

**Table 4.5** Reported Landings (mt ww) in the U.S. Atlantic Pelagic Longline Fishery (2003-2012)

| Species        | 2003    | 2004    | 2005    | 2006    | 2007    | 2008    | 2009    | 2010    | 2011    | 2012    |
|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Yellowfin tuna | 2,164.0 | 2,492.2 | 1,746.2 | 2,009.9 | 2,394.5 | 1,324.5 | 1,700.1 | 1,188.8 | 1,458.3 | 2,281.0 |
| Skipjack tuna  | 1.4     | 0.7     | 0.6     | 0.2     | 0.02    | 1.45    | 0.5     | 1.4     | 0.6     | 0.4     |
| Bigeye tuna    | 283.9   | 310.1   | 311.9   | 520.6   | 380.7   | 407.7   | 430.1   | 443.2   | 600.2   | 583.2   |
| Bluefin tuna*  | 133.9   | 180.1   | 211.5   | 204.6   | 164.3   | 232.6   | 335.0   | 238.7   | 241.4   | 291.9   |
| Albacore tuna  | 107.6   | 120.4   | 108.5   | 102.9   | 126.8   | 126.5   | 158.3   | 159.9   | 240.0   | 261.4   |
| Swordfish N.*  | 2,756.3 | 2,518.5 | 2,272.8 | 1,960.8 | 2,474.0 | 2,353.6 | 2,691.3 | 2,206.2 | 2,570.9 | 3,384.5 |
| Swordfish S.*  | 20.5    | 15.7    | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.3     | 0.0     | 0.0     |

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

Source: NMFS, 2013.

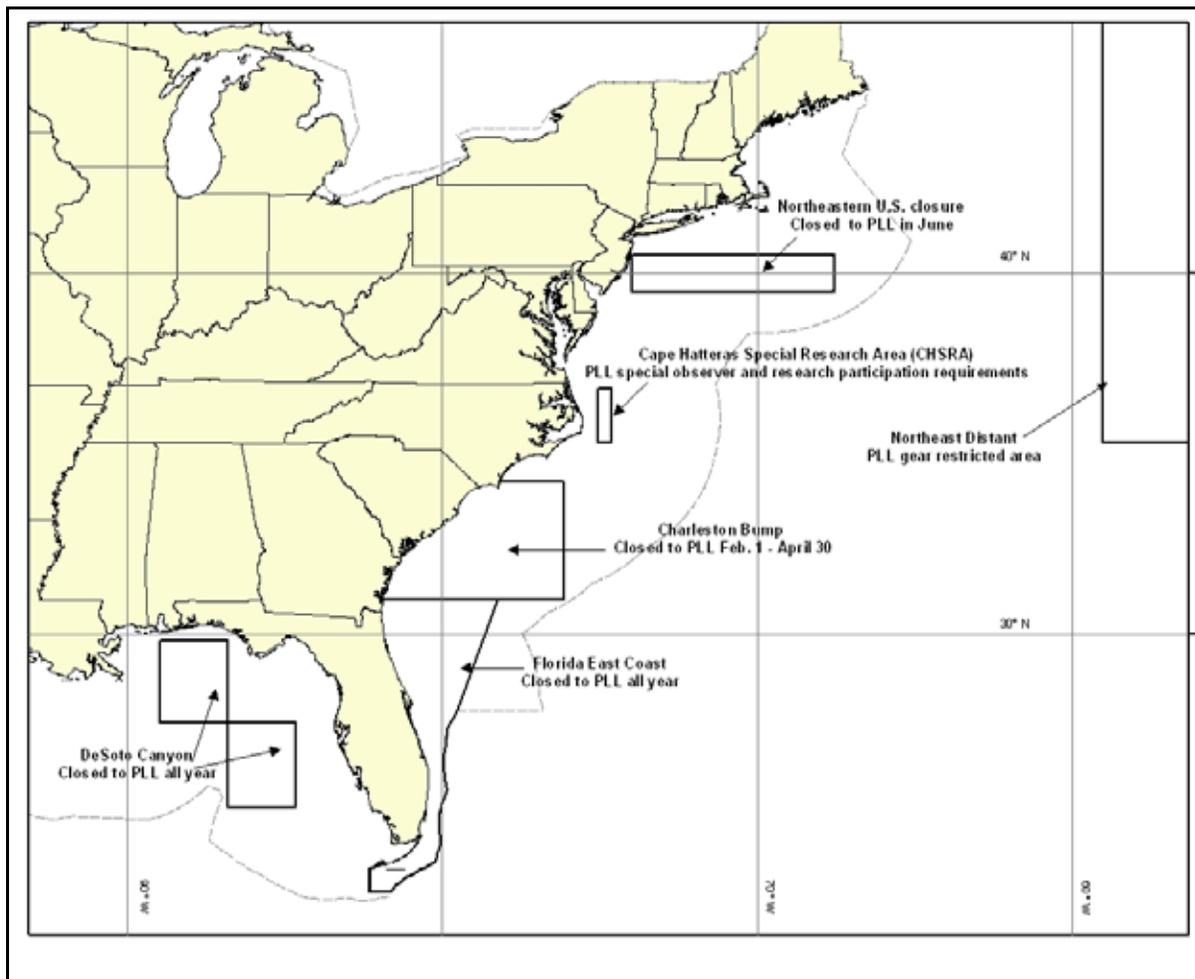
Consistent with ICCAT Recommendations 09-07, 10-07, 10-08, and 11-08, the United States has prohibited the retention of bigeye thresher sharks in all fisheries (since 1999); prohibited retaining, transshipping, landing, storing, or selling oceanic whitetip sharks (*Carcharhinus longimanus*) or hammerhead 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 (*Carcharhinus 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 2012 can be found in Table 4.6.

**Table 4.6** Prohibited Shark Interactions and Dispositions (2012)

| Species              | Released Unknown | Kept | Released Dead | Released Alive | Lost at Surface |
|----------------------|------------------|------|---------------|----------------|-----------------|
| Bigeye thresher      | 0                | 0    | 31            | 34             | 0               |
| Silky                | 1                | 0    | 150           | 160            | 1               |
| Great hammerhead     | 0                | 0    | 17            | 15             | 0               |
| Oceanic whitetip     | 0                | 0    | 6             | 25             | 0               |
| Smooth hammerhead    | 0                | 0    | 0             | 0              | 0               |
| Scalloped hammerhead | 1                | 0    | 122           | 111            | 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 4.3) and has banned the use of live bait and required the use of weak hooks by PLL vessels in the Gulf of Mexico.



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

*Protected Species - Marine Mammals*

Many of the marine mammals that are hooked by U.S. 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 2003 – 2012 are summarized in Table 4.6. Marine mammals are caught primarily during the third and fourth quarters in the Mid Atlantic Bight (MAB), Northeast Coastal (NEC), and Gulf of Mexico (GOM) areas. In 2012, the majority of observed interactions were with pilot whales, bottlenose dolphins, Risso’s dolphins, and short-finned pilot whales (Garrison and Stokes, 2013). NMFS monitors observed interactions with sea turtles and marine mammals on a quarterly basis and reviews data for appropriate action, if any, as necessary.

**Table 4.7 Marine Mammal Interactions in the Atlantic Pelagic Longline Fishery (2003–2012)**

| Year | Species                    | Total |       | Mortality |      | Serious Injury |       | Alive |      |
|------|----------------------------|-------|-------|-----------|------|----------------|-------|-------|------|
|      |                            | Obs.  | Est.  | Obs.      | Est. | Obs.           | Est.  | Obs.  | Est. |
| 2003 | Beaked whale               | 2     | 48.8  | -         | -    | 1              | 5.3   | 1     | 43.5 |
|      | Dolphin                    | 1     | 16.2  | -         | -    | 1              | 16.2  | -     | -    |
|      | Atlantic spotted dolphin   | 1     | 29.8  | -         | -    | 1              | 29.8  | -     | -    |
|      | Bottlenose dolphin         | 1     | 2.0   | -         | -    | -              | -     | 1     | 2.0  |
|      | Common dolphin             | 2     | 45.6  | -         | -    | -              | -     | 2     | 45.6 |
|      | Risso's dolphin            | 14    | 109.5 | 1         | 1.0  | 3              | 40.1  | 10    | 68.4 |
|      | Striped dolphin            | 1     | 1.0   | -         | -    | -              | -     | 1     | 1.0  |
|      | Pilot whale                | 4     | 32.1  | -         | -    | 2              | 21.4  | 1     | 11.3 |
|      | Baleen whale               | 1     | 1.0   | -         | -    | -              | -     | 1     | 1.0  |
|      | Minke whale                | 1     | 22.3  | -         | -    | -              | -     | 1     | 22.3 |
| 2004 | Pilot whale                | 8     | 107.5 | -         | -    | 6              | 74.1  | 2     | 33.8 |
|      | Common dolphin             | 1     | 6.8   | -         | -    | -              | -     | 1     | 6.8  |
|      | Risso's dolphin            | 3     | 49.4  | -         | -    | 2              | 27.5  | 1     | 21.9 |
| 2005 | Pilot whale                | 18    | 294.4 | -         | -    | 9              | 211.5 | 9     | 79.5 |
|      | Risso's dolphin            | 2     | 42.1  | -         | -    | -              | 2.9   | 2     | 39.2 |
|      | Common dolphin             |       | 5.7   | -         | -    | -              | -     | -     | 5.7  |
|      | Bottlenose dolphin         | 1     | 5.2   | -         | -    | -              | -     | 1     | 5.2  |
|      | Beaked whale               |       | 1.0   | -         | -    | -              | 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  |

| Year | Species                      | Total |       | Mortality |      | Serious Injury |       | Alive |      |
|------|------------------------------|-------|-------|-----------|------|----------------|-------|-------|------|
|      |                              | Obs.  | Est.  | Obs.      | Est. | Obs.           | Est.  | Obs.  | Est. |
|      | 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  |
|      | 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 |

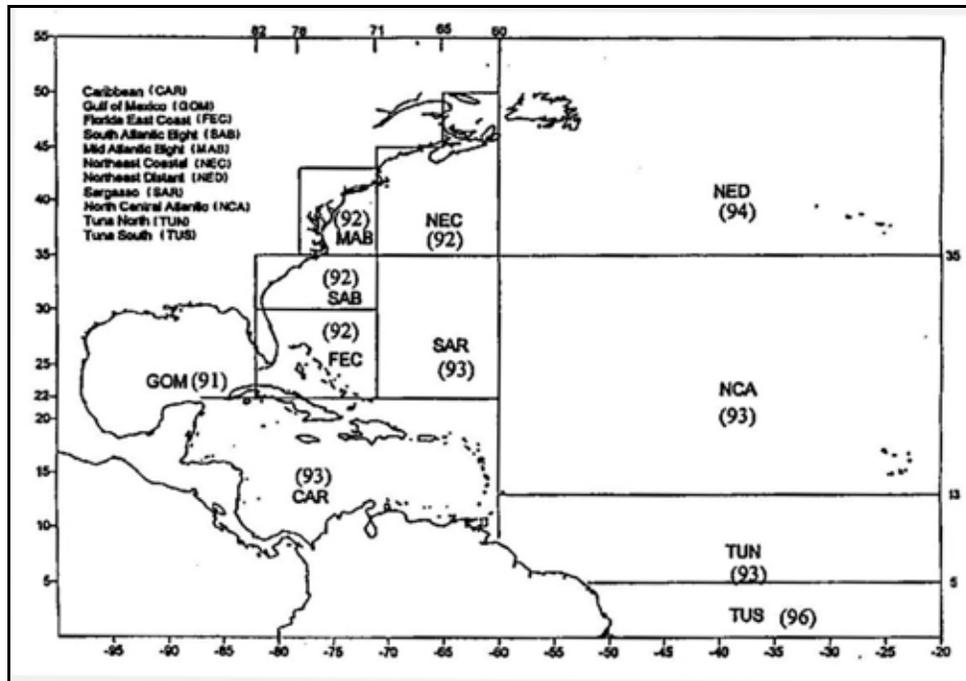
Obs. – observed; Est. – estimated. \* Pantropical spotted dolphin was observed dead in an experimental set.

Sources: Garrison and Richards, 2004; Garrison, 2005; Walsh and Garrison, 2006; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison, Stokes & Fairfield, 2009; Garrison and Stokes, 2010, 2011, 2012, 2013.

### *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 2003- 2012 are summarized in Table 4.8, Table 4.9, and Table 4.10. 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 2004, the fleet was estimated to have interacted with 734 loggerhead and 1,362 leatherback sea turtles (Garrison, 2005). These numbers have been reduced and in 2012, the U.S. Atlantic PLL fishery was estimated to have interacted with 681 loggerhead sea turtles and 596 leatherback sea turtles outside of experimental fishing operations (Garrison and Stokes, 2013) (Table 4.10). In 2012, the majority of loggerhead sea turtle interactions occurred in the NEC, NED, and FEC areas (Table 4.8). Interactions with leatherback sea turtles were highest in the GOM, SAB, and FEC areas (Table 4.9). The 2012 increase in reported sea turtle takes was likely due to an increase in fishing effort; however, **the total interactions for the 3-year period (2010-12) are 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 4.4** Geographic Areas Used in Summaries of Pelagic Logbook Data

Source: Cramer and Adams, 2000.

**Table 4.8** Estimated Number of Loggerhead Sea Turtle Interactions in the U.S. Atlantic Pelagic Longline Fishery, by Statistical Area (2003-2012)

| Area                                    | 2003       | 2004       | 2005       | 2006       | 2007       | 2008       | 2009       | 2010       | 2011       | 2012       |
|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| CAR                                     | 36         | 61         | 40         | 16         | 7          | 17         | 9          | 12         | 4          | 0          |
| GOM                                     | 135        | 45         | 19         | 17         | 10         | 10         | 38         | 2          | 0          | 56         |
| FEC                                     | 137        | 99         | 0          | 40         | 83         | 47         | 41         | 26         | 92         | 157        |
| SAB                                     | 52         | 194        | 34         | 18         | 34         | 70         | 47         | 39         | 9          | 37         |
| MAB                                     | 18         | 92         | 54         | 70         | 155        | 20         | 37         | 55         | 81         | 71         |
| NEC                                     | 241        | 150        | 67         | 135        | 48         | 237        | 43         | 101        | 103        | 199        |
| NED                                     | 0          | 52         | 20         | 235        | 200        | 352        | 22         | 97         | 105        | 161        |
| SAR                                     | 70         | 41         | 38         | 19         | 4          | 16         | 7          | 13         | 44         | 0          |
| NCA                                     | 39         | 0          | 3          | 10         | 2          | 1          | 0          | 0          | 0          | 0          |
| TUN                                     | 0          | 0          | 0          | 0          | 0          | 0          | 9          | 0          | 0          | 0          |
| TUS                                     | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          | 0          |
| <b>Total</b>                            | <b>728</b> | <b>734</b> | <b>275</b> | <b>559</b> | <b>543</b> | <b>770</b> | <b>243</b> | <b>344</b> | <b>438</b> | <b>681</b> |
| NED experimental fishery (2001-03)      | 92         | -          | -          | -          | -          | -          | -          | -          | -          | -          |
| Experimental fishery (2004-05; 2008-12) | -          | 0          | 8          | -          | -          | 1          | 0          | 0          | 0          | 0          |
| <b>Total</b>                            | <b>820</b> | <b>734</b> | <b>283</b> | <b>559</b> | <b>543</b> | <b>771</b> | <b>243</b> | <b>344</b> | <b>438</b> | <b>681</b> |

Sources: Garrison and Richards, 2004; Garrison, 2005; Walsh and Garrison, 2006; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison et al., 2009; Garrison and Stokes, 2010, 2011, 2012, 2013.

**Table 4.9 Estimated Number of Leatherback Sea Turtle Interactions in the U.S. Atlantic Pelagic Longline Fishery, by Statistical Area (2003-2012)**

| Area                                    | 2003  | 2004  | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|-------|-------|------|------|------|------|------|------|------|------|
| CAR                                     | 0     | 17    | 2    | 4    | 1    | 2    | 1    | 10   | 3    | 0    |
| GOM                                     | 838   | 780   | 179  | 109  | 212  | 144  | 93   | 26   | 33   | 250  |
| FEC                                     | 27    | 64    | 62   | 28   | 7    | 30   | 19   | 20   | 17   | 75   |
| SAB                                     | 75    | 164   | 7    | 39   | 0    | 0    | 31   | 13   | 12   | 119  |
| MAB                                     | 94    | 184   | 11   | 30   | 114  | 43   | 31   | 0    | 140  | 46   |
| NEC                                     | 76    | 33    | 6    | 73   | 76   | 140  | 73   | 40   | 26   | 60   |
| NED                                     | 0     | 98    | 63   | 116  | 84   | 0    | 37   | 55   | 8    | 41   |
| SAR                                     | 0     | 18    | 20   | 14   | 5    | 14   | 3    | 2    | 0    | 3    |
| NCA                                     | 2     | 0     | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0    |
| TUN                                     | 0     | 0     | 0    | 0    | 0    | 8    | 1    | 0    | 1    | 2    |
| TUS                                     | 0     | 0     | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    |
| Total                                   | 1,113 | 1,359 | 351  | 415  | 499  | 381  | 286  | 166  | 239  | 596  |
| NED experimental fishery (2003)         | 79    | -     | -    | -    | -    | -    | -    | -    | -    | -    |
| Experimental fishery (2004-05; 2008-12) | -     | 3     | 17   | -    | -    | 4    | 4    | 2    | 1    | 2    |
| Total                                   | 1,192 | 1,362 | 368  | 415  | 499  | 385  | 290  | 168  | 240  | 598  |

Sources: Garrison and Richards, 2004; Garrison, 2005; Walsh and Garrison, 2006; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison et al, 2009; Garrison and Stokes, 2010, 2011, 2012, 2013.

**Table 4.10 Estimated Sea Turtle and Marine Mammal Interactions and Incidental Take Levels (ITS) in the US Atlantic Pelagic Longline Fishery (by Species, 2003-2012)**

| Species                        | 2003  | 2004  | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 3 year ITS<br>2004-06 / 2007-09* |
|--------------------------------|-------|-------|------|------|------|------|------|------|------|------|----------------------------------|
|                                |       |       |      |      |      |      |      |      |      |      | Total                            |
| Leatherback                    | 1,192 | 1,362 | 368  | 415  | 499  | 385  | 290  | 168  | 240  | 598  | 1,981 / 1,764                    |
| Loggerhead                     | 820   | 734   | 283  | 559  | 543  | 771  | 243  | 344  | 438  | 681  | 1,869 / 1,905                    |
| Other/unidentified sea turtles | 38    | 0     | 0    | 11   | 1    | 0    | 0    | 3    | 4    | 15   | 105 / 105                        |
| Marine mammals                 | 300   | 164   | 372  | 313  | 151  | 265  | 144  | 237  | 452  | 413  | 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 4.11 and Table 4.12) (NMFS, 2012). In 2012, there were 122 active U.S. PLL vessels fishing for swordfish in the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea that reportedly set approximately 7.7 million hooks. One seabird was observed taken, a laughing gull. This seabird was released dead. Extrapolated estimates of seabird bycatch from 2000 – 2007 were presented

in the 2011 SAFE Report. These estimates varied widely. Bycatch estimates ranged from 27 to 284 seabirds per year, averaging 62 per year. The rate of total seabird catch ranged from 0.005 to 0.036 birds per 1,000 hooks.

**Table 4.11 Observed Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery (2004-2012)**

| 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  | Pelican brown      | 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  | Unid               | 1               | dead   |
| 2010 | 4       | MAB  | Gull herring       | 1               | dead   |
| 2011 | 3       | NED  | Northern gannet    | 1               | dead   |
|      | 3       | NED  | Unid               | 1               | dead   |
|      | 4       | MAB  | Herring gull       | 3               | dead   |
|      | 4       | MAB  | Unid gull          | 1               | dead   |
|      | 4       | MAB  | Greater shearwater | 1               | dead   |
| 2012 | 4       | GOM  | Laughing gull      | 1               | dead   |

\* Experimental fishery takes.

Source: NMFS Pelagic Observer Program.

**Table 4.12 Status of Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery (1992-2012)**

| Species                 | Release Status |           | Total      | Percent Dead |
|-------------------------|----------------|-----------|------------|--------------|
|                         | Dead           | Alive     |            |              |
| Greater shearwater      | 29             | 3         | 32         | 90.6         |
| Cory's shearwater       | 1              | -         | 1          | 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           | 2              | 1         | 3          | 66.7         |
| 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           | 2              | 0         | 2          | 100.0        |
| <b>Total</b>            | <b>117</b>     | <b>42</b> | <b>159</b> | <b>73.6</b>  |

Source: NMFS Pelagic Observer Program.

#### **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 (2003 - 2012), U.S. longline landings have averaged 5.0 percent of total Atlantic longline landings, ranging from a high of 6.8 percent in 2012 to a low of 4.2 percent in 2010. Table 4.13 contains aggregate longline landings of HMS, other than sharks, for all countries in the Atlantic for the period 2003 – 2012.

**Table 4.13 Estimated International Longline Landings (mt ww) of HMS (Excluding Sharks) for All Countries in the Atlantic (2003-2012)**

| Species (Region)  | 2003    | 2004    | 2005    | 2006   | 2007    | 2008   | 2009   | 2010    | 2011   | 2012   |
|---|---------|---------|---------|--------|---------|--------|--------|---------|--------|--------|
| Swordfish<br>(N. Atl + S. Atl)                                      | 22,663  | 24,205  | 24,765  | 24,778 | 26,806  | 22,343 | 23,703 | 23,179  | 22,905 | 23,365 |
| Yellowfin tuna<br>(W. Atl.) <sup>2</sup>                            | 10,166  | 16,019  | 14,449  | 14,249 | 13,557  | 13,192 | 12,660 | 13,078  | 10,521 | 13,108 |
| Bigeye tuna   | 54,466  | 48,396  | 38,035  | 34,182 | 46,232  | 41,063 | 43,985 | 42,925  | 38,211 | 38,393 |
| Bluefin tuna<br>(W. Atl.) <sup>2</sup>                              | 186     | 644     | 425     | 565    | 420     | 606    | 366    | 529     | 743    | 478    |
| Albacore tuna<br>(N. Atl + S. Atl)                                  | 28,325  | 21,652  | 19,888  | 22,963 | 18,324  | 15,865 | 14,732 | 17,390  | 20,111 | 21,908 |
| Skipjack tuna<br>(W. Atl.) <sup>2</sup>                             | 95      | 206     | 207     | 286    | 52      | 49     | 20     | 30      | 41     | 470    |
| Blue marlin<br>(N. Atl. + S. Atl.) <sup>3</sup>                     | 1,786   | 1,461   | 1,595   | 1,357  | 2,042   | 2,000  | 1,839  | 1,983   | 1,490  | 1,182  |
| White marlin<br>(N. Atl. + S. Atl.) <sup>3</sup>                    | 646     | 685     | 594     | 374    | 554     | 532    | 558    | 363     | 336    | 373    |
| Sailfish (W. Atl.) <sup>4</sup>                                     | 878     | 754     | 1,065   | 651    | 838     | 1,038  | 975    | 662     | 704    | 717    |
| Total International<br>longline landings <sup>6</sup>               | 119,311 | 114,022 | 101,023 | 99,405 | 108,825 | 96,688 | 98,838 | 100,139 | 95,062 | 99,994 |
| Total U.S. longline<br>landings <sup>5</sup>                        | 5,468   | 5,638   | 4,652   | 4,799  | 5,540   | 4,446  | 5,315  | 4,238   | 5,111  | 6,802  |
| U.S. landings as a<br>percent of total<br>International<br>landings | 4.6     | 4.9     | 4.6     | 4.8    | 5.1     | 4.6    | 5.3    | 4.2     | 5.4    | 6.8    |

<sup>1</sup> Landings include those classified by the SCRS as longline landings. <sup>2</sup> 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. <sup>3</sup> Includes U.S. dead discards and Brazilian live discards. <sup>4</sup> Includes U.S. dead discards. <sup>5</sup> From U.S. National Reports to ICCAT, 2004-2013. Includes swordfish, blue marlin, white marlin, and sailfish longline discards. <sup>6</sup> From SCRS, 2013.

Sources: U.S. ICCAT National Reports 2003 – 2013; SCRS, 2013.

### *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 4.14 provides the most recent catch totals for blue, shortfin mako, and porbeagle sharks.

**Table 4.14 Estimated International Longline Landings (mt ww)<sup>1</sup> of Pelagic Sharks for All Countries in the Atlantic (2003-2012)**

| Species (Region)  | 2003   | 2004   | 2005   | 2006   | 2007   | 2008   | 2009   | 2010   | 2011   | 2012   |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Blue shark<br>(N. Atl + S. Atl +<br>Med)                                  | 34,591 | 34,750 | 41,809 | 39,116 | 46,126 | 53,375 | 58,002 | 64,285 | 72,022 | 60,539 |
| Shortfin mako<br>(N. Atl + S. Atl +<br>Med)                               | 7,189  | 7,104  | 6,305  | 6,022  | 6,714  | 5,175  | 5,599  | 6,034  | 6,396  | 6,908  |
| Porbeagle<br>(N. Atl + S. Atl +<br>Med)                                   | 647    | 745    | 572    | 508    | 525    | 611    | 484    | 137    | 89     | 188    |
| Total International<br>longline catches                                   | 42,427 | 42,599 | 48,686 | 45,646 | 53,365 | 59,161 | 64,085 | 70,456 | 78,507 | 67,635 |
| U.S. blue shark<br>catches <sup>1</sup>                                   | 0      | 72     | 68     | 47     | 55     | 138    | 107    | 176    | 271    | 162    |
| U.S. shortfin mako<br>catches <sup>1</sup>                                | 142    | 521    | 469    | 386    | 382    | 354    | 385    | 394    | 392    | 429    |
| U.S. porbeagle<br>catches <sup>1</sup>                                    | 0      | 1      | 0      | 0      | 0      | 1      | 1      | 4      | 12     | 21     |
| Total U.S. catches <sup>1</sup>   | 142    | 594    | 537    | 433    | 437    | 493    | 493    | 574    | 675    | 612    |
| U.S. catches <sup>1</sup> as a<br>percent of total<br>International catch | 0.3    | 1.4    | 1.1    | 0.9    | 0.8    | 0.8    | 0.8    | 0.8    | 1.0    | 0.9    |

<sup>1</sup>Includes catches and discards.

Source: SCRS, 2013.

## 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 Draft Amendment 7 to the 2006 Consolidated HMS FMP.

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 non-transferable individual vessel quotas (IVQs), excluding any new entrants into this category. Equal baseline quotas of bluefin tuna are assigned to individual vessels by regulation; the IVQ system is possible given the small pool of ownership in this sector of the fishery (i.e., five

qualified participants). The quotas are transferable among the five entities provided they notify NMFS in writing.

Vessels participating in the Atlantic tunas purse seine fishery are required to target the larger size class bluefin tuna, more specifically the giant size class ( $\geq 81$  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). These vessels may commence fishing starting on July 15 of each year and may continue through December 31, provided the vessel has not fully attained its IVQ. Over the last few years, the Purse Seine category has not fully harvested its allocated bluefin tuna quota. In 2008, 2010, and 2011, the Purse Seine category did not harvest any Atlantic tunas (Table 4.15).

#### 4.2.2 Recent Catch and Landings

Table 4.15 shows purse seine landings of Atlantic tunas from 2004 through 2012. Purse seine landings historically have 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 15 years, via informal agreements with other sectors of the tuna industry, the purse seine fleet has opted not to direct any effort on HMS other than bluefin tuna; therefore, Table 4.15 only includes bluefin tuna.

**Table 4.15 Domestic Atlantic Tuna Landings (mt ww) for the Purse Seine Fishery in the Northwest Atlantic Fishing Area (2004-2012)**

| Species      | 2004 | 2005  | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|--------------|------|-------|------|------|------|------|------|------|------|
| Bluefin tuna | 31.8 | 178.3 | 3.6  | 27.9 | 0.0  | 11.4 | 0.0  | 0.0  | 1.7  |

Source: NMFS, 2013.

#### 4.2.3 International Issues and Catch

The U.S. purse seine fleet has historically accounted for a small percentage of the total international Atlantic tuna landings. Table 4.16 shows that since 2004, 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 4.16 Estimated International Atlantic Tuna Landings (mt ww) for the Purse Seine Fishery in the Atlantic and Mediterranean (2004-2012)**

| <b>Tuna Species</b> | <b>2004</b>    | <b>2005</b>    | <b>2006</b>    | <b>2007</b>    | <b>2008</b>    | <b>2009</b>    | <b>2010</b>    | <b>2011</b>    | <b>2012</b>    |
|---------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Bluefin             | 19,895         | 23,524         | 20,356         | 22,980         | 12,641         | 9,479          | 4,985          | 4,293          | 6,096          |
| Yellowfin           | 62,228         | 61,410         | 62,761         | 52,733         | 70,047         | 77,757         | 74,172         | 69,802         | 70,716         |
| Skipjack            | 93,284         | 89,704         | 71,215         | 81,335         | 73,080         | 84,494         | 125,467        | 149,307        | 157,666        |
| Bigeye              | 18,417         | 18,595         | 16,457         | 17,553         | 15,536         | 22,658         | 23,769         | 27,544         | 21,469         |
| Albacore            | 717            | 949            | 3,432          | 1,289          | 169            | 259            | 213            | 192            | 586            |
| <b>Total</b>        | <b>194,541</b> | <b>194,182</b> | <b>174,221</b> | <b>175,890</b> | <b>171,473</b> | <b>194,659</b> | <b>228,606</b> | <b>251,138</b> | <b>256,533</b> |
| U.S. total          | 32             | 178            | 4              | 28             | 0              | 11             | 0              | 0              | 2              |
| U.S. percentage     | 0.02           | 0.09           | < 0.01         | 0.02           | 0              | < 0.01         | 0              | 0              | < 0.01         |

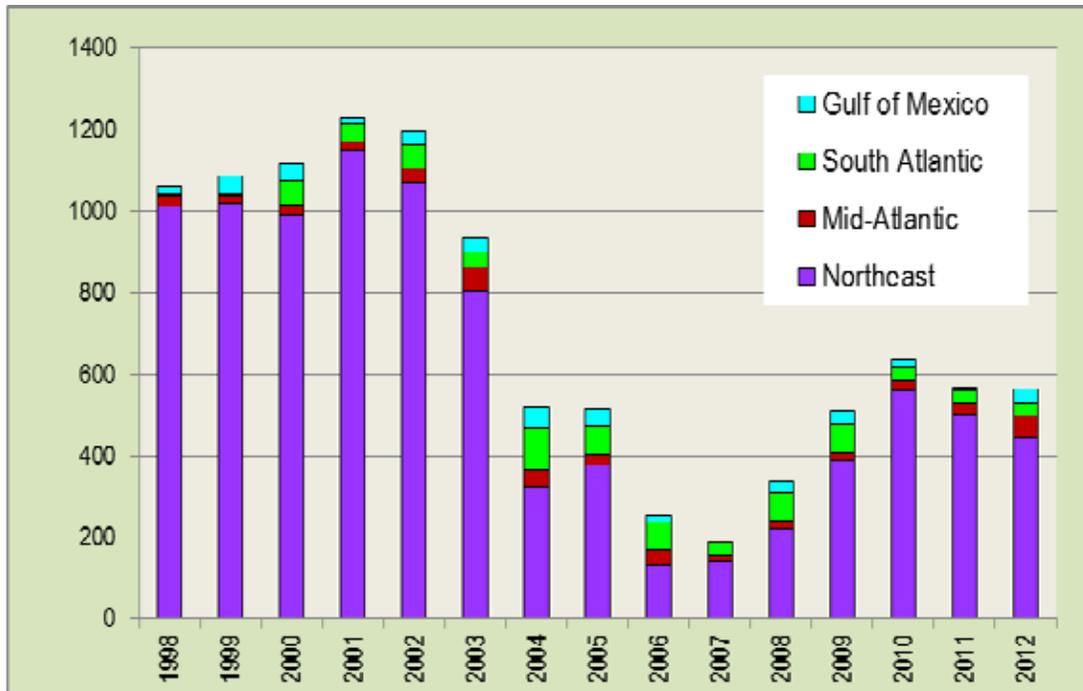
Source: SCRS, 2013.

### **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 4.7.

The handgear fisheries for all HMS are typically most active during the summer and fall, although in the South Atlantic and Gulf of Mexico, fishing occurs during the winter months. Fishing usually takes place between eight and two hundred km from shore and for those vessels using bait, the baitfish typically includes herring, mackerel, whiting, mullet, menhaden, ballyhoo, butterfish, and squid. The commercial handgear fishery for bluefin 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 4.5 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, and decreased slightly in 2011, and remained at that level in 2012. 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 4.5 U.S. Atlantic and Gulf of Mexico Commercial Bluefin Tuna Landings by Geographic Area (1998 – 2012)**

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 Northeast 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 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 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 lines (888-872-8862) 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.

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 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. 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 Draft Amendment 7 to the 2006 Consolidated HMS FMP.

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 4.7.

On August 21, 2013, NMFS established a new commercial fishing vessel permit (the Swordfish General Commercial permit) that 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 were also modified to allow for the commercial retention of swordfish on non-for-hire trips, and regional swordfish retention limits were implemented for the new and modified permits, along with gear authorizations, and reporting requirements. The new and modified permits became available in November 2013 for the 2014 fishing year.

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 4.5 and 4.6. Economic and social aspects of all the domestic handgear fisheries are described in Chapter 5.

### 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 4.17. In 2012, bluefin tuna commercial handgear landings accounted for approximately 66 percent of the total U.S. bluefin tuna landings and 84 percent of commercial bluefin tuna landings. Figure 4.6 shows the U.S. Atlantic bluefin tuna landings in metric tons by category since 1997. Note that the commercial handgear landings are comprised of bluefin tuna landed by both the general and harpoon categories.

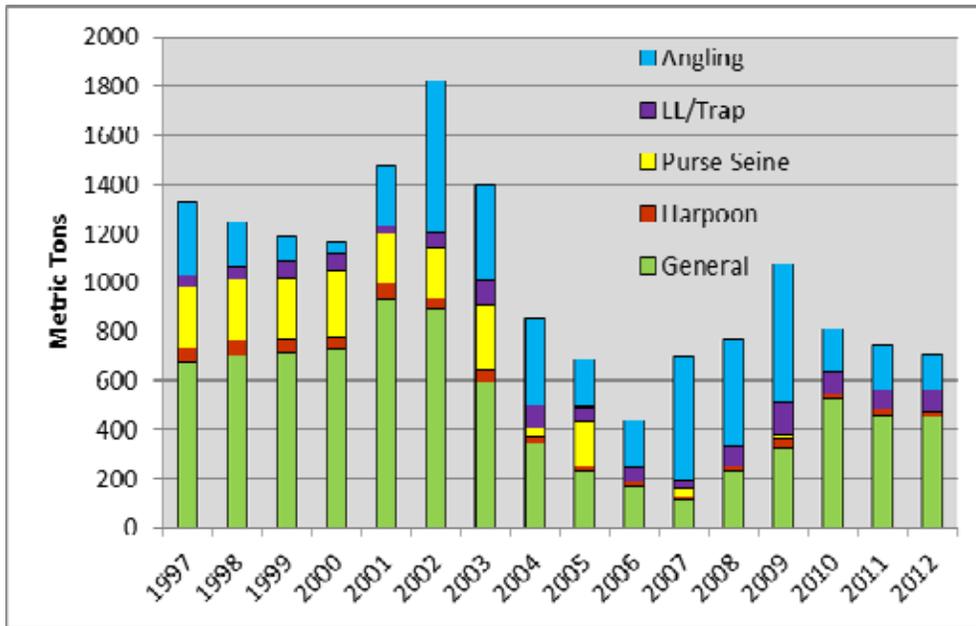


Figure 4.6 Landings of Bluefin Tuna by Category (1997 – 2012)

Source: NMFS Commercial BFT Landings Database.

Also in 2012, two percent of the total yellowfin catch, or three percent of the commercial yellowfin catch, was attributable to commercial handgear. Commercial handgear landings of skipjack tuna accounted for approximately two percent of total skipjack landings, or about 25 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 less than one percent of total bigeye landings and one percent of total commercial bigeye landings. Updated landings for the commercial handgear fisheries by gear and by area for 2004 – 2012 are presented in the following tables.

**Table 4.17 U.S. Atlantic Commercial Handgear Landings of Tunas and Swordfish (mt ww) by Gear Type (2004-2012)**

| Species        | Gear         | 2004  | 2005  | 2006  | 2007  | 2008  | 2009   | 2010  | 2011  | 2012  |
|----------------|--------------|-------|-------|-------|-------|-------|--------|-------|-------|-------|
| Bluefin tuna   | Rod and Reel | 353.2 | 226.6 | 164.1 | 120.8 | 226.6 | 301.7  | 515.1 | 418.6 | 419.5 |
|                | Handline     | 1.5   | 2.3   | 0.3   | 0.0   | 0.6   | 0.1    | 2.7   | 0.9   | 1.3   |
|                | Harpoon      | 41.2  | 31.5  | 30.3  | 22.5  | 30.2  | 65.6   | 29.0  | 70.1  | 52.3  |
|                | Total        | 395.9 | 260.4 | 194.7 | 143.3 | 257.4 | 367.4  | 546.8 | 489.6 | 473.1 |
| Bigeye tuna    | Troll        | 0.0   | 0.0   | 0.0   | 0.9   | 0.8   | 0.6    | 0.0   | 0.1   | 0.2   |
|                | Handline     | 3.5   | 6.3   | 21.5  | 16.8  | 6.6   | 4.6    | 1.8   | 3.4   | 7.8   |
|                | Total        | 3.5   | 6.3   | 21.5  | 17.7  | 7.4   | 5.2    | 1.8   | 3.5   | 8.0   |
| Albacore tuna  | Troll        | 0.0   | 0.0   | 0.0   | 0.2   | 0.2   | 0.07   | 0.04  | 0.0   | 0.0   |
|                | Handline     | 8.2   | 4.2   | 2.6   | 5.4   | 0.2   | 0.5    | 1.9   | 1.7   | 0.6   |
|                | Total        | 8.2   | 4.2   | 2.6   | 5.6   | 0.4   | 0.57   | 1.94  | 1.7   | 0.6   |
| Yellowfin tuna | Troll        | 0.0   | 0.0   | 0.0   | 6.9   | 2.4   | 5.4    | 1.2   | 0.5   | 0.3   |
|                | Handline     | 248.5 | 160.3 | 105.1 | 113.2 | 30.1  | 58.7   | 43.5  | 34.0  | 66.0  |
|                | Total        | 248.5 | 160.3 | 105.1 | 120.1 | 32.5  | 64.1   | 44.7  | 34.5  | 66.3  |
| Skipjack tuna  | Troll        | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   |
|                | Handline     | 10.4  | 11.8  | 0.2   | 0.3   | 0.4   | 2.8    | 1.2   | 1.5   | 2.0   |
|                | Total        | 10.4  | 11.8  | 0.2   | 0.3   | 0.4   | 2.8    | 1.2   | 1.5   | 2.0   |
| Swordfish      | Handline     | 22.7  | 34.7  | 32.5  | 125.2 | 83.2  | 123.0  | 126.9 | 120.4 | 154.2 |
|                | Harpoon      | 0.5   | 0.0   | 0.3   | 0.0   | 0.0   | 0.05   | 0.6   | 0.6   | 0.3   |
|                | Total        | 23.2  | 34.7  | 32.8  | 125.2 | 83.2  | 123.05 | 127.5 | 121.0 | 154.5 |

Source: NMFS, 2013.

**Table 4.18 U.S. Atlantic Commercial Handgear Landings of Tunas and Swordfish (mt ww) by Region (2004-2012)**

| Species        | Region    | 2004  | 2005  | 2006  | 2007  | 2008  | 2009   | 2010  | 2011  | 2012  |
|----------------|-----------|-------|-------|-------|-------|-------|--------|-------|-------|-------|
| Bluefin tuna   | NW Atl    | 395.6 | 260.4 | 194.7 | 143.3 | 257.3 | 366.3  | 546.8 | 489.6 | 473.1 |
| Bigeye tuna    | NW Atl    | 3.3   | 6.2   | 21.5  | 16.8  | 6.9   | 4.6    | 2.5   | 3.4   | 8.0   |
|                | GOM       | 0.2   | 0.1   | 1.5   | 1.01  | 0.0   | 0.07   | 1.8   | 0.0   | 0.0   |
|                | Caribbean | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0    | 0.0   | 0.05  | 0.0   |
| Albacore tuna  | NW Atl    | 6.1   | 3.0   | 2.6   | 5.4   | 0.2   | 0.5    | 1.9   | 0.7   | 0.6   |
|                | GOM       | 0.0   | 0.1   | 0.07  | 0.0   | 0.0   | 0.01   | 0.0   | 0.0   | 0.0   |
|                | Caribbean | 2.1   | 1.1   | 0.4   | 0.2   | 0.4   | 0.003  | 0.05  | 0.1   | 0.4   |
| Yellowfin tuna | NW Atl    | 213.2 | 105.1 | 105.1 | 113.2 | 30.1  | 58.7   | 43.5  | 33.1  | 66.3  |
|                | GOM       | 28.3  | 45.5  | 49.9  | 26.2  | 11.2  | 21.6   | 2.9   | 8.7   | 16.9  |
|                | Caribbean | 7.0   | 9.7   | 7.8   | 9.1   | 3.7   | 3.3    | 1.9   | 1.5   | 2.8   |
| Skipjack tuna  | NW Atl    | 0.6   | 0.9   | 0.2   | 0.3   | 0.4   | 2.8    | 1.2   | 1.2   | 2.0   |
|                | GOM       | 0.2   | 0.0   | 0.0   | 0.2   | 0.06  | 0.2    | 0.02  | 0.2   | 0.06  |
|                | Caribbean | 9.6   | 12.9  | 10.0  | 13.7  | 16.0  | 8.8    | 6.2   | 6.6   | 3.3   |
| Swordfish      | NW Atl    | 19.2  | 34.4  | 32.8  | 125.2 | 83.2  | 123.05 | 126.9 | 120.4 | 154.5 |
|                | GOM       | 4.0   | 0.3   | 0.1   | 0.2   | 1.2   | 1.9    | 2.6   | 0.5   | 3.3   |

Source: NMFS, 2013.

*Handgear Trip Estimates*

Table 4.19 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 2003 through 2012. The trips include commercial and recreational trips, and are not specific to any particular species. It should be noted that the 2012 estimates are preliminary and subject to change.

**Table 4.19 Estimated Number of Rod and Reel and Handline Trips Targeting Atlantic Large Pelagic Species, by State (ME-VA, 2003-2012)**

| Year                   | AREA  |        |       |        |            |                      |       | Total  |
|------------------------|-------|--------|-------|--------|------------|----------------------|-------|--------|
|                        | NH/ME | MA     | CT/RI | NY     | NJ (North) | NJ (South) and MD/DE | VA    |        |
| <b>Private Vessels</b> |       |        |       |        |            |                      |       |        |
| 2003                   | 4,501 | 13,411 | 2,869 | 12,466 | 3,214      | 21,619               | 5,067 | 63,147 |
| 2004                   | 2,025 | 10,033 | 3,491 | 11,525 | 3,632      | 22,433               | 4,406 | 57,545 |
| 2005                   | 4,607 | 12,052 | 7,603 | 8,051  | 2,446      | 19,759               | 4,631 | 59,148 |
| 2006                   | 3,303 | 24,951 | 5,430 | 11,114 | 3,043      | 19,187               | 5,274 | 72,302 |
| 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 |
| <b>Charter Vessels</b> |       |        |       |        |            |                      |       |        |
| 2003                   | 221   | 2,561  | 1,246 | 2,035  | 1,331      | 5,201                | 546   | 13,141 |
| 2004                   | 312   | 2,021  | 1,564 | 2,285  | 1,094      | 5,080                | 1,579 | 13,935 |
| 2005                   | 329   | 2,397  | 551   | 2,033  | 1,024      | 3,476                | 763   | 10,573 |
| 2006                   | 96    | 1,294  | 677   | 1,057  | 891        | 3,452                | 828   | 8,296  |
| 2007                   | 789   | 4,073  | 1,141 | 1,445  | 1,420      | 4,579                | 610   | 14,057 |
| 2008                   | 892   | 3,295  | 751   | 1,525  | 1,026      | 4,340                | 370   | 12,199 |
| 2009                   | 568   | 4,930  | 726   | 1,677  | 1,142      | 3,348                | 534   | 12,923 |
| 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 |

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

Most Atlantic HMS are targeted by domestic recreational fishermen using a variety of handgear including rod and reel gear. Since 2003, recreational fishing for any HMS-managed species requires an HMS Angling permit (67 FR 77434, December 18, 2002), and all non-tournament recreational landings of Atlantic marlins, roundscale spearfish, sailfish, and swordfish must be reported. Additionally, all HMS fishing tournaments are required to register with NMFS at least four weeks prior to the commencement of tournament fishing activities. If selected, tournament operators are required to report the results of their tournament to the NMFS Southeast Fisheries Science Center. All billfish and swordfish tournaments are selected for

reporting. For more information on recreational HMS handgear fisheries, please see the 2006 Consolidated HMS FMP and the 2011 HMS SAFE Report.

#### **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, billfish, 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.

Updated landings for HMS recreational rod and reel fisheries are presented below in Table 4.20 from 2003 through 2012.

**Table 4.20 Domestic Landings (mt ww)\* for the Atlantic Tunas and Swordfish Recreational Rod and Reel Fishery (2003-2012)**

| Species          | Region      | 2003    | 2004    | 2005    | 2006    | 2007    | 2008    | 2009    | 2010    | 2011    | 2012    |
|------------------|-------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Bluefin tuna*    | NW Atlantic | 314.6   | 370.2   | 254.4   | 158.2   | 398.6   | 352.2   | 143.3   | 111.4   | 173.3   | 148.7   |
|                  | GOM         | 0.0     | 0.0     | 0.0     | 0.6     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |
|                  | Total       | 314.6   | 370.2   | 254.4   | 158.8   | 398.6   | 352.2   | 143.3   | 111.4   | 173.3   | 148.7   |
| Bigeye tuna**    | NW Atlantic | 188.5   | 94.6    | 165.0   | 422.3   | 126.8   | 70.9    | 77.6    | 116.8   | 72.4    | 269.6   |
|                  | GOM         | 0.0     | 6.0     | 0.0     | 24.3    | 0.0     | 0.0     | 0.0     | 0.8     | 34.9    | 0.1     |
|                  | Caribbean   | 4.0     | <0.1    | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 2.3     | 0.0     |
|                  | Total       | 192.5   | 100.6   | 165.0   | 446.6   | 126.8   | 70.9    | 77.6    | 117.6   | 109.6   | 269.7   |
| Albacore**       | NW Atlantic | 333.8   | 500.5   | 356.0   | 284.2   | 393.6   | 125.2   | 22.8    | 46.2    | 170.6   | 144.3   |
|                  | Caribbean   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 103.4   | 0.0     | 0.7     |
|                  | Total       | 333.8   | 500.5   | 356.0   | 284.2   | 393.6   | 125.2   | 22.8    | 149.6   | 170.6   | 145.0   |
| Yellowfin tuna** | NW Atlantic | 4,672.1 | 3,433.7 | 3,504.8 | 4,649.2 | 2,726.0 | 657.1   | 742.6   | 1,209.0 | 1,134   | 1,433   |
|                  | GOM         | 640.0   | 247.1   | 146.9   | 258.4   | 227.6   | 366.3   | 264.7   | 18.0    | 362.8   | 294.1   |
|                  | Caribbean   | 16.0    | 0.0     | 0.0     | 0.0     | 12.4    | 0.0     | 3.5     | 4.5     | 0.9     | 0.0     |
|                  | Total       | 5,328.0 | 3,684.8 | 3,651.7 | 4,907.6 | 2,966.0 | 1,023.4 | 1,010.8 | 1,231.5 | 1,497.7 | 1,721.1 |
| Skipjack tuna**  | NW Atlantic | 34.1    | 27.3    | 8.1     | 34.6    | 27.4    | 21.0    | 75.7    | 29.1    | 50.3    | 98.0    |
|                  | GOM         | 11.1    | 6.3     | 3.1     | 6.4     | 23.9    | 16.3    | 22.0    | 15.5    | 23.7    | 2.5     |
|                  | Caribbean   | 15.7    | 40.4    | 3.9     | 7.7     | 0.2     | 11.3    | 4.3     | 0.4     | 3.0     | 3.0     |
|                  | Total       | 60.9    | 74.0    | 15.1    | 48.7    | 51.5    | 48.6    | 102.0   | 45.0    | 77.0    | 103.5   |
| Swordfish        | Total       | 6.1     | 25.2    | 61.2    | 52.7    | 68.2    | 75.7    | 31.6    | 49.3    | 53.6    | 70.8    |

\* 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, 2005; NMFS, 2006; NMFS, 2007; NMFS, 2009; NMFS, 2010; NMFS, 2011; and NMFS, 2012.

*Atlantic Billfish Recreational Fishery*

Due to the rare nature of billfish encounters and the difficulty of monitoring landings outside of tournament events, reports of recreational billfish landings are sparse; however, the Recreational Billfish Survey (RBS) provides a preliminary source for analyzing recreational billfish tournament landings. Table 4.21 documents the number of billfish and swordfish reported to the RBS that were landed in tournaments from 2003 – 2013.

**Table 4.21 Atlantic HMS Tournament Billfish Landings, in Numbers of Fish (2003-2012)**

| Species              | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|----------------------|------|------|------|------|------|------|------|------|------|------|
| Blue marlin          | 96   | 110  | 64   | 72   | 46   | 44   | 35   | 18   | 27   | 42   |
| White marlin         | 20   | 25   | 26   | 36   | 31   | 47   | 46   | 63   | 31   | 23   |
| Roundscale spearfish | -    | -    | -    | -    | -    | -    | 5    | 10   | 3    | 4    |
| Sailfish             | 24   | 9    | 3    | 4    | 1    | -    | -    | 3    | 7    | 7    |
| Swordfish            | 48   | 168  | 385  | 207  | 274  | 114  | 85   | 46   | 29   | 29   |

Source: Recreational Billfish Survey.

All recreational, non-tournament landings of billfish, including swordfish, are required to be reported to NMFS within 24 hours of landing by the permitted owner of the vessel landing the fish. This requirement is applicable to all permit holders, both private and charter/headboat vessels, not fishing in a tournament. In Maryland and North Carolina, vessel owners are required to report their billfish landings at state-operated landings stations. Table 4.22 provides a summary of non-tournament billfish and swordfish landings since 2004.

**Table 4.22 Atlantic Recreational (Non-tournament) Billfish Landings, in Numbers of Fish (2004-2013)**

| Species              | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|----------------------|------|------|------|------|------|------|------|------|------|
| Blue marlin          | 2    | 4    | 2    | 5    | 7    | 5    | 3    | 3    | 7    |
| White marlin         | 0    | 1    | 1    | 4    | 4    | 6    | 5    | 6    | 1    |
| Roundscale spearfish | -    | -    | -    | -    | -    | -    | -    | 0    | 0    |
| Sailfish             | 35   | 61   | 58   | 101  | 143  | 140  | 185  | 166  | 159  |
| Swordfish            | 290  | 388  | 549  | 716  | 369  | 389  | 285  | 318  | 386  |

Source: HMS Recreational Reporting Program.

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. Table 4.23 provides landings estimates in numbers of fish for Atlantic blue and white marlin and roundscale spearfish. NMFS added roundscale spearfish to the Atlantic HMS management unit (75 FR 57698; September 22, 2010) due to a relatively recent taxonomic change and identification of the species as distinct from white marlin, and effective January 2011, annual landings of roundscale spearfish are included in the 250 marlin count.

**Table 4.23 Atlantic Blue and White Marlin and Roundscale Spearfish Landings (in Numbers of Fish) vs. Domestic Landings Limit of 250 Fish**

| Species                            | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|------------------------------------|------|------|------|------|------|------|
| White marlin                       | 39   | 59   | 53   | 72   | 56   | 30   |
| Blue marlin                        | 59   | 58   | 44   | 28   | 43   | 63   |
| Roundscale spearfish*              | -    | -    | -    | 19   | 7    | 4    |
| Total landings                     | 98   | 117  | 97   | 119  | 106  | 97   |
| Balance remaining (from 250 limit) | 152  | 133  | 153  | 131  | 144  | 153  |

\* Roundscale spearfish are included in the 250 fish domestic landings limit for Atlantic blue and white marlin. Roundscale spearfish landings are reported to ICCAT.

Sources: Recreational Billfish Survey, HMS Recreational Reporting System, the HMS Catch Card Programs in NC and MD, the Large Pelagics Survey, and the Marine Recreational Information Program.

### *Shark Recreational Fishery*

Unlike billfish or bluefin tuna, shark landings are not required to be reported to NMFS unless an angler is required to participate in LPS or MRIP. However, as of 2013, in Maryland, vessel owners are required to report their shark landings at state-operated landings stations using catch cards. The following tables provide estimated landings for each of the three shark species groups: large coastal sharks (Table 4.24 and Table 4.25), pelagic sharks (Table 4.26), and small coastal sharks (Table 4.27 and Table 4.28).

**Table 4.24 Estimated Recreational Harvest of Large Coastal Sharks in the Atlantic Region, in Number of Fish per Species (2008-2012)**

| Species                        | 2008  | 2009  | 2010  | 2011  | 2012  |
|--------------------------------|-------|-------|-------|-------|-------|
| Basking <sup>2</sup>           | 0     | 0     | 0     | 0     | 0     |
| Bignose <sup>1</sup>           | 0     | 0     | 0     | 0     | 0     |
| Bigeye sand tiger <sup>2</sup> | 0     | 0     | 0     | 0     | 0     |
| Blacktip                       | 5,317 | 1,902 | 1,656 | 754   | 1,164 |
| Bull                           | 247   | 2     | 1     | 698   | 68    |
| Caribbean reef <sup>1</sup>    | 0     | 0     | 0     | 0     | 0     |
| Dusky <sup>1</sup>             | 1,501 | 506   | 4     | 23    | 15    |
| Galapagos <sup>1</sup>         | 0     | 0     | 0     | 0     | 0     |
| Hammerhead, great              | 3     | 5     | 0     | 0     | 37    |
| Hammerhead, scalloped          | 1     | 569   | 13    | 179   | 4     |
| Hammerhead, smooth             | 0     | 0     | 0     | 0     | 0     |
| Hammerhead, unclassified       | 0     | 0     | 0     | 0     | 0     |
| Lemon                          | 1     | 291   | 0     | 14    | 0     |
| Night <sup>1</sup>             | 0     | 0     | 0     | 0     | 0     |
| Nurse                          | 331   | 156   | 209   | 301   | 706   |
| Sandbar <sup>3</sup>           | 4,210 | 6,461 | 2,193 | 1,125 | 857   |
| Sand tiger <sup>2</sup>        | 1     | 0     | 0     | 0     | 0     |
| Silky <sup>3</sup>             | 0     | 208   | 13    | 0     | 232   |
| Spinner                        | 0     | 179   | 693   | 679   | 1,145 |
| Tiger                          | 4     | 4     | 2     | 1     | 2     |
| Whale <sup>2</sup>             | 0     | 0     | 0     | 0     | 0     |

|                             |               |               |              |              |               |
|-----------------------------|---------------|---------------|--------------|--------------|---------------|
| White <sup>2</sup>          | 0             | 0             | 0            | 0            | 0             |
| Requiem shark, unclassified | 11,541        | 8,794         | 2,966        | 4,949        | 6,069         |
| <b>Total</b>                | <b>23,157</b> | <b>19,077</b> | <b>7,750</b> | <b>8,723</b> | <b>10,299</b> |

<sup>1</sup>Prohibited in the recreational fishery as of July 1, 1999. <sup>2</sup>Prohibited as of April 1997. <sup>3</sup>Prohibited as of July 2008.

Source: Cortés pers. comm.

**Table 4.25 Estimated Recreational Harvest of Large Coastal Sharks in the Gulf of Mexico Region, in Number of Fish per Species (2008-2012)**

| <b>Species</b>                 | <b>2008</b>   | <b>2009</b>   | <b>2010</b>    | <b>2011</b>   | <b>2012</b>   |
|--------------------------------|---------------|---------------|----------------|---------------|---------------|
| Basking <sup>2</sup>           | 0             | 0             | 0              | 0             | 0             |
| Bignose <sup>1</sup>           | 0             | 0             | 0              | 0             | 0             |
| Bigeye sand tiger <sup>2</sup> | 0             | 0             | 0              | 0             | 0             |
| Blacktip                       | 9,283         | 12,600        | 23,781         | 16,083        | 22,530        |
| Bull                           | 964           | 6,957         | 260            | 581           | 2,415         |
| Caribbean reef <sup>1</sup>    | 0             | 1             | 0              | 0             | 0             |
| Dusky <sup>1</sup>             | 58            | 40            | 87             | 125           | 42            |
| Galapagos <sup>1</sup>         | 0             | 0             | 0              | 0             | 0             |
| Hammerhead, great              | 10            | 123           | 3              | 126           | 5             |
| Hammerhead, scalloped          | 118           | 105           | 140            | 22            | 24            |
| Hammerhead, smooth             | 0             | 0             | 0              | 0             | 0             |
| Hammerhead, unclassified       | 0             | 0             | 0              | 0             | 0             |
| Lemon                          | 1,065         | 3             | 781            | 1,274         | 0             |
| Night <sup>1</sup>             | 0             | 22            | 0              | 0             | 0             |
| Nurse                          | 14            | 729           | 25             | 1,098         | 2             |
| Sandbar <sup>3</sup>           | 211           | 701           | 883            | 200           | 46            |
| Sand tiger <sup>2</sup>        | 0             | 0             | 0              | 0             | 0             |
| Silky <sup>3</sup>             | 390           | 0             | 64             | 74            | 0             |
| Spinner                        | 3,111         | 2,461         | 6,040          | 1,694         | 4,975         |
| Tiger                          | 1             | 0             | 366            | 52            | 0             |
| Whale <sup>2</sup>             | 0             | 0             | 0              | 0             | 0             |
| White <sup>2</sup>             | 0             | 0             | 0              | 0             | 0             |
| Requiem shark, unclassified    | 2,937         | 24,972        | 68,134         | 38,876        | 16,454        |
| <b>Total</b>                   | <b>18,162</b> | <b>48,714</b> | <b>100,564</b> | <b>60,205</b> | <b>46,493</b> |

<sup>1</sup>Prohibited in the recreational fishery as of July 1, 1999. <sup>2</sup>Prohibited as of April 1997. <sup>3</sup>Prohibited as of July 2008.

Source: Cortés pers. comm.

**Table 4.26 Estimated Recreational Harvest of Pelagic Sharks in the Atlantic and Gulf of Mexico, in Number of Fish per Species (2003-2012)**

| Species                     | 2008         | 2009         | 2010         | 2011       | 2012       |
|-----------------------------|--------------|--------------|--------------|------------|------------|
| Bigeye thresher*            | 0            | 0            | 0            | 0          | 0          |
| Bigeye sixgill*             | 0            | 0            | 0            | 0          | 0          |
| Blue Shark                  | 87           | 0            | 1,512        | 0          | 0          |
| Mako, longfin*              | 0            | 0            | 0            | 0          | 0          |
| Mako, shortfin              | 1,087        | 5,271        | 3,297        | 301        | 689        |
| Mako, unclassified          | 0            | 0            | 0            | 396        | 14         |
| Oceanic whitetip            | 0            | 0            | 0            | 0          | 0          |
| Porbeagle                   | 0            | 0            | 0            | 19         | 0          |
| Sevengill*                  | 0            | 0            | 0            | 0          | 0          |
| Sixgill*                    | 0            | 0            | 0            | 0          | 0          |
| Thresher                    | 798          | 3,422        | 214          | 0          | 0          |
| Pelagic shark, unclassified | 0            | 0            | 0            | 0          | 0          |
| <b>Total</b>                | <b>1,972</b> | <b>8,693</b> | <b>5,023</b> | <b>716</b> | <b>703</b> |

\*Prohibited in the recreational fishery as of July 1, 1999.

Source: Cortés, pers. comm.

**Table 4.27 Estimated Recreational Harvest of Small Coastal Sharks in the Atlantic Region, in Number of Fish per Species (2008-2012)**

| Species              | 2008          | 2009          | 2010          | 2011          | 2012          |
|----------------------|---------------|---------------|---------------|---------------|---------------|
| Atlantic angel*      | 0             | 0             | 0             | 0             | 0             |
| Blacknose            | 2             | 947           | 0             | 573           | 0             |
| Bonnethead           | 12,225        | 8,009         | 10,073        | 8,598         | 9,798         |
| Finetooth            | 1,347         | 0             | 239           | 0             | 0             |
| Atlantic sharpnose   | 33,489        | 33,568        | 41,217        | 28,252        | 23,207        |
| Caribbean sharpnose* | 0             | 0             | 0             | 0             | 0             |
| Smalltail*           | 0             | 0             | 0             | 0             | 0             |
| <b>Total</b>         | <b>47,063</b> | <b>42,524</b> | <b>51,529</b> | <b>37,423</b> | <b>33,005</b> |

\*Prohibited in the recreational fishery as of July 1, 1999.

Source: Cortés, pers. comm.

**Table 4.28 Estimated Recreational Harvest of Small Coastal Sharks in the Gulf of Mexico Region, in Number of Fish per Species (2008-2012)**

| Species              | 2008   | 2009   | 2010   | 2011   | 2012   |
|----------------------|--------|--------|--------|--------|--------|
| Atlantic angel*      | 0      | 0      | 0      | 0      | 0      |
| Blacknose            | 2,468  | 5,276  | 1,463  | 1,533  | 2,638  |
| Bonnethead           | 8,939  | 14,189 | 6,084  | 51,714 | 6,746  |
| Finetooth            | 665    | 395    | 380    | 47     | 248    |
| Atlantic sharpnose   | 38,927 | 31,237 | 29,494 | 19,072 | 40,302 |
| Caribbean sharpnose* | 0      | 0      | 0      | 0      | 0      |

|            |        |        |        |        |        |
|------------|--------|--------|--------|--------|--------|
| Smalltail* | 0      | 0      | 0      | 0      | 0      |
| Total      | 50,999 | 51,097 | 37,421 | 72,366 | 49,934 |

\*Prohibited in the recreational fishery as of July 1, 1999.

Source: Cortés, pers. comm.

### *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 2002 – 2011 is presented in Table 4.29 and Table 4.30.

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\\_Guide/Careful\\_release\\_brochure.pdf](http://www.nmfs.noaa.gov/sfa/hms/Compliance_Guide/Careful_release_brochure.pdf)

**Table 4.29 Observed or Reported Number of HMS Kept in the Rod and Reel Fishery (ME-VA, 2003-2012)**

| Species                                | 2003  | 2004  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| White marlin <sup>2</sup>              | 12    | 6     | 5     | 8     | 4     | 13    | 8     | 9     | 17    | 5     |
| Blue marlin <sup>2</sup>               | 4     | 5     | 3     | 2     | 2     | 3     | 3     | 3     | 1     | 3     |
| Sailfish <sup>2</sup>                  | 0     | 0     | 1     | 0     | 1     | 0     | 0     | 0     | 0     | 0     |
| Swordfish                              | 9     | 9     | 22    | 27    | 42    | 30    | 7     | 9     | 27    | 28    |
| Giant bluefin tuna <sup>3</sup>        | 58    | 50    | 48    | 15    | 15    | 20    | 46    | 54    | 51    | 65    |
| Large medium bluefin tuna <sup>3</sup> | 11    | 13    | 12    | 1     | 5     | 11    | 0     | 36    | 28    | 23    |
| Small medium bluefin tuna              | 83    | 30    | 22    | 48    | 69    | 48    | 205   | 11    | 14    | 21    |
| Large school bluefin tuna              | 287   | 291   | 179   | 171   | 298   | 398   | 107   | 174   | 77    | 73    |
| School bluefin                         | 509   | 927   | 638   | 84    | 314   | 228   | 180   | 201   | 180   | 146   |
| Young school bluefin                   | 4     | 16    | 25    | 0     | 3     | 4     | 1     | 2     | 0     | 2     |
| Bigeye tuna                            | 21    | 46    | 32    | 35    | 59    | 55    | 58    | 36    | 66    | 97    |
| Yellowfin tuna                         | 3,216 | 3,858 | 3,700 | 3,572 | 2,988 | 1,029 | 1,886 | 1,906 | 3,474 | 3,296 |
| Skipjack tuna                          | 681   | 197   | 79    | 104   | 34    | 64    | 242   | 151   | 278   | 200   |
| Albacore                               | 546   | 1,458 | 835   | 542   | 934   | 168   | 67    | 154   | 550   | 358   |
| Thresher shark                         | 24    | 58    | 45    | 34    | 62    | 59    | 66    | 44    | 41    | 39    |
| Mako shark                             | 141   | 216   | 99    | 111   | 143   | 169   | 159   | 159   | 172   | 151   |
| Sandbar shark                          | 9     | 7     | 1     | 1     | 9     | 1     | 1     | 0     | 1     | 0     |
| Dusky shark                            | 1     | 0     | 0     | 3     | 6     | 1     | 0     | 1     | 0     | 0     |
| Tiger shark                            | 0     | 0     | 1     | 0     | 1     | 1     | 3     | 1     | 0     | 2     |
| Porbeagle                              | 0     | 1     | 1     | 1     | 0     | 0     | 0     | 2     | 2     | 2     |
| Blacktip shark                         | 1     | 0     | 1     | 1     | 0     | -     | -     | 0     | 0     | 0     |
| Atlantic sharpnose shark               | 0     | 0     | 0     | 0     | 0     | -     | -     | 10    | 5     | 3     |
| Blue shark                             | 65    | 74    | 67    | 61    | 109   | 43    | 54    | 26    | 30    | 28    |
| Hammerhead shark                       | 0     | 1     | 0     | 0     | 0     | 1     | 0     | 0     | 0     | 0     |
| Smooth hammerhead                      | 0     | 0     | 0     | 0     | 0     | 1     | 0     | 0     | 0     | 0     |
| Scalloped hammerhead                   | 0     | 0     | 0     | 1     | 0     | 0     | 0     | 0     | 0     | 0     |
| Unidentified hammerhead                | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     | 0     |
| Wahoo                                  | 68    | 110   | 112   | 85    | 190   | 172   | 69    | 111   | 63    | 206   |
| Dolphin                                | 4,209 | 3,050 | 6,366 | 3,921 | 2,536 | 5,739 | 3,317 | 6,063 | 4,935 | 3,055 |
| King mackerel                          | 66    | 11    | 376   | 170   | 82    | 67    | 14    | 14    | 3     | 3     |
| Atlantic bonito                        | 315   | 410   | 96    | 262   | 283   | 51    | 138   | 57    | 41    | 79    |
| Little tunny                           | 121   | 231   | 181   | 90    | 195   | 93    | 175   | 239   | 151   | 172   |
| Amberjack                              | 44    | 0     | 2     | 1     | 5     | 31    | 81    | 99    | 25    | 40    |
| Spanish mackerel                       | 35    | 9     | 4     | 1     | 2     | 67    | 9     | 8     | 24    | 146   |

<sup>1</sup>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. <sup>2</sup>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. <sup>3</sup>Includes some commercial handgear landings.

Source: Large Pelagics Survey.

**Table 4.30 Observed or Reported Number of HMS Released in the Rod and Reel Fishery (ME-VA, 2003-2012)**

| Species                                | 2003  | 2004  | 2005  | 2006 | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  |
|--|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| White marlin <sup>2</sup>              | 160   | 378   | 397   | 160  | 359   | 454   | 936   | 1,070 | 1,355 | 1,996 |
| Blue marlin <sup>2</sup>               | 39    | 80    | 52    | 42   | 69    | 69    | 60    | 86    | 106   | 137   |
| Sailfish <sup>2</sup>                  | 6     | 2     | 6     | 3    | 1     | 6     | 69    | 11    | 11    | 61    |
| Swordfish                              | 21    | 22    | 23    | 52   | 40    | 45    | 13    | 15    | 27    | 12    |
| Giant bluefin tuna <sup>3</sup>        | 0     | 3     | 0     | 3    | 0     | 0     | 0     | 1     | 0     | 0     |
| Large medium bluefin tuna <sup>3</sup> | 0     | 36    | 4     | 1    | 3     | 11    | 7     | 22    | 2     | 9     |
| Small medium bluefin tuna              | 13    | 21    | 30    | 18   | 32    | 23    | 93    | 46    | 32    | 45    |
| Large school bluefin tuna              | 40    | 107   | 141   | 85   | 99    | 286   | 77    | 172   | 53    | 64    |
| School bluefin tuna <sup>4</sup>       | 174   | 1,297 | 1,917 | 290  | 347   | 358   | 173   | 392   | 345   | 184   |
| Young school bluefin tuna <sup>4</sup> | 10    | 1,885 | 282   | 117  | 83    | 55    | 52    | 68    | 44    | 21    |
| Bigeye tuna                            | 3     | 2     | 2     | 2    | 1     | 0     | 13    | 0     | 2     | 3     |
| Yellowfin tuna <sup>4, 5</sup>         | 200   | 1,093 | 502   | 351  | 171   | 411   | 2,038 | 374   | 1,479 | 195   |
| Skipjack tuna <sup>4</sup>             | 526   | 362   | 105   | 129  | 17    | 217   | 610   | 188   | 479   | 325   |
| Albacore tuna                          | 31    | 66    | 67    | 41   | 40    | 14    | 5     | 10    | 84    | 25    |
| Thresher shark <sup>5</sup>            | 8     | 27    | 9     | 15   | 24    | 35    | 23    | 21    | 9     | 16    |
| Mako shark                             | 208   | 350   | 142   | 177  | 190   | 242   | 250   | 276   | 224   | 238   |
| Sandbar shark                          | 26    | 68    | 37    | 158  | 168   | 222   | 219   | 37    | 45    | 14    |
| Dusky shark                            | 44    | 60    | 49    | 73   | 87    | 128   | 152   | 116   | 84    | 76    |
| Tiger shark                            | 12    | 0     | 6     | 7    | 11    | 20    | 11    | 13    | 25    | 26    |
| Porbeagle                              | 3     | 1     | 6     | 8    | 2     | 2     | 6     | 11    | 31    | 18    |
| Blacktip shark                         | 0     | 1     | 19    | 9    | 31    | -     | -     | 34    | 10    | 346   |
| Atlantic sharpnose shark               | 0     | 0     | 11    | 0    | 0     | -     | -     | 5     | 3     | 4     |
| Blue shark <sup>4, 5</sup>             | 2,060 | 2,242 | 920   | 884  | 1,978 | 2,735 | 4,185 | 3,333 | 3,752 | 2,705 |
| Hammerhead shark                       | 38    | 2     | 5     | 0    | 0     | 0     | 0     | 0     | 1     | 2     |
| Smooth hammerhead shark                | 0     | 0     | 0     | 1    | 2     | 0     | 1     | 1     | 3     | 3     |
| Scalloped hammerhead shark             | 0     | 0     | 0     | 0    | 0     | 4     | 2     | 0     | 0     | 4     |
| Unidentified hammerhead shark          | 0     | 0     | 0     | 11   | 14    | 27    | 31    | 32    | 10    | 30    |
| Wahoo                                  | 3     | 5     | 7     | 6    | 9     | 4     | 4     | 6     | 2     | 5     |
| Dolphin <sup>5</sup>                   | 677   | 192   | 375   | 394  | 227   | 372   | 222   | 344   | 380   | 192   |
| King mackerel                          | 5     | 1     | 7     | 20   | 3     | 5     | 5     | 1     | 0     | 0     |
| Atlantic bonito <sup>4</sup>           | 282   | 389   | 231   | 114  | 60    | 36    | 124   | 55    | 55    | 120   |
| Little tunny                           | 443   | 1,130 | 505   | 102  | 387   | 614   | 1,028 | 886   | 640   | 993   |
| Amberjack                              | 111   | 1     | 2     | 13   | 33    | 145   | 101   | 119   | 17    | 48    |
| Spanish mackerel <sup>4</sup>          | 1     | 0     | 0     | 0    | 2     | 37    | 1     | 8     | 0     | 0     |

<sup>1</sup>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. <sup>2</sup>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. <sup>3</sup>Includes some commercial handgear landings. <sup>4</sup>Includes dead releases in 2010. <sup>5</sup>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, but in general, BLL consists of a longline between 3 and 8 km (1.8 – 5 miles) long with 200-400 hooks attached and is set for 2 and 20 hours. Depending on the species being targeted, both circle and J hooks are used. Fishermen targeting sharks with BLL gear are opportunistic and often maintain permits for council-managed fisheries such as reef fish, snapper/grouper, tilefish, and other teleosts. Minor modifications to how and where the gear is deployed allow fishermen to harvest sharks and teleosts on the same trip. Seasons, quota availability, market prices, and other factors influence decisions concerning whether or not to target sharks, teleosts, or both on a given trip. The gear typically consists of a heavy monofilament mainline with lighter weight monofilament gangions. Some fishermen may occasionally use a flexible 1/16 inch wire rope as gangion material or as a short leader above the hook (Hale et al., 2010).

### **4.5.1 Current Management**

For a description of the history of bottom longline fishery management, please see the Amendment 5a 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 additional proposals to amend the 2006 Consolidated HMS FMP, including one amendment (Amendment 5b) that could change certain shark regulations based on recent stock assessments for dusky sharks. NMFS is also working on rulemakings to implement the 2011 Shark Conservation Act and Amendment 6 to the 2006 Consolidated HMS FMP, which looks at the shark fishery and its management as a whole.

### **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 2-3% for shark directed (Gulak et al., 2013).

In 2012, the BLL observer program selected 35 vessels with a total of 730 BLL hauls (defined as setting gear, soaking gear for some duration of time, and retrieving gear) were observed in a total of 110 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 (grouper/snapper (reef fish), non-sandbar LCS, or sandbar shark) (Gulak et al., 2013). The data were grouped by targets into six groups: a) hauls targeting shallow water reef fish in the Gulf of Mexico (81% of reef fish targeted sets were shallower than 50 fathoms (< 91.4 m) depth), b) hauls targeting deep water reef fish in the Gulf of Mexico (19% of reef fish targeted sets were deeper than 50 fathoms (> 91.4 m) depth), c) hauls targeting tilefish in the Gulf of Mexico, d) hauls targeting non-sandbar LCS species in the Gulf of Mexico, e) hauls targeting non-sandbar LCS species in the U.S. Atlantic Ocean, and f) hauls targeting sandbar sharks in the Gulf of Mexico and U.S. Atlantic Ocean. No trips were observed in the northern U.S. Atlantic Ocean; therefore, subsequent references to the “U.S. Atlantic Ocean” refer to the coastal waters off the southern U.S. Atlantic states from North Carolina to Florida (Richards, 1999). In 2012, NMFS changed the regulations for vessels participating in the shark research fishery. Participants were allowed to harvest all non-prohibited species of sharks, including sandbar sharks. Fishermen were required to land all catch of shark species that were legal under a directed shark permit (including sandbar shark, which is otherwise prohibited) unless they could be released alive. The amount of catch was limited with gear restrictions and the fishery opened with one set of 150 hooks per trip. To reduce catch of prohibited dusky sharks, the set allowance was revised to two sets per research trip in May (one 75 hook ‘feeler’ set with a soak time of no more than two hours and one 150 hook set with no soak limit). In September, there was a further revision and the hook limits were doubled for each set. These vessels averaged 1 trip per month in 2012. Table 4.31, Table 4.32, Table 4.33, Table 4.34, Table 4.35, and Table 4.36 summarize the shark catch composition and disposition for observed BLL trips in 2012.

**Table 4.31 Shark Species Caught on Observed Bottom Longline Trips Targeting Shallow Water Reef Fish in the Gulf of Mexico (2012)**

| <b>Species</b>             | <b>Total Number Caught</b> | <b>Percent Kept</b> | <b>Percent Discarded Dead</b> | <b>Percent Discarded Alive</b> | <b>Percent Disposition Unknown</b> |
|----------------------------|----------------------------|---------------------|-------------------------------|--------------------------------|------------------------------------|
| Atlantic sharpnose shark   | 497                        | 1.0                 | 4.8                           | 94.2                           | 0.0                                |
| Blacknose shark            | 191                        | 1.0                 | 1.6                           | 97.4                           | 0.0                                |
| Sandbar shark              | 125                        | 2.4                 | 0.0                           | 96.8                           | 0.8                                |
| Tiger shark                | 69                         | 0.0                 | 4.3                           | 94.2                           | 1.4                                |
| Nurse shark                | 62                         | 3.2                 | 1.6                           | 95.2                           | 0.0                                |
| Silky shark                | 41                         | 2.4                 | 19.5                          | 78.0                           | 0.0                                |
| Smoothhound                | 38                         | 0.0                 | 10.5                          | 89.5                           | 0.0                                |
| Requiem shark family       | 36                         | 0.0                 | 0.0                           | 91.7                           | 8.3                                |
| Spinner shark              | 24                         | 0.0                 | 20.8                          | 79.5                           | 0.0                                |
| Houndsharks                | 23                         | 0.0                 | 0.0                           | 100.0                          | 0.0                                |
| Blacktip shark             | 15                         | 0.0                 | 6.7                           | 93.3                           | 0.0                                |
| Sharks                     | 13                         | 0.0                 | 0.0                           | 100.0                          | 0.0                                |
| Bull shark                 | 8                          | 0.0                 | 0.0                           | 100.0                          | 0.0                                |
| Hammerhead sharks          | 5                          | 0.0                 | 0.0                           | 80.0                           | 20.0                               |
| Scalloped hammerhead shark | 4                          | 0.0                 | 0.0                           | 100.0                          | 0.0                                |
| Bonnethead shark           | 1                          | 0.0                 | 0.0                           | 100.0                          | 0.0                                |
| <b>Total</b>               | <b>1,152</b>               |                     |                               |                                |                                    |

Source: Gulak et al., 2013.

**Table 4.32 Shark Species Caught on Observed Bottom Longline Trips Targeting Deep Water Reef Fish in the Gulf of Mexico (2012)**

| Species                    | Total Number Caught | Percent Kept | Percent Discarded Dead | Percent Discarded Alive | Percent Disposition Unknown |
|----------------------------|---------------------|--------------|------------------------|-------------------------|-----------------------------|
| Smoothhound                | 323                 | 0.0          | 10.8                   | 89.2                    | 0.0                         |
| <i>Squalidae</i> family    | 177                 | 2.9          | 1.1                    | 96.0                    | 0.0                         |
| Houndsharks                | 89                  | 2.3          | 1.1                    | 96.6                    | 0.0                         |
| Atlantic sharpnose shark   | 79                  | 0.0          | 39.2                   | 60.8                    | 0.0                         |
| Blacktip shark             | 19                  | 0.0          | 0.0                    | 100.0                   | 0.0                         |
| Night shark                | 13                  | 0.0          | 30.8                   | 69.2                    | 0.0                         |
| Cuban dogfish              | 11                  | 0.0          | 9.1                    | 90.9                    | 0.0                         |
| Blacknose shark            | 8                   | 0.0          | 50.0                   | 50.0                    | 0.0                         |
| Sandbar shark              | 8                   | 0.0          | 12.5                   | 75.0                    | 12.5                        |
| Sixgill shark              | 8                   | 0.0          | 12.5                   | 87.5                    | 0.0                         |
| Requiem shark family       | 7                   | 0.0          | 0.0                    | 100.0                   | 0.0                         |
| Scalloped hammerhead shark | 4                   | 0.0          | 100.0                  | 0.0                     | 0.0                         |
| Sharks                     | 3                   | 0.0          | 33.3                   | 33.4                    | 33.3                        |
| Tiger shark                | 3                   | 0.0          | 0.0                    | 100.0                   | 0.0                         |
| Silky shark                | 2                   | 0.0          | 100.0                  | 0.0                     | 0.0                         |
| Bigeye sixgill shark       | 2                   | 0.0          | 50.0                   | 50.0                    | 0.0                         |
| Hammerhead sharks          | 2                   | 0.0          | 0.0                    | 100.0                   | 0.0                         |
| Bull shark                 | 1                   | 0.0          | 0.0                    | 100.0                   | 0.0                         |
| Sevengill shark            | 1                   | 0.0          | 0.0                    | 100.0                   | 0.0                         |
| <b>Total</b>               | <b>760</b>          |              |                        |                         |                             |

Source: Gulak et al., 2013.

**Table 4.33 Shark Species Caught on Observed Bottom Longline Trips Targeting Tilefish in the Gulf of Mexico (2012)**

| Species                 | Total Number Caught | Percent Kept | Percent Discarded Dead | Percent Discarded Alive | Percent Disposition Unknown |
|-------------------------|---------------------|--------------|------------------------|-------------------------|-----------------------------|
| Cuban dogfish           | 23                  | 4.3          | 8.7                    | 87.0                    | 0.0                         |
| <i>Squalidae</i> family | 23                  | 4.3          | 8.7                    | 87.0                    | 0.0                         |
| Bigeye thresher shark   | 1                   | 0.0          | 100.0                  | 0.0                     | 0.0                         |
| Shortfin mako shark     | 1                   | 0.0          | 0.0                    | 100.0                   | 0.0                         |
| Houndsharks             | 1                   | 0.0          | 0.0                    | 100.0                   | 0.0                         |
| <b>Total</b>            | <b>49</b>           |              |                        |                         |                             |

Source: Gulak et al., 2013.

**Table 4.34 Shark Species Caught on Observed Bottom Longline Trips Targeting Large Coastal Sharks in the Gulf of Mexico (2012)**

| <b>Species</b>             | <b>Total Number Caught</b> | <b>Percent Kept</b> | <b>Percent Discarded Dead</b> | <b>Percent Discarded Alive</b> | <b>Percent Disposition Unknown</b> |
|----------------------------|----------------------------|---------------------|-------------------------------|--------------------------------|------------------------------------|
| Blacktip shark             | 515                        | 95.5                | 4.3                           | 0.0                            | 0.2                                |
| Nurse shark                | 107                        | 0.0                 | 0.0                           | 100.0                          | 0.0                                |
| Blacknose shark            | 44                         | 88.6                | 11.4                          | 0.0                            | 0.0                                |
| Tiger shark                | 30                         | 23.3                | 6.7                           | 63.3                           | 6.7                                |
| Spinner shark              | 26                         | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| Sandbar shark              | 23                         | 0.0                 | 21.8                          | 73.9                           | 4.3                                |
| Lemon shark                | 23                         | 82.6                | 0.0                           | 0.0                            | 17.4                               |
| Bull shark                 | 22                         | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| Atlantic sharpnose shark   | 16                         | 75.0                | 25.0                          | 0.0                            | 0.0                                |
| Great hammerhead shark     | 15                         | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| Dusky shark                | 8                          | 12.5                | 12.5                          | 50.0                           | 25.0                               |
| Scalloped hammerhead shark | 7                          | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| Finetooth shark            | 6                          | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| Silky shark                | 1                          | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| Blue shark                 | 1                          | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| <b>Total</b>               | <b>844</b>                 |                     |                               |                                |                                    |

Source: Gulak et al., 2013.

**Table 4.35 Shark Species Caught on Observed Bottom Longline Trips Targeting Large Coastal Sharks in the Atlantic Ocean (2012)**

| <b>Species</b>             | <b>Total Number Caught</b> | <b>Percent Kept</b> | <b>Percent Discarded Dead</b> | <b>Percent Discarded Alive</b> | <b>Percent Disposition Unknown</b> |
|----------------------------|----------------------------|---------------------|-------------------------------|--------------------------------|------------------------------------|
| Atlantic sharpnose shark   | 443                        | 95.7                | 4.1                           | 0.2                            | 0.0                                |
| Blacktip shark             | 347                        | 95.2                | 3.5                           | 0.0                            | 0.3                                |
| Blacknose shark            | 102                        | 92.2                | 7.8                           | 0.0                            | 0.0                                |
| Sandbar shark              | 80                         | 0.0                 | 35.0                          | 65.0                           | 0.0                                |
| Smoothhound                | 60                         | 95.0                | 1.7                           | 3.3                            | 0.0                                |
| Lemon shark                | 35                         | 91.4                | 0.0                           | 8.6                            | 0.0                                |
| Nurse shark                | 26                         | 0.0                 | 0.0                           | 100.0                          | 0.0                                |
| Bull shark                 | 18                         | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| Tiger shark                | 16                         | 75.0                | 0.0                           | 25.0                           | 0.0                                |
| Spinner shark              | 6                          | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| Sharks                     | 4                          | 0.0                 | 100.0                         | 0.0                            | 0.0                                |
| Finetooth shark            | 2                          | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| Scalloped hammerhead shark | 2                          | 50.0                | 50.0                          | 0.0                            | 0.0                                |
| Dusky shark                | 1                          | 0.0                 | 0.0                           | 100.0                          | 0.0                                |
| Caribbean reef shark       | 1                          | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| Great hammerhead shark     | 1                          | 100.0               | 0.0                           | 0.0                            | 0.0                                |
| <b>Total</b>               | <b>1,144</b>               |                     |                               |                                |                                    |

Source: Gulak et al., 2013.

**Table 4.36 Shark Species Caught on Observed Bottom Longline Trips Targeting Sandbar shark in the Gulf of Mexico and Atlantic Ocean (2012)**

| Species                    | Total Number Caught | Percent Kept | Percent Discarded Dead | Percent Discarded Alive | Percent Disposition Unknown |
|----------------------------|---------------------|--------------|------------------------|-------------------------|-----------------------------|
| Sandbar                    | 1,411               | 98.9         | 0.4                    | 0.3                     | 0.4                         |
| Atlantic sharpnose shark   | 316                 | 81.3         | 14.9                   | 3.8                     | 0.0                         |
| Tiger shark                | 290                 | 56.9         | 1.0                    | 39.7                    | 2.4                         |
| Dusky shark                | 252                 | 0.0          | 93.3                   | 15.9                    | 0.8                         |
| Blacktip shark             | 180                 | 99.4         | 0.0                    | 0.0                     | 0.6                         |
| Bull shark                 | 103                 | 94.2         | 0.0                    | 0.0                     | 5.8                         |
| Nurse shark                | 97                  | 0.0          | 0.0                    | 99.0                    | 1.0                         |
| Scalloped hammerhead shark | 77                  | 85.7         | 7.8                    | 6.5                     | 0.0                         |
| Great hammerhead shark     | 45                  | 91.1         | 2.2                    | 6.7                     | 0.0                         |
| Spinner shark              | 39                  | 89.7         | 2.6                    | 5.1                     | 2.6                         |
| Sand tiger shark           | 29                  | 0.0          | 0.0                    | 100.0                   | 0.0                         |
| Blacknose shark            | 27                  | 81.5         | 7.4                    | 7.4                     | 3.7                         |
| Lemon shark                | 12                  | 100.0        | 0.0                    | 0.0                     | 0.0                         |
| Sharks                     | 8                   | 0.0          | 62.5                   | 0.0                     | 37.5                        |
| Silky shark                | 7                   | 57.1         | 28.6                   | 14.3                    | 0.0                         |
| Great white shark          | 3                   | 0.0          | 66.7                   | 33.3                    | 0.0                         |
| Hammerhead sharks          | 2                   | 0.0          | 50.0                   | 0.0                     | 50.0                        |
| Requiem shark family       | 1                   | 0.0          | 0.0                    | 0.0                     | 100.0                       |
| Night shark                | 1                   | 0.0          | 100.0                  | 0.0                     | 0.0                         |
| Smoothhound                | 1                   | 0.0          | 100.0                  | 0.0                     | 0.0                         |
| <b>Total</b>               | <b>2,901</b>        |              |                        |                         |                             |

Source: Gulak et al., 2013.

#### 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 2011 HMS SAFE Report. On December 12, 2012, NMFS released a Biological Opinion (BiOp) for shark fisheries, which stated that the proposed operation of the Atlantic shark fisheries (including authorized gear types) is not likely to jeopardize the continued existence of Atlantic sturgeon, smalltooth sawfish, or any species of ESA-listed large whale or sea turtles. NMFS has implemented the Reasonable and Prudent Measures and Terms and Conditions of the 2012 BiOp for all sharks except smoothhounds because smoothhounds have not yet been brought under federal management. We will implement the new requirements of the 2012 BiOp for smoothhounds when the regulations for that species are implemented.

Table 4.37 provides information on observed interactions with protected resources for BLL vessels targeting sharks in the Gulf of Mexico and Atlantic regions. In 2012, one smalltooth sawfish and 2 loggerhead seas turtles were observed on sets targeting 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 BLL vessels fishing in the Gulf of Mexico and South Atlantic regions targeting LCS (Gulak et al., 2013).

**Table 4.37 Protected Species Interactions Observed Bottom Longline Trips Targeting Sharks in the Gulf of Mexico and Atlantic Ocean (2007-2012)**

| 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     |
| Total | 17          | 0         | 0              | 23                 | 40    |

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.

##### 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: gillnet mesh size, requiring that gillnets remain attached to the vessel, and the need to conduct net checks every two hours when gear is deployed.

##### 4.6.2 Recent Catch, Landings, and Discards

In 2012, a total of 316 sets comprising of various gillnet fisheries were observed. A total of 2 drift gillnet vessels were observed making 10 drift sets on 5 trips 2012. A total of 5 strike gillnet fishery vessels were observed making 6 strike sets on 6 trips in 2012. During the strike gillnet trips, only 2 blacktip sharks were observed on trips that targeted king mackerel in 2012. A total of 62 trips making 300 sink net sets on 18 vessels were observed in 2012. Table 4.38 through Table 4.41 of this section outline shark species composition, disposition, and summary information for sharks caught during observed in sink gillnet trips with observers onboard in 2012 (Mathers et al., 2013).

**Table 4.38 Shark Species Caught on Observed Sink Gillnet Trips Targeting Spanish Mackerel (2012)**

| Species                    | Total Number Caught | Percent      |                 |                |
|----------------------------|---------------------|--------------|-----------------|----------------|
|                            |                     | Percent Kept | Discarded Alive | Discarded Dead |
| Atlantic sharpnose shark   | 537                 | 42.6         | 47.1            | 10.2           |
| Bonnethead shark           | 207                 | 20.3         | 20.8            | 58.9           |
| Spinner shark              | 50                  | 44.0         | 56.0            | 0.0            |
| Scalloped hammerhead shark | 38                  | 5.3          | 21.1            | 73.7           |
| Smoothhound                | 29                  | 69.0         | 31.0            | 0.0            |
| Blacknose shark            | 6                   | 50.0         | 0.0             | 50.0           |
| Blacktip shark             | 2                   | 0.0          | 50.0            | 50.0           |
| Common thresher shark      | 1                   | 100.0        | 0.0             | 0.0            |
| <b>Total</b>               | <b>870</b>          |              |                 |                |

Source: Mathers et al., 2013.

**Table 4.39 Shark Species Caught on Observed Sink Gillnet Trips Targeting Smoothhound (2012)**

| Species                    | Total Number Caught | Percent      |                 |                |
|----------------------------|---------------------|--------------|-----------------|----------------|
|                            |                     | Percent Kept | Discarded Alive | Discarded Dead |
| Smoothhound                | 623                 | 99.8         | 0.0             | 0.2            |
| Atlantic sharpnose shark   | 28                  | 100.0        | 0.0             | 0.0            |
| Sandbar shark              | 27                  | 3.7          | 96.3            | 0.0            |
| Scalloped hammerhead shark | 11                  | 0.0          | 0.0             | 100.0          |
| Atlantic angel shark       | 11                  | 0.0          | 100.0           | 0.0            |
| Common thresher shark      | 6                   | 100.0        | 0.0             | 0.0            |
| Sand tiger shark           | 3                   | 0.0          | 33.3            | 66.7           |
| Tiger shark                | 2                   | 0.0          | 100.0           | 0.0            |
| Spinner shark              | 1                   | 0.0          | 0.0             | 100.0          |
| Dusky shark                | 1                   | 0.0          | 100.0           | 0.0            |
| <b>Total</b>               | <b>713</b>          |              |                 |                |

Source: Mathers et al., 2013.

**Table 4.40 Shark Species Caught on Observed Sink Gillnet Trips Targeting Southern Kingfish (2012)**

| Species       | Total Number Caught | Percent      |                 |                |
|---------------|---------------------|--------------|-----------------|----------------|
|               |                     | Percent Kept | Discarded Alive | Discarded Dead |
| Spiny dogfish | 38                  | 0.0          | 76.3            | 23.7           |
| Sandbar shark | 3                   | 0.0          | 100.0           | 0.0            |
| <b>Total</b>  | <b>41</b>           |              |                 |                |

Source: Mathers et al., 2013.

**Table 4.41 Shark Species Caught on Observed Sink Gillnet Trips Targeting Mixed Teleost (2012)**

| Species                    | Total Number Caught | Percent      |                 |                |
|----------------------------|---------------------|--------------|-----------------|----------------|
|                            |                     | Percent Kept | Discarded Alive | Discarded Dead |
| Atlantic sharpnose shark   | 17                  | 0.0          | 100.0           | 0.0            |
| Smoothhound                | 16                  | 43.8         | 50.0            | 6.3            |
| Bonnethead shark           | 10                  | 0.0          | 100.0           | 0.0            |
| Spiny dogfish              | 6                   | 0.0          | 83.3            | 16.7           |
| Scalloped hammerhead shark | 4                   | 0.0          | 100.0           | 0.0            |
| Sandbar shark              | 2                   | 0.0          | 100.0           | 0.0            |
| <b>Total</b>               | <b>418</b>          |              |                 |                |

Source: Mathers et al., 2013.

### 4.6.3 Gillnet Bycatch

This section describes the non-shark bycatch observed in the southeast sink gillnet fishery during trips targeting sharks (Mathers et al., 2013).

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, King mackerel, and Atlantic bumper. All of the observed interactions with protected species between 2000 and 2012 in the observed gillnet fisheries are on Table 4.42.

#### *Sea Turtles*

There was one leatherback sea turtle (*Dermochelys coriacea*) and one unidentified sea turtle observed caught in sink gillnet gear targeting Spanish mackerel in 2012. The both sea turtles were released alive (Mathers et al., 2013).

#### *Sea Birds*

There was one common loon (*Gavia immer*) observed caught and released dead in sink gillnet gear in 2012 (Mathers et al., 2013).

#### *Marine Mammals*

The MMPA Category II classification refers to occasional serious injuries and mortalities. In 2012, there were no marine mammals observed caught in gillnet gear in the shark fisheries (Mathers et al. 2013).

#### *Smalltooth Sawfish*

In 2012, there were no observed interactions with smalltooth sawfish in gillnet gear. The last observed interaction occurred in 2003 and the sawfish was released with no visible injuries. Given the high rate of observer coverage in for these gillnet fisheries consistent with Atlantic

Large Whale Take Reduction Team requirements, NMFS believes that smalltooth sawfish interactions in this fishery are rare.

**Table 4.42 Protected Species Interactions in the Shark Gillnet Fishery Targeting Sharks Other than Smoothhounds (2007-2012)**

| Year  | Sea Turtles | Sea Birds | Marine Mammals | Smalltooth Sawfish | 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     |
| Total | 9           | 2         | 1              | 0                  | 12    |

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

**Table 4.43 Bycatch by Species on Observed Sink Gillnet Fishery Trips Targeting Smoothhounds (2012)**

| Common Name         | Total Number Caught | Percent      |                        |
|---------------------|---------------------|--------------|------------------------|
|                     |                     | Percent Kept | Percent Discarded Dead |
| Atlantic menhaden   | 49                  | 4.1          | 95.9                   |
| Shads               | 31                  | 35.5         | 64.5                   |
| Little tunny        | 5                   | 100.0        | 0.0                    |
| Searobins           | 5                   | 100.0        | 0.0                    |
| Cobia               | 5                   | 100.0        | 0.0                    |
| Flounders           | 2                   | 50.0         | 50.0                   |
| King mackerel       | 2                   | 100.0        | 0.0                    |
| Sheepshead          | 1                   | 100.0        | 0.0                    |
| Monkfish anglerfish | 1                   | 100.0        | 0.0                    |
| Atlantic croaker    | 1                   | 0.0          | 100.0                  |
| Bluefish            | 1                   | 100.0        | 0.0                    |
| Total               | 103                 |              |                        |

Source: Mathers et al., 2013.

#### 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 2007 through 2012 (Table 4.44, Table 4.45, and Table 4.46). Prior to 2007, buoy gear catch data were included in handline catch data.

**Table 4.44 Buoy Gear Effort (2007-2012)**

| Specifications                       | 2007   | 2008  | 2009   | 2010  | 2011  | 2012   |
|--------------------------------------|--------|-------|--------|-------|-------|--------|
| Number of vessels                    | 42     | 44    | 53     | 57    | 50    | 55     |
| Number of trips                      | 745    | 598   | 708    | 632   | 603   | 688    |
| Average buoy gears deployed per trip | 11.0   | 11.2  | 11.9   | 11.9  | 12.2  | 14.1   |
| Total number of set hooks            | 11,742 | 8,922 | 11,595 | 8,855 | 8,858 | 11,639 |
| Average number hooks per gear        | 1.4    | 1.3   | 1.4    | 1.2   | 1.2   | 1.2    |

Source: Fisheries Logbook System.

**Table 4.45 Buoy Gear Landings (lb dw, 2007-2012)**

| Species             | 2007    | 2008    | 2009    | 2010    | 2011    | 2012    |
|---------------------|---------|---------|---------|---------|---------|---------|
| Swordfish           | 183,982 | 122,700 | 154,674 | 153,520 | 138,041 | 178,088 |
| Dolphin             | 966     | 1,031   | 1,427   | 419     | 1,269   | 1,324   |
| Oilfish             | 346     | 414     | 245     | 270     | 338     | 719     |
| Shortfin mako shark | 308     | 797     | 932     | 466     | 812     | 2,295   |
| Wahoo               | 63      | 227     | 623     | 75      | 198     | 163     |
| Bigeye tuna         | 150     | 0       | 0       | 0       | 350     | 0       |
| Blacktip shark      | 9       | 0       | 0       | 0       | 0       | 38      |
| King mackerel       | 0       | 194     | 67      | 576     | 142     | 56      |
| Yellowfin tuna      | 0       | 0       | 350     | 0       | 400     | 0       |
| Hammerhead shark    | 0       | 0       | 350     | 1,190   | 575     | 400     |
| Silky shark         | 0       | 0       | 20      | 48      | 0       | 120     |
| Greater amberjack   | 0       | 0       | 10      | 201     | 0       | 0       |
| Bonito              | 0       | 0       | 86      | 120     | 0       | 54      |
| Blackfin tuna       | 0       | 0       | 0       | 115     | 70      | 97      |

Source: Fisheries Logbook System.

**Table 4.46 Buoy Gear Catches and Discards, in Numbers of Fish per Species (2007-2012)**

| <b>Species</b>         | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> |
|------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Kept</b>            |             |             |             |             |             |             |
| Swordfish              | 2,849       | 1,843       | 2,085       | 1,950       | 1,893       | 2,699       |
| Dolphin                | 63          | 103         | 113         | 29          | 121         | 196         |
| Oilfish                | 7           | 10          | 5           | 10          | 76          | 13          |
| Bigeye tuna            | 5           | 0           | 0           | 0           | 4           | 0           |
| Blackfin tuna          | 3           | 7           | 2           | 7           | 3           | 10          |
| Wahoo                  | 2           | 6           | 44          | 2           | 40          | 12          |
| Bonito                 | 0           | 7           | 11          | 6           | 0           | 1           |
| King mackerel          | 0           | 53          | 4           | 7           | 130         | 2           |
| Shortfin mako          | 3           | 4           | 8           | 4           | 7           | 14          |
| Hammerhead shark       | 1           | 0           | 1           | 6           | 3           | 3           |
| Blacktip shark         | 1           | 0           | 0           | 0           | 0           | 1           |
| Silky shark            | 0           | 1           | 1           | 1           | 0           | 4           |
| Yellowfin tuna         | 0           | 0           | 9           | 0           | 8           | 0           |
| Greater amberjack      | 0           | 0           | 1           | 7           | 0           | 0           |
| Thresher shark         | 0           | 0           | 0           | 0           | 0           | 1           |
| <b>Released Alive</b>  |             |             |             |             |             |             |
| Swordfish              | 1,559       | 1,018       | 763         | 1,031       | 1,659       | 1,221       |
| Dolphin                | 0           | 0           | 0           | 0           | 11          | 14          |
| Blue marlin            | 1           | 0           | 1           | 1           | 2           | 2           |
| White marlin           | 0           | 3           | 0           | 0           | 0           | 0           |
| Sailfish               | 2           | 1           | 0           | 1           | 1           | 0           |
| Hammerhead shark       | 14          | 7           | 35          | 52          | 81          | 93          |
| Blue shark             | 0           | 2           | 1           | 0           | 30          | 5           |
| Thresher shark         | 0           | 1           | 1           | 2           | 7           | 6           |
| Dusky shark            | 4           | 0           | 0           | 12          | 2           | 9           |
| Night shark            | 16          | 1           | 34          | 39          | 87          | 238         |
| Oceanic whitetip shark | 0           | 1           | 0           | 0           | 0           | 0           |
| Bigeye thresher shark  | 4           | 0           | 0           | 0           | 2           | 2           |
| Tiger shark            | 1           | 2           | 1           | 1           | 2           | 2           |
| Sandbar shark          | 1           | 0           | 1           | 2           | 0           | 0           |
| Longfin mako shark     | 4           | 3           | 2           | 7           | 5           | 6           |
| Shortfin mako shark    | 0           | 1           | 2           | 6           | 4           | 5           |
| Blacktip shark         | 0           | 0           | 8           | 4           | 19          | 39          |
| Silky shark            | 0           | 0           | 13          | 12          | 14          | 12          |
| Oilfish                | 0           | 0           | 1           | 0           | 1           | 0           |
| Greater amberjack      | 0           | 0           | 1           | 0           | 0           | 0           |
| Blackfin Tuna          | 0           | 0           | 0           | 0           | 3           | 0           |
| Skipjack Tuna          | 0           | 0           | 0           | 0           | 1           | 0           |
| <b>Discarded Dead</b>  |             |             |             |             |             |             |
| Swordfish              | 129         | 80          | 51          | 87          | 155         | 139         |

|                    |   |   |   |   |   |   |
|--------------------|---|---|---|---|---|---|
| Silky shark        | 9 | 0 | 0 | 0 | 0 | 0 |
| Hammerhead shark   | 1 | 0 | 0 | 1 | 1 | 0 |
| Blackfin tuna      | 0 | 0 | 1 | 0 | 1 | 0 |
| Blue marlin        | 0 | 0 | 1 | 0 | 0 | 0 |
| Night shark        | 0 | 0 | 0 | 1 | 0 | 1 |
| Longfin mako shark | 0 | 0 | 0 | 0 | 0 | 1 |
| Shortfin Mako      | 0 | 0 | 0 | 0 | 1 | 0 |

Source: Fisheries Logbook System.

## 4.8 Green-Stick Gear

Green-stick gear is defined as “an actively trolled mainline attached to a vessel and elevated or suspended above the surface of the water with no more than 10 hooks or gangions attached to the mainline. The suspended line, attached gangions and/or hooks, and catch may be retrieved collectively by hand or mechanical means. Green-stick does not constitute a pelagic longline or a bottom longline as defined in this section or as described at §635.21(c) or §635.21(d), respectively.” Green-stick gear may be used to harvest bigeye, northern albacore, yellowfin, and skipjack tunas (collectively referred to as BAYS tunas) and bluefin tuna aboard Atlantic tunas General 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. In 2009, the states of South Carolina, Louisiana, and Texas indicated that they would add a green-stick gear code to their trip ticket programs and Florida confirmed that the code has been added to their program. The HMS e-Dealer electronic reporting system is also anticipated to improve the available green-stick landings data.

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 2014 with a final report expected in late 2014.

#### **4.9 Safety Issues**

The following section highlights safety issues in fisheries. Specific information regarding safety issues and statistics may be obtained from the following two U.S. Coast Guard (USCG) web pages: (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](http://www.fishsafe.info/FVStudy_92_10.pdf) and (2) USCG Safety Program website: <http://www.uscgboating.org/default.aspx>. A summary of previous findings can be found in the 2011 HMS SAFE Report.

Beginning October 15, 2015, the USCG will require 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. 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/>.

#### **4.10 Fishery Data: Landings by Species**

The following tables (Table 4.47 - Table 4.52) of Atlantic HMS landings are taken from the 2013 National Report of the United States to ICCAT (NMFS, 2013). 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 4.53 - Table 4.57) were compiled from the most recent stock assessment documents and updates provided from the NMFS Southeast Fisheries Science Center.

**Table 4.47 U.S. Landings (mt) of Atlantic Bluefin Tuna, by Area and Gear (2005-2012)**

| Area           | Gear                         | 2005  | 2006  | 2007  | 2008  | 2009    | 2010  | 2011  | 2012  |
|----------------|------------------------------|-------|-------|-------|-------|---------|-------|-------|-------|
| NW Atlantic    | Longline**                   | 72.7  | 104.4 | 70.7  | 107.4 | 166.7   | 164.7 | 216.3 | 182.2 |
|                | Handline                     | 2.3   | 0.3   | 0.0   | 0.6   | 0.1     | 2.7   | 0.9   | 1.3   |
|                | Purse seine                  | 178.3 | 3.6   | 27.9  | 0.0   | 11.4    | 0.0   | 0.0   | 1.7   |
|                | Harpoon                      | 31.5  | 30.3  | 22.5  | 30.2  | 65.6    | 29.0  | 70.1  | 52.3  |
|                | Rod and reel (>145 cm LJFL)* | 170.4 | 217.2 | 235.4 | 305.7 | 717.1   | 570.8 | -     | -     |
|                | Rod and reel (<145 cm LJFL)* | 254.4 | 158.2 | 398.6 | 352.2 | 143.3   | 111.4 | -     | -     |
|                | Unclassified                 | 0.0   | 0.0   | 0.0   | 0.3   | 0.0     | 0.0   | 0.0   | 0.0   |
|                | Commercial rod and reel      | -     | -     | -     | -     | -       | -     | 418.6 | 419.5 |
|                | Recreational rod and reel    | -     | -     | -     | -     | -       | -     | 173.4 | 148.7 |
|                | Trawl                        | -     | -     | 0.0   | 0.0   | 0.0     | 0.0   | 0.4   | 0.0   |
| Gulf of Mexico | Longline                     | 118.5 | 88.1  | 81.2  | 111.7 | 111.6   | 56.2  | 13.2  | 105   |
|                | Rod and reel*                | 0.0   | 0.6   | 0.0   | 0.0   | 0.0     | 0.0   | -     | -     |
| NC Area 94a    | Longline                     | 20.3  | 12.1  | 12.4  | 13.5  | 56.7    | 17.8  | 11.3  | 3.8   |
| Caribbean      | Longline                     | -     | -     | 0.0   | 0.0   | 0.0     | 0.0   | 0.6   | 0.9   |
| All areas      | All gears                    | 848.4 | 614.8 | 848.7 | 919.9 | 1,272.6 | 952.6 | 904.7 | 915.5 |

\* 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, 2013.

**Table 4.48 U.S. Landings (mt) of Atlantic Yellowfin Tuna, by Area and Gear (2005-2012)**

| Area           | Gear          | 2005    | 2006    | 2007    | 2008    | 2009    | 2010    | 2011    | 2012  |
|----------------|---------------|---------|---------|---------|---------|---------|---------|---------|-------|
| NW Atlantic    | Longline      | 394.2   | 701.7   | 757.8   | 460.5   | 416.4   | 673.4   | 684.1   | 882.1 |
|                | Rod and reel* | 3,504.8 | 4,649.2 | 2,726.0 | 657.1   | 742.6   | 1,209.0 | 1,133.8 | 1,433 |
|                | Troll         | 0.0     | 0.0     | 6.9     | 2.4     | 5.4     | 1.2     | 0.5     | 0.3   |
|                | Gillnet       | 0.1     | 4.7     | 4.2     | 0.6     | 0.0     | 0.5     | 0.06    | 1.6   |
|                | Trawl         | 0.2     | 0.7     | 2.4     | 0.0     | 0.0     | 1.4     | 1.3     | 0.2   |
|                | Handline      | 105.1   | 105.1   | 113.2   | 30.1    | 58.7    | 43.5    | 34      | 66.0  |
|                | Trap          | 0.01    | 0.0     | 0.0     | 0.05    | 0.1     | 0.5     | 0.0     | 0.0   |
|                | Unclassified  | 3.8     | 3.9     | 7.0     | 1.4     | 2.2     | 9.5     | 4.2     | 4.4   |
| Gulf of Mexico | Longline      | 1,210.9 | 1,128.5 | 1,379.5 | 756.5   | 1,147.0 | 303.2   | 642.1   | 1,254 |
|                | Rod and reel* | 146.9   | 258.4   | 227.6   | 366.3   | 264.7   | 18.0    | 362.8   | 294.1 |
|                | Handline      | 45.5    | 49.9    | 26.2    | 11.2    | 21.6    | 2.9     | 8.7     | 16.9  |
|                | Gillnet       | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | -       | -     |
|                | Unclassified  | 0.3     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.1     | 8.7   |
| Caribbean      | Longline      | 140.6   | 179.7   | 255.6   | 107.1   | 136.7   | 212.2   | 132.1   | 141.9 |
|                | Handline      | 9.7     | 7.8     | 9.1     | 3.7     | 3.3     | 1.9     | 1.5     | 2.8   |
|                | Gillnet       | **      | 0.0     | 0.0     | 0.04    | 0.04    | 0.0     | 0.0     | 0.0   |
|                | Trap          | **      | 0.4     | 0.0     | 0.0     | 0.0     | 0.0     | -       | -     |
|                | Rod and reel* | 5.5     | 0.0     | 12.4    | 9.7     | 3.5     | 4.5     | 0.9     | 0.0   |
| NC Area 94a    | Longline      | 0.5     | 0.0     | 1.8     | 0.4     | 0.0     | 0.0     | 0.0     | 3     |
| SW Atlantic    | Longline      | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 28.7    | -       | -     |
| All areas      | All gears     | 5,568.1 | 7,090.0 | 5,529.5 | 2,407.2 | 2,802.3 | 2,481.7 | 3,010.4 | 4,109 |

\* 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, 2013.

**Table 4.49 U.S. Landings (mt) of Atlantic Skipjack Tuna, by Area and Gear (2005-2012)**

| Area           | Gear          | 2005 | 2006 | 2007  | 2008  | 2009  | 2010 | 2011 | 2012  |
|----------------|---------------|------|------|-------|-------|-------|------|------|-------|
| NW Atlantic    | Longline      | 0.05 | 0.04 | 0.0   | 0.1   | 0.4   | 1.4  | 0.4  | 0.3   |
|                | Rod and reel* | 8.1  | 34.6 | 27.4  | 21.0  | 75.7  | 29.1 | 50.3 | 98.0  |
|                | Gillnet       | 2.2  | 0.2  | 0.05  | 0.04  | 3.3   | 0.2  | 0.04 | 1.6   |
|                | Trawl         | 0.07 | 0.7  | 0.005 | 0.003 | 0.0   | 0.0  | 0.0  | 0.006 |
|                | Handline      | 0.9  | 0.2  | 0.3   | 0.4   | 2.8   | 1.2  | 1.5  | 2.0   |
|                | Trap          | 0.0  | 0.3  | 0.0   | 0.0   | 0.0   | 0.0  | -    | -     |
|                | Pound net     | 0.0  | 0.5  | 0.0   | 0.0   | 0.0   | 0.0  | -    | -     |
|                | Unclassified  | 0.01 | 0.06 | 0.6   | 0.5   | 1.2   | 0.1  | 0.8  | 0.6   |
| Gulf of Mexico | Longline      | 0.3  | 0.0  | 0.0   | 0.05  | 0.05  | 0.0  | 0.2  | 0.0   |
|                | Rod and reel* | 3.1  | 6.4  | 23.9  | 16.3  | 22.0  | 15.5 | 23.7 | 0.06  |
|                | Handline      | 0.02 | 0.0  | 0.2   | 0.06  | 0.2   | 0.02 | 0.2  | 2.5   |
| Caribbean      | Longline      | 0.2  | 0.2  | 0.02  | 1.3   | 0.05  | 0.0  | 0.0  | 0.1   |
|                | Gillnet       | 0.06 | 0.02 | 0.0   | 0.01  | 0.6   | 0.0  | 0.0  | -     |
|                | Rod and reel* | 3.9  | 7.7  | 0.2   | 11.3  | 4.3   | 0.4  | 3.0  | 3.0   |
|                | Handline      | 10.9 | 10.0 | 13.7  | 16.0  | 8.8   | 6.2  | 4.5  | 3.3   |
|                | Trap          | 0.1  | 0.05 | 0.0   | 0.0   | 0.0   | 0.0  | -    | 1     |
| All areas      | All gears     | 29.9 | 61.0 | 66.5  | 67.1  | 119.4 | 54.2 | 86.7 | 111.5 |

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

Source: NMFS, 2013.

**Table 4.50 U.S. Landings (mt) of Atlantic Bigeye Tuna, by Area and Gear (2005-2012)**

| Area           | Gear          | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  |
|----------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|
| NW Atlantic    | Longline      | 272.9 | 469.4 | 331.9 | 380.2 | 384.7 | 431.1 | 397.2 | 567   |
|                | Rod and reel* | 165.0 | 422.3 | 126.8 | 70.9  | 77.6  | 116.8 | 72.4  | 269.6 |
|                | Troll         | 0.0   | 0.0   | 0.9   | 0.8   | 0.6   | 0.0   | 0.9   | 0.2   |
|                | Handline      | 6.2   | 21.5  | 16.8  | 6.9   | 4.6   | 1.8   | 3.4   | 7.8   |
|                | Trawl         | 0.6   | 0.0   | 0.4   | 0.0   | 0.0   | 0.7   | 1.2   | 0.2   |
|                | Unclassified  | 0.6   | 0.8   | 0.9   | 2.1   | 1.9   | 6.7   | 4.7   | 7.1   |
| Gulf of Mexico | Longline      | 25.2  | 37.7  | 37.0  | 14.0  | 19.5  | 6.9   | 2.2   | 13.1  |
|                | Rod and reel* | 0.0   | 24.3  | 0.0   | 0.0   | 0.0   | 0.8   | 34.9  | 0.1   |
|                | Handline      | 0.1   | 1.5   | 0.01  | 0.0   | 0.07  | 0.09  | 0.0   | 0.0   |
| Caribbean      | Longline      | 6.9   | 10.5  | 3.4   | 8.9   | 22.2  | 5.0   | 0.0   | 0.002 |
|                | Rod and reel* | -     | -     | 0.0   | 0.0   | 0.0   | 0.0   | 2.3   | 0.0   |
|                | Handline      | 0.04  | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.05  | 0.0   |
| NC Area 94a    | Longline      | 6.9   | 3.0   | 8.4   | 4.6   | 3.7   | 3.7   | -     | -     |
| SW Atlantic    | Longline      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.2   | 200.8 | 3.1   |
| All areas      | All gears     | 484.4 | 991.4 | 527.3 | 488.5 | 515.2 | 571.3 | 718.7 | 868.8 |

\* 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, 2013.

**Table 4.51 U.S. Landings (mt) of Atlantic Albacore Tuna, by Area and Gear (2005-2012)**

| Area           | Gear          | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  |
|----------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|
| NW Atlantic    | Longline      | 88.9  | 84.8  | 109.9 | 115.9 | 141.3 | 87.8  | 138.2 | 158.3 |
|                | Gillnet       | 6.0   | 2.1   | 1.0   | 2.1   | 5.6   | 0.5   | 0.2   | 5.7   |
|                | Handline      | 3.0   | 2.6   | 5.4   | 0.2   | 0.5   | 1.9   | 1.7   | 0.6   |
|                | Trawl         | 1.7   | 1.1   | 0.3   | 0.01  | 0.08  | 0.2   | 2.0   | 0.3   |
|                | Trap          | -     | 0.5   | 0.4   | 0.005 | 0.01  | 0.01  | 0.0   | 0.0   |
|                | Troll         | 0.0   | 0.0   | 0.2   | 0.2   | 0.07  | 0.04  | 0.0   | 0.0   |
|                | Rod and reel* | 356.0 | 284.2 | 393.6 | 125.2 | 22.8  | 46.2  | 170.6 | 144.3 |
|                | Unclassified  | 9.9   | 5.6   | 4.2   | 1.9   | 1.3   | 2.2   | 7.8   | 11.1  |
| Gulf of Mexico | Longline      | 6.9   | 7.6   | 15.4  | 10.2  | 16.7  | 7.1   | 101.8 | 103.1 |
|                | Rod and reel* | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.7   |
|                | Handline      | 0.1   | 0.07  | 0.0   | 0.0   | 0.01  | 0.01  | 0.1   | 0.4   |
| Caribbean      | Longline      | 12.1  | 10.5  | 1.2   | 0.4   | 0.3   | 0.7   | **    | **    |
|                | Gillnet       | 0.002 | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | -     | -     |
|                | Rod and reel* | -     | 0.0   | 0.0   | 0.0   | 0.0   | 103.6 | **    | **    |
|                | Trap          | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | -     | -     |
|                | Handline      | 1.1   | 0.4   | 0.2   | 0.4   | 0.003 | 0.05  | **    | **    |
| NC Area 94a    | Longline      | 0.6   | 0.03  | 0.3   | 0.8   | 0.3   | 0.6   | -     | -     |
| SW Atlantic    | Longline      | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | -     | -     |
| All areas      | All gears     | 488.0 | 399.5 | 532.1 | 256.7 | 188.8 | 314.5 | 422.4 | 424.5 |

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

Source: NMFS, 2013.

**Table 4.52 U.S. Catches and Landings (mt) of Atlantic Swordfish, by Area and Gear (2005-2012)**

| Area           | Gear                  | 2005    | 2006    | 2007    | 2008    | 2009    | 2010    | 2011    | 2012    |
|----------------|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| NW Atlantic    | Longline*             | 1,096.2 | 1,165.2 | 1,649.6 | 1,622.5 | 1,696.0 | 1,647.7 | 1,741.8 | 2,009.2 |
|                | Gillnet               | 0.0     | 0.0     | 0.2     | 0.0     | 0.05    | 0.0     | 0.0     | 0.08    |
|                | Handline              | 34.4    | 32.5    | 125.2   | 83.2    | 123.0   | 126.9   | 120.4   | 154.2   |
|                | Trawl                 | 8.2     | 3.5     | 6.5     | 7.6     | 23.7    | 21.2    | 17.9    | 26.8    |
|                | Unclassified          | 0.5     | 0.2     | 0.2     | 0.2     | 0.0     | 2.1     | 0.0     | 0.5     |
|                | Unclassified discards | 4.2     | 5.1     | 5.5     | 4.1     | 3.0     | 3.6     | 5.8     | 3.6     |
|                | Harpoon               | 0.0     | 0.3     | 0.0     | 0.0     | 0.05    | 0.6     | 0.6     | 0.3     |
|                | Rod and reel**        | 53.1    | 50.6    | 65.9    | 56.7    | 19.0    | 47.6    | 48.7    | 64.3    |
|                | Trap                  | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 1.8     | -       | -       |
| Gulf of Mexico | Longline*             | 480.9   | 328.1   | 457.7   | 361.6   | 476.1   | 212.3   | 363.6   | 673.3   |
|                | Handline              | 0.3     | 0.1     | 0.2     | 1.2     | 1.9     | 2.6     | 0.5     | 3.3     |
|                | Rod and reel**        | 1.5     | 2.1     | 2.3     | 19.0    | 12.6    | 1.7     | 4.9     | 6.3     |
|                | Unclassified          | 0.2     | 0.0     | 0.0     | 0.0     | 2.9     | -       | -       | -       |
|                | Unclassified discards | 3.9     | 2.7     | 5.5     | 4.6     | 3.5     | 1.3     | 2.5     | 6.8     |
| Caribbean      | Longline              | 143.5   | 88.9    | 27.8    | 57.9    | 22.6    | 41.4    | 14.2    | 3.7     |
|                | Trap*                 | 0.0     | 0.0     | 0.0     | 0.0     | -       | -       | -       | -       |
|                | Rod and reel**        | 6.6     | 0.0     | 0.0     | 0.0     | 0.0     | -       | -       | 0.2     |
|                | Handline              | 0.0     | 0.0     | 0.0     | 0.0     | 0.003   | 0.0     | 0.0     | 0.0     |
|                | Unclassified discards | 0.7     | 0.0     | 0.0     | 0.0     | 0.2     | 0.04    | 0.9     | 0.0     |
| NC Atlantic    | Longline*             | 552.2   | 378.6   | 338.9   | 311.6   | 496.4   | 304.8   | 451.3   | 698.3   |
| SW Atlantic    | Longline*             | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.3     | 0.0     | 0.0     |
| All areas      | All gears             | 2,387.6 | 2,057.9 | 2,682.8 | 2,530.3 | 2,878.0 | 2,412.1 | 2,773.7 | 3,651.0 |

\* 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, 2013.

**Table 4.53 Commercial Landings of Large Coastal Sharks in the Atlantic Region (lb dw, 2008-2012)**

| <b>Large Coastal Sharks</b>             | <b>2008</b>                   | <b>2009</b>                   | <b>2010</b>                   | <b>2011</b>                   | <b>2012</b>                   |
|---|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Basking <sup>2</sup>                    | 0                             | 0                             | 0                             | 0                             | 0                             |
| Bignose <sup>1</sup>                    | 0                             | 0                             | 0                             | 0                             | 0                             |
| Bigeye sand tiger <sup>2</sup>          | 0                             | 0                             | 0                             | 0                             | 0                             |
| Blacktip                                | 258,035                       | 229,267                       | 246,617                       | 176,136                       | 215,403                       |
| Bull                                    | 43,200                        | 61,396                        | 56,901                        | 49,927                        | 24,504                        |
| Caribbean reef <sup>1</sup>             | 0                             | 0                             | 0                             | 0                             | 0                             |
| Dusky <sup>1</sup>                      | 0                             | 0                             | 0                             | 14                            | 172                           |
| Galapagos <sup>1</sup>                  | 0                             | 0                             | 0                             | 0                             | 0                             |
| Hammerhead, great                       | 0                             | 0                             | 0                             | 0                             | 371                           |
| Hammerhead, scalloped                   | 0                             | 0                             | 0                             | 0                             | 15,800                        |
| Hammerhead, smooth                      | 0                             | 4,025                         | 7,802                         | 110                           | 3,967                         |
| Hammerhead, unclassified                | 21,631                        | 62,825                        | 43,345                        | 35,618                        | 9,617                         |
| Lemon                                   | 22,530                        | 30,909                        | 25,316                        | 45,448                        | 21,563                        |
| Narrowtooth <sup>1</sup>                | 0                             | 0                             | 0                             | 0                             | 0                             |
| Night <sup>1</sup>                      | 0                             | 0                             | 0                             | 0                             | 0                             |
| Nurse                                   | 10                            | 0                             | 71                            | 0                             | 81                            |
| Sandbar                                 | 63,035                        | 54,141                        | 84,339                        | 94,295                        | 46,446                        |
| Sand tiger <sup>2</sup>                 | 0                             | 0                             | 18                            | 20                            | 66                            |
| Silky                                   | 306                           | 1,386                         | 1,049                         | 992                           | 29                            |
| Spinner                                 | 1,265                         | 20,022                        | 13,544                        | 4,113                         | 10,643                        |
| Tiger                                   | 14,119                        | 15,172                        | 43,145                        | 36,425                        | 23,245                        |
| Whale <sup>2</sup>                      | 0                             | 0                             | 0                             | 0                             | 0                             |
| White <sup>2</sup>                      | 117                           | 0                             | 0                             | 0                             | 0                             |
| Unclassified, assigned to large coastal | 187,670                       | 70,894                        | 2,229                         | 50,711                        | 53,705                        |
| Unclassified LCS fins                   | 26,707                        | 33,173                        | 20,545                        | 21,535                        | 15,370                        |
| <b>Total, excluding fins</b>            | <b>611,918</b><br>(278 mt dw) | <b>550,037</b><br>(249 mt dw) | <b>524,376</b><br>(238 mt dw) | <b>493,809</b><br>(224 mt dw) | <b>425,612</b><br>(193 mt dw) |

<sup>1</sup> Prohibited in the commercial fishery as of June 21, 2000. <sup>2</sup> Prohibited as of April 1997.

Source: Cortés pers. comm.

**Table 4.54 Commercial Landings of Large Coastal Sharks in the Gulf of Mexico Region (lb dw, 2008-2012)**

| <b>Large Coastal Sharks</b>             | <b>2008</b>    | <b>2009</b>    | <b>2010</b>      | <b>2011</b>    | <b>2012</b>      |
|---|----------------|----------------|------------------|----------------|------------------|
| Basking <sup>2</sup>                    | 0              | 0              | 0                | 0              | 0                |
| Bignose <sup>1</sup>                    | 0              | 0              | 0                | 0              | 109              |
| Bigeye sand tiger <sup>2</sup>          | 0              | 0              | 0                | 0              | 0                |
| Blacktip                                | 326,280        | 374,573        | 654,942          | 384,662        | 405,015          |
| Bull                                    | 144,356        | 150,094        | 165,894          | 178,595        | 255,892          |
| Caribbean reef <sup>1</sup>             | 0              | 0              | 0                | 0              | 0                |
| Dusky <sup>1</sup>                      | 0              | 0              | 0                | 0              | 0                |
| Galapagos <sup>1</sup>                  | 0              | 0              | 0                | 0              | 0                |
| Hammerhead, great                       | 156            | 1,430          | 6,339            | 49             | 99               |
| Hammerhead, scalloped                   | 0              | 0              | 0                | 0              | 33,216           |
| Hammerhead, smooth                      | 0              | 0              | 0                | 0              | 0                |
| Hammerhead, unclassified                | 35,332         | 95,678         | 51,149           | 68,709         | 8,005            |
| Lemon                                   | 30,897         | 54,984         | 21,081           | 38,132         | 29,362           |
| Narrowtooth <sup>1</sup>                | 0              | 0              | 0                | 0              | 0                |
| Night <sup>1</sup>                      | 0              | 0              | 0                | 208            | 0                |
| Nurse                                   | 48             | 147            | 0                | 27             | 11               |
| Sandbar                                 | 26,740         | 113,717        | 54,914           | 46,040         | 23,854           |
| Sand tiger <sup>2</sup>                 | 0              | 0              | 0                | 0              | 0                |
| Silky                                   | 4,488          | 4,087          | 270              | 643            | 0                |
| Spinner                                 | 122,395        | 17,028         | 78,951           | 66,996         | 49,647           |
| Tiger                                   | 17,089         | 7,874          | 8,825            | 21,594         | 26,209           |
| Whale <sup>2</sup>                      | 0              | 0              | 0                | 0              | 0                |
| White <sup>2</sup>                      | 0              | 0              | 0                | 27             | 0                |
| Unclassified, assigned to large coastal | 131,724        | 163,320        | 0                | 169,651        | 188,566          |
| Unclassified LCS fins                   | 23,938         | 35,142         | 45,425           | 40,768         | 40,693           |
| <b>Total, excluding fins</b>            | <b>839,505</b> | <b>982,932</b> | <b>1,042,365</b> | <b>975,333</b> | <b>1,019,985</b> |
|   | (381 mt dw)    | (446 mt dw)    | (473 mt dw)      | (442 mt dw)    | (463 mt dw)      |

<sup>1</sup> Prohibited in the commercial fishery as of June 21, 2000. <sup>2</sup> Prohibited as of April 1997.

Source: Cortés pers. comm.

**Table 4.55 Commercial Landings of Small Coastal Sharks in the Atlantic Region (lb dw, 2003-2010)**

| <b>Small Coastal Sharks</b>             | <b>2008</b>                   | <b>2009</b>                   | <b>2010</b>                   | <b>2011</b>                   | <b>2012</b>                   |
|---|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Atlantic angel*                         | 91                            | 0                             | 96                            | 11                            | 171                           |
| Blacknose                               | 117,197                       | 90,023                        | 30,287                        | 28,373                        | 37,873                        |
| Bonnethead                              | 61,549                        | 53,912                        | 9,069                         | 28,284                        | 19,907                        |
| Finetooth                               | 26,872                        | 63,359                        | 76,438                        | 52,318                        | 15,922                        |
| Sharpnose, Atlantic                     | 261,788                       | 262,508                       | 211,190                       | 214,382                       | 345,625                       |
| Sharpnose, Caribbean*                   | 0                             | 0                             | 0                             | 0                             | 0                             |
| Unclassified, assigned to small coastal | 23,077                        | 34,429                        | 851                           | 36,639                        | 492                           |
| Unclassified SCS fins                   | 0                             | 0                             | 0                             | 0                             | 0                             |
| <b>Total, excluding fins</b>            | <b>490,574</b><br>(223 mt dw) | <b>504,231</b><br>(229 mt dw) | <b>327,931</b><br>(149 mt dw) | <b>360,007</b><br>(163 mt dw) | <b>419,990</b><br>(191 mt dw) |

\*Prohibited in the commercial fishery as of June 21, 2000.

Source: Cortés pers. comm.

**Table 4.56 Commercial Landings of Small Coastal Sharks in the Gulf of Mexico Region (lb dw, 2008-2012)**

| <b>Small Coastal Sharks</b>             | <b>2008</b>                  | <b>2009</b>                  | <b>2010</b>                 | <b>2011</b>                   | <b>2012</b>                   |
|---|------------------------------|------------------------------|-----------------------------|-------------------------------|-------------------------------|
| Atlantic angel*                         | 0                            | 0                            | 0                           | 0                             | 0                             |
| Blacknose                               | 17,058                       | 61,682                       | 4,204                       | 3,900                         | 14,379                        |
| Bonnethead                              | 388                          | 3,444                        | 2,672                       | 12,986                        | 2,601                         |
| Finetooth                               | 53,961                       | 95,705                       | 45,001                      | 159,558                       | 130,278                       |
| Sharpnose, Atlantic                     | 77,861                       | 43,217                       | 17,958                      | 53,723                        | 100,253                       |
| Sharpnose, Caribbean*                   | 0                            | 0                            | 0                           | 0                             | 0                             |
| Unclassified, assigned to small coastal | 0                            | 0                            | 0                           | 0                             | 0                             |
| Unclassified SCS fins                   | 0                            | 0                            | 0                           | 0                             | 0                             |
| <b>Total, excluding fins</b>            | <b>149,268</b><br>(68 mt dw) | <b>204,048</b><br>(93 mt dw) | <b>69,835</b><br>(32 mt dw) | <b>230,167</b><br>(104 mt dw) | <b>247,511</b><br>(112 mt dw) |

\*Prohibited in the commercial fishery as of June 21, 2000.

Source: Cortés pers. comm.

**Table 4.57 Commercial landings of Atlantic Pelagic Sharks (lb dw, 2008-2012)**

| <b>Pelagic Sharks</b>             | <b>2008</b>                   | <b>2009</b>                   | <b>2010</b>                   | <b>2011</b>                   | <b>2012</b>                   |
|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Bigeye thresher*                  | 0                             | 0                             | 28                            | 135                           | 276                           |
| Bigeye sixgill*                   | 0                             | 0                             | 0                             | 0                             | 0                             |
| Blue shark                        | 3,229                         | 4,793                         | 9,135                         | 13,370                        | 17,200                        |
| Mako, longfin*                    | 1,896                         | 25,264                        | 289                           | 3,465                         | 362                           |
| Mako, shortfin                    | 120,255                       | 141,456                       | 220,400                       | 207,630                       | 198,841                       |
| Mako, unclassified                | 39,661                        | 9,383                         | 0                             | 0                             | 0                             |
| Oceanic whitetip                  | 1,899                         | 933                           | 796                           | 2,435                         | 258                           |
| Porbeagle                         | 5,259                         | 3,609                         | 4,097                         | 5,933                         | 4,250                         |
| Sevengill*                        | 0                             | 0                             | 0                             | 0                             | 0                             |
| Sixgill*                          | 0                             | 0                             | 0                             | 0                             | 0                             |
| Thresher                          | 47,528                        | 33,333                        | 61,290                        | 47,462                        | 63,965                        |
| Unclassified, assigned to pelagic | 14,819                        | 6,650                         | 16,160                        | 33,884                        | 28,932                        |
| Unclassified pelagic fins         | 0                             | 0                             | 0                             | 0                             | 0                             |
| <b>Total, excluding fins</b>      | <b>234,546</b><br>(106 mt dw) | <b>225,421</b><br>(102 mt dw) | <b>312,195</b><br>(142 mt dw) | <b>314,314</b><br>(143 mt dw) | <b>314,084</b><br>(142 mt dw) |

\*Prohibited in the commercial fishery as of June 21, 2000.

Source: Cortés pers. comm.

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## 5. ECONOMIC STATUS OF HMS FISHERIES

Development of each rule, and of Atlantic HMS fisheries as a whole, is facilitated when there is an economic baseline against which the rule or fishery may be evaluated. In this analysis, NMFS used the past 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 2005 to 2012 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**

| Year | CPI-U | GDP Deflator | PPI Unprocessed Finfish |
|------|-------|--------------|-------------------------|
| 2005 | 195.3 | 92.0         | 253.1                   |
| 2006 | 201.6 | 94.8         | 334.6                   |
| 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 | 103.2        | 388.1                   |
| 2012 | 229.6 | 105.0        | 367.4                   |

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 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 2013b. In 2012, 9.6 billion pounds valued at \$5.1 billion were landed for all fish species by U.S. fisherman at U.S. ports. In 2011, 9.9 billion pounds valued at \$5.3 billion were landed for all fish species by U.S. fisherman at U.S. ports. The overall value of landings between 2011 and 2012 decreased by 3.5 percent. The total value of commercial HMS landings in 2012 was \$64.0 million (Table 5.3).

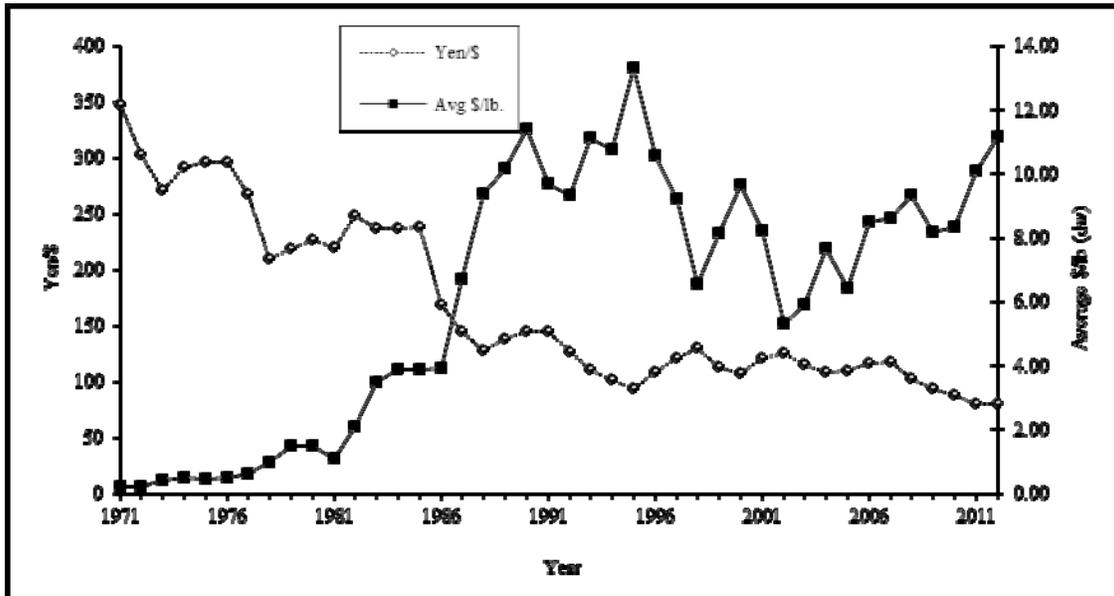
The estimated value of the 2012 domestic production of all fishery products was \$10.3 billion. This is \$394.3 million more than the estimated value in 2011. The total import value of fishery products was \$31.1 billion in 2012. This is an increase of \$187 million from 2011. The total export value of fishery products was \$27.3 billion in 2012. This is an increase of \$1.1 billion from 2011.

#### 5.1.1 Ex-Vessel Prices

The average ex-vessel prices per pound dressed weight (dw) for 2005 to 2012 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 risen 11 percent since 2011. 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 2012.



**Figure 5.1 Average Annual Yen/\$ Exchange Rate and Average U.S. Bluefin Tuna Ex-vessel \$/lb (dw) for All Gears (1971-2012)**

Source: Federal Reserve Bank ([research.stlouisfed.org](http://research.stlouisfed.org)) and NMFS Northeast Regional Office.

**Table 5.2 Average Ex-vessel Prices per Pound for Atlantic HMS, by Area (2005-2012)**

| Species              | Area           | 2005   | 2006   | 2007   | 2008   | 2009   | 2010   | 2011   | 2012   |
|----------------------|----------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Bigeye tuna          | Gulf of Mexico | \$5.75 | \$5.73 | \$5.66 | \$6.12 | \$5.80 | \$5.79 | \$5.64 | \$6.19 |
|                      | S. Atlantic    | 3.61   | 3.94   | 4.34   | 4.34   | 4.11   | 4.03   | 4.73   | 4.75   |
|                      | Mid-Atlantic   | 4.55   | 4.96   | 5.48   | 5.70   | 5.42   | 5.86   | 6.38   | 6.90   |
|                      | N. Atlantic    | 4.48   | 4.54   | 5.31   | 5.60   | 5.18   | 4.79   | 5.39   | 5.67   |
| Bluefin tuna         | Gulf of Mexico | 4.56   | 4.78   | 5.63   | 4.51   | 4.65   | 5.42   | 6.38   | 7.16   |
|                      | S. Atlantic    | 10.64  | 10.42  | 11.16  | 13.29  | 14.43  | 8.75   | 7.34   | 8.20   |
|                      | Mid-Atlantic   | 8.14   | 7.92   | 6.95   | 7.94   | 10.10  | 8.94   | 10.64  | 10.95  |
|                      | N. Atlantic    | 5.54   | 7.68   | 8.31   | 8.31   | 7.06   | 8.38   | 10.21  | 11.57  |
| Yellowfin tuna       | Gulf of Mexico | 3.32   | 2.89   | 3.02   | 3.51   | 3.04   | 3.72   | 3.65   | 3.51   |
|                      | S. Atlantic    | 2.60   | 2.32   | 2.69   | 2.99   | 2.90   | 3.53   | 3.93   | 4.63   |
|                      | Mid-Atlantic   | 2.27   | 2.39   | 2.99   | 3.30   | 2.50   | 3.43   | 3.45   | 4.46   |
|                      | N. Atlantic    | 3.06   | 2.63   | 3.17   | 3.82   | 2.86   | 2.80   | 3.39   | 4.22   |
| Albacore tuna        | Gulf of Mexico | 0.61   | 0.62   | 0.53   | 0.49   | 0.55   | 1.40   | 1.09   | 0.68   |
|                      | S. Atlantic    | 0.94   | 0.93   | 1.24   | 1.21   | 1.29   | 1.36   | 1.42   | 1.64   |
|                      | Mid-Atlantic   | 0.76   | 0.82   | 0.86   | 0.97   | 1.10   | 1.30   | 1.19   | 1.25   |
|                      | N. Atlantic    | 0.91   | 0.98   | 1.37   | 2.00   | 1.26   | 1.56   | 1.55   | 1.34   |
| Skipjack tuna        | Gulf of Mexico | -      | -      | -      | -      | 0.50   | -      | 0.90   | 0.75   |
|                      | S. Atlantic    | 0.70   | 0.74   | 0.73   | 0.95   | 0.95   | 1.13   | 1.25   | 1.10   |
|                      | Mid-Atlantic   | 1.13   | 0.79   | 2.22   | 4.50   | -      | -      | 0.60   | 1.06   |
|                      | N. Atlantic    | -      | -      | -      | -      | -      | -      | -      | -      |
| Swordfish            | Gulf of Mexico | 3.20   | 2.90   | 3.07   | 2.93   | 2.69   | 3.53   | 4.15   | 3.42   |
|                      | S. Atlantic    | 4.00   | 3.86   | 4.24   | 4.11   | 4.12   | 4.63   | 4.84   | 4.97   |
|                      | Mid-Atlantic   | 3.54   | 3.52   | 4.07   | 3.50   | 3.40   | 4.43   | 4.44   | 4.51   |
|                      | N. Atlantic    | 3.69   | 3.65   | 4.11   | 4.20   | 3.49   | 4.61   | 4.22   | 4.49   |
| Large coastal sharks | Gulf of Mexico | 0.86   | 0.75   | 0.42   | 0.67   | 0.52   | 0.48   | 0.38   | 0.40   |
|                      | S. Atlantic    | 0.52   | 0.47   | 0.54   | 0.72   | 0.55   | 0.65   | 0.61   | 0.75   |
|                      | Mid-Atlantic   | 0.29   | 0.28   | 0.56   | 0.71   | 0.57   | 0.64   | 0.54   | 0.67   |
|                      | N. Atlantic    | -      | -      | -      | -      | -      | -      | -      | -      |
| Pelagic sharks       | Gulf of Mexico | 1.19   | 1.21   | 1.29   | 1.18   | 1.25   | 1.47   | 1.54   | 1.33   |
|                      | S. Atlantic    | 1.19   | 1.23   | 1.29   | 1.29   | 1.25   | 1.27   | 1.46   | 1.74   |
|                      | Mid-Atlantic   | 1.21   | 1.15   | 1.06   | 1.20   | 1.16   | 1.19   | 1.30   | 1.39   |
|                      | N. Atlantic    | 0.92   | 0.73   | 0.85   | 0.96   | 1.23   | 1.28   | 1.48   | 1.68   |
| Small coastal sharks | Gulf of Mexico | 0.47   | 0.51   | 0.58   | 0.62   | 0.69   | 0.55   | 0.58   | 0.66   |
|                      | S. Atlantic    | 0.71   | 0.68   | 0.80   | 0.78   | 0.71   | 0.79   | 0.81   | 0.99   |
|                      | Mid-Atlantic   | 0.39   | 0.45   | 0.43   | 0.48   | 0.57   | 0.57   | 0.59   | 0.68   |
|                      | N. Atlantic    | -      | -      | -      | -      | -      | -      | -      | -      |
| Shark fins           | Gulf of Mexico | 16.22  | 16.40  | 13.22  | 14.94  | 15.09  | 16.48  | 15.11  | 14.97  |
|                      | S. Atlantic    | 13.93  | 13.24  | 11.44  | 12.73  | 13.15  | 15.35  | 14.91  | 11.00  |
|                      | Mid-Atlantic   | 10.58  | 9.82   | 6.12   | 3.74   | 3.62   | 6.83   | 3.50   | 2.79   |
|                      | N. Atlantic    | 4.55   | 6.23   | 3.24   | 3.00   | 3.67   | 2.40   | 1.60   | 1.86   |

Sources: 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 the U.S. National Report (NMFS, 2013a), the information used in the shark stock assessments, information given to ICCAT (Cortés pers. comm., 2013), as well as price and weight reported to the NMFS Northeast Regional Office by Atlantic bluefin tuna dealers. These values indicate that the estimated total annual revenue of Atlantic HMS fisheries has increased in 2012 to \$64.0 million from \$50.0 million in 2011. From 2011 to 2012, the Atlantic tuna fishery's total revenue increased by \$9.7 million. A majority of that increase can be attributed to the increased commercial landings of yellowfin tuna. From 2011 to 2012, the annual revenues for the shark fisheries remained virtually unchanged. Finally, the annual revenues for swordfish increased by \$4.4 million from 2011 to 2012 due to an increase in landings.

**Table 5.3 Estimates of the Total Ex-vessel Annual Revenues of Atlantic HMS Fisheries (2005-2012)**

| Species                              |                    | 2005         | 2006         | 2007         | 2008         | 2009         | 2010         | 2011         | 2012         |
|--------------------------------------|--------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Bigeye tuna                          | Ex-vessel \$/lb dw | \$4.38       | \$4.80       | \$5.20       | \$5.26       | \$5.09       | \$5.22       | \$5.77       | \$6.42       |
|                                      | Weight lb dw       | 563,325      | 960,863      | 706,361      | 736,520      | 774,087      | 799,934      | 1,122,619    | 1,039,585    |
|                                      | Fishery revenue    | \$2,467,364  | \$4,612,142  | \$3,673,077  | \$3,874,095  | \$3,940,103  | \$4,175,655  | \$6,477,512  | \$6,674,136  |
| Bluefin tuna                         | Ex-vessel \$/lb dw | \$6.43       | \$8.51       | \$8.63       | \$9.35       | \$8.18       | \$8.35       | \$10.08      | \$11.15      |
|                                      | Weight lb dw       | 772,500      | 528,404      | 515,176      | 720,823      | 899,477      | 1,119,937    | 996,661      | 995,583      |
|                                      | Fishery revenue    | \$4,967,175  | \$4,496,718  | \$4,445,969  | \$6,739,695  | \$7,357,722  | \$9,351,474  | \$10,046,343 | \$11,100,750 |
| Yellowfin tuna                       | Ex-vessel \$/lb dw | \$2.66       | \$2.50       | \$2.90       | \$3.22       | \$2.87       | \$3.52       | \$3.60       | \$4.16       |
|                                      | Weight lb dw       | 3,379,951    | 3,849,095    | 4,521,240    | 2,423,498    | 3,159,665    | 2,154,728    | 2,676,682    | 4,349,482    |
|                                      | Fishery revenue    | \$8,990,670  | \$9,622,738  | \$13,111,596 | \$7,803,664  | \$9,068,239  | \$7,584,643  | \$9,636,055  | \$18,093,845 |
| Skipjack tuna                        | Ex-vessel \$/lb dw | \$1.16       | \$0.75       | \$0.75       | \$1.01       | \$0.91       | \$1.13       | \$1.17       | \$1.06       |
|                                      | Weight lb dw       | 26,103       | 21,693       | 26,455       | 32,628       | 30,688       | 16,269       | 12,931       | 17,804       |
|                                      | Fishery revenue    | \$30,337     | \$16,303     | \$19,793     | \$32,950     | \$28,057     | \$18,451     | \$15,164     | \$18,949     |
| Albacore tunas                       | Ex-vessel \$/lb dw | \$0.82       | \$0.86       | \$0.97       | \$1.15       | \$1.11       | \$1.36       | \$1.29       | \$1.31       |
|                                      | Weight lb dw       | 232,808      | 203,354      | 244,272      | 216,759      | 291,187      | 290,827      | 491,133      | 489,800      |
|                                      | Fishery revenue    | \$191,382    | \$175,198    | \$237,681    | \$248,400    | \$324,439    | \$394,754    | \$632,450    | \$639,370    |
| Total tuna                           | Fishery revenue    | \$16,646,927 | \$18,923,099 | \$21,488,116 | \$18,698,804 | \$20,718,559 | \$21,524,977 | \$26,807,524 | \$36,527,050 |
| Swordfish                            | Ex-vessel \$/lb dw | \$3.66       | \$3.54       | \$3.99       | \$3.68       | \$3.46       | \$4.40       | \$4.50       | \$4.41       |
|                                      | Weight lb dw       | 3,466,728    | 3,002,597    | 3,643,926    | 3,414,513    | 3,762,280    | 3,676,324    | 4,473,140    | 5,561,605    |
|                                      | Fishery revenue    | \$12,682,655 | \$10,639,324 | \$14,544,604 | \$12,577,768 | \$13,031,079 | \$16,186,878 | \$20,130,595 | \$24,534,334 |
| Large coastal sharks                 | Ex-vessel \$/lb dw | \$0.64       | \$0.62       | \$0.48       | \$0.70       | \$0.54       | \$0.60       | \$0.53       | \$0.59       |
|                                      | Weight lb dw       | 3,147,196    | 3,808,662    | 2,329,272    | 1,451,423    | 1,532,969    | 1,566,741    | 1,469,142    | 1,445,597    |
|                                      | Fishery revenue    | \$2,027,439  | \$2,363,068  | \$1,122,051  | \$1,009,138  | \$828,003    | \$938,044    | \$779,993    | \$854,916    |
| Pelagic sharks                       | Ex-vessel \$/lb dw | \$1.19       | \$1.17       | \$1.12       | \$1.21       | \$1.18       | \$1.23       | \$1.35       | \$1.43       |
|                                      | Weight lb dw       | 252,815      | 192,843      | 262,179      | 234,546      | 225,575      | 312,195      | 314,314      | 314,084      |
|                                      | Fishery revenue    | \$299,593    | \$224,911    | \$294,036    | \$284,113    | \$266,548    | \$382,527    | \$425,831    | \$449,759    |
| Small coastal sharks                 | Ex-vessel \$/lb dw | \$0.65       | \$0.61       | \$0.70       | \$0.69       | \$0.69       | \$0.69       | \$0.75       | \$0.87       |
|                                      | Weight lb dw       | 634,885      | 763,327      | 618,191      | 639,842      | 708,279      | 397,766      | 590,174      | 667,501      |
|                                      | Fishery revenue    | \$414,774    | \$465,586    | \$432,816    | \$440,108    | \$488,374    | \$272,590    | \$441,269    | \$578,126    |
| Shark fins (5% of all sharks landed) | Ex-vessel \$/lb dw | \$14.22      | \$14.80      | \$11.63      | \$12.43      | \$12.45      | \$14.02      | \$11.90      | \$8.96       |
|                                      | Weight lb dw       | 201,745      | 238,242      | 160,482      | 116,291      | 123,341      | 113,835      | 118,682      | 121,359      |
|                                      | Fishery revenue    | \$2,868,863  | \$3,525,871  | \$1,865,900  | \$1,444,918  | \$1,535,469  | \$1,596,472  | \$1,412,129  | \$1,086,979  |
| Total sharks                         | Fishery revenue    | \$5,610,669  | \$6,579,436  | \$3,714,802  | \$3,178,277  | \$3,118,394  | \$3,189,633  | \$3,059,222  | \$2,969,779  |
| Total HMS                            | Fishery revenue    | \$34,940,251 | \$36,141,860 | \$39,747,522 | \$34,454,849 | \$36,868,033 | \$40,901,488 | \$49,997,341 | \$64,031,163 |

Sources: NMFS Northeast Commercial Fisheries Database Service; Pelagic Dealer Compliance Program; and NMFS, 2013.

### 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 increased over 89 percent from 2005 to 2012 while the cost per pound for bait remained fairly constant from 2005 to 2010 but nearly doubled between 2010 and 2011 and has remained at this new level in 2012. The unit cost per light sticks has actually declined from 2005 to 2011, but increased in 2012.

**Table 5.4 Pelagic Longline Vessel Median Unit Costs for Fuel, Bait, and Light Sticks (2005–2012)**

| <b>Input Unit Costs (\$)</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> |
|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Fuel (per gallon)            | 1.85        | 2.15        | 2.25        | 3.55        | 1.73        | 2.50        | 3.38        | 3.50        |
| Bait (per lb)                | 0.84        | 0.85        | 0.85        | 0.81        | 0.81        | 0.85        | 1.55        | 1.58        |
| Light sticks (per stick)     | 0.50        | 0.46        | 0.36        | 0.37        | 0.37        | 0.28        | 0.25        | 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 costs increased slightly in 2012, total fuel costs per trip decreased by 14 percent in 2012 suggesting that shorter trips were taken in 2012.

**Table 5.5 Median Input Costs for Pelagic Longline Vessel Trips (2005–2012)**

| <b>Input Costs (\$)</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> |
|-------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Fuel                    | 2,786       | 1,728       | 3,012       | 3,600       | 3,000       | 2,480       | 3,445       | 2,963       |
| Bait                    | 1,200       | 1,115       | 1,200       | 1,500       | 1,875       | 1,731       | 3,671       | 3,600       |
| Light sticks            | 700         | 728         | 648         | 600         | 600         | 493         | 663         | 750         |
| Ice costs               | 495         | 498         | 540         | 540         | 625         | 225         | 726         | 759         |
| Grocery expenses        | 793         | 696         | 786         | 800         | 1,000       | 752         | 900         | 900         |
| Other trip costs        | 1,500       | 1,200       | 1,500       | 1,651       | 1,670       | 1,500       | 2,000       | 1,443       |

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 2005 to 2012. 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 25 percent share and crew in 2012

received 30 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 \$5,000 to \$11,306 from 2005 to 2012.

**Table 5.6 Median Labor Inputs for Pelagic Longline Vessel Trips (2005–2012)**

| Labor                   | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011   | 2012  |
|-------------------------|-------|-------|-------|-------|-------|-------|--------|-------|
| Number of crew          | 3     | 3     | 3     | 3     | 4     | 3     | 3      | 3     |
| Owner share (%)         | 50    | 50    | 47    | 45    | 45    | 50    | 50     | 50    |
| Captain share (%)       | 20    | 20    | 20    | 20    | 20    | 23    | 20     | 25    |
| Crew share (%)          | 12    | 13    | 15    | 15    | 30    | 29    | 29     | 30    |
| Total shared costs (\$) | 5,000 | 5,657 | 5,566 | 6,037 | 7,000 | 6,500 | 11,306 | 9,000 |

Source: Fisheries Logbook System.

In 2012, median reported total trip sales were \$21,388. In 2011, median reported total trip sales were \$26,650. After adjusting for operating costs, median net earnings per trip in 2011 were \$11,255 in 2011. Median net earnings per trip increased slightly to \$11,805 in 2012.

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

## 5.2 Fish Processing and Wholesale Sectors

Consumers spent an estimated \$82.6 billion for fishery products in 2012, including \$55.2 billion at food service establishments, \$26.8 billion in retail sales for home consumption, and \$570 million for industrial fish products. The commercial marine fishing industry contributed \$42 billion (in value added) to the U.S. Gross National Product in 2012 (NMFS, 2013b).

### 5.2.1 Dealers

NMFS does not currently have information regarding the costs and revenues for Atlantic HMS dealers. In general, dealer costs include: purchasing fish; paying employees to process the fish; rent or mortgage; 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, 2013b) (<http://www.st.nmfs.noaa.gov/st1/publications.html>). Table 5.7 provides a summary of available information.

**Table 5.7 Processors and Wholesalers: Plants and Employment (2011)**

| Area and State                | Processing <sup>1</sup> |              | Wholesale <sup>2</sup> |              | Total      |              |
|-------------------------------|-------------------------|--------------|------------------------|--------------|------------|--------------|
|                               | Plants                  | Employment   | Plants                 | Employment   | Plants     | Employment   |
| <b>New England</b>            |                         |              |                        |              |            |              |
| Maine                         | 35                      | 799          | 172                    | 964          | 207        | 1,763        |
| New Hampshire                 | 9                       | 245          | 11                     | 106          | 20         | 351          |
| Massachusetts                 | 55                      | 2,323        | 167                    | 1,960        | 222        | 4,283        |
| Rhode Island                  | 9                       | *            | 38                     | *            | 47         | *            |
| Connecticut                   | 5                       | 73           | 17                     | 186          | 22         | 259          |
| <b>Total</b>                  | <b>113</b>              | <b>3,440</b> | <b>405</b>             | <b>3,216</b> | <b>518</b> | <b>6,656</b> |
| <b>Mid-Atlantic</b>           |                         |              |                        |              |            |              |
| New York                      | 22                      | 394          | 258                    | 1,862        | 280        | 2,256        |
| New Jersey                    | 12                      | 456          | 88                     | 929          | 100        | 1,385        |
| Pennsylvania                  | 4                       | 72           | 29                     | 608          | 33         | 680          |
| Delaware                      | 1                       | *            | 5                      | 22           | 6          | 22           |
| District of Columbia          | -                       | -            | 2                      | *            | 2          | *            |
| Maryland                      | 20                      | 552          | 50                     | 560          | 70         | 1,112        |
| Virginia                      | 36                      | 1,467        | 60                     | 499          | 96         | 1,966        |
| <b>Total</b>                  | <b>95</b>               | <b>2,941</b> | <b>492</b>             | <b>4,480</b> | <b>587</b> | <b>7,421</b> |
| <b>South Atlantic</b>         |                         |              |                        |              |            |              |
| North Carolina                | 29                      | 630          | 58                     | 453          | 87         | 1,083        |
| South Carolina                | 1                       | *            | 22                     | 148          | 23         | 148          |
| Georgia                       | 5                       | *            | 31                     | 526          | 36         | 526          |
| Florida                       | 36                      | 1,299        | 289                    | 2,424        | 325        | 3,723        |
| <b>Total</b>                  | <b>71</b>               | <b>1,929</b> | <b>400</b>             | <b>3,551</b> | <b>471</b> | <b>5,480</b> |
| <b>Gulf</b>                   |                         |              |                        |              |            |              |
| Alabama                       | 33                      | 1,317        | 17                     | 245          | 50         | 1,562        |
| Mississippi                   | 23                      | 2,380        | 24                     | 128          | 47         | 2,508        |
| Louisiana                     | 62                      | 1,917        | 99                     | 577          | 161        | 2,494        |
| Texas                         | 30                      | 1,457        | 104                    | 1,032        | 134        | 2,489        |
| <b>Total</b>                  | <b>148</b>              | <b>7,071</b> | <b>244</b>             | <b>1,982</b> | <b>392</b> | <b>9,053</b> |
| <b>Inland States or Other</b> |                         |              |                        |              |            |              |
| Areas**, Total                | 59                      | 2,205        | 219                    | 3,144        | 278        | 5,349        |

<sup>1</sup> Based on North American Industry Classification System (NAICS) 3117 as reported to the Bureau of Labor Statistics. <sup>2</sup> 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, 2013b.

## 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 5.8. Primary wholesalers and processors on average received a 90 percent margin on sales in 2012, which is relatively unchanged from margins in 2011.

**Table 5.8 Summary of the Mark-Up and Consumer Expenditures for the Primary Wholesale and Processing of Domestic Commercial Marine Fishery Products**

|   | 2010           | 2011           | 2012           |
|---|----------------|----------------|----------------|
| Purchase of fishery inputs (\$)             | 8,128,293,000  | 9,142,981,000  | 8,687,636,000  |
| Percent mark-up of fishery inputs (%)       | 114.7          | 90.3           | 90             |
| Total mark-up (\$)                          | 9,326,111,000  | 8,942,039,000  | 7,803,257,000  |
| Value added as percent of total mark-up (%) | 60.2           | 60.4           | 60             |
| Value added within sector (\$)              | 5,618,427,000  | 5,398,531,000  | 4,714,590,000  |
| Total value of sales within sector (\$)     | 17,454,404,000 | 18,085,020,000 | 16,490,893,000 |

Source: NMFS, 2013b.

### 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 263 permit holders distributed among 24 U.S. states and territories (Table 5.9). 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 5.9 Number of International Trade Permits (ITPs) by State (as of November 2013)**

| State | Number of ITPs | State | Number of ITPs |
|-------|----------------|-------|----------------|
| AS    | 1              | NH    | 1              |
| CA    | 71             | NJ    | 11             |
| FL    | 57             | NV    | 1              |
| GA    | 3              | NY    | 29             |
| HI    | 15             | OH    | 1              |
| IL    | 3              | OR    | 1              |
| LA    | 1              | PA    | 1              |
| MA    | 32             | RI    | 5              |
| MD    | 1              | SC    | 1              |
| ME    | 9              | TX    | 4              |
| MP    | 1              | VA    | 2              |
| NC    | 2              | WA    | 8              |
| Total |                |       | 261            |

*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 will be effective in September 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 5.10 gives bluefin tuna export data for exports from the United States since 2002 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 5.18).

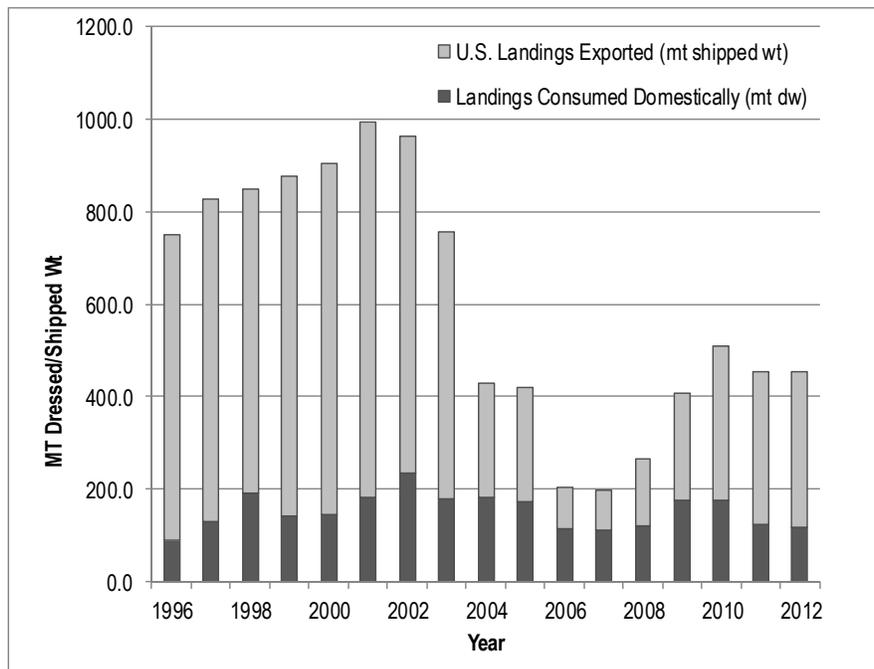
**Table 5.10 United States Exports of Atlantic and Pacific Bluefin Tuna (2002-2012)**

| Year | Atlantic BFT Commercial Landings <sup>1</sup> (mt dw) | Atlantic BFT Exports <sup>2</sup> (mt dw) | Pacific BFT Exports <sup>2</sup> (mt dw) | Total U.S. Exports <sup>2</sup> (mt dw) | Total U.S. Exports <sup>3</sup> (mt) | Value of U.S. Exports <sup>3</sup> (\$ million) |
|------|---|---|--|---|--------------------------------------|---|
| 2002 | 964.0   | 730.4                                     | 0.1                                      | 730.5                                   | 922                                  | 10.74   |
| 2003 | 756.9   | 578.7                                     | 2.1                                      | 580.8                                   | 998                                  | 11.36   |
| 2004 | 428.6   | 247.3                                     | 0.0                                      | 247.3                                   | 370                                  | 4.50  |
| 2005 | 419.4   | 245.7                                     | 125.1                                    | 370.8                                   | 454                                  | 5.30  |
| 2006 | 204.6   | 93.1                                      | 0.0                                      | 93.1                                    | 281                                  | 3.60  |
| 2007 | 196.4   | 85.4                                      | 8.2                                      | 93.6                                    | 238                                  | 2.90  |
| 2008 | 266.4   | 146.5                                     | 0.0                                      | 146.5                                   | 177                                  | 2.49  |
| 2009 | 408.5   | 236.2                                     | 0.0                                      | 236.2                                   | 300                                  | 4.05  |
| 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  |

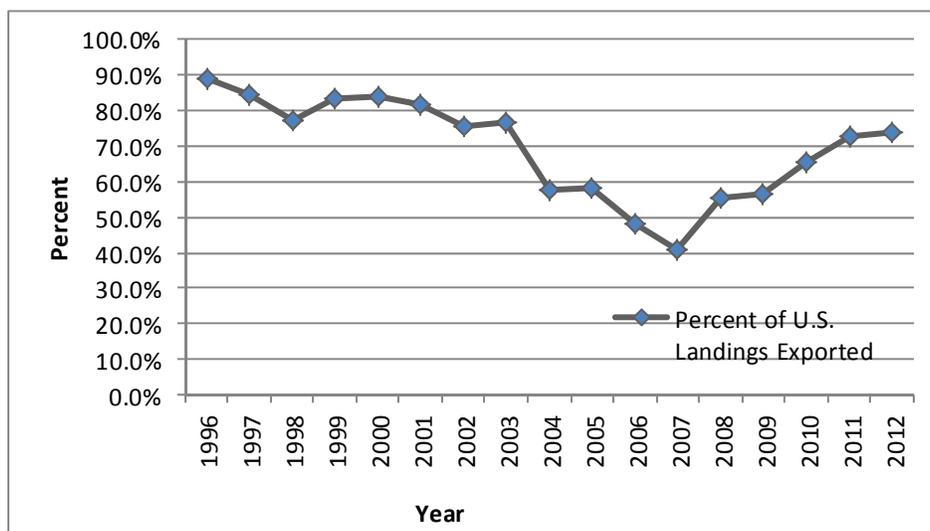
Note: most exports of Pacific bluefin tuna (BFT) were in round (whole) form, although some exports were of dressed and gilled/gutted fish; Atlantic exports were almost entirely dressed, but also included whole and other product forms (dw); data are preliminary and subject to change.

Sources: <sup>1</sup> Northeast Regional Office, <sup>2</sup> NMFS Bluefin Tuna Catch Document Program, and <sup>3</sup> U.S. Census Bureau.

In the time series shown in Table 5.10 and depicted in Figure 5.2, U.S. exports of Atlantic bluefin tuna generally increased when commercial landings increased, while domestic consumption of U.S. landings remained fairly constant from year to year. Most U.S. bluefin tuna exports are destined for the sushi markets in Japan. As shown in Figure 5.2 and Figure 5.3, the percentage of the commercial U.S. bluefin tuna catch that was exported was lowest when landings declined to their lowest point in 2007. Landings and percent exports increased from 2007-2010, and percent exports continued to climb through 2012, while landings took a slight downturn in 2011-2012.



**Figure 5.2** Annual U.S. Domestic Landings of Atlantic Bluefin Tuna, Divided into U.S. Export (mt shipped weight) and U.S. Domestic Consumption (mt dw) (1996-2012)



**Figure 5.3** Annual Percentage (by weight) of Commercially-Landed U.S. Atlantic Bluefin Tuna that was Exported (1996-2012)

### 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 for the same year since 2003. The total value of albacore exports has remained over \$20 million per year for the last seven years (Table 5.11). Most albacore exports are Pacific in origin, as Atlantic landings have ranged between 188 mt and 640 mt during the time series in Table 5.11, but total U.S. exports has ranged from 12,097 mt in 2004 to a low of 5,163 mt in 2002.

**Table 5.11 U.S. Atlantic Landings and Total U.S. Exports of Albacore Tuna (2002–2012)**

| Year | Atlantic Landings (mt ww) <sup>1</sup> | U.S. Exports (from all ocean areas) <sup>2</sup> |                    |             |                    |                       |                    |
|------|--|--|--------------------|-------------|--------------------|-----------------------|--------------------|
|      |  | Fresh  |                    | Frozen      |                    | Total for all Exports |                    |
|      |  | Amount (mt)                                      | Value (\$ million) | Amount (mt) | Value (\$ million) | Amount (mt)           | Value (\$ million) |
| 2002 | 488                                    | 680  | 1.50               | 4,483       | 8.28               | 5,163                 | 9.78               |
| 2003 | 448                                    | 894  | 1.86               | 9,731       | 18.85              | 10,624                | 20.71              |
| 2004 | 640                                    | 1,360  | 3.28               | 10,737      | 24.11              | 12,097                | 27.38              |
| 2005 | 486                                    | 549  | 1.61               | 7,402       | 16.99              | 7,951                 | 18.60              |
| 2006 | 400                                    | 378  | 1.04               | 8,810       | 19.56              | 9,187                 | 20.60              |
| 2007 | 532                                    | 275  | 0.84               | 11,731      | 25.52              | 12,006                | 26.35              |
| 2008 | 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 | 449                                    | 531  | 1.47               | 9,807       | 23.73              | 10,338                | 25.20              |
| 2012 | 425                                    | 1,256  | 4.46               | 9,787       | 26.51              | 11,043                | 30.97              |

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: <sup>1</sup>NMFS, 2013, <sup>2</sup>U.S. Census Bureau.

Table 5.12 and Table 5.13 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 5.14). Yellowfin tuna exports were unusually high in 2008. The amount of fresh yellowfin product exported usually exceeds the amount of frozen yellowfin product annually. However, export of frozen product was much higher in 2008 than fresh or frozen product for any other year included in Table 5.12. Frozen yellowfin were the lowest of the time series in 2011, but increased dramatically in 2012. Table 5.13 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. In 2009, the exported amount was the greatest for the time series (737 mt) while in 2012 the value was the greatest (\$1.34 million).

**Table 5.12 U.S. Atlantic Landings and Total U.S. Exports of Yellowfin Tuna (2002-2012)**

| Year | Atlantic Landings (mt ww) <sup>1</sup> | U.S. Exports (from all ocean areas) <sup>2</sup> |                    |             |                    |                       |                    |
|------|--|--|--------------------|-------------|--------------------|-----------------------|--------------------|
|      |  | Fresh  |                    | Frozen      |                    | Total for all Exports |                    |
|      |  | Amount (mt)                                      | Value (\$ million) | Amount (mt) | Value (\$ million) | Amount (mt)           | Value (\$ million) |
| 2002 | 5,646                                  | 1,612  | 2.37               | 420         | 0.81               | 2,033                 | 3.19               |
| 2003 | 7,685                                  | 1,792  | 2.93               | 176         | 0.68               | 1,968                 | 3.62               |
| 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 | 4,109                                  | 311  | 3.35               | 535         | 1.91               | 846                   | 5.26               |

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: <sup>1</sup>NMFS, 2013, <sup>2</sup>U.S. Census Bureau.

**Table 5.13 U.S. Atlantic Landings and Total U.S. Exports of Skipjack Tuna (2002-2012)**

| Year | Atlantic Landings (mt ww) <sup>1</sup> | U.S. Exports (from all ocean areas) <sup>2</sup> |                    |             |                    |                       |                    |
|------|--|--|--------------------|-------------|--------------------|-----------------------|--------------------|
|      |  | Fresh  |                    | Frozen      |                    | Total for all Exports |                    |
|      |  | Amount (mt)                                      | Value (\$ million) | Amount (mt) | Value (\$ million) | Amount (mt)           | Value (\$ million) |
| 2002 | 66                                     | 66   | 0.17               | 11          | 0.01               | 77                    | 0.18               |
| 2003 | 77                                     | 81   | 0.22               | 0           | 0.00               | 81                    | 0.22               |
| 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               |

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: <sup>1</sup>NMFS, 2013, <sup>2</sup>U.S. Census Bureau.

Bigeye tuna exports and Atlantic landings are given in Table 5.14. Atlantic landings have 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). The total value and amount of bigeye exports in 2012 are the highest in the time series.

**Table 5.14 U.S. Atlantic Landings and Total U.S. Exports of Bigeye Tuna (2002-2012)**

| Year | Atlantic Landings (mt ww) <sup>1</sup> | U.S. Exports (from all ocean areas) <sup>2</sup> |                    |             |                    |                       |                    |
|------|--|--|--------------------|-------------|--------------------|-----------------------|--------------------|
|      |  | Fresh  |                    | Frozen      |                    | Total for all Exports |                    |
|      |  | Amount (mt)                                      | Value (\$ million) | Amount (mt) | Value (\$ million) | Amount (mt)           | Value (\$ million) |
| 2002 | 600                                    | 95   | 0.22               | 8           | 0.01               | 104                   | 0.24               |
| 2003 | 480                                    | 255  | 0.47               | 40          | 0.08               | 295                   | 0.56               |
| 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 | 869                                    | 293  | 2.38               | 386         | 1.14               | 679                   | 3.52               |

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: <sup>1</sup>NMFS, 2013, <sup>2</sup>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 5.15 indicates the magnitude and value of shark exports by the United States from 2002 – 2012. The reduction in shark fin exports from 2002 to 2003 is of particular note, as is the increase in the unit value of shark fins during this time period. Decreases in shark fin trade were expected as a result of the Shark Finning Prohibition Act, which was enacted in December of 2000 and implemented by final rule on February 11, 2002 (67 FR 6194). Exports of shark fins were lowest in 2008 and 2012 (11 mt). The price of shark fins was greatest in 2011. Also of note is the dramatic increase in export of frozen shark products in 2008 and the decrease in 2011 to the lowest value in the time series.

**Table 5.15 Amount and Value of U.S. Shark Products Exported (2002-2012)**

| Year | Dried Shark Fins |                    |               | Non-specified Fresh Shark |                    |               | Non-specified Frozen Shark |                    |               | Total for All Exports |                    |
|------|------------------|--------------------|---------------|---------------------------|--------------------|---------------|----------------------------|--------------------|---------------|-----------------------|--------------------|
|      | Amount (mt)      | Value (\$ million) | Value (\$/kg) | Amount (mt)               | Value (\$ million) | Value (\$/kg) | Amount (mt)                | Value (\$ million) | Value (\$/kg) | Amount (mt)           | Value (\$ million) |
| 2002 | 123              | 3.46               | 28.00         | 968                       | 1.47               | 1.52          | 982                        | 2.34               | 2.38          | 2,075                 | 7.28               |
| 2003 | 45               | 4.03               | 87.79         | 837                       | 1.31               | 1.57          | 592                        | 1.34               | 2.28          | 1,476                 | 6.70               |
| 2004 | 63               | 3.02               | 47.53         | 536                       | 1.18               | 2.21          | 472                        | 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               |

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*

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, and created a modest export market for U.S. product in recent years (Table 5.16).

**Table 5.16 Amount and Value of U.S. Swordfish Product Exported (2007-2012)**

| Year | Swordfish Fillet Fresh |                    | Swordfish Fillet Frozen |                    | Swordfish Fresh |                    | Swordfish Frozen |                    | Swordfish Meat Frozen |                    | Swordfish Meat Fresh |                    | Total       |                    |
|------|------------------------|--------------------|-------------------------|--------------------|-----------------|--------------------|------------------|--------------------|-----------------------|--------------------|----------------------|--------------------|-------------|--------------------|
|      | Amount (mt)            | Value (\$ million) | Amount (mt)             | Value (\$ million) | Amount (mt)     | Value (\$ million) | Amount (mt)      | Value (\$ million) | Amount (mt)           | Value (\$ million) | Amount (mt)          | Value (\$ million) | Amount (mt) | Value (\$ million) |
| 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               | 4.5                   | 0.03               | 7.0                  | 0.09               | 168         | 1.1                |

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 5.17.

In previous editions of SAFE reports, bluefin tuna re-exports for 2003-2005 reflected a great deal of transshipment from Mexico through the United States to Japan. Implementation of the HMS ITP regulations in 2005 (69 FR 67268, November 17, 2004) changed the way re-exports and transshipments were distinguished. Table 5.18 shows re-exports of bluefin tuna since 2002, and is updated to reflect these changes for previous years. Re-exports of bluefin tuna in 2010 were particularly high.

**Table 5.17 Re-exports of HMS (Excluding Bluefin Tuna) in Excess of 1000 mt and/or One Million U.S. Dollars (2004–2012)**

| 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               |

\* 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 2012, fresh and frozen tuna products accounted for 17,291 mt dw or 1.3 percent of the 1,340,181 mt dw of fresh and frozen seafood products exported from the United States, as indicated in *Fisheries of the United States, 2012*. The value of these HMS products accounted for \$60.3 million, out of a national total of \$4.6 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 2010 were reported in the 2011 U.S. National Report to ICCAT as 329 mt (Table 5.11). National trade data show that over 9,798 mt of albacore were exported in 2010, 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 2002 through 2012, as reported through both CBP and BCD program data, are shown in Table 5.18.

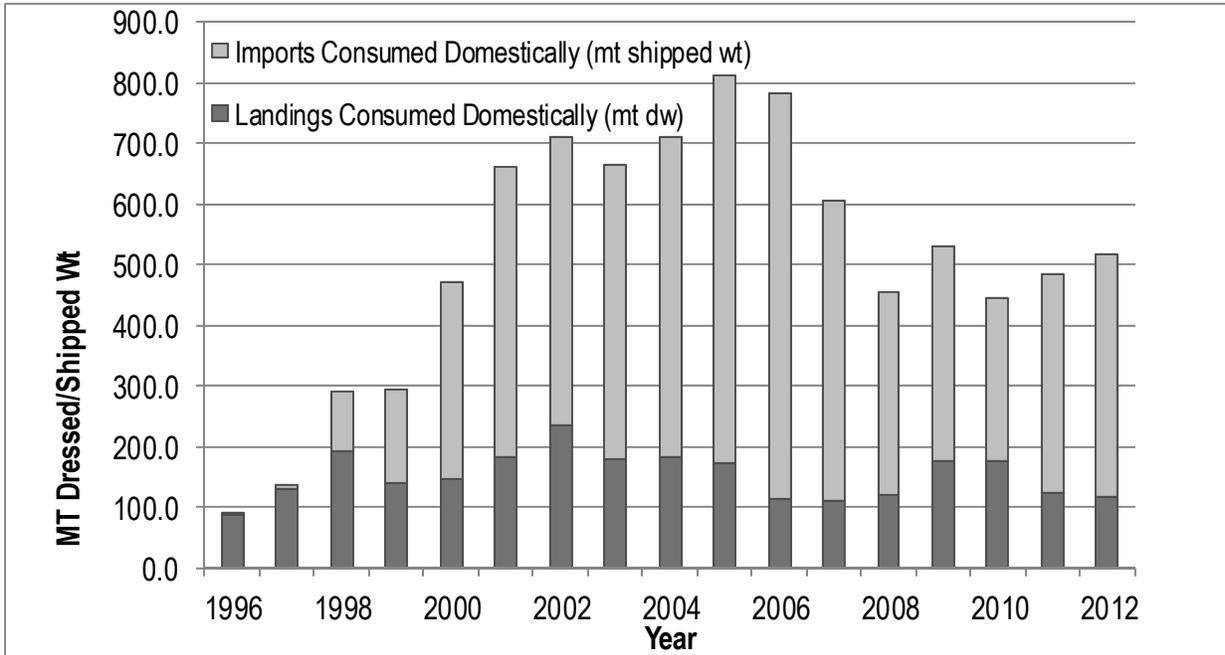
**Table 5.18 U.S. Imports and Re-exports of Atlantic and Pacific Bluefin Tuna (2002–2012)**

| Year | NMFS BFT Catch Document Program |                 | U.S. Customs and Border Protection Data |                    |
|------|---------------------------------|-----------------|---|--------------------|
|      | Imports (mt)                    | Re-exports (mt) | Imports (mt)                            | Value (\$ million) |
| 2002 | 529.8                           | 9.9             | 605.0                                   | 9.75               |
| 2003 | 649.9                           | 38.4            | 780.3                                   | 11.67              |
| 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              |

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.

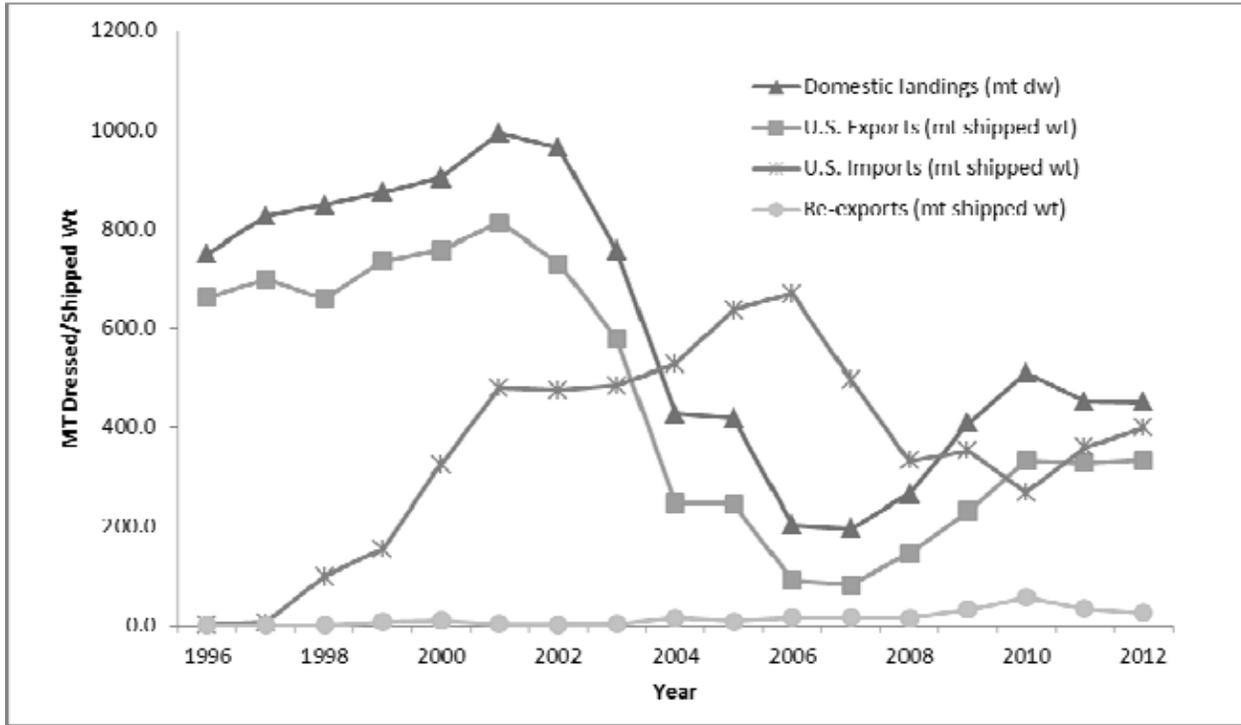
The rise in popularity of sashimi in the United States may have generated the increase in imports of bluefin tuna in the mid part of the decade, as seen in Table 5.18. Dealers have reported an expanded domestic market for both locally-caught and imported raw tuna. U.S. consumption of bluefin tuna (landings + 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 since 2008 (Figure 5.4). Consumption of domestic landings has been fairly consistent, ranging between about 100 mt to 200 mt per year. Consumption of imported bluefin tuna is more variable and ranges from a low in 1997 of less than 50 mt to a high in 2006 of almost 700 mt.



**Figure 5.4 U.S. Annual Consumption of Atlantic Bluefin Tuna, by Imports and U.S. Landings (1996-2012)**

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

Figure 5.5 shows U.S. domestic landings of Atlantic bluefin tuna and trade of bluefin tuna since 1996. From 2004 through 2012, the United States imported more bluefin tuna than it exported (except for 2010). This trade gap was greatest between 2005 and 2007, but has been narrow over the last several years.



**Figure 5.5 U.S. Domestic Landings (mt dw) and Trade (mt shipped wt) of Bluefin Tuna (1996-2012)**

### *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 5.19. Total imports of fresh bigeye products in Table 5.19 were the lowest of the time series in 2011, and 2010 for frozen product.

**Table 5.19 U.S. Imports of Bigeye Tuna from All Ocean Areas Combined (2002-2012)**

| Year | Fresh       |                    | Frozen      |                    | Total for all Imports |                    |
|------|-------------|--------------------|-------------|--------------------|-----------------------|--------------------|
|      | Amount (mt) | Value (\$ million) | Amount (mt) | Value (\$ million) | Amount (mt)           | Value (\$ million) |
| 2002 | 6,312       | 39.84              | 319         | 0.70               | 6,632                 | 40.55              |
| 2003 | 7,312       | 51.01              | 560         | 1.48               | 7,872                 | 52.49              |
| 2004 | 6,752       | 49.10              | 1,175       | 2.62               | 7,928                 | 51.73              |
| 2005 | 5,040       | 38.18              | 1,539       | 3.33               | 6,579                 | 41.51              |
| 2006 | 4,920       | 36.55              | 1,523       | 3.15               | 6,442                 | 39.70              |
| 2007 | 5,617       | 42.30              | 1,512       | 3.19               | 7,129                 | 45.49              |
| 2008 | 5,462       | 41.43              | 2,597       | 5.31               | 8,059                 | 46.74              |
| 2009 | 5,459       | 41.72              | 1,125       | 2.36               | 6,584                 | 44.08              |
| 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              |

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 5.20. 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 had generally increased from 2001 to 2007 and have been lower since then. Most imported yellowfin products are fresh. The least amount of frozen product during this time series was imported in 2012.

**Table 5.20 U.S. Imports of Yellowfin Tuna from All Ocean Areas Combined (2002–2012)**

| Year | Fresh       |                    | Frozen      |                    | Total for all Imports |                    |
|------|-------------|--------------------|-------------|--------------------|-----------------------|--------------------|
|      | Amount (mt) | Value (\$ million) | Amount (mt) | Value (\$ million) | Amount (mt)           | Value (\$ million) |
| 2002 | 15,966      | 95.22              | 4,619       | 29.31              | 20,585                | 124.53             |
| 2003 | 15,299      | 94.03              | 5,579       | 39.67              | 20,878                | 133.71             |
| 2004 | 15,624      | 99.41              | 5,833       | 35.35              | 21,457                | 134.96             |
| 2005 | 17,064      | 116.58             | 6,002       | 46.89              | 23,066                | 163.47             |
| 2006 | 17,792      | 126.47             | 5,442       | 42.78              | 23,234                | 169.25             |
| 2007 | 17,985      | 137.42             | 5,506       | 44.26              | 23,492                | 181.69             |
| 2008 | 15,904      | 129.59             | 3,847       | 27.97              | 19,751                | 157.56             |
| 2009 | 14,199      | 112.34             | 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             |

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 imports from all ocean areas generally declined from 2002 to 2006 (Table 5.21) and has remained relatively low compared to 2002-2003 quantities. In 2003, albacore imports were valued at \$30.02 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 5.21 U.S. Imports of Albacore Tuna from All Ocean Areas Combined (2002-2012)**

| Year | Fresh       |                    | Frozen      |                    | Total for all Imports |                    |
|------|-------------|--------------------|-------------|--------------------|-----------------------|--------------------|
|      | Amount (mt) | Value (\$ million) | Amount (mt) | Value (\$ million) | Amount (mt)           | Value (\$ million) |
| 2002 | 1,296       | 4.81               | 11,903      | 24.49              | 13,200                | 29.31              |
| 2003 | 1,062       | 4.11               | 12,569      | 25.90              | 13,632                | 30.02              |
| 2004 | 1,004       | 3.12               | 4,943       | 11.67              | 5,947                 | 14.80              |
| 2005 | 706         | 2.38               | 1,016       | 2.96               | 1,722                 | 5.34               |
| 2006 | 876         | 3.54               | 667         | 1.71               | 1,543                 | 5.25               |
| 2007 | 945         | 3.86               | 718         | 1.98               | 1,664                 | 5.86               |
| 2008 | 703         | 2.95               | 1,632       | 4.73               | 2,335                 | 7.68               |
| 2009 | 718         | 3.07               | 1,493       | 3.46               | 2,211                 | 6.53               |
| 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               |

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 5.22). 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 5.22 U.S. Imports of Skipjack Tuna from All Ocean Areas Combined (2002–2012)**

| Year | Fresh       |                    | Frozen      |                    | Total for all Imports |                    |
|------|-------------|--------------------|-------------|--------------------|-----------------------|--------------------|
|      | Amount (mt) | Value (\$ million) | Amount (mt) | Value (\$ million) | Amount (mt)           | Value (\$ million) |
| 2002 | <1          | 0.01               | 824         | 0.83               | 825                   | 0.84               |
| 2003 | 0           | 0.00               | 224         | 0.43               | 224                   | 0.43               |
| 2004 | <1          | <0.01              | 110         | 0.26               | 112                   | 0.27               |
| 2005 | 0           | 0.00               | 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 | 2           | 0.05               | 866         | 1.16               | 890                   | 1.21               |

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 5.23 summarizes swordfish import data collected by NMFS' Swordfish Statistical Document Program for the 2012 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 and South Africa. CBP data located at the bottom of the table reflect a larger amount of imports than reported by the import monitoring program, and may be used by NMFS staff to follow up with importers, collect statistical documents that have not been submitted, and enforce dealer reporting requirements.

**Table 5.23 U.S. Imports of Swordfish, by Flag of Harvesting Vessel and Area of Origin (2012)**

| 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  | -                    | -                      | -                      | -               | 135.00                  | -              | 4.20                 | 139.20          |
| Brazil   | 0.80                 | -                      | 460.30                 | -               | -                       | -              | -                    | 461.10          |
| Canada   | -                    | 991.10                 | -                      | -               | -                       | -              | -                    | 991.10          |
| Chile  | -                    | -                      | -                      | 868.00          | -                       | -              | -                    | 868.00          |
| China  | -                    | -                      | -                      | 12.10           | -                       | -              | -                    | 12.10           |
| Chinese Taipei   | -                    | -                      | -                      | -               | -                       | 0.20           | -                    | 0.20            |
| Costa Rica   | -                    | -                      | -                      | 955.20          | -                       | 1.60           | -                    | 956.80          |
| Ecuador  | -                    | -                      | -                      | 1,620.60        | -                       | 0.04           | 0.50                 | 1,621.14        |
| Fiji Islands   | -                    | -                      | -                      | 38.50           | 9.60                    | -              | 23.40                | 71.50           |
| Indonesia  | -                    | -                      | -                      | -               | -                       | 253.50         | -                    | 253.50          |
| Japan  | -                    | -                      | -                      | 1.10            | -                       | -              | -                    | 1.10            |
| Marshall Islands   | -                    | -                      | -                      | 0.13            | -                       | -              | -                    | 0.13            |
| Mexico   | -                    | 0.89                   | -                      | 277.06          | -                       | -              | -                    | 277.95          |
| Micronesia   | -                    | -                      | -                      | 0.04            | -                       | -              | -                    | 0.04            |
| New Zealand  | -                    | -                      | -                      | -               | 201.60                  | -              | 5.70                 | 207.30          |
| Nicaragua  | -                    | -                      | -                      | 13.80           | -                       | -              | -                    | 13.80           |
| Panama   | -                    | -                      | -                      | 557.80          | -                       | -              | 1.80                 | 559.60          |
| Portugal   | -                    | -                      | -                      | -               | -                       | -              | 0.21                 | 0.21            |
| Seychelle  | -                    | -                      | -                      | -               | -                       | 8.30           | 0.20                 | 8.50            |
| South Africa   | -                    | -                      | 63.90                  | -               | -                       | 164.80         | 4.90                 | 233.60          |
| Trinidad & Tobago  | -                    | 7.80                   | -                      | -               | -                       | -              | 1.00                 | 8.80            |
| Vanuatu  | -                    | -                      | -                      | 0.10            | -                       | -              | -                    | 0.10            |
| Vietnam  | -                    | -                      | -                      | 164.70          | -                       | -              | 0.60                 | 165.30          |
| Not Provided   | -                    | -                      | -                      | 6.80            | -                       | -              | -                    | 6.80            |
| <b>Total Imports Reported by SDs</b>                       | <b>0.80</b>          | <b>999.79</b>          | <b>524.20</b>          | <b>4,515.93</b> | <b>346.20</b>           | <b>428.44</b>  | <b>42.51</b>         | <b>6,857.87</b> |
| Total Imports Reported by U.S. Customs & Border Protection |                      |                        |                        |                 |                         |                |                      | 8,781.30        |
| Total Imports Not Reported by SDs                          |                      |                        |                        |                 |                         |                |                      | 1,923.43        |

Source: NMFS Swordfish Statistical Document (SD) Program.



In recent years, it appears that the importance of the United States as a transshipment port has decreased since shark fin imports have decreased (Table 5.25).

Table 5.25 summarizes Census Bureau data on shark imports for 2002 through 2012. Imports of fresh shark products and shark fins have decreased significantly over time since 2002. 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.

From 2002 to 2012, the overall annual amount of shark imports has generally decreased to a low in 2012, while the value during this time series has fluctuated with no apparent trend. Imports of dried shark fins have generally increased since 2003, and in 2011 (58 mt) surpassed the previous high in 2002 (39 mt).

**Table 5.25 U.S. Imports of Shark Products from All Ocean Areas Combined (2002-2012)**

| Year  | Shark Fins Dried |              | Non-specified Fresh Shark |              | Non-specified Frozen Shark |              | Total for All Imports |              |
|-------|------------------|--------------|---------------------------|--------------|----------------------------|--------------|-----------------------|--------------|
|       | (mt)             | (\$ million) | (mt)                      | (\$ million) | (mt)                       | (\$ million) | (mt)                  | (\$ million) |
| 2002  | 39               | 1.02         | 797                       | 1.24         | 91                         | 1.09         | 928                   | 3.35         |
| 2003  | 11               | 0.01         | 515                       | 0.72         | 100                        | 0.99         | 626                   | 1.82         |
| 2004  | 14               | 0.34         | 650                       | 1.00         | 156                        | 2.35         | 821                   | 3.70         |
| 2005  | 27               | 0.75         | 537                       | 1.02         | 147                        | 2.27         | 711                   | 4.04         |
| 2006  | 28               | 1.38         | 338                       | 0.68         | 93                         | 1.35         | 459                   | 3.41         |
| 2007  | 29               | 1.68         | 548                       | 1.03         | 174                        | 1.04         | 751                   | 3.75         |
| 2008  | 29               | 1.74         | 348                       | 0.72         | 189                        | 1.88         | 566                   | 4.34         |
| 2009  | 21               | 0.97         | 180                       | 0.37         | 125                        | 1.50         | 326                   | 2.83         |
| 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         |

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

| Country                      | Species      | ICCAT-Recommended Sanction | U.S. Sanction Implemented | ICCAT Sanction Lifted | U.S. Sanction Lifted |
|------------------------------|--------------|----------------------------|---------------------------|-----------------------|----------------------|
| Panama                       | Bluefin 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.

The Deepwater Horizon/BP Oil Spill in the Gulf of Mexico affected recreational fisheries in the Gulf of Mexico due to a series of fishery closures of various sizes that began on May 2, 2010 and continued until April 19, 2011. More information about the Deepwater Horizon/BP Oil Spill is available at [http://sero.nmfs.noaa.gov/deepwater\\_horizon\\_oil\\_spill.htm](http://sero.nmfs.noaa.gov/deepwater_horizon_oil_spill.htm). The impacts of the oil spill and related fishery closures continue to be investigated.

### 5.4.1 Recreational Angling

The 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was released in August 2012. 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. Estimated trip-related expenditures and the resulting economic impacts for HMS recreational fishing trips are presented in Table 5.27. 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 1,249 HMS anglers that returned a survey, the vast majority (84% or 1,047 anglers) indicated they targeted a species of tuna (i.e., bluefin, yellowfin, bigeye, or albacore tuna) on their trip, or simply indicated they fished for tuna in general without identifying a specific species. The rest of those surveyed were fairly evenly divided between billfish (i.e., blue marlin, white marlin, sailfish) or shark (i.e., shortfin mako, thresher shark, blacktip shark) trips. Average trip expenditures ranged from \$540/trip for tuna trips to \$1,151 for billfish trips. Boat and automotive fuel was the primary trip-related expenditure for all HMS trips, and made up over 80 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, \$24.6 million of HMS angling trip-related expenditures generated approximately \$31.2 million in economic output, and supported 202 full time jobs from Maine to North Carolina in 2011.

**Table 5.27 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         | 1,047        | 95             | 107         | 1,249         |
| Average trip expenditures               | \$540        | \$1,151        | \$565       | \$624         |
| Total directed HMS private boat trips * | 27,648       | 5,123          | 6,669       | 39,440        |
| Total trip-related expenditures         | \$14,935,141 | \$5,896,128    | \$3,771,066 | \$24,602,335  |
| Total economic output                   | \$18,990,136 | \$7,496,728    | \$4,699,144 | \$31,186,008  |
| Employment (Full time job equivalents)  | 123          | 48             | 31          | 202           |

\*Source: Large Pelagics Survey.

#### 5.4.2 Atlantic HMS Tournaments

For detailed information about HMS tournaments, please see Section 8.1 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). The HMS Cost and Earning Survey commenced in July 2013, and ended in November 2013. Preliminary data indicate that only 55 percent of HMS Charter/Headboat permit holders reported actively taking for-hire trips, with the remaining 45 percent indicating that they either did not actively take for-hire trips, or no longer possessed the vessel tied to the permit. While economic data are not yet available from the study, preliminary data on the number and percentage of trips by species targeted per region and overall are presented in Table 5.28. Primary target species varied considerably across regions for charter/headboat trips with yellowfin tuna (45%) being the primary target species overall. Regionally, bluefin tuna (73%) were the primary target species in the northeast Atlantic followed by pelagic sharks (42%) (i.e., shortfin mako, blue sharks, thresher sharks). In the mid-Atlantic region, HMS trips primarily targeted yellowfin (76%) and bigeye tuna (69%); whereas charter/headboat trips in the south Atlantic primarily targeted yellowfin tuna (53%), sailfish (50%), and marlin (48%). In Florida (analyzed separately here as preliminary data did not allow for separating trips originating on the Atlantic and Gulf Coasts), the majority of trips targeted species other than HMS (e.g., dolphin fish, wahoo), but 38% percent targeted sailfish. Finally, in the Gulf of Mexico, the majority (60%) of HMS charter/headboat trips targeted coastal sharks.

**Table 5.28 Percent of HMS Charter/Headboat Trips by Region and Target Species (2013)**

| Species        | N. Atlantic | Mid-Atlantic | S. Atlantic | Florida | Gulf of Mexico | Overall* |
|----------------|-------------|--------------|-------------|---------|----------------|----------|
| Bluefin tuna   | 73.1        | 17.1         | 3.8         | 1.1     | 0.0            | 7.8      |
| Yellowfin tuna | 23.1        | 76.1         | 53.3        | 10.5    | 38.1           | 45.1     |
| Albacore tuna  | 19.2        | 27.3         | 7.9         | 0.0     | 0.0            | 8.5      |
| Bigeye tuna    | 11.5        | 69.3         | 2.5         | 6.3     | 5.3            | 14.6     |
| Skipjack tuna  | 0.0         | 3.4          | 7.9         | 9.5     | 2.7            | 6.0      |
| Marlin         | 11.5        | 14.8         | 47.9        | 12.6    | 22.1           | 29.8     |
| Swordfish      | 11.5        | 28.4         | 0.0         | 12.6    | 8.0            | 8.7      |
| Sailfish       | 0.0         | 0.0          | 50.4        | 37.9    | 8.9            | 29.7     |
| Pelagic sharks | 42.3        | 17.1         | 0.0         | 0.0     | 1.8            | 5.0      |
| Coastal sharks | 11.5        | 4.6          | 32.9        | 12.6    | 60.2           | 29.7     |
| Other species  | 15.4        | 23.9         | 39.6        | 56.8    | 15.9           | 34.1     |

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.

## 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.

NMFS recently published a plan for this required period review of regulations in the Federal Register (78 FR 37186, June 20, 2013). This plan stated, “NMFS will conduct reviews in such a way as to ensure that all rules for which a Final Regulatory Flexibility Analysis was prepared are reviewed within 10 years of the year in which they were originally issued. By December 31, 2013, NMFS will review all such rules issued during 2005 and 2006.” Table 5.29 reviews the Atlantic HMS regulations between 2005 and 2006 using the criteria established in Section 610 of the Regulatory Flexibility Act.

Final rules should be reviewed to determine whether they should be continued without change, or whether they should be amended or rescinded, consistent with the stated objectives of applicable statutes. Section 610 of the Regulatory Flexibility Act requires NMFS to consider the following factors when reviewing rules to minimize any significant economic impact of the rule on a substantial number of small entities:

1. The continued need for the rule;
2. The nature of complaints or comments received concerning the rule from the public;
3. The complexity of the rule;
4. The extent to which the rule overlaps, duplicates, or conflicts with other Federal rules, and , to the extent feasible, with State and local government rules; and
5. The length of time since the rule has been evaluated or the degree to which technology, economic conditions, or other factors have changed in the area affected by the rule.

**Table 5.29 Regulatory Flexibility Act Section 610 Review of Atlantic Highly Migratory Species Regulations between 2005 and 2006**

|   |   |
|---|---|
| #1  | <b>Atlantic Highly Migratory Species; Atlantic Bluefin Tuna Quota Specifications, General Category Effort Controls, and Catch-and-Release Provision.<br/>RIN 0648-AR86; 70 FR 10896, March 7, 2005.</b>   |
| Rescinded, Amended, or Continuing                                     | Continuing with parts amended   |
| Description of Management Measures and Complexity                     | NMFS set General category effort controls and established a catch-and-release provision for recreational and commercial bluefin tuna handgear vessels during a respective quota category closure. This action was necessary to implement recommendations of ICCAT, as required by the ATCA, and to achieve domestic management objectives under the Magnuson-Stevens Act.   |
| Economic Impacts of Management Measures and Nature of Public Comments | <p>The economic impacts associated with the selected no action alternative on effort controls was considered neutral as the General category bluefin tuna fishery harvested, almost in entirety, the available quota for the 2004 fishing year.</p> <p>The catch-and-release provision was expected to positively impact numerous economic aspects of the bluefin tuna handgear fishery due to the willingness of more vessel owner/operators to actively take trips targeting bluefin tuna after a closure has taken place. This final action also allowed for the tagging of bluefin tuna, but did not require owner/operators to do so. The estimated number of rod and reel and handline trips from private vessels targeting large pelagic species was approximately 57.5 thousand in 2004 and increased to 59 thousand in 2005, and then increased again to 72 thousand in 2006 (See Table 4.19). This data from the Large Pelagics Survey supports NMFS' assumption of positive impacts from the catch-and-release provision of this rule for private vessels. However, for charter vessels the estimated number of rod and reel and handline trips targeting large pelagic species was approximately 14 thousand in 2004 and 11 thousand in 2005, and then decreased to 8 thousand in 2006.</p> <p>No comments were received concerning the economic impact of this rule.</p> |
| Overlap with other State or Federal Rules                             | This final rule does not duplicate, overlap, or conflict with any other Federal rules.  |
| Recommendation and Need for Continuing the Rule                       | This rule is continuing and needed to set General category effort controls and to maintain a catch-and-release provision for recreational and commercial bluefin tuna handgear vessels during a respective quota category closure. This action is necessary to implement recommendations of ICCAT, as required by the ATCA.   |

|  |  |
|--|--|
| <p>#2</p>  | <p><b>Atlantic Highly Migratory Species; Recreational Atlantic Blue and White Marlin Landings Limit; Amendments to the FMP for Atlantic Tunas, Swordfish, and Sharks and the FMP for Atlantic Billfish.</b><br/> <b>RIN 0648–AQ65; 71 FR 58058, October 2, 2006.</b></p>   |
| <p>Rescinded, Amended, or Continuing</p>                                     | <p>Continuing with parts amended</p>   |
| <p>Description of Management Measures and Complexity</p>                     | <p>NMFS finalized the 2006 Consolidated HMS FMP, which changed certain management measures, adjusted regulatory framework measures, and continued the process for updating HMS essential fish habitat. The final rule: established mandatory workshops for commercial fishermen and shark dealers; implemented complementary time/area closures in the Gulf of Mexico; implemented criteria for adding new or modifying existing time/area closures; addressed rebuilding and overfishing of northern albacore tuna and finetooth sharks; implemented recreational management measures for Atlantic billfish; modified bluefin tuna General category subperiod quotas and simplified the management process of bluefin tuna; changed the fishing year for tunas, swordfish, and billfish to a calendar year; authorized speargun fishing gear in the recreational fishery for bigeye, albacore, yellowfin, and skipjack tunas; authorized buoy gear in the commercial swordfish handgear fishery; clarified the allowance of secondary gears (also known as cockpit gears); and clarified existing regulations. This final rule also announced the decision regarding a petition for rulemaking regarding closure areas for spawning bluefin tuna in the Gulf of Mexico. The Consolidated HMS FMP combines the management of all Atlantic HMS into one FMP, and combines and simplifies the objectives of the previous FMPs.</p> |
| <p>Economic Impacts of Management Measures and Nature of Public Comments</p> | <p>An analysis was conducted to assess the impacts of the various fishery management alternatives considered for this fishery management plan. Mandatory protected species safe handling, release, and identification workshops and certification for all HMS pelagic or bottom longline vessel owners and operators was anticipated to cost 1,647 participants an estimated annual total cost of between \$317,871 and \$636,858. NMFS estimated that 35 workshops would cost approximately 122,500 per year. The workshop renewals every 4-years were estimated to cost approximately \$42,000. Currently, approximately 175 people attend the protected species workshops annually, since the certificates expire every three years. Twenty-four workshops are held annually at a cost of \$212, 550 to NMFS in 2013. Mandatory shark identification workshops for all shark dealers was estimated to impact 336 participants and the 3 estimated workshops per year would cost NMFS approximately \$25,200 per year, and those costs would continue into the future with the 3-year certification renewal requirement. Attendance at the shark identification workshops has averaged about 75 attendees per year in recent years. The 12 shark identification workshops that are currently conducted annually cost NMFS \$45,880 in 2013.</p>  |

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The economic impacts of the time/area closure requirements were also estimated. Implementing complementary HMS management measures in Madison-Swanson and Steamboat Lumps Marine Reserves year-round was estimated to have minimal impact on commercial revenues and recreational activity. No economic impacts were expected from establishing the foundation with ICCAT for developing an international rebuilding program for Northern Albacore tuna.

Limiting HMS permitted vessels participating in Atlantic billfish tournaments to deploy only non-offset circle hooks when using natural baits or natural bait/artificial lure combinations could have resulted in an unlikely potential decrease in tournament participation but was expected to result in long-term benefits to anglers as a result of improved stock rebuilding efforts. The implementation of ICCAT recommendations on recreational marlin landings limits was estimated to have no adverse impacts to moderate impacts to anglers depending on whether thresholds for action are met and potential large losses of an estimated \$1.3 to \$5.5 million worth of tournament activity annual never occurred since we have not reached the thresholds for action on marlin landings.

The amendment of the management procedures regarding the General category time-periods, subquotas, as well as geographic set-asides to allow for future adjustments to take place via a regulatory framework action was expected to result in overall positive economic impacts to the General category by allowing fishing in locations and times when bluefin are most available with only minor adverse impacts to New England General category fishermen. The revised General category time-periods and subquotas to allow for a formalized winter fishery was expected to result in positive economic impact for General category participants in the South Atlantic region and minor adverse economic impacts to New England. Clarifying the procedures for calculating the Angling category school size-class bluefin subquota allocation and maintaining the Angling category north/south dividing line was expected to have minimal positive impacts by slightly increasing the school size-class quota. The revised annual bluefin tuna specification process to refer back to the supporting analytical documents of the 2006 Consolidated HMS FMP and include seasonal management measures in annual framework actions was expected to have minor positive economic impacts by allowing for better planning. Establishing an individual quota category carry-over limit of 100 percent of the baseline allocation (i.e., no more than the annual baseline allocation may be carried forward), except for the Reserve category, and authorize the transfer of quota exceeding the 100 percent limit to the Reserve or another domestic quota category, while maintaining status quo overharvest provisions would result in economic benefits by increasing total allowable catch for those quota categories. The revised and consolidated criteria considered prior to performing inseason and some annual bluefin management actions was expected to lead to positive economic benefits.

Shifting the fishing year to January 1st through December 31st for all HMS species was expected to

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establish consistent timing between U.S. domestic and international management programs and improve international reporting and negotiations.

Authorizing speargun fishing gear for recreational BAYS tuna was expected to result in positive economic impacts to recreational speargun fishermen and the chart/headboat sector with only a minor risk of competition for fishing grounds impacting rod and reel fishermen. The authorization of buoy gear as a permissible gear type in the commercial swordfish handgear fishery was expected to have positive economic benefits and the increase in this fishery in recent years appears consistent with that expectation. Clarifying the allowance of hand-held cockpit gears used at boat side for subduing HMS captured on authorized gears was also expected to result in positive economic impacts by reducing confusion of the allowance of these gears.

The remaining regulatory housekeeping provisions were expected to have only minor economic impacts.

Comments:

A. Workshops

NMFS received many public comments both in support of and opposed to the protected species workshops. Some commenters were concerned about potential lost revenue on longline trips if bycatch were to be handled correctly, and recommended not limiting these workshops to longline fishermen. Some comments supported extending the workshop requirements to include all HMS fishermen, as well as expanding the release techniques to include additional species. NMFS received many comments suggesting that various combinations of owners, operators, and crew members be required to participate in the workshops. Commenters noted that if the crew members are not required to attend, then the operators should be responsible for training the crew. Several commenters opposed requiring the crew to be certified because of their transient nature and the fact that some crew members are not U.S. citizens and may not be available to attend workshops. A few commenters supported grandfathering in the industry certified individuals, so that they do not need to attend the first round of mandatory workshops (they would still need to be recertified).

This rule required that vessel owners and operators attend the workshops. This requirement for vessel owners and operators balances the ecological need to ensure that fishermen on the vessel can use the handling and release gear appropriately and the economic costs to the fishermen to attend the workshops. While the final rule did not require crew members to attend the workshops, it was expected that operators and owners would disseminate this information to the crew in a cost effective manner. NMFS continues to encourage all workshop participants to disseminate this information to all crew members involved with haul-back or fishing activities. This rule also grandfathered in the industry-certified individuals. While

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NMFS realizes that many vessel owners may not operate or be present on the vessels during fishing trips, certifying vessel owners ensures that they are aware of the certification requirements and protocols. The owners are, then, accountable for preventing their vessel from engaging in fishing activities without a certified operator on board. NMFS did not change the proposed rule as a result of these comments, but did clarify portions of the regulatory text to ensure the implementation is clear.

NMFS received several comments in support of time periods for renewal of certification that were different than the proposed alternative. NMFS maintained the preferred alternative of recertification generally every three years in order to balance the ecological benefits of maintaining familiarity with the protocols and species identification, and the economic impacts of workshop attendance due to travel costs and lost fishing opportunities.

NMFS received comments regarding the need for proxies for dealers attending shark identification workshops under alternative A9, the flexibility required in certifying newly hired proxies, and the need for multiple proxies. Alternative A9 was modified to address these comments and allow for dealer proxies. Because not all shark dealer permit holders may be onsite where vessels unload their catches, this rule permitted a local proxy to attend the workshop to obtain the proper training in species-specific shark identification, while allowing the permit holder to meet the certification requirements. Furthermore, since the actual permit holders may not be involved in fish house activities, the workshops would more effectively decrease the reporting of unknown sharks if a proxy who is directly involved with fish house activities attends and obtains the training in lieu of the permit holder. If a dealer opts to send a proxy, then the dealer is required to designate a proxy from each place of business covered by the dealer's permit. A proxy would be a person who is employed by a place of business, covered by a dealer's permit, a primary participant in identification, weighing, or first receipt of fish as they are offloaded from a vessel, and involved in filling out dealer reports.

According to public comment, NMFS should anticipate turnover in dealer proxies. To address this, NMFS allows one-on-one training sessions that would accommodate the replacement of a proxy whose employment was terminated on short notice. These sessions would be at the expense of the permit holder. Public comments were supportive of mandatory HMS identification workshops for federally permitted shark dealers, but also suggested that these workshops be available to others, such as the recreational and commercial fishery, law enforcement, port agents, and state shark dealers. While these workshops are mandatory for federally permitted shark dealers, NMFS has tried to accommodate other interested individuals when it is feasible. At well-attended workshops, those persons for whom the workshops are mandatory are given priority in terms of hands-on instruction.

B. Time/Area Closures

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NMFS also received comments on the time/area closure alternatives. A number of commenters expressed concern over the effort redistribution model used to analyze these alternatives. These commenters felt that pelagic longline vessels were not mobile enough to redistribute effort uniformly and that vessels in a certain area would move to adjacent areas (e.g., vessels homeported in the Gulf of Mexico would stay in the Gulf of Mexico and would not move into the mid-Atlantic bight). NMFS received comments that different approaches to effort redistribution should be considered, particularly for closures of bluefin tuna in spawning areas in the Gulf of Mexico. As a result, NMFS considered redistribution of effort based on an analysis of the mobility of the PLL fleet and known effort displacement currently taking place out of the Gulf of Mexico. Based on this revised approach, NMFS determined that the closures in the Gulf of Mexico could increase bycatch for some of the species being considered. Therefore, NMFS decided not to implement any new time/area closures, other than complementary closures for Madison-Swanson and Steamboat Lumps.

During the comment period, NMFS also received comments regarding a “decision matrix” that could help to guide the choices that NMFS would have to make between different time/area closures and different species, that NMFS should set bycatch reduction goals, and that the bycatch reduction goals of the existing closures have already been met and, therefore, NMFS should reopen portions of the current closures. As discussed in the response to Comment 20 in the Time/Area Closures section, NMFS agreed that decision matrices and bycatch reduction goals could be useful, but did not believe that NMFS could use these concepts to appropriately balance the needs of the different species involved at that time. NMFS did not change the proposed rule as a result of these comments.

#### C. Northern Albacore Tuna

NMFS did not receive many comments in regard to the alternatives considered for northern albacore tuna. None of the comments received were in regard to the economic impacts. NMFS did not change the preferred alternative as a result of public comment.

#### D. Finetooth Sharks

NMFS received a range of public comments regarding finetooth shark alternatives indicating support and opposition to Alternatives D2-D4, and additional comments, including, but not limited to: comments on gillnet fisheries in general, the use of VMS, the results of the 2002 SCS stock assessment, reporting of HMS by dealers, identification of finetooth sharks, and the accuracy of data attained from MRFSS. All of these comments were considered prior to selection of the final alternative for preventing overfishing of finetooth sharks. NMFS did not change the proposed alternative as a result of these comments. Additional measures may be necessary to prevent overfishing of finetooth sharks in the future.

#### E. Atlantic Billfish

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NMFS received many comments regarding Atlantic billfish alternatives. NMFS received substantial public comment opposing and supporting circle hook requirements proposed under draft alternatives E2 and E3. A prevalent theme of the comments opposing mandatory circle hook use, in all or portions of the HMS and billfish recreational fisheries, was that the recreational sector has a minor impact on Atlantic billfish populations relative to the commercial pelagic longline fleet. Given the relatively small size of the U.S. domestic pelagic longline fleet and the considerable size of the recreational fishing fleet, NMFS determined that it was appropriate to examine billfish mortality from the domestic perspective in addition to working internationally through ICCAT. NMFS did not change the proposed action, alternative E3, as a result of public comment. The final action requires non-offset circle hooks at all billfish tournaments if natural or natural/artificial baits are used.

A second important theme in comments opposing mandatory circle hook use under alternatives E2 and E3 was the need for NMFS to promulgate more detailed specifications for circle hooks. NMFS continued to work on various definitions of circle hooks that may lead to a more refined hook definition in the future. However, NMFS found that it is appropriate to require the use of circle hooks in portions of the recreational billfish fishery, at this time, to reduce post-release mortalities in the recreational billfish fishery.

NMFS also received comments that billfish tournament operators would need advance notice of impending circle hook regulations to allow for production of rules, advertising, and informing tournament participants of potential circle hook requirements. In response, NMFS spoke to a number of tournament operators in the Atlantic, Gulf of Mexico and Caribbean to better understand various aspects of tournament operations, and determined that a delayed date of effectiveness of no less than six months would be necessary to minimize adverse impacts to tournament operators and participants. Significant outreach efforts were undertaken by NMFS after the release of the FEIS in July 2006 to address the need for advanced notice. Therefore, the effective date of the requirement was January 1, 2007. This effective date in combination with continued outreach effort by NMFS provided billfish tournament anglers additional time to familiarize themselves and become proficient in the use of circle hooks, while allowing tournament operators to adjust tournament rules, formats, and informational materials, as appropriate, thereby minimizing any potential adverse socio-economic impacts. Additionally, given the concerns expressed from fishermen in the mid-Atlantic region after the release of the FEIS regarding this requirement, NMFS worked cooperatively with tournaments and anglers to research other bait and/or hook and bait combinations that would achieve the same ecological benefits. In a subsequent rulemaking in 2007, NMFS delayed implementation of the circle hook requirement in tournaments until January 1, 2008. NMFS also received public comments regarding the perceived limited ecological impact of the 250 marlin

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landings limit. These comments could be categorized into two opposing views that suggest two different courses of action. Some commenters suggested that the limited ecological impact was not worth any potential adverse economic impact, even a very limited one, while other commenters suggested that the U.S. must implement the 250 marlin landings limit to comply with U.S. international obligations and as part of a strategy to implement appropriate measures to help limit billfish mortality. Related to these comments, NMFS received suggestions recommending that NMFS automatically carry forward any underharvest to the following management period. Given that the known level of U.S. recreational marlin landings has been within the 250 fish limit for three of the four reported years, and that the 2002 overharvest was offset by the 2001 underharvest, the ecological benefits of this alternative were limited. As noted above, in the response to Comments 3 and 5 of the Atlantic Billfish section, this rule allowed underharvests to be carried forward. However the United States made a commitment to ICCAT not to carry forward underharvest, given the uncertainty surrounding landings of Atlantic marlin in the Commonwealth of Puerto Rico and the U.S. Caribbean, until such time as this is resolved. Thus, NMFS did not change the proposed alternative. This rule was expected to allow the United States to continue to successfully pursue international marlin conservation measures by fully implementing U.S. international obligations and potentially provide a minor ecological impact with, at most, minor adverse economic impacts.

NMFS received public comment opposed to, and in support of, the Atlantic white marlin catch and release alternative. The commenters opposed to the alternative expressed concerns over potential adverse economic impacts to the fishery if catch and release only fishing for Atlantic white marlin were required. The commenters supporting the landings prohibition stated concerns over white marlin stock status, the ESA listing review, and maintaining leadership at the international level. Based on these comments as well as a number of other factors, including but not limited to, the impending receipt of a new stock assessment for Atlantic white marlin and upcoming international negotiations on Atlantic marlin, NMFS changed its preferred alternative and chose not to prohibit landings of Atlantic white marlin in the final rule. The implementation of circle hook requirements (alternative E3) is an important first step in reducing mortality in the directed billfish fishery. NMFS may consider, as necessary and appropriate, catch and release only fishing options for Atlantic white marlin as well as other billfish conservation measures in future rulemakings.

#### F. Bluefin Tuna Quota Management

NMFS received public comment in the past regarding the publication and timing of annual bluefin tuna specifications. Timely publication of the bluefin tuna specifications is essential to fishermen's inability to make informed business decisions. Fishermen have commented that knowing the exact schedule of bluefin

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tuna restricted fishing days prior to the season facilitates planning and scheduling of trips. NMFS did not change the proposed alternative in the 2013 quota specifications as a result of public comment on the proposed rule. Under this rule, the annual bluefin tuna quota specifications would establish baseline domestic quota category allocations, and adjust those allocations based on the previous years' under- and/or overharvest. Any delay in publishing the annual bluefin tuna quota specifications would prolong the establishment of a baseline quota in any of the domestic categories.

Fishermen have commented that knowing the exact schedule of bluefin tuna Restricted Fishing Days prior to the season facilitates planning and scheduling of trips. The preferred alternative F6 should help facilitate the development of timely schedules. NMFS did not change the proposed alternative as a result of public comment on the proposed rule.

#### G. Timeframe for Annual Management of HMS Fisheries

Preferred Alternative G2, which changed the timeframe for annual management of HMS fisheries, was modified because the comment period on the proposed rule was extended. The fishing year in 2007, rather than 2006 as described in the Draft Consolidated HMS FMP, would be compressed. During the public comment period, several commenters expressed concern about the effect of a calendar year management cycle on the availability of quota rollover from the previous calendar year during the January portion of the south Atlantic fishery. Under changes to the bluefin tuna management program included in the rule, the January subperiod would receive a quota of 5.3 percent of the annual ICCAT allocation.

#### H. Authorized Fishing Gears

With regard to authorized gears, there were public comments in support of preferred alternative H2 to authorize speargun fishing as a permissible gear type for recreational Atlantic BAYS tunas. NMFS received comments indicating that recreational spearfishermen place a high value on spearfishing for tunas, and are currently traveling outside of the United States for the opportunity to participate in tunas speargun fisheries. The final rule allowed recreational BAYS fishing. This was a modification from the proposed rule that would have also allowed recreational fishing for bluefin tuna. Due to concern over the status of bluefin tuna, NMFS decided not to allow spearfishing for bluefin tuna.

During the public comment period, NMFS received comments expressing confusion over the current regulatory regime regarding green-stick gear, unease over the potential impacts and intent of the preferred alternative in the Draft Consolidated HMS FMP, and concern over potential negative impacts of the green-stick gear. Therefore, NMFS did not finalize alternative H4, which would have authorized green-stick gear. Rather, NMFS worked with the industry to ensure participants are familiar with current regulations. Greenstick gear was later authorized in a subsequent rulemaking in 2008 (73 FR 54721).

In regard to buoy gear, NMFS received public comments requesting that commercial vessels be limited to

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deploying fewer than 35 individual buoy gears. Additionally, commercial fishermen familiar with this gear type requested that they be allowed to attach multiple floatation devices to buoy gears to aid in monitoring and retrieval, as well as allow them to use “bite indicator” floats that will alert them to gears with fish attached. In response to public comment, NMFS modified the preferred alternative to allow fishermen to use more than one floatation device per gear and configure the gear differently depending on vessel and crew capabilities, or weather and sea conditions. This increased flexibility may have resulted in positive social impacts and increased safety at sea.

#### I. Regulatory Housekeeping Measures

The public also provided comments on the proposed regulatory housekeeping alternatives. NMFS requested public comment regarding whether or not to define “fishing floats” in the regulations, and on potential language for a “float” definition. Several commenters indicated that the number of floats is not an appropriate gauge to determine the type of fishing gear that is being deployed, and that the presence of “bullet floats,” anchors, or the type of mainline would be better indicators. Other commenters stated a float requirement would be an unnecessary burden that could diminish the flexibility of vessel operators to participate in different fishing activities, depending upon the circumstances. Finally, consultations with NMFS Office of Law Enforcement indicated that the float requirement in alternative I1(b) would not be practical. Based on these comments, NMFS chose not to prefer alternative I1(b) in the FEIS. Although alternative I1(b) was preferred in conjunction with alternative I1(c) in the Draft Consolidated HMS FMP, NMFS believed that the objective of this alternative would be effectively achieved by implementing alternative I1(c) (species composition of catch) alone.

On the basis of public comment, NMFS modified the list of demersal “indicator” species associated with alternative I1(c) from the list in the Draft Consolidated HMS FMP by removing silky, great hammerhead, scalloped hammerhead, and smooth hammerhead sharks from the list, and by adding tilefish, blueline tilefish, and sand tilefish to the list. NMFS believed these changes were appropriate because these shark species can be caught on both pelagic and bottom longlines, and because the tilefish species are representative of demersal fishing activity. NMFS continues to get comments on this issue, even after the final rule was implemented.

NMFS received comments indicating that alternative I1(c) could adversely affect longline vessels that fish, at least part of a trip, in HMS closed areas and that catch both demersal and pelagic species on those trips. Similar to the comments received regarding alternative I1(b), there were concerns that, by establishing a species threshold when fishing in HMS closed areas, this alternative would restrict the flexibility of longline vessel operators to participate in different fishing activities depending upon the circumstances. Also, adverse economic impacts could result if vessel operators are unable to retain a portion of their catch

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that otherwise would have been retained on mixed fishing trips in the closed areas, or if they must choose to fish outside of the closed areas. NMFS received other comments indicating that there could be additional costs on vessels if they are boarded at sea by enforcement, and it was necessary to retrieve or observe fish in the hold in order to calculate the percentages of demersal and pelagic species possessed onboard. NMFS, however, found that this preferred alternative is important in maintaining existing time/area closures.

NMFS received comments supporting and opposing preferred alternative I2(b), which required that the second dorsal fin and anal fin remain on all sharks through landing. Some comments confirmed that retention of the second dorsal and anal fins through landing could improve shark identification and species-specific landing data. Other comments indicated that this alternative would do little to improve shark identification. NMFS received comments that, although these fins are valuable, retaining them until landing was acceptable. NMFS received a comment opposing this alternative due to the additional time and revenue losses that may result from removing the smaller/secondary fins after docking. NMFS finalized this alternative. While offloading and processing procedures may initially have to be adjusted, in the long-term this alternative will facilitate improved quota monitoring and stock assessment data which could result in a larger quota and larger net revenues for both the fishermen and dealers.

Public comment suggests that, among active fishery participants, a requirement for handlines to remain attached to all vessels could potentially reduce the number of handlines that could be fished or deployed. Operationally, it may be less efficient to fish with several attached handlines, as they may be more prone to entanglement. Because this alternative could restrict or limit fishing effort and because NMFS did not know the number of handline users that already attach the handline to the vessel, it was projected to produce unquantifiable positive ecological impacts, including a reduction in the bycatch of undersized swordfish, other undersized species, protected species, and target species catches. Based upon public comment the practice of detaching handlines did not appear to be widespread, but it may be growing among a small number of vessel operators, primarily targeting swordfish in the East Florida Coast closed area. According to public comment, recreational swordfish catches would most likely be affected, as that is the primary target species. If few recreational vessels are currently fishing with unattached handlines, then any social or economic impacts associated with this alternative would be minimal. NMFS did not change this alternative between proposed and final rules.

NMFS received comments indicating that the proposed alternative (I9(b)), which would require vessel owners to report non-tournament recreational landings of North Atlantic swordfish and Atlantic billfish, could potentially disadvantage absentee vessel owners. Based upon this public comment, NMFS modified this alternative slightly from the proposed rule by specifying that a vessel owner's designee may also report

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|   | <p>landings in lieu of the owner, but the owner would be responsible for the requirement.</p> <p>Finally, NMFS received several general comments regarding the information presented regarding the HMS recreational sector. Section 3.5.2 of the FEIS provides detailed information regarding the data available and past research concerning HMS recreational fisheries. Economic data on recreational fishing are difficult to collect and challenging to interpret. Nevertheless, NMFS has undertaken efforts to improve, update, and expand upon the economic information regarding HMS recreational fisheries.</p>   |
| Overlap with other State or Federal Rules       | This final rule does not duplicate, overlap, or conflict with any other Federal rules.  |
| Recommendation and Need for Continuing the Rule | <p>This rule is continuing and needed to implement recommendations of ICCAT, as required by ATCA, and to maintain consistency with the national standards of the Magnuson-Stevens Act. The shark identification workshop portion of this rule was modified in 2008 to require that workshop certificates be submitted upon permit renewal, and later processed and available for inspection, for each place of business listed on the dealer permit and require that extensions of a dealer's business must possess a copy of a valid dealer or proxy certificate issued to a place of business listed on the dealer permit (73 FR 38144). In 2009, the shark identification workshop was modified again to allow the issuance of "participant certificates" to attendees who do not have a dealer license (74 FR 66585). The shark fin portion of the rule was replaced entirely by Amendment 2 and further changed in Amendment 3. Some of the provisions in this regulation will be revisited during the development of draft Amendment 7 to the 2006 Consolidated HMS FMP. These include establishing a northern Albacore tuna TAC and quota, time/area closures, and bluefin tuna category quotas.</p> |

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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 2012. Please refer to prior SAFE reports for hurricane impact information prior to 2012.

The 2012 hurricane season had more storms than average with 19 named storms, of which 10 became hurricanes, and only one, Hurricane Sandy, became a major (Category 3-5) hurricane. The number of storms in recent years could be largely attributed to climatological conditions, such as La Nina, the tropical multi-decadal signal, and above average Atlantic sea surface temperatures (Bell et al., 2012). Four of these storms made landfall in the United States, two as hurricanes (Hurricanes Sandy and Isaac), and two as tropical storms (Tropical Storms Alberto and Debby). Hurricane Sandy, also named Super Storm Sandy after it combined with a nor'easter, was easily the most severe of these storms. Hurricane Sandy initially started as a Category 1 hurricane in the southwest Caribbean Sea where it first made landfall in Jamaica (Blake et al., 2013). The storm strengthened while in the Caribbean, and then moved northeast where it eventually made landfall near Brigantine, New Jersey, on October 29, 2012. While Super Storm Sandy had weakened to a post-tropical cyclone before making landfall in the United States, it still produced a catastrophic storm surge along the New Jersey and New York coastlines due to its immense size. Super Storm Sandy is reportedly responsible for 147 deaths in the Atlantic, including 72 deaths in the mid-Atlantic and northeastern United States (Blake et

al., 2013) making it the deadliest hurricane to strike the United States outside of the south since 1972. This storm was also estimated to have generated nearly \$50 billion in damages, ranking it as the sixth-costliest (when adjusted for inflation) hurricane to strike the United States since 1990. Hurricane Isaac was the only other hurricane to make landfall in the United States in 2012 when it became a Category 1 hurricane mere hours before making landfall in southeastern Louisiana (Berg, 2013). Hurricane Isaac produced a maximum storm surge of 11 ft. above normal tide which caused extensive flooding in southeastern Louisiana, Alabama, and Mississippi, and was responsible for 5 deaths in the United States, an additional 29 deaths in the Caribbean, and \$2.4 billion in damages in the United States.

## **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). Residents in Florida and Alabama in communities where oil reached their shores that experienced income loss due to the oil spill exhibited significantly higher levels of depression, anxiety, anger, and fatigue than residents that did not experience oil spill related income loss (Grattan et al, 2011). These residents who suffered income losses were also more likely to cope with the loss by giving up (behavioral disengagement) and other avoidance strategies (Grattan et al, 2011). NMFS is continuing to evaluate the impacts of the Deepwater Horizon Spill on HMS stocks and fishermen. For more information see:

<http://www.noaa.gov/deepwaterhorizon/index.html> and  
[http://sero.nmfs.noaa.gov/deepwater\\_horizon/index.html](http://sero.nmfs.noaa.gov/deepwater_horizon/index.html).

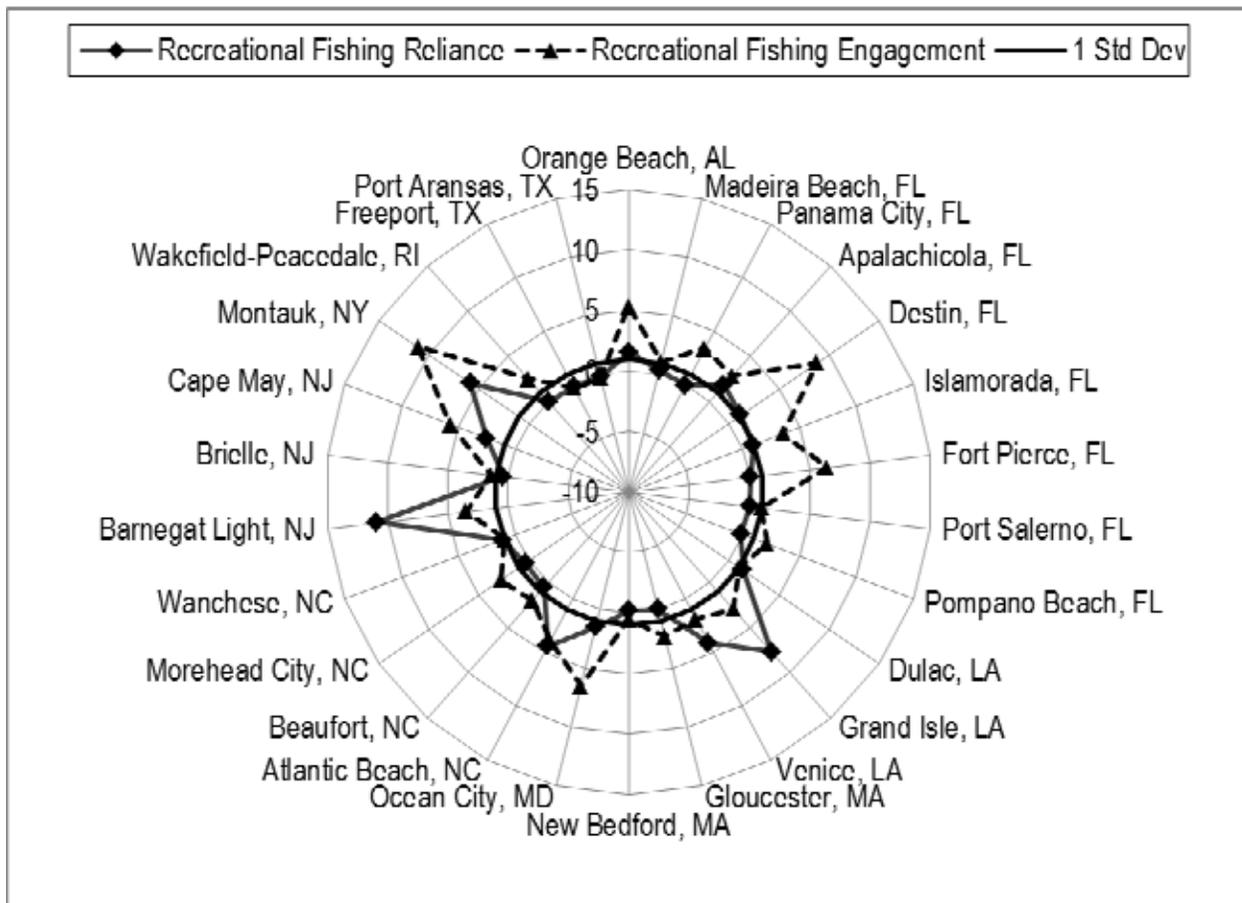
## **6.3 Social Indicators of Fishing Community Vulnerability and Resilience**

This section presents social indicators of vulnerability and resilience developed by Jepsen and Colburn (2013) for 25 communities selected for having a greater than average number of HMS permits associated with them. Jepsen and Colburn (2013) developed a series of indices

using 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). This section uses radar graphs to present four indices related to fishing dependence vulnerability (recreational and commercial fishing reliance and engagement indices, Figure 6.1 and Figure 6.2), two indices related to social vulnerability (personal disruption index and poverty index, Figure 6.3), and two related to gentrification vulnerability (retiree migration index and natural amenities index, Figure 6.4). Each index is scored so that higher values indicate increased community vulnerability to disruption with mean index scores standardized to zero. Communities with index scores greater than one standard deviation above the mean are considered to be the most vulnerable, and this threshold is illustrated on each figure with a black circular line (Jepsen and Colburn, 2013).

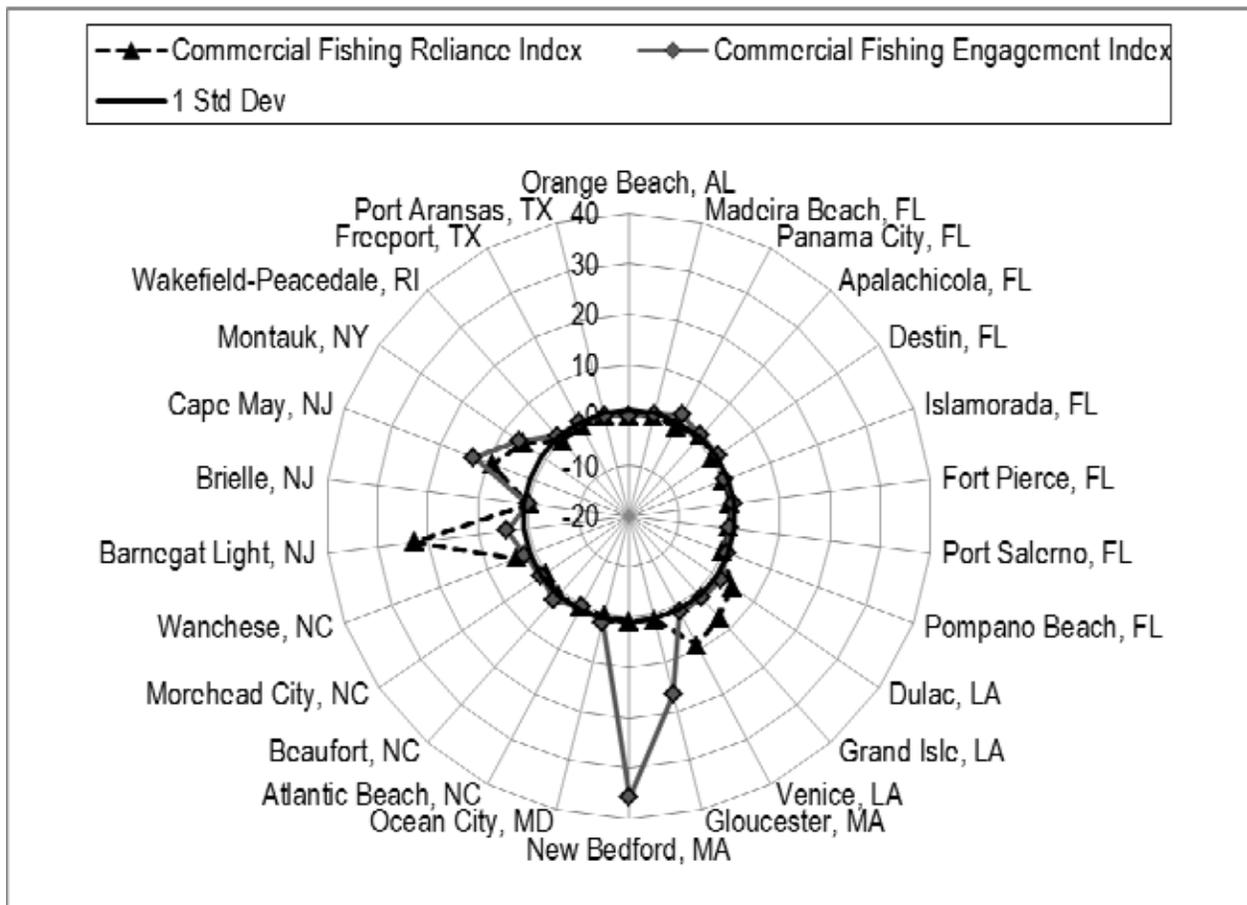
### *Fishing Reliance and Engagement Indices*

Jepsen and Colburn (2013) developed two indices each to measure community reliance and engagement with recreational and commercial fishing, respectively. The recreational fishing engagement index was measured using MRIP estimates of the number of charter, private boat, and shore recreational fishing trips originating in each community. The recreational fishing reliance index was generated using the same fishing trip estimates adjusted to a per capita basis. In Figure 6.1, recreational fishing reliance and engagement index scores are presented for 25 HMS communities. The communities of Orange Beach, AL; Apalachicola, FL; Destin, FL; Grand Isle, LA; Venice, LA; Ocean City, MD; Atlantic Beach, NC; Barnegat Light, NJ; Cape May, NJ; and Montauk, NY all exceed the one standard deviation threshold for both recreational reliance and engagement indicating that each exhibits exceptionally high numbers of annual fishing trips both in absolute numbers and adjusted per capita. This suggests that each of these communities are highly vulnerable to economic disruption from potential declines in fishing participation be they due to seasonal fishing closures or disasters such as Super Storm Sandy or the Deepwater Horizon oil spill. Other communities such as Panama City, FL; Islamorada, FL; Pompano Beach, FL; Dulac, LA; Gloucester, MA; New Bedford, MA; Beaufort, NC; Morehead City, NC; Brielle, NJ; and Wakefield-Peacedale, RI all had scores in excess of the one standard deviation threshold on the recreational fishing engagement index, but not on the recreational fishing reliance index. This indicates these communities exhibit large absolute numbers of fishing trips annually, but only moderate numbers of trips on a per capita basis. This would indicate these communities are also economically vulnerable to declines in recreational fishing participation, but not as severely as other HMS communities.



**Figure 6.1 Recreational Fishing Engagement and Reliance Indices by HMS Community**

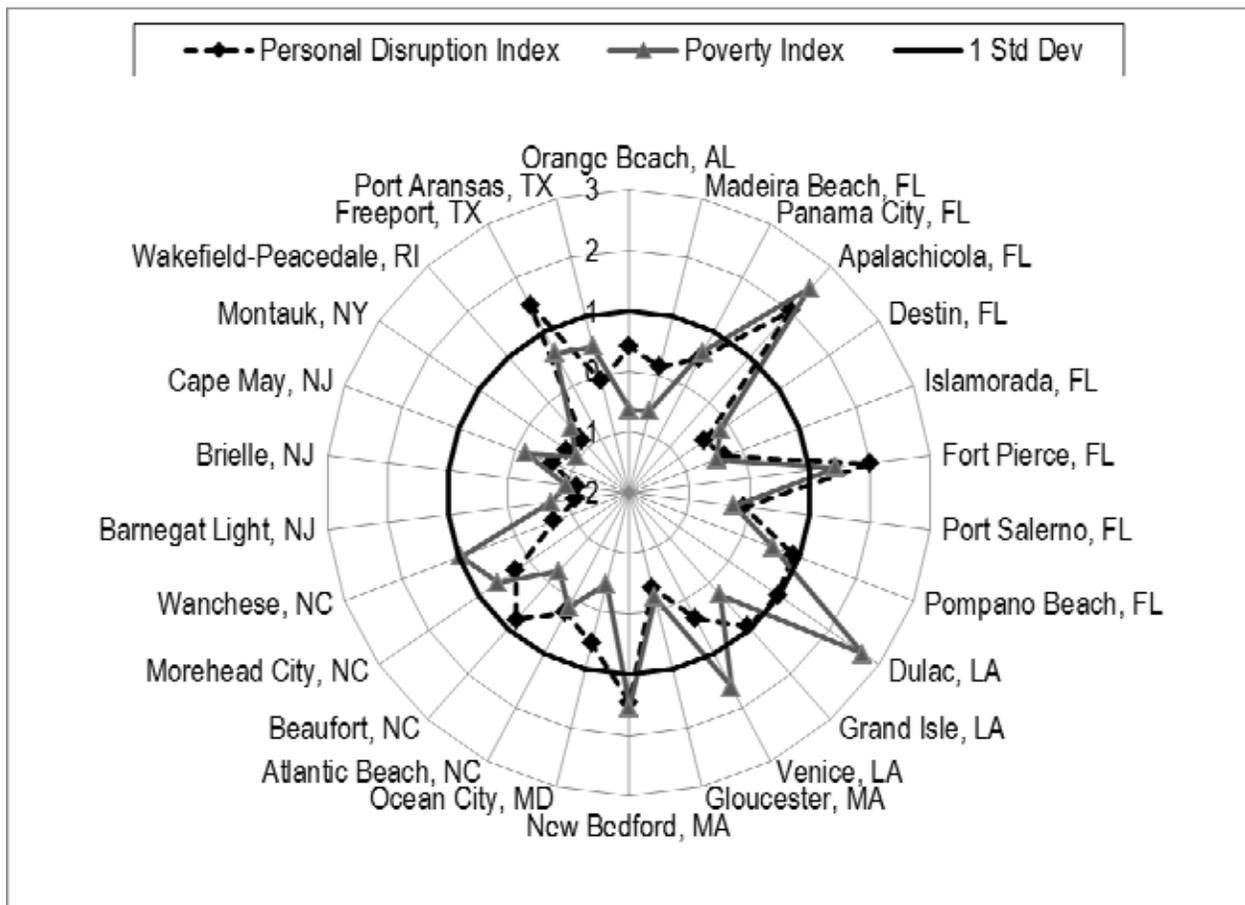
Jepsen and Colburn (2013) also calculated indices measuring community reliance on and engagement with commercial fishing. Commercial fishing engagement was assessed based on pounds of landings, value of landings, number of commercial fishing permits sold, and number of dealers with landings. Commercial fishing reliance was assessed based on value of landings per capita; number of commercial permits per capita; dealers with landings per capita; and percentage of people employed in agriculture, forestry, and fishing. Figure 6.2 shows that Dulac, LA; Grand Isle, LA; Venice, LA; Gloucester, MA; New Bedford, MA; Beaufort, NC; Wanchese, NC; Barnegat, NJ; Cape May, NJ; and Montauk, NY all score above the one standard deviation threshold for both indices indicating they are all dependent upon commercial fishing. Several communities including Gloucester, MA; New Bedford, MA; Barnegat Light, NJ; and Cape May, NJ exhibited particularly high index scores on one of the two indices suggesting they are particularly dependent on commercial fishing.



**Figure 6.2 Commercial Fishing Engagement and Reliance Indices by HMS Community**

*Social Vulnerability Indices*

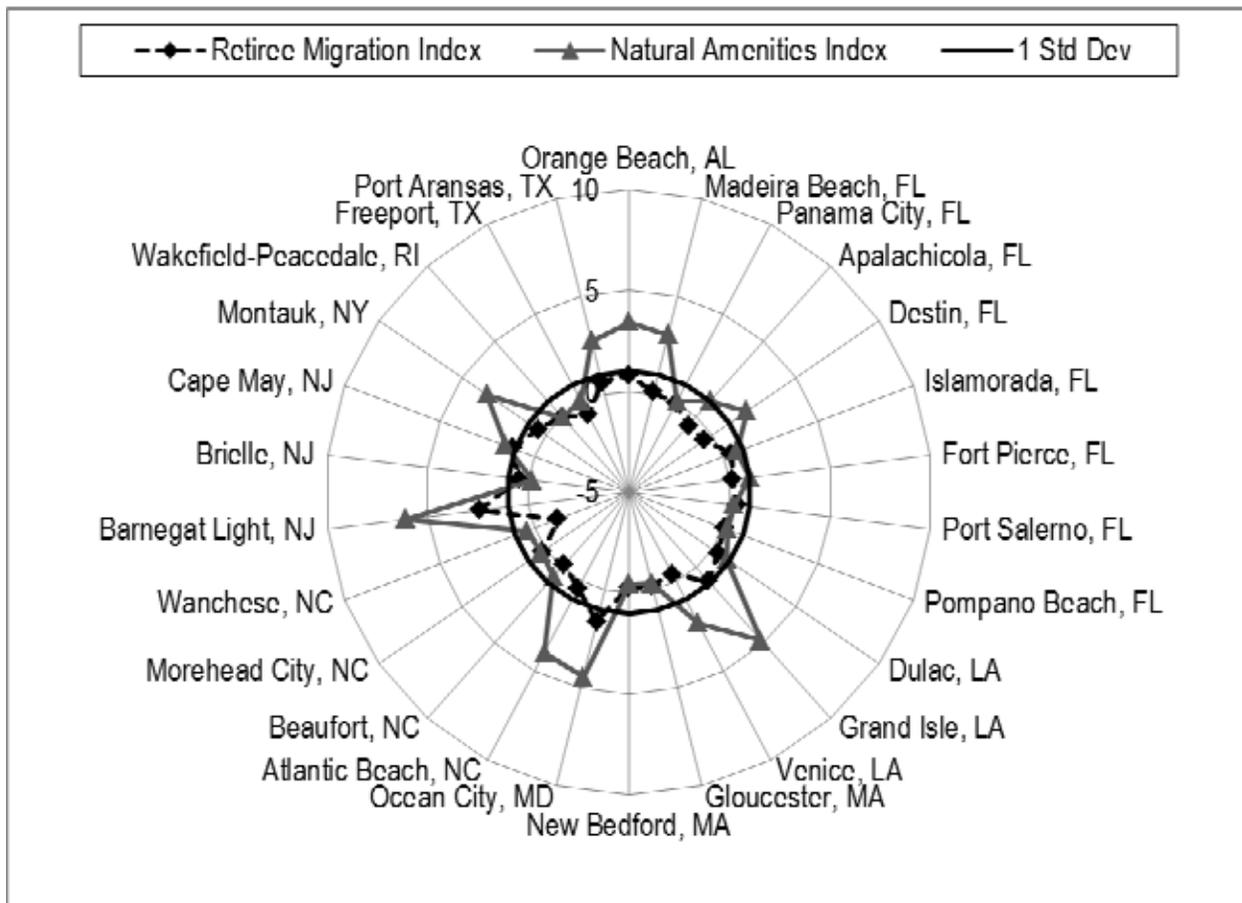
Two indices of social vulnerability developed by Jepsen and Colburn (2013) are presented in this section. The personal disruption index includes the following community variables representing disruptive forces in family lives: percent unemployment, crime index, percent with no diploma, percent in poverty, and percent separated females. The poverty index includes several variables measuring poverty levels within different community social groups including: percent receiving government assistance, percent of families below the poverty line, percent over 65 in poverty, and percent under 18 in poverty. Figure 6.3 shows that the communities of Apalachicola, FL; Fort Pierce, FL; and New Bedford, MA each score above the one standard deviation threshold on both of the social vulnerability indices, while the communities of Dulac, LA; Venice, LA; and Freeport, TX each score above the threshold on one index. These scores suggest these communities would likely experience greater difficulty recovering from economic hardships caused by job losses in the recreational and commercial fishing sectors.



**Figure 6.3 Social Vulnerability Indexes by HMS Community**

*Gentrification Indices of Vulnerability*

Finally, this section includes two indices measuring community vulnerability to gentrification developed by Jepsen and Colburn (2013). Gentrification is a process whereby community structure changes as a result of an influx in higher income households, and the businesses that cater to them, to the point community social networks and power structures change, and traditional community families are threatened to be displaced (Jepsen and Colburn, 2013). The retiree migration index includes variables that measure the influx of retirees to a community and includes: households with one or more over 65, percent population receiving social security, percent receiving retirement income, and percent in labor force. The natural amenities index includes variables that represent community characteristics that can determine the areas attractiveness to emigrants which include: rental vacancy rate, percent homes vacant, boat launches per capita, and percent water cover. Figure 6.4 shows that the communities of Ocean City, MD; Barnegat Light, NJ; and Brielle, NJ all possess index scores in excess of the one standard deviation threshold for both indices indicating that these communities are likely seeing signs of gentrification. Additionally, the communities of Orange Beach, AL; Grand Isle, LA; Atlantic Beach, NC; Montauk, NY; and Port Aransas, TX each exceed the threshold for the natural amenities index, and are approaching the threshold for the retiree migration index suggesting the these communities are vulnerable to or in the early stages of gentrification.



**Figure 6.4 Gentrification Vulnerability Indices by HMS Community**

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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.

NS 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.

### **7.2 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. Shark gillnet discards have also been estimated using logbook data when observer coverage is equal to 100 percent.

NMFS has not estimated bycatch in the swordfish harpoon fishery. NMFS has limited historical observer data on harpooned swordfish from driftnet trips in which harpoons were sometimes used. Swordfish harpoon fishermen are required to submit pelagic logbooks and NMFS can examine those for their utility in estimating bycatch. NMFS has not estimated bycatch in the bluefin tuna harpoon fishery because these fishermen have not been selected to submit logbooks. NMFS has not estimated bycatch in the General category commercial rod and reel tuna fishery although anecdotal evidence indicates that some undersized bluefin tuna may be captured.

There is concern about the accuracy of discard estimates in the recreational rod and reel fishery for Atlantic HMS due to the low number of observations by the 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<br>Billfish<br>Undersize target species<br>Marine mammals<br>Sea turtles<br>Seabirds<br>Non-target finfish<br>Prohibited shark species<br>Large coastal shark species after closure | Category I    | Jeopardy findings in 2000 & 2004; Reasonable and Prudent Alternative implemented 2001-04; ITS, Terms & Conditions, RPMs | Permit requirement (1985); logbook requirement (SWO-1985; SHK - 1993); observer requirement (1992), EFPs (2001-present) | BFT target catch requirements (1981); quotas (SWO - 1985; SHK - 1993); prohibit possession of billfish (1988); minimum size (1995); gear marking (1999); line clippers, dipnets (2000); MAB closure (1999); limited access (1999); limit the length of mainline (1996-1997 only); move 1 nm after an interaction (1999); voluntary vessel operator workshops (1999); GOM closure (2000); FL, Charleston Bump, NED closures (2001); gangion length, corrodible hooks, de-hooking devices, handling & release guidelines (2001); NED experiment (2001-03); VMS (2003); circle hooks and bait requirements (2004); mandatory safe handling and release workshops (2006); sea turtle control device (2008); closed area research (2008-10); marine mammal handling and release placard, 20 nm mainline restriction in MAB, observer and research requirements in Cape Hatteras Spec. Research Area (CHSRA), increased observer coverage in Atl PLL fishery (2009), weak hook requirement in GOM (2011) |
| Shark bottom longline | Prohibited shark species<br>Target species after closure<br>Sea turtles<br>Smalltooth sawfish<br>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<br>Sea turtles<br>Marine mammals<br>Non-target finfish  | Category II   | ITS, Terms & Conditions, RPMs   | Permit requirement (1993); logbook requirement (1993); observer coverage (1994)   | Quotas (1993); trip limit (1994); gear marking (1999); deployment restrictions (1999); 30-day closure for leatherbacks (2001); handling & release guidelines (2001); net checks (2002); whale sighting (2002); VMS (2004); closure for right whale mortality (2006); shark   |

| <b>Fishery/Gear Type</b>         | <b>Bycatch Species</b>                         | <b>MMPA Category</b> | <b>ESA Requirements</b> | <b>Bycatch Data Collection</b>  | <b>Management Measures</b>   |
|----------------------------------|--|----------------------|-------------------------|---|--|
|                                  | Smalltooth sawfish                             |                      |                         |   | identification workshops for dealers (2007)  |
| Bluefin tuna purse seine         | Undersize target species<br>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)              |
| 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; SWO - 1985); minimum size (BFT - 1982; SWO - 1985)                           |
| Handgear - commercial            | Undersize target species<br>Non-target finfish | Category III         | ITS, Terms & Conditions | Permit requirement (BFT - 1982; SWO 1987; SHK - 1993); logbook requirement (SWO - 1985; SHK - 1993) | Regulations vary by species, including quotas, minimum sizes, retention limits, landing form     |
| Handgear - recreational          | Undersize target species<br>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 NS 9. Physical injuries may not be apparent to the fisherman who is quickly releasing a fish because there may be injuries associated with the stress of being hooked or caught in a net. Little is known about the mortality rates of many of the species managed under this FMP, but there are some data for certain species. Information on bycatch mortality of these fish should continue to be collected, and in the future, could be used to estimate bycatch mortality in stock assessments.

NMFS submits annual data (Task II) to ICCAT on mortality estimates (dead discards). These data are included in the 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). See Section 4 for estimates of sea turtle and marine mammal bycatch.

### *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 begun targeting finfish rather than sharks. A total of 316 gillnet sets were observed in 2012. The majority of species caught were finfish (97.3%) versus sharks (2.7%). Only three individual protected species was observed: a common loon was caught and discarded dead, a leatherback sea turtle was caught and released alive, and an unidentified sea turtle was caught and released alive. Disposition of discards is recorded by observers and can be used to estimate discard mortality.

### *Commercial Handgear Fishery*

Vessels targeting bluefin tuna with harpoon gear have not been selected for observer coverage since the deliberate fishing nature of the gear is such that bycatch is expected to be low.

Therefore, there are no recorded instances of non-target finfish caught with harpoons and NMFS cannot quantify the bycatch of undersized bluefin tuna in this fishery. Bycatch in the swordfish harpoon fishery is 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).

### **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 2013 MMPA LOF was published on August 29, 2013 (78 FR 53363). 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 4.7. 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 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.

Gannets, gulls, greater shearwaters, and storm petrels are occasionally hooked by Atlantic PLLs. 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 2012. 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 27.6 mt ww of yellowfin tuna, skipjack tuna, albacore tuna, bigeye tuna, and swordfish in 2012 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 2010 for bigeye tuna and albacore. Swordfish landings remain low relative to the directed fishery landings but have increased in 2009-2011. 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 (2003-2012)**

| Species        | 2003 | 2004 | 2005  | 2006 | 2007  | 2008  | 2009 | 2010 | 2011 | 2012  |
|----------------|------|------|-------|------|-------|-------|------|------|------|-------|
| Yellowfin tuna | 2.20 | 1.6  | 0.20  | 0.7  | 2.40  | 0.00  | 0.0  | 1.4  | 1.3  | 0.2   |
| Skipjack tuna  | 0.50 | 0.2  | 0.07  | 0.7  | <0.01 | <0.01 | 0.0  | 0.0  | 0.0  | 0.006 |
| Bigeye tuna    | 0.03 | 0.9  | 0.60  | 0.0  | 0.40  | 0.00  | 0.0  | 0.7  | 1.2  | 0.2   |
| Albacore tuna  | 0.02 | 2.7  | 1.70  | 1.1  | 0.30  | 0.01  | 0.08 | 0.2  | 2.0  | 0.3   |
| Swordfish      | 5.60 | 8.3  | 8.20  | 3.5  | 6.50  | 7.60  | 22.7 | 21.2 | 17.9 | 26.8  |
| Total          | 8.35 | 13.7 | 10.77 | 6.0  | 9.61  | 7.61  | 22.8 | 22.5 | 22.4 | 27.6  |

Source: NMFS, 2012.

##### 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 stock assessment, SEDAR 21 (Cortés, E. and I. Baremore, 2011).

## 7.5 Effectiveness of Existing Pelagic Longline Time/Area Closures and Gear Restrictions 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.

The combined effects of the individual area closures and gear restrictions were examined by comparing the reported catch and discards from 2005-2012 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 25.8 percent during 2005-2012 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 and large coastal shark discards. The reported number of bluefin tuna kept increased by 63.1 percent for 2005-2012 compared to 1997-1999 (Table 7.3). The number of reported discards of bluefin tuna increased by almost 21 percent between the same time periods, which is almost double the predicted 11 percent increase from the analyses in Regulatory Amendment 1, while the number of dolphin kept increased by 3.3 percent (Table 7.3). Reported billfish (blue marlin, white marlin, and sailfish) discards decreased by 56 - 64 percent from 1997-1999 to 2005-2012 (Table 7.4). The reported discards of spearfish increased by 2 percent, although the absolute number of discards was low. The reported number of turtle interactions decreased by 70 percent from 1997-1999 to 2005-2012.

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 2005-2012, while the number of bluefin tuna discards and dolphin kept has 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 eight-fold from the 1997-1999 period. However, this effort represents only 2.1 percent of the overall effort reported in this fishery. Effort also increased in the Florida East Coast (FEC) area by 2.7 percent. Overall, reported effort decreased by 25.8 percent from 1997-1999 to 2005-2012. Reported effort declined by only 1.4 percent in the MAB area, and 2.1 percent in the South Atlantic Bight (SAB). Reported effort declined by 45 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 from 2011, but was still below the pre-spill effort. Although reported effort declined by 61.5 percent in the SAT area (Tuna North and Tuna South combined), this represents less than three percent of total reported 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 increased over the last few years but decreased in 2012. The discards from the other areas have remained relatively constant. The increase in bluefin tuna discards in the MAB/NEC does not appear to be effort-related as the reported number of hooks set has also been relatively stable (MAB) or in decline (NEC).

**Table 7.3 Total Number of Swordfish, Bluefin Tuna, Yellowfin Tuna, Bigeye Tuna, and Total BAYS (Bigeye, Albacore, Yellowfin and Skipjack Tuna) Reported Landed or Discarded in the U.S. Atlantic Pelagic Longline Fishery (1997 – 2012) 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          | 2,830               |
| 2012              | 7,678.5                     | 51,544         | 7,996              | 392               | 563                   | 59,188              | 1,046                   | 14,841           | 459                  | 84,707          | 3,113               |
| (B) 2005-12       | 6,334.3                     | 42,770         | 9,147              | 388               | 1,058                 | 45,394              | 1,267                   | 11,895           | 377                  | 64,144          | 2,870               |
| % 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)         | -25.8                       | -38.1          | -57.5              | 63.1              | 20.7                  | -37.3               | -49.1                   | -44.2            | -66.7                | -36.8           | -32.1               |
| Pred <sup>1</sup> |                             | -24.6          | -41.5              |                   | -1.0                  |                     |                         |                  |                      | -5.2            |                     |
| Pred <sup>2</sup> |                             | -13.0          | -31.4              |                   | 10.7                  |                     |                         |                  |                      | 10.0            |                     |

Predicted values from Regulatory Amendment 1, where Pred <sup>1</sup> = without redistribution of effort, Pred <sup>2</sup> = with redistribution of effort.

Source: Fisheries Logbook System.

**Table 7.4 Total Number of Pelagic Sharks, Large Coastal Sharks, Dolphinfish (Mahi mahi), 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 – 2012) and Percent Changes Since 1997-99**

| Year              | Pelagic Sharks Kept | Pelagic Shark Discards | Large Coastal Sharks Kept | Large Coastal Shark Discards | Dolphin Kept | Dolphin Discards | Wahoo Kept | Wahoo Discards | Blue Marlin Discards | White Marlin Discards | Sailfish Discards | Spearfish Discards | Sea Turtles |
|-------------------|---------------------|------------------------|---------------------------|------------------------------|--------------|------------------|------------|----------------|----------------------|-----------------------|-------------------|--------------------|-------------|
| 1997-99           | 3,898               | 52,093                 | 8,860                     | 6,308                        | 39,711       | 608              | 5,172      | 175            | 1,621                | 1,973                 | 1,342             | 213                | 596         |
| (A) 2001-03       | 3,237               | 23,017                 | 5,306                     | 4,581                        | 29,361       | 322              | 3,776      | 74             | 815                  | 1,045                 | 341               | 139                | 429         |
| 2004              | 3,460               | 25,414                 | 2,304                     | 5,144                        | 39,561       | 295              | 4,674      | 35             | 713                  | 1,060                 | 425               | 172                | 370         |
| 2005              | 3,150               | 21,560                 | 3,365                     | 5,881                        | 25,709       | 556              | 3,360      | 280            | 569                  | 990                   | 367               | 155                | 154         |
| 2006              | 2,098               | 24,113                 | 1,768                     | 5,326                        | 25,658       | 1,041            | 3,608      | 100            | 439                  | 557                   | 277               | 142                | 128         |
| 2007              | 3,504               | 27,478                 | 546                       | 7,133                        | 68,124       | 467              | 3,073      | 52             | 611                  | 744                   | 321               | 147                | 300         |
| 2008              | 3,500               | 28,786                 | 115                       | 6,732                        | 43,511       | 404              | 2,571      | 82             | 686                  | 669                   | 505               | 196                | 476         |
| 2009              | 3,060               | 33,721                 | 403                       | 6,672                        | 62,701       | 433              | 2,648      | 81             | 1,013                | 1,064                 | 774               | 335                | 137         |
| 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          |
| (B) 2005-11       | 3,209               | 30,998                 | 856                       | 6,534                        | 41,006       | 480              | 2,662      | 95             | 651                  | 873                   | 485               | 217                | 177         |
| % 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)        | -17.7               | -40.5                  | -90.3                     | 3.6                          | 3.3          | -21.0            | -49.3      | -45.5          | -59.9                | -55.8                 | -63.9             | 2.0                | -70.3       |
| Pred <sup>1</sup> | -9.5                | -2.0                   | -32.1                     | -42.5                        | -29.3        |                  |            |                | -12.0                | -6.4                  | -29.6             |                    | -1.9        |
| Pred <sup>2</sup> | 4.1                 | 8.4                    | -18.5                     | -33.3                        | -17.8        |                  |            |                | 6.5                  | 10.8                  | -14.0             |                    | 7.1         |

Predicted values from Regulatory Amendment 1 where Pred<sup>1</sup> = without redistribution of effort, Pred<sup>2</sup> = with redistribution of effort.

Source: Fisheries Logbook System.

**Table 7.5 Reported Distribution of Hooks Set by Area (1997-2012) 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 |
| (B) 2005-12 | 65,474  | 2,355,547 | 742,002   | 796,283   | 1,250,216 | 532,633 | 260,761 | 140,122 | 20,680  | 168,294 | 6,332,004 |
| % 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)  | -80.0   | -29.6     | 2.7       | -2.1      | -1.4      | -40.9   | -49.0   | 879.0   | -89.2   | -61.5   | -25.8     |

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 (1997-2012)**

| 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                      |

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 (1997-2012)**

| Year | Hooks Set<br>(x1000) | BFT      |          | SWO      |          | PEL Shark |          | LCS   |          | Billfish<br>Discards | Turtle<br>Interactions |
|------|----------------------|----------|----------|----------|----------|-----------|----------|-------|----------|----------------------|------------------------|
|      |                      | BFT Kept | Discards | SWO Kept | Discards | Kept      | Discards | Kept  | Discards |                      |                        |
| 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                     |

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.

### Chapter 7 References

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## **8. HMS PERMITS AND TOURNAMENTS**

This section provides updates for the number of permits issued in conjunction with HMS fishing and dealer activities in 2013. The number of permits for Atlantic HMS fisheries and the number of dealer permits for sharks, swordfish, and tunas are updated through October 2013 and presented in Tables 8.1 - 8.8. Section 8.2 reports the historical number, locations, and target species of HMS tournament registrations with final numbers from the 2012 tournaments season.

### **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](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 Tuna Longline Limited Access Permits by State (2006-2013)**

| State                | Directed Swordfish | Incidental Swordfish | Swordfish Handgear | Directed Shark | Incidental Shark | Tuna Longline | Permit Holders/Permits |
|----------------------|--------------------|----------------------|--------------------|----------------|------------------|---------------|------------------------|
| ME                   | 5                  | -                    | 1                  | 2              | 6                | 5             | 9 / 19                 |
| MA                   | 6                  | 2                    | 8                  | 3              | 9                | 7             | 19 / 35                |
| RI                   | 1                  | -                    | 11                 | 1              | 3                | 1             | 12 / 17                |
| CT                   | 2                  | -                    | 1                  | -              | 2                | 2             | 3 / 7                  |
| NY                   | 16                 | 3                    | 4                  | 10             | 10               | 19            | 24 / 62                |
| PA                   | 2                  | -                    | -                  | -              | 2                | 2             | 2 / 6                  |
| NJ                   | 27                 | 12                   | 4                  | 22             | 28               | 39            | 52 / 132               |
| DE                   | -                  | -                    | 1                  | -              | -                | -             | 1 / 1                  |
| MD                   | 4                  | -                    | -                  | 2              | 3                | 4             | 5 / 13                 |
| VA                   | 1                  | 1                    | -                  | -              | 2                | 2             | 2 / 6                  |
| NC                   | 11                 | 7                    | -                  | 18             | 10               | 18            | 28 / 64                |
| SC                   | 4                  | 1                    | -                  | 7              | 10               | 5             | 17 / 27                |
| GA                   | -                  | -                    | -                  | 2              | 2                | -             | 4 / 4                  |
| FL                   | 73                 | 34                   | 50                 | 128            | 126              | 106           | 299 / 517              |
| AL                   | -                  | -                    | -                  | 5              | 2                | -             | 7 / 7                  |
| MS                   | -                  | -                    | -                  | -              | 1                | -             | 1 / 1                  |
| LA                   | 30                 | 5                    | -                  | 15             | 35               | 34            | 51 / 119               |
| TX                   | 3                  | 6                    | 1                  | 5              | 13               | 8             | 19 / 36                |
| CA                   | -                  | -                    | -                  | -              | 1                | -             | 1 / 1                  |
| <b>Annual Totals</b> |                    |                      |                    |                |                  |               |                        |
| 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            |
| 2007                 | 180                | 79                   | 82                 | 231            | 296              | 218           | 613 / 1,086            |
| 2006                 | 191                | 86                   | 88                 | 240            | 312              | 214           | 604 / 1,131            |

\* As of October 2013. Number of 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 2013)

| State | Incidental HMS Squid Trawl Permits |
|-------|------------------------------------|
| ME    | 4                                  |
| NH    | 1                                  |
| MA    | 10                                 |
| RI    | 10                                 |
| CT    | 3                                  |
| NY    | 6                                  |
| NJ    | 27                                 |
| VA    | 3                                  |
| NC    | 9                                  |
| Total | 73                                 |

### *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 all HMS for boats fishing in the Caribbean region. Although sharks are authorized for retention the current retention limit with this permit is zero. As of October 2013, 16 permits have been issued with the majority (13) in Florida. Alabama, Puerto Rico, and the U.S. Virgin Islands each have one permit holder.

### *Atlantic Tunas Permits*

Commercial Atlantic tunas permits are categorized by gear type (longline, harpoon, trap, purse seine, and General category) (Table 8.3). 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 8.4. HMS Charter/Headboat permit holders (Table 8.5) may also participate in the commercial tuna fishery.

**Table 8.3** Number of Commercial Atlantic Tunas Permit Holders by Category (2006-2013)

| Category    | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  | 2013* |
|-------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Longline    | 214   | 218   | 241   | 259   | 248   | 242   | 253   | 252   |
| Harpoon     | 40    | 26    | 26    | 23    | 29    | 24    | 13    | 14    |
| Trap        | 7     | 9     | 9     | 4     | 6     | 6     | 8     | 7     |
| General     | 4,824 | 3,616 | 4,031 | 3,824 | 3,849 | 3,764 | 4,084 | 3,783 |
| Purse seine | 5     | 4     | 4     | 3     | 3     | 3     | 3     | 3     |
| Total       | 5,090 | 3,873 | 4,311 | 4,113 | 4,135 | 4,039 | 4,361 | 4,059 |

\* As of October 2013. The actual number of 2013 permit holders in each category is subject to change as individuals renew their permits or allow them to expire.

**Table 8.4 Number of General Category Permits by State or Territory (as of October 2013)**

| State        | General Category Permits | State | General Category Permits |
|--------------|--------------------------|-------|--------------------------|
| AL           | 36                       | NC    | 363                      |
| AZ           | 1                        | NH    | 233                      |
| CA           | 1                        | NJ    | 195                      |
| CO           | 1                        | NY    | 197                      |
| CT           | 73                       | OH    | 1                        |
| DE           | 26                       | OR    | 1                        |
| FL           | 220                      | PA    | 7                        |
| GA           | 4                        | PR    | 83                       |
| IN           | 1                        | RI    | 156                      |
| LA           | 50                       | SC    | 35                       |
| MA           | 1,150                    | TX    | 25                       |
| MD           | 39                       | VA    | 141                      |
| ME           | 704                      | VI    | 12                       |
| MI           | 1                        | VT    | 4                        |
| MS           | 22                       | WV    | 1                        |
| <b>Total</b> |                          |       | <b>3,783</b>             |

*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 permit. The distribution of 2013 Atlantic HMS Charter/Headboat permits is presented in Table 8.5.

**Table 8.5 Number of Atlantic HMS Charter/Headboat Permits by State (as of October 2013)**

| State/Territory | Atlantic HMS Charter/Headboat Permits | State/Territory | Atlantic HMS Charter/Headboat Permits |
|-----------------|---------------------------------------|-----------------|---------------------------------------|
| AL              | 78                                    | NJ              | 501                                   |
| CA              | 1                                     | NY              | 311                                   |
| CT              | 82                                    | OH              | 1                                     |
| DE              | 105                                   | OK              | 1                                     |
| FL              | 585                                   | PA              | 22                                    |
| GA              | 23                                    | PR              | 18                                    |
| ID              | 1                                     | RI              | 146                                   |
| LA              | 89                                    | SC              | 119                                   |
| MA              | 794                                   | TX              | 138                                   |
| MD              | 128                                   | VA              | 136                                   |
| ME              | 142                                   | VI              | 22                                    |
| MS              | 26                                    | VT              | 1                                     |
| NC              | 350                                   | WV              | 4                                     |
| NH              | 102                                   | <b>Total</b>    | <b>3,968</b>                          |

*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 8.6.

**Table 8.6 Number of Atlantic HMS Angling Permits (as of October 2013)**

| State/Country | Permits by Home Port* | Permits by Residence** | State/Country | Permits by Home Port* | Permits by Residence** |
|---------------|-----------------------|------------------------|---------------|-----------------------|------------------------|
| AK            | 4                     | 1                      | NC            | 1,531                 | 1,416                  |
| AL            | 414                   | 372                    | ND            | 1                     | 1                      |
| AR            | 6                     | 12                     | NE            | -                     | 4                      |
| AZ            | -                     | 3                      | NH            | 303                   | 378                    |
| BVI           | 2                     | 1                      | NJ            | 2,800                 | 2,378                  |
| CA            | 5                     | 7                      | NV            | 2                     | 4                      |
| CO            | 4                     | 8                      | NY            | 1,627                 | 1,710                  |
| CT            | 556                   | 640                    | OH            | 17                    | 27                     |
| DC            | 1                     | 6                      | OK            | 8                     | 18                     |
| DE            | 770                   | 471                    | OR            | 1                     | -                      |
| FL            | 4,058                 | 3,760                  | PA            | 194                   | 1,031                  |
| GA            | 117                   | 207                    | PR            | 593                   | 604                    |
| HI            | 1                     | -                      | RI            | 573                   | 404                    |
| IA            | 1                     | 3                      | SC            | 583                   | 562                    |
| IL            | 12                    | 28                     | SD            | 1                     | 2                      |
| IN            | 4                     | 13                     | TN            | 27                    | 49                     |
| KS            | 1                     | 2                      | TX            | 733                   | 778                    |
| KY            | 5                     | 13                     | UT            | 1                     | 3                      |
| LA            | 731                   | 731                    | VA            | 1,513                 | 1,574                  |
| MA            | 2,749                 | 2,727                  | USVI          | 47                    | 23                     |
| MD            | 1,014                 | 1,008                  | VT            | 21                    | 36                     |
| ME            | 397                   | 332                    | WA            | 2                     | 4                      |
| MI            | 23                    | 37                     | WI            | 9                     | 12                     |
| MN            | 2                     | 8                      | WV            | 6                     | 10                     |
| MO            | 6                     | 15                     | WY            | -                     | 1                      |
| MS            | 198                   | 236                    | Canada        | 10                    | 14                     |
| MT            | 2                     | 2                      | Total         | 21,686                | 21,686                 |

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

*Atlantic Tunas, Swordfish, and Sharks 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 8.7.

**Table 8.7 Number of Domestic Atlantic Tunas, Swordfish, and Sharks Dealer Permits (2013 by State; 2006-2013 Totals by Permit)**

| State/Territory      | Bluefin Only | BAYS Only | Bluefin and BAYS | Atlantic Swordfish | Atlantic Sharks | Total |
|----------------------|--------------|-----------|------------------|--------------------|-----------------|-------|
| AL                   | -            | 1         | 2                | 4                  | 3               | 1     |
| CA                   | 2            | -         | 1                | 2                  | -               | 5     |
| CT                   | -            | 1         | 2                | 1                  | -               | 4     |
| DE                   | -            | 1         | 1                | -                  | -               | 2     |
| FL                   | 3            | 4         | 16               | 78                 | 29              | 130   |
| GA                   | -            | -         | 2                | 1                  | 1               | 4     |
| HI                   | -            | -         | 2                | -                  | -               | 2     |
| LA                   | -            | 1         | 6                | 9                  | 8               | 24    |
| MA                   | 9            | 9         | 87               | 16                 | 7               | 128   |
| MD                   | -            | 2         | 8                | 4                  | 3               | 17    |
| ME                   | 11           | -         | 14               | 4                  | 1               | 30    |
| NC                   | 5            | 4         | 25               | 21                 | 16              | 71    |
| NH                   | -            | -         | 6                | 1                  | -               | 7     |
| NJ                   | -            | 9         | 37               | 10                 | 8               | 64    |
| NY                   | 2            | 22        | 57               | 11                 | 5               | 97    |
| PA                   | -            | -         | 2                | 1                  | -               | 3     |
| PR                   | -            | 4         | 1                | -                  | -               | 5     |
| RI                   | 1            | 6         | 31               | 9                  | 1               | 48    |
| SC                   | -            | 1         | 2                | 6                  | 11              | 20    |
| TX                   | -            | 1         | -                | 3                  | 1               | 5     |
| VA                   | 2            | 4         | 13               | 2                  | 3               | 24    |
| VI                   | -            | 2         | 1                | -                  | -               | 3     |
| VT                   | -            | -         | 1                | -                  | -               | 1     |
| WV                   | -            | -         | 1                | -                  | -               | 1     |
| <b>Annual Totals</b> |              |           |                  |                    |                 |       |
| 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   |
| 2007                 | 9            | 22        | 255              | 269                | 206             | 761   |
| 2006                 | 43           | 60        | 313              | 285                | 336             | 1,037 |

\* As of October 2013. 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 2009 – 2013 by category and species are listed in Table 8.8. Amendment 2 to the 2006 Consolidated HMS FMP implemented the shark research fishery. In 2013, NMFS received 13 applications for entrance into the shark research fishery. Based on the qualification criteria, 6 were chosen to participate.

**Table 8.8** Number of Atlantic HMS Exempted Fishing Permits (EFPs), Display Permits, and Scientific Research Permits (SRPs) (2009-2013)

| Permit Type                |                                       | 2009      | 2010      | 2011      | 2012      | 2013*     |
|----------------------------|---------------------------------------|-----------|-----------|-----------|-----------|-----------|
| Exempted Fishing Permit    | Sharks for display                    | 4         | 2         | 3         | 4         | 4         |
|                            | HMS** for display                     | 2         | 2         | 2         | 2         | 2         |
|                            | Tunas for display                     | 0         | 0         | 0         | 0         | 0         |
|                            | Shark research on a non-scientific    | 4         | 9         | 8         | 10        | 10        |
|                            | Tuna research on a non-scientific     | 4         | 5         | 5         | 5         | 4         |
|                            | HMS** research on a non-scientific    | 5         | 2         | 2         | 3         | 3         |
|                            | Billfish research on a non-scientific | 1         | 2         | 2         | 1         | 1         |
|                            | Shark fishing                         | 0         | 0         | 0         | 0         | 0         |
|                            | HMS** chartering                      | 0         | 0         | 0         | 0         | 0         |
|                            | Tuna fishing                          | 0         | 0         | 0         | 0         | 0         |
|                            | <b>Total</b>                          | <b>20</b> | <b>22</b> | <b>22</b> | <b>25</b> | <b>24</b> |
| Scientific Research Permit | Shark research                        | 4         | 1         | 3         | 4         | 3         |
|                            | Tuna research                         | 0         | 1         | 1         | 3         | 2         |
|                            | Billfish research                     | 0         | 0         | 0         | 0         | 0         |
|                            | HMS** research                        | 0         | 4         | 6         | 4         | 3         |
|                            | <b>Total</b>                          | <b>4</b>  | <b>6</b>  | <b>10</b> | <b>11</b> | <b>8</b>  |
| Letters of Acknowledgement | Shark research                        | 5         | 8         | 7         | 7         | 6         |
|                            | <b>Total</b>                          | <b>5</b>  | <b>8</b>  | <b>7</b>  | <b>7</b>  | <b>6</b>  |

\*As of October 31, 2013. \*\*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 Caribbean (i.e., the U.S. Virgin Islands and Puerto Rico). 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 tournament registration with NMFS take place 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.

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/Tournaments>. The Atlantic HMS tournament registration form includes an option for tournament operators to request HMS regulation booklets and other outreach materials. In 2012, over 100 tournaments requested and received outreach materials from the HMS Management Division through the tournament registration process. In 2013, more than 120 tournaments had requested and received outreach materials for the 2013 tournament season.

The number of HMS tournaments that registered each year from 2003 to 2012 is reported in Table 8.9. Over the past ten years (2003-2012), an average of 257 HMS tournaments register each year. In 2012, a final count of 238 tournaments registered with the HMS Management Division. This is the lowest registration count since 2005. The highest number of HMS tournament registrations occurred in 2007. In 2012, there were 20 inaugural HMS tournaments.

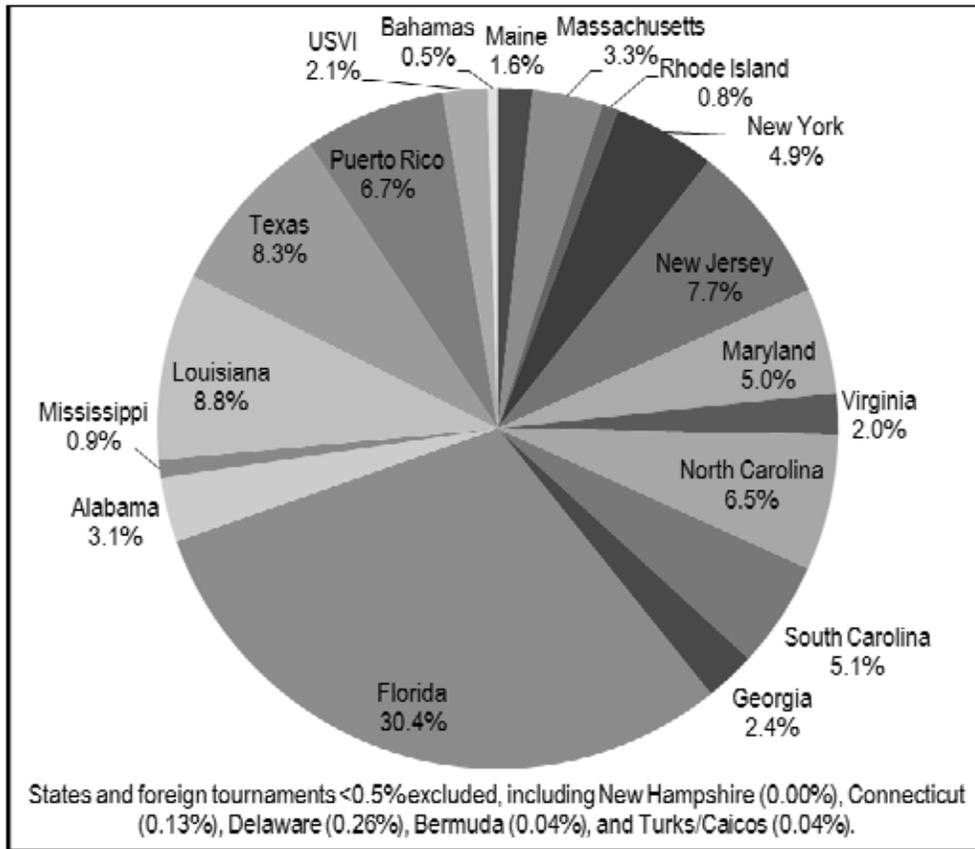
**Table 8.9 Number of Registered Atlantic HMS Tournaments by Year (2003-2012)**

| Year  | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013* | Average** |
|-------|------|------|------|------|------|------|------|------|------|------|-------|-----------|
| Total | 244  | 215  | 256  | 259  | 299  | 267  | 270  | 270  | 249  | 238  | 226   | 257       |

\*As of November 2013. \*\*Averages only final numbers (2003-2012); excludes preliminary 2013 number.

Source: NMFS Atlantic HMS Tournament Registration Database.

The distribution of HMS fishing tournaments along the Atlantic and Gulf of Mexico coastal states and the Caribbean is represented in Figure 8.1.



**Figure 8.1 Percentage of Atlantic HMS Tournaments Held in each State (Average, 2003-2012)**

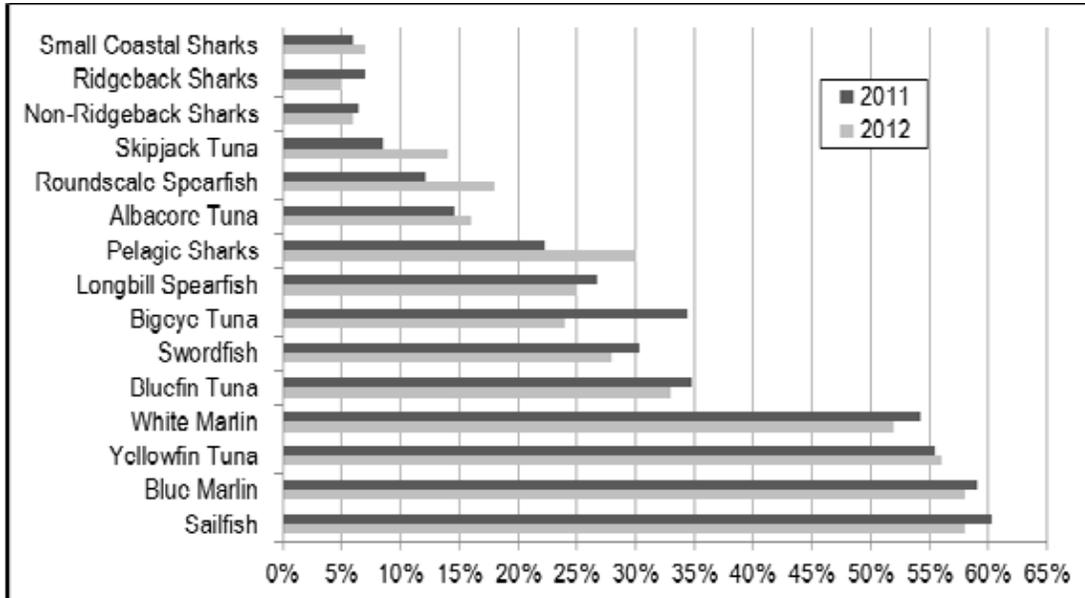
Source: NMFS Atlantic HMS Tournament Registration Database.

Table 8.10 indicates the number of HMS tournaments in 2011 and 2012 that registered to award points or prizes for the catch or landing of each HMS. Figure 8.2 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 (2011 & 2012)**

| Species              | 2011 | 2012 |
|----------------------|------|------|
| Blue marlin          | 146  | 139  |
| White marlin         | 134  | 124  |
| Longbill spearfish   | 66   | 59   |
| Roundscale spearfish | 30   | 42   |
| Sailfish             | 151  | 139  |
| Swordfish            | 75   | 67   |
| Bluefin tuna         | 86   | 78   |
| Bigeye tuna          | 85   | 58   |
| Albacore tuna        | 36   | 37   |
| Yellowfin tuna       | 137  | 133  |
| Skipjack tuna        | 21   | 33   |
| Pelagic sharks       | 55   | 71   |
| Small coastal sharks | 15   | 16   |
| Non-ridgeback sharks | 16   | 15   |
| Ridgeback sharks     | 17   | 13   |

Source: NMFS Atlantic HMS Tournament Registration Database.



**Figure 8.2 Species Composition of HMS Tournaments (2011 & 2012)**

Source: NMFS Atlantic HMS Tournament Registration Database.

### 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 8.3 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.

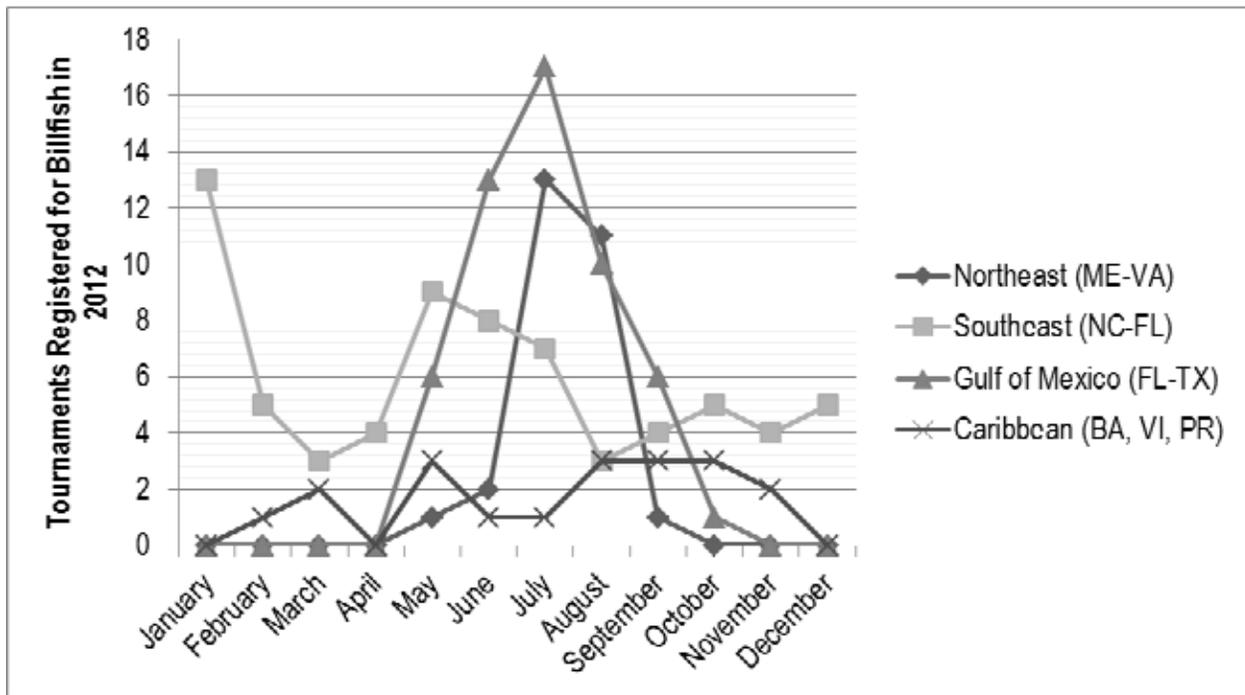
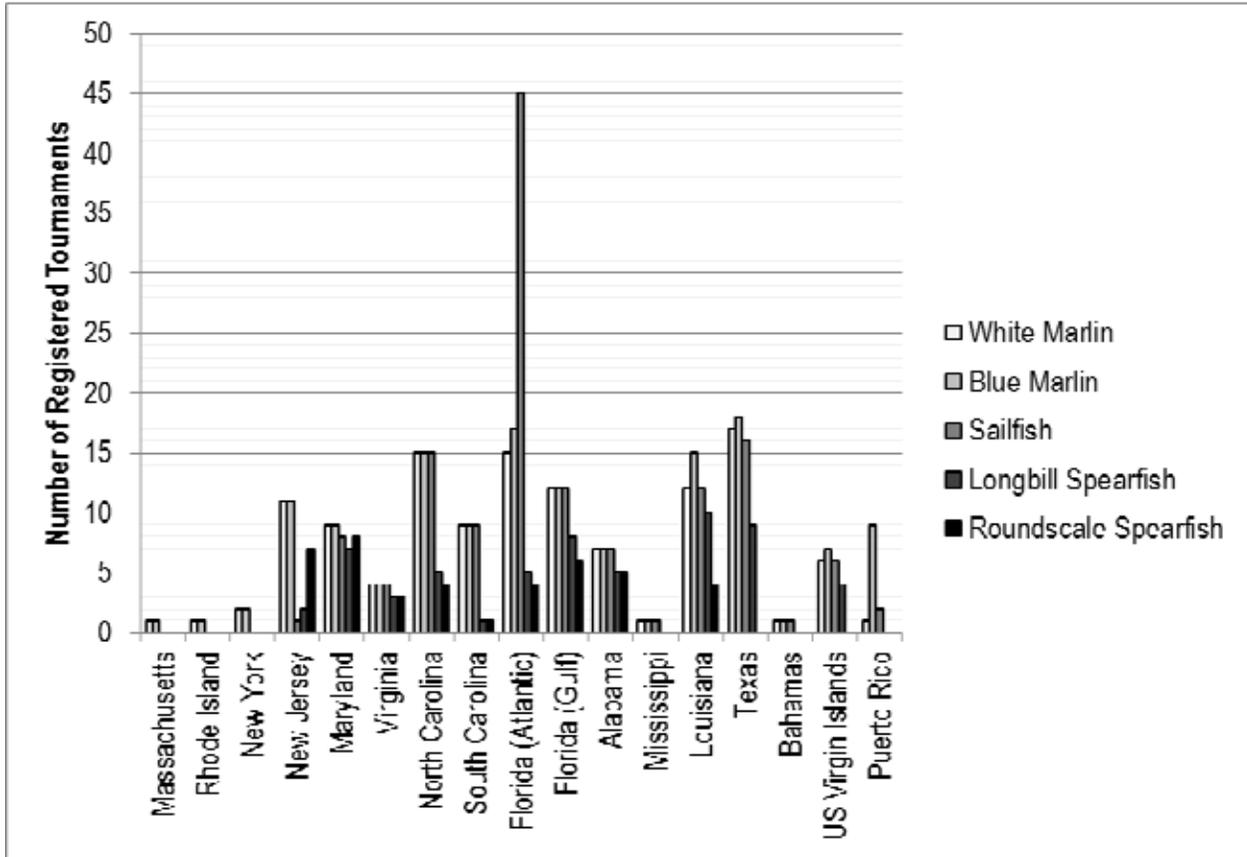


Figure 8.3 Number of Billfish Tournaments by Region and Month (2012)

Source: NMFS Atlantic HMS Tournament Registration Database.

Figure 8.4 shows the number of tournaments in 2012 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 8.4** Number of White Marlin, Blue Marlin, Sailfish, Longbill Spearfish, and Roundscale Spearfish Tournaments by Species and State (2012)

Source: NMFS Atlantic HMS Tournament Registration Database.