



**NOAA
FISHERIES**

2012

Stock Assessment and Fishery Evaluation Report for Atlantic Highly Migratory Species

2012
Stock Assessment and
Fishery Evaluation (SAFE) Report for
Atlantic Highly Migratory Species



Atlantic Highly Migratory Species Management Division
December 2012

For HMS permitting information and regulations:

HMS Recreational, Commercial, and Dealer compliance guides
http://www.nmfs.noaa.gov/sfa/hms/Compliance_Guide/index.htm

To purchase or renew an HMS permit:

Charter/headboat, Atlantic tunas (General category), and Angling (recreational HMS) permits and HMS regulatory updates
NOAA Fisheries, (888) 872-8862
www.hmspermits.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

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

Shark and Swordfish dealer permits
NOAA Fisheries Southeast Regional Office, (727) 824-5326
http://sero.nmfs.noaa.gov/operations_management_information_services/constituency_services_branch/permits/index.html

For HMS SAFE Reports (2000 – current):

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

TABLE OF CONTENTS

<i>List of Tables</i>	<i>v</i>
<i>List of Figures</i>	<i>ix</i>
<i>List of Commonly Used Acronyms</i>	<i>x</i>
<i>Executive Summary</i>	<i>xii</i>
1. INTRODUCTION	1
1.1 Agency Activities and Regulatory Actions for HMS	1
1.2 2012 Accomplishments of the International Commission for the Conservation of Atlantic Tunas	6
1.3 State Regulations	8
2. STATUS OF THE STOCKS	19
2.1 Stock Assessment Details	25
Chapter 2 References	27
3. ESSENTIAL FISH HABITAT	29
3.1 Designations in the 2006 Consolidated Atlantic HMS FMP and its Amendments	29
3.2 Shark Nursery Grounds and Essential Fish Habitat Studies	30
Chapter 3 References	34
4. FISHERY DATA UPDATE	35
4.1 Pelagic Longline	36
4.1.1 Current Management	36
4.1.2 Recent Catch, Landings, and Bycatch	40
4.1.3 International Issues and Catch	50
4.2 Purse Seine	53
4.2.1 Current Management	53
4.2.2 Recent Catch and Landings	53
4.2.3 International Issues and Catch	54
4.3 Commercial Handgear	54
4.3.1 Current Management	54
4.3.2 Recent Catch and Landings	56
4.4 Recreational Handgear	60
4.4.1 Current Management	60
4.4.2 Recent Catch, Landings, and Bycatch	61
4.5 Bottom Longline	70
4.5.1 Current Management	70
4.5.2 Recent Catch, Landings, and Discards	70
4.5.3 Bottom Longline Bycatch	74
4.6 Gillnet Fishery	74
4.6.1 Current Management	75
4.6.2 Recent Catch, Landings, and Discards	75
4.6.3 Gillnet Bycatch	77
4.7 Buoy Gear	80
4.7.1 Domestic History and Current Management	80
4.7.2 Recent Catch, Landings, and Discards	80
4.8 Green-Stick Gear	82

4.8.1	Current Management	82
4.8.2	Recent Catch and Landings	82
4.9	Safety Issues	83
4.10	Fishery Data: Landings by Species.....	83
	Chapter 4 References	92
5.	ECONOMIC STATUS OF HMS FISHERIES.....	93
5.1	Commercial Fisheries	93
5.1.1	Ex-Vessel Prices	94
5.1.2	Revenues	96
5.1.3	Operating Costs	98
5.2	Fish Processing and Wholesale Sectors.....	99
5.2.1	Dealers.....	99
5.2.2	Processing Sector	100
5.3	International Trade.....	101
5.3.1	U.S. Exports of HMS	102
5.3.2	U.S. Imports of HMS	111
5.3.3	The Use of Trade Data for Management Purposes	120
5.4	Recreational Fisheries	121
5.4.1	Recreational Angling	121
5.4.2	Atlantic HMS Tournaments.....	122
5.4.3	Atlantic HMS Charter and Party Boat Operations.....	122
5.5	Review of Regulations under Section 610 of the Regulatory Flexibility Act	122
	Chapter 5 References	146
6.	COMMUNITY PROFILES.....	148
6.1	Community Impacts from Hurricanes.....	148
6.2	Community Impacts from 2010 Deepwater Horizon/BP Oil Spill.....	149
6.3	Community Profile Census Data that was Not Available in 2011 HMS SAFE Report	150
	Chapter 6 References	174
7.	BYCATCH, INCIDENTAL CATCH, AND PROTECTED SPECIES.....	176
7.1	Bycatch Reduction and the Magnuson-Stevens Act	176
7.2	Evaluation and Monitoring of Bycatch in HMS Fisheries.....	176
7.2.1	Bycatch Mortality	180
7.3	Protected Species Interactions in HMS Fisheries	181
7.3.1	Interactions and the Marine Mammal Protection Act	181
7.3.2	Interactions and the Endangered Species Act (ESA)	182
7.4	Bycatch of HMS in Other Fisheries	183
7.4.1	Squid Mid-Water Trawl.....	183
7.4.2	Shrimp Trawl Fishery.....	183
7.5	Effectiveness of Existing Pelagic Longline Time/Area Closures and Gear Restrictions in Reducing Bycatch.....	183
7.5.1	Conclusion.....	191
7.6	Evaluation of Other Bycatch Reduction Measures.....	191
	Chapter 7 References	191
8.	HMS PERMITS AND TOURNAMENTS	193
8.1	HMS Permits.....	193
8.2	Atlantic HMS Tournaments	199

LIST OF TABLES

Table 1.1	Summary of NMFS' Atlantic HMS Federal Management Actions from December 2, 2011 to December 4, 2012	4
Table 1.2	State Rules and Regulations Pertaining to Atlantic HMS.....	9
Table 2.1	Stock Assessment Summary Table for Atlantic HMS	21
Table 3.1	Management History for HMS Essential Fish Habitat	30
Table 4.1	U.S. vs. International Catch of HMS Reported to ICCAT (Calendar Year 2011).....	36
Table 4.2	Average Number of Hooks per Pelagic Longline Set (2002-2011)	38
Table 4.3	Observer Coverage of the Atlantic Pelagic Longline Fishery (1999-2011).....	40
Table 4.4	Catch Reported in the U.S. Atlantic Pelagic Longline Fishery, in Number of Fish per Species (2002-2011)	41
Table 4.5	Reported Landings (mt ww) in the U.S. Atlantic Pelagic Longline Fishery (2002-2011)	42
Table 4.6	Marine Mammal Interactions in the Atlantic Pelagic Longline Fishery (2002-2011)	44
Table 4.7	Estimated Number of Loggerhead Sea Turtle Interactions in the U.S. Atlantic Pelagic Longline Fishery, by Statistical Area (2002-2011)	47
Table 4.8	Estimated Number of Leatherback Sea Turtle Interactions in the U.S. Atlantic Pelagic Longline Fishery, by Statistical Area (2002-2011)	48
Table 4.9	Estimated Sea Turtle and Marine Mammal Interactions and Incidental Take Levels (ITS) in the US Atlantic Pelagic Longline Fishery (by Species, 2002-2011)	48
Table 4.10	Observed Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery (2004-2011).....	49
Table 4.11	Status of Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery (1992-2011)	50
Table 4.12	Estimated International Longline Landings (mt ww) of HMS (Excluding Sharks) for All Countries in the Atlantic (2002-2011)	51
Table 4.13	Estimated International Longline Landings (mt ww) ¹ of Pelagic Sharks for All Countries in the Atlantic (2002-2011)	52
Table 4.14	Domestic Atlantic Tuna Landings (mt ww) for the Purse Seine Fishery in the Northwest Atlantic Fishing Area (2004-2011)	54
Table 4.15	Estimated International Atlantic Tuna Landings (mt ww) for the Purse Seine Fishery in the Atlantic and Mediterranean (2004-2011).....	54
Table 4.16	U.S. Atlantic Commercial Handgear Landings of Tunas and Swordfish (mt ww) by Gear Type (2004-2011)	58
Table 4.17	U.S. Atlantic Commercial Handgear Landings of Tunas and Swordfish (mt ww) by Region (2002-2011)	59
Table 4.18	Estimated Number of Rod and Reel and Handline Trips Targeting Atlantic Large Pelagic Species, by State (ME-VA, 2002-2011)	60
Table 4.19	Domestic Landings (mt ww)* for the Atlantic Tunas and Swordfish Recreational Rod and Reel Fishery (2002-2011)	62
Table 4.20	Atlantic HMS Tournament Billfish Landings, in Numbers of Fish (2002-2012).....	63
Table 4.21	Atlantic Recreational (Non-tournament) Billfish Landings, in Numbers of Fish (2004-2012)...	63
Table 4.22	Atlantic Blue and White Marlin and Roundscale Spearfish Landings (in Numbers of Fish) vs. Domestic Landings Limit of 250 Fish.....	64
Table 4.23	Estimates of Total Recreational Harvest of Atlantic Sharks* (2002-2011)	64
Table 4.24	Recreational Harvest of Atlantic Large Coastal Sharks by Species, in Number of Fish (2004-2011)	65

Table 4.25	Recreational Harvest of Atlantic Pelagic Sharks by Species, in Number of Fish (2002-2011)	66
Table 4.26	Recreational Harvest of Atlantic Small Coastal Sharks by Species, in Number of Fish (2004-2011)	66
Table 4.27	Observed or Reported Number of HMS Kept in the Rod and Reel Fishery (ME-VA, 2002-2011)	68
Table 4.28	Observed or Reported Number of HMS Released in the Rod and Reel Fishery (ME-VA, 2002-2011)	69
Table 4.29	Shark Species Caught on Observed Bottom Longline Trips Targeting Sandbar Sharks in the Gulf of Mexico and South Atlantic Shark Research Fishery (2011)	72
Table 4.30	Shark Species Caught on Observed Bottom Longline Trips Targeting Large Coastal Sharks in the Gulf of Mexico and South Atlantic Commercial Shark Fishery (2011).....	73
Table 4.31	Shark Species Caught on Observed Bottom Longline Trips Targeting Reef Fish in the Gulf of Mexico (2011)	73
Table 4.32	Protected Species Interactions on Observed Bottom Longline Trips Targeting Sandbar Sharks in the Gulf of Mexico and South Atlantic Shark Research Fishery (2011)	74
Table 4.33	Protected Species Interactions on Observed Bottom Longline Trips Targeting Reef Fish in the Gulf of Mexico (2011).....	74
Table 4.34	Shark Species Caught on Observed Sink Gillnet Trips Targeting Sharks (2011)	75
Table 4.35	Shark Species Caught on Observed Sink Gillnet Trips Targeting Spanish Mackerel (2011) ..	76
Table 4.36	Shark Species Caught on Observed Sink Gillnet Trips Targeting Atlantic Croaker (2011)	76
Table 4.37	Shark Species Caught on Observed Sink Gillnet Trips Targeting Mixed Teleost (2011)	77
Table 4.38	Protected Species Interactions in the Shark Gillnet Fishery (2000-2011)	78
Table 4.39	Bycatch by Species on Observed Sink Gillnet Fishery Trips Targeting Sharks (2011)	79
Table 4.40	Buoy Gear Effort (2007-2011).....	80
Table 4.41	Buoy Gear Landings (lb dw, 2007-2011)	80
Table 4.42	Buoy Gear Catches and Discards, in Numbers of Fish per Species (2007-2011)	81
Table 4.43	U.S. Landings (mt) of Atlantic Bluefin Tuna, by Area and Gear (2004-2011).....	84
Table 4.44	U.S. Landings (mt) of Atlantic Yellowfin Tuna, by Area and Gear (2004-2011)	85
Table 4.45	U.S. Landings (mt) of Atlantic Skipjack Tuna, by Area and Gear (2004-2011)	86
Table 4.46	U.S. Landings (mt) of Atlantic Bigeye Tuna, by Area and Gear (2004-2011).....	86
Table 4.47	U.S. Landings (mt) of Atlantic Albacore Tuna, by Area and Gear (2004-2011)	87
Table 4.48	U.S. Catches and Landings (mt) of Atlantic Swordfish, by Area and Gear (2004-2011).....	88
Table 4.49	Commercial Landings of Atlantic Large Coastal Sharks (lb dw, 2003-2011)	89
Table 4.50	Commercial Landings of Atlantic Small Coastal Sharks (lb dw, 2003-2010).....	90
Table 4.51	Commercial landings of Atlantic Pelagic Sharks (lb dw, 2003-2010)	91
Table 5.1	Inflation Price Indexes	93
Table 5.2	Average Ex-vessel Prices per Pound for Atlantic HMS, by Area (2004-2011)	95
Table 5.3	Estimates of the Total Ex-vessel Annual Revenues of Atlantic HMS Fisheries (2004-2011) ..	97
Table 5.4	Pelagic Longline Vessel Median Unit Costs for Fuel, Bait, and Light Sticks (2004–2011)	98
Table 5.5	Median Input Costs for Pelagic Longline Vessel Trips (2004–2011).....	98
Table 5.6	Median Labor Inputs for Pelagic Longline Vessel Trips (2004–2011)	99
Table 5.7	Processors and Wholesalers: Plants and Employment (2010)	100
Table 5.8	Summary of the Mark-Up and Consumer Expenditures for the Primary Wholesale and Processing of Domestic Commercial Marine Fishery Products	101
Table 5.9	Number of International Trade Permits (ITPs) by State (as of October 2012)	102
Table 5.10	United States Exports of Atlantic and Pacific Bluefin Tuna (2001-2011).....	103

Table 5.11	U.S. Atlantic Landings and Total U.S. Exports of Albacore Tuna (2001–2011)	105
Table 5.12	U.S. Atlantic Landings and Total U.S. Exports of Yellowfin Tuna (2001-2011)	106
Table 5.13	U.S. Atlantic Landings and Total U.S. Exports of Skipjack Tuna (2001-2011)	106
Table 5.14	U.S. Atlantic Landings and Total U.S. Exports of Bigeye Tuna (2002-2011)	107
Table 5.15	Amount and Value of U.S. Shark Products Exported (2001-2011)	108
Table 5.16	Amount and Value of U.S. Swordfish Product Exported (2007-2011).....	109
Table 5.17	Re-exports of HMS (Excluding Bluefin Tuna) in Excess of 1000 mt and/or One Million U.S. Dollars (2004–2011)	110
Table 5.18	U.S. Imports and Re-exports of Atlantic and Pacific Bluefin Tuna (2001–2011)	111
Table 5.19	U.S. Imports of Bigeye Tuna from All Ocean Areas Combined (2001-2011)	114
Table 5.20	U.S. Imports of Yellowfin Tuna from All Ocean Areas Combined (2001–2011)	115
Table 5.21	U.S. Imports of Albacore Tuna from All Ocean Areas Combined (2001-2011)	116
Table 5.22	U.S. Imports of Skipjack Tuna from All Ocean Areas Combined (2001–2011)	117
Table 5.23	U.S. Imports of Swordfish, by Flag of Harvesting Vessel and Area of Origin (2011).....	118
Table 5.24	Imported Swordfish Products (2001-2011)	119
Table 5.25	U.S. Imports of Shark Products from All Ocean Areas Combined (2001-2011).....	120
Table 5.26	Summary and Current Status of ICCAT-Recommended Trade Sanctions for Bluefin Tuna, Swordfish, and Bigeye Tuna Implemented by the United States	121
Table 5.27	Regulatory Flexibility Act Section 610 Review of Atlantic Highly Migratory Species Regulations between 2003 and 2004	124
Table 6.1	Demographic Profile of Wakefield, Rhode Island.....	150
Table 6.2	Demographic Profile of Montauk, New York	151
Table 6.3	Demographic Profile of Barnegat Light	152
Table 6.4	Demographic Profile of Brielle, New Jersey.....	153
Table 6.5	Demographic Profile of Cape May, New Jersey	154
Table 6.6	Demographic Profile of Ocean City, Maryland	155
Table 6.7	Demographic Profile of Atlantic Beach, North Carolina.....	156
Table 6.8	Demographic Profile of Beaufort, North Carolina.....	157
Table 6.9	Demographic Profile of Hatteras, North Carolina	158
Table 6.10	Demographic Profile of Morehead City, North Carolina	159
Table 6.11	Demographic Profile of Wanchese, North Carolina	160
Table 6.12	Demographic Profile of Apalachicola, Florida	161
Table 6.13	Demographic Profile of Destin, Florida	162
Table 6.14	Demographic Profile of Madeira Beach, Florida	163
Table 6.15	Demographic Profile of Panama City, Florida	164
Table 6.16	Demographic Profile of Islamorada, Florida	166
Table 6.17	Demographic Profile of Port Salerno, Florida.....	167
Table 6.18	Demographic Profile of Orange Beach, Alabama	168
Table 6.19	Demographic Profile of Venice, Louisiana	169
Table 6.20	Demographic Profile of Dulac, Louisiana	170
Table 6.21	Demographic Profile of Grand Isle, Louisiana.....	171
Table 6.22	Demographic Profile of Freeport, Texas	172
Table 6.23	Demographic Profile of Port Aransas, Texas	173
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	178
Table 7.2	Atlantic HMS Landed (mt ww) Incidental to Trawl Fisheries (2002-2011).....	183

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 – 2011) and Percent Changes Since 1997-99	186
Table 7.4	Total Number of Pelagic Sharks, Large Coastal Sharks, Dolphin (Mahi mahi), and Wahoo Reported Landed or Discarded and Number of Billfish (Blue and White Marlin, Sailfish, and Spearfish) and Sea Turtles Reported Caught and Discarded in the U.S. Atlantic Pelagic Longline Fishery (1997 – 2011) and Percent Changes Since 1997-99.....	187
Table 7.5	Reported Distribution of Hooks Set by Area (1997-2011) and Percent Change Since 1997-99.....	188
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 (1997-2011).....	189
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 (1997-2011).....	190
Table 8.1	Number of Atlantic HMS Charter/Headboat Permits by State (as of October 2012)	193
Table 8.2	Number of Commercial Atlantic Tunas Permit Holders by Category (2005-2012)	194
Table 8.3	Number of General Category Permits by State or Territory (as of October 2012)	194
Table 8.4	Number of Atlantic HMS Angling Permits (as of October 2012).....	195
Table 8.5	Number of Shark, Swordfish, and Atlantic Tuna Longline Limited Access Permits by State (2004-2012)	196
Table 8.6	Number of Domestic Atlantic Tunas, Swordfish, and Sharks Dealer Permits (2012 by State; 2005-2012 Totals by Permit).....	197
Table 8.7	Number of Atlantic HMS Exempted Fishing Permits (EFPs), Display Permits, and Scientific Research Permits (SRPs) (2008-2012)	198
Table 8.8	Number of Registered Atlantic HMS Tournaments by Year (2003-2012)	199
Table 8.9	Number of Atlantic HMS Tournaments per Species (2010-2011)	201

LIST OF FIGURES

Figure 2.1	Illustration of the Status Determination Criteria and Rebuilding Terms.....	19
Figure 4.1	Typical U.S. Pelagic Longline Gear	37
Figure 4.2	Different Pelagic Longline Gear Deployment Techniques.....	38
Figure 4.3	Areas Closed to Pelagic Longline Fishing by U.S. Flagged Vessels.....	43
Figure 4.4	Geographic Areas Used in Summaries of Pelagic Logbook Data	47
Figure 4.5	U.S. Atlantic and Gulf of Mexico Commercial Bluefin Tuna Landings by Geographic Area (1997 – 2011)	55
Figure 4.6	Landings of Bluefin Tuna by Category (1996 – 2011).....	57
Figure 4.7	Diagram of Green-Stick Fishing Gear	82
Figure 5.1	Average Annual Yen/\$ Exchange Rate and Average U.S. Bluefin Tuna Ex-vessel \$/lb (dw) for All Gears (1971-2011)	94
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) (1996-2011).....	104
Figure 5.3	Annual Percentage (by weight) of Commercially-Landed U.S. Atlantic Bluefin Tuna that was Exported (1996-2011).....	104
Figure 5.4	U.S. Annual Consumption of Bluefin Tuna, by Imports and U.S. Landings (1996-2011)	112
Figure 5.5	U.S. Domestic Landings (mt dw) and Trade (mt shipped wt) of Bluefin Tuna (1996-2011) ..	113
Figure 8.1	Percentage of Atlantic HMS Tournaments in each State (Average, 2003-2011)	200
Figure 8.2	Species Composition of HMS Tournaments (2010-2011).....	201
Figure 8.3	Number of Sailfish Tournaments by State (2011)	202
Figure 8.4	Number of Blue Marlin Tournaments by State (2011).....	203
Figure 8.5	Number of White Marlin Tournaments by State (2011).....	203

LIST OF COMMONLY USED ACRONYMS

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

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

EXECUTIVE SUMMARY

This 2012 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 2011), the HMS Management Division held two HMS Advisory Panel meetings and published several rules regarding HMS fisheries, including the requirements for vessel monitoring systems (VMS); the commercial Atlantic shark season quotas and opening/closing dates; the implementation of the electronic dealer reporting system; and the creation of the Commercial Caribbean Small Boat Permit in final Amendment 4 on Caribbean HMS fisheries. The HMS Management Division also consulted with the HMS Advisory Panel on several upcoming amendments to the 2006 Consolidated HMS FMP including Amendment 5 on shark rebuilding, Amendment 7 on bluefin tuna management, and Amendment 8 on commercial swordfish fishing. In November 2012, the 18th Special 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; blue marlin, white marlin, and spearfish; sharks; and fishery monitoring, control, and surveillance measures.

Three stocks of HMS underwent international stock assessments in 2012: Atlantic bluefin tuna, Atlantic white marlin, and shortfin mako shark. A Southeast Data, Assessment, and Review (SEDAR) assessment of Gulf of Mexico blacktip sharks was also completed (SEDAR 29, March 2012). While no modifications to essential fish habitat were made in 2012, NMFS continued shark nursery grounds research and essential fish habitat studies through two programs (COASTSPAN and GULFSPAN) along the U.S. Atlantic, Gulf of Mexico, and Caribbean.

Much of the data in this report is based on final analyses of 2011 data that was completed and published in 2012, including reports from logbooks, dealers, and the NMFS Observer Programs. Overall landings (total, for all categories and areas) for the Atlantic HMS fisheries in 2011 indicated that bluefin tuna landings (883.7 mt) are comparable to those in 2007, yellowfin tuna landings (3,015.2 mt) are the highest since 2007, skipjack tuna landings (84.3 mt) are the highest since 2004 (with the exception of 119.4 mt in 2009), bigeye tuna landings (746.1 mt) are the highest since 2006, albacore tuna landings (449.0 mt) are the highest since 2007, and swordfish landings (2,887.6 mt) have remained fairly constant since 2004. Commercial landings (total, excluding fins) in 2011 of Atlantic large coastal sharks (684 mt dw) were less than the average of the annual totals since 2003 (1,143.9 mt dw), small coastal sharks (265 mt dw) were slightly higher than the average annual total since 2003 (263.8 mt dw), and pelagic sharks (143 mt dw) were less than the average annual total since 2003 (188.9 mt dw).

Atlantic tunas comprise the majority of the U.S. commercial handgear landings. The commercial handgear fishery accounted for approximately 66 percent of the total U.S. bluefin tuna landings in 2011. In the 2011 buoy gear fishery, less than 5 percent of the total swordfish catch was discarded dead, and 45 percent was released alive, according to the logbook data. Aside from swordfish, the most abundant buoy gear catches were king mackerel and dolphinfish, followed by oilfish and wahoo.

The recreational handgear fishery landings have remained steady for most species over the past several years, although an increase in blue marlin catch has been reported in 2012. Minimal roundscale spearfish catch has been reported since the species was added to the management unit in late 2010. The lowest number of recreational HMS tournaments registered with NMFS in 2011 since pre-2005.

Total observer coverage of the U.S. pelagic longline (PLL) fisheries reached 10.9 percent in 2011. The majority of observed interactions in the U.S. Atlantic PLL fishery with marine mammals were with pilot whales and Risso's dolphins. The number of interactions with sea turtles and sea birds is relatively low in the U.S. Atlantic PLL fishery when compared with other regions. The bottom longline (BLL) observer program selected 20 vessels in 2011 for mandatory observer coverage, completing a total of 139 BLL trips in the southern US. Atlantic Ocean and the Gulf of Mexico, targeting reef fish, sandbar sharks, or non-sandbar large coastal sharks. The gillnet observer program reported a total of 402 gillnet sets in 2011, including 4 strike and 398 sink, targeting sharks, Spanish mackerel, Atlantic croaker, or mixed teleosts. No drift gillnet vessels were observed in 2011.

The estimate of the total ex-vessel annual revenues of the Atlantic HMS Fisheries in 2011 was higher (\$52,357,858) than all of the years reported (since 2004). In particular, revenues from swordfish landings increased to \$20.2 million in 2011, a 24% increase since 2010. The average ex-vessel price for bluefin tuna has risen 21 percent since 2010. The primary expense associated with operating an Atlantic HMS permitted pelagic longline commercial vessel, fuel costs, increased over 170 percent from 2004 to 2011. In 2011, median reported total trip sales for pelagic longline vessels were \$26,650 and median net earnings per trip increased to \$11,255.

The community profiles of the HMS fisheries from the 2010 national census were presented in the 2011 SAFE Report. More complete data has since been published, and has been supplemented in this 2012 SAFE Report. The effects of the Deepwater Horizon oil spill and recent hurricanes on these communities are also assessed.

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 2012 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 the latest stock assessment data, recommendations, and resolutions from 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 1 through December 4, 2012, NMFS proposed or enacted a number of actions with regard to Atlantic HMS. These actions were published in the Federal Register and are listed, by species group, in Table 1.1. Actions published from December 2, 2011 – January 1, 2012 are also included, as they were published after release of the 2011 HMS SAFE Report. Actions taken before December 2, 2011, were provided in similar tables in previous HMS SAFE reports. 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 HMS Advisory Panel meetings March 13 – 15, 2012, in Silver Spring, MD (77 FR 4282), and September 19 – 21, 2012, in Bethesda, MD (77 FR 52314). These meetings provided valuable opportunities for comments on a suite of management actions that NMFS pursued or considered in 2012. Meeting presentations and transcripts are posted on the HMS website.

On December 2, 2011 (76 FR 75492), NMFS published a final rule that changed VMS requirements in Atlantic HMS fisheries. All vessels with Atlantic HMS permits that are required to use VMS, including vessels with pelagic longline gear on board, vessels with bottom longline gear on board in the vicinity of the mid-Atlantic closed area (between 33° N and 36° 30' N) from January 1 to July 31, and vessels with shark gillnet gear on board fishing between November 15 and April 15, must comply with the new requirements. The existing requirement

to provide location reports using VMS, on an hourly basis, when vessels are away from port, is maintained. New requirements include: replacing existing mobile transmitting unit (MTU) VMS units with NMFS-approved Enhanced-MTU VMS units (E-MTU); having new or replacement E-MTU VMS installed by a qualified marine electrician; and requiring vessel operators to declare their target species and gear type(s) possessed on board prior to departing from port and provide NMFS advanced notice of landing before a trip has been completed. Due to unforeseeable circumstances, NMFS delayed these requirements from March 1, 2012 to January 1, 2013.

On January 24, 2012, NMFS published a final rule (77 FR 3393) to establish the quotas and opening dates for the 2012 Atlantic shark commercial fishing season. Quotas were adjusted based on over- and/or underharvests experienced during the 2010 and 2011 Atlantic commercial shark fishing seasons.

On July 27, 2012, NMFS published final Atlantic bluefin tuna quota specifications, which became effective August 27, 2012 (77 FR 44161). The final rule: (1) Accounted up front for half of the best estimate of bluefin tuna dead discards (145.2 mt); (2) Carried forward to 2012 the maximum amount of 2011 underharvest allowed by ICCAT (i.e., 94.9 mt of the 159.9-mt underharvest); (3) Allocated the full 2012 baseline quotas to all directed categories; (4) Adjusted the Longline category southern and northern subquotas to the amounts actually taken in 2012 following the closures of those areas (for greater transparency than year-end accounting); and (5) Held the remainder of the 2011 underharvest in the Reserve category, for an adjusted 2012 Reserve category quota of 41.8 mt. The adjusted quota that NMFS published in the July 2012 final rule was 971 mt, reflecting NMFS' accounting for half of the estimated dead discards at the beginning of the fishing year, with the remainder to be accounted for at year-end. For international compliance purposes, the total adjusted 2012 U.S. quota is 1,043.6 mt.

On July 31, 2012, NMFS published a final rule to adjust the 2012 North and South Atlantic swordfish quota specifications and implement other management measures, which became effective August 30, 2012 (77 FR 45273). For the North Atlantic swordfish quotas the final rule: (1) Maintained the existing U.S. baseline quota of 2,937.6 metric tons dw for 2012 and 2013; (2) Transferred 112.8 mt dw from the United States to Morocco to support joint scientific research as required by ICCAT Recommendation; (3) Changed the underharvest carryover amount from 50 percent of the baseline quota (1,468.8 mt dw) to 25 percent of the baseline quota (734.4 mt dw), with a final adjusted quota of 3,672 mt dw for 2012. For the South Atlantic swordfish quotas, the final rule maintained the existing baseline quota at 75.2 mt dw, carryover allowances, quota transfers, and other regulations, with a final adjusted quota of 75.2 mt dw for 2012. For Atlantic swordfish fisheries, the final rule implemented a 25 inch cleithrum to caudal keel measurement as a commercial and recreational minimum size and allowed the existing 47-inch lower jaw fork length measurement to apply to swordfish without a bill, as long as the bill is removed forward of anterior tip of the lower jaw and the head is naturally attached.

On August 8, 2012, NMFS published a final rule that requires Federal Atlantic HMS dealers (excluding dealers reporting Atlantic bluefin tuna) to report receipt of Atlantic sharks, swordfish, and bigeye, albacore, yellowfin, and skipjack (BAYS) tunas through an approved electronic reporting system on a weekly basis beginning on January 1, 2013. Electronic reporting will allow dealers to submit data about Atlantic sharks, swordfish, and BAYS tunas

more efficiently as the requirements are integrated within existing electronic reporting programs (e.g., the Standard Atlantic Fisheries Information System (SAFIS) and state trip ticket programs), reducing duplicative data submissions from different regions. Dealers will also be required to include additional information (e.g., vessel and logbook information) necessary for management purposes. The electronic submission of data will eliminate the delay associated with mailing or faxing hardcopy reports. Thus, HMS landings data will be submitted on a more real-time basis, allowing for timely and efficient data collection for management of Atlantic HMS.

On August 29, 2012, NMFS published a final rule to lift the trade restrictions on importing bigeye tuna from Bolivia and Georgia pursuant to ICCAT Recommendation 11-19 (77 FR 52259). Additionally, the rule changed the regulations containing species-specific harmonized tariff codes to be consistent with recent changes adopted by the U.S. International Trade Commission (ITC).

On October 1, 2012, NMFS published a final rule for Amendment 4 to create an HMS Commercial Caribbean Small Boat permit (Caribbean permit) for fishing for and sales of BAYS tunas, Atlantic swordfish, and Atlantic sharks; to collect HMS landings data through existing territorial government programs; authorize specific gears; restrict the size of vessels eligible to be issued a Caribbean permit; limit the Caribbean permit to fishing in the U.S. Caribbean Region; and specify that the Caribbean permit may not be held in combination with any other Atlantic HMS vessel permit. The Caribbean permit is available through the NMFS Southeast Regional Permits Office, and will be effective January 2, 2013. The purpose of this amendment is to enact HMS management measures that better correspond with the traditional operation of the small-scale HMS fishing fleet in the U.S. Caribbean Region and to provide us with an improved capability to monitor and sustainably manage those fisheries.

On October 4, 2012, NMFS published a final rule (77 FR 60632) to implement ICCAT Recommendation 11-08, which requires fishing vessels operating in ICCAT-managed fisheries to release all silky sharks whether dead or alive, and prohibits retaining on board, transshipping, or landing any part or whole carcass of a silky shark (*Carcharhinus falciformis*). Through this rule, which became effective November 5, 2012, NMFS prohibits the retention of silky sharks specifically on pelagic longline vessels and vessels issued both an HMS Charter/Headboat permit and a commercial shark permit, when tuna, swordfish or billfish are on board the vessel), as well as the storing, selling, or purchasing of silky sharks from those vessels.

On November 26, 2012, NMFS published a proposed rule (77 FR 70552) for Amendment 5 the 2006 Consolidated HMS FMP in response to new stock assessment information on a number of shark species. Proposed measures are designed to be consistent with recent stock assessments for sandbar, dusky, scalloped hammerhead, Gulf of Mexico blacktip, and Atlantic and Gulf of Mexico blacknose sharks, and include establishing a rebuilding plan for Atlantic blacknose and scalloped hammerhead sharks, implementing commercial quota limits consistent with stock assessment recommendations to prevent overfishing and rebuild overfished stocks, modify time/area closures to reduce fishing mortality of overfished/overfishing stocks, and modify recreational minimum size limits.

NMFS completed the first steps in the development of Amendment 7 on bluefin tuna management. Specifically, NMFS published a Notice of Intent to hold public scoping meetings

and to prepare a draft environmental impact statement (EIS) (77 FR 24161); completed a scoping document; solicited public comments; and held public scoping meetings. Amendment 7 may be considering a wide range of potential management measures including a catch cap for pelagic longline vessels, both the reduction of and accounting for dead discards; new and/or modified time and area closures for pelagic longline vessels; and methods to improve reporting and monitoring of discards and landings for all quota categories; among other possibilities.

NMFS is currently preparing a draft Environmental Assessment and a proposed rule for Amendment 8 to the Consolidated HMS FMP, which would establish new and/or modified commercial vessel permit(s) that would allow for a limited number of swordfish to be caught on rod and reel, handline, harpoon, bandit gear, or green-stick gear and sold commercially. The most recent stock assessment, conducted in 2009, indicates that the North Atlantic swordfish population is fully rebuilt (“not overfished”) and overfishing is no longer occurring. From 2007-2011, on average, the United States has caught approximately 70 percent of its base quota allocation of North Atlantic swordfish. The management measures included in Amendment 8 could provide additional opportunities to harvest swordfish and more fully utilize the available United States’ North Atlantic swordfish quota allocation using gears that have low bycatch and bycatch mortality. A pre-draft for Amendment 8 was released to the public in March 2012, and considered alternatives related to vessel permitting, commercial catch reporting, and retention limits. NMFS expects to publish the proposed rule in early 2013.

Table 1.1 Summary of NMFS’ Atlantic HMS Federal Management Actions from December 2, 2011 to December 4, 2012

Federal Register Cite	Date	Rule or Notice
HMS Fisheries (General)		
76 FR 75492	12/2/2011	Final rule to Require New Vessel Monitoring System (VMS) Units and Establish Additional Requirements in Atlantic HMS Fisheries
77 FR 4282	1/27/2012	Notice of Public Meeting for the Atlantic HMS Advisory Panel
77 FR 15701	3/16/2012	Proposed rule for Amendment 4 to the 2006 Consolidated HMS FMP
77 FR 19164	3/30/2012	Public Hearings for Amendment 4 to the 2006 Consolidated HMS FMP
77 FR 32950	6/4/2012	Notice for Atlantic Shark Identification Workshops, and Protected Species, Release, Disentanglement, and Identification Workshops
77 FR 38030	6/26/2012	Proposed Rule Regarding the Trade of HMS
77 FR 38772	6/29/2012	Notice of Public Workshops for the Electronic Dealer Reporting System
77 FR 38775	6/29/2012	Correction Notice for Atlantic Shark Identification Workshops, and Protected Species, Release, Disentanglement, and Identification Workshops
77 FR 44592	7/30/2012	Notice of Public Workshops for the Electronic Dealer Reporting System
77 FR 47303	8/8/2012	Final Rule to Require Electronic Dealer Reporting for Atlantic HMS Dealers
77 FR 52259	8/29/2012	Final Rule Regarding the Trade of HMS
77 FR 52314	8/29/2012	Notice of a Public Meeting for the Atlantic HMS Advisory Panel
77 FR 55464	9/10/2012	Notice for Atlantic Shark Identification Workshops, and Protected Species, Release, Disentanglement, and Identification Workshops
77 FR 59842	10/1/2012	Final Rule for Amendment 4 to the 2006 Consolidated HMS FMP

Federal Register Cite	Date	Rule or Notice
77 FR 60108	10/2/2012	Notice of Additional Public Workshops for the Electronic Dealer Reporting System
77 FR 61727	10/11/2012	Notice to Announce the New Effective Date for the VMS Requirement for HMS
77 FR 64318	10/19/2012	Notice to Solicit Nominations for the Atlantic HMS Advisory Panel
77 FR 69593	10/20/2012	Notice of Intent to Issue Exempted Fishing Permits (EFPs), Scientific Research Permits (SRPs), Display Permits, Letter of Acknowledgement (LOAs), and Chartering Permits
Bluefin and BAYS Tunas		
76 FR 76900	12/9/2011	Inseason Action to Adjust the General Category Atlantic Bluefin Tuna Retention Limit for January 2012
77 FR 3637	1/25/2012	Inseason Action to Close the Atlantic Bluefin Tuna General Category January Fishery
77 FR 15712	3/16/2012	Proposed Rule for the 2012 Bluefin Tuna Quota Specifications
77 FR 21015	4/9/2012	Inseason Action to Adjust the Retention Limits for Atlantic Bluefin Tuna Angling Category and Close the Southern Area Trophy Fishery
77 FR 24161	4/23/2012	Notice of Intent for Amendment 7 to the 2006 Consolidated HMS FMP
77 FR 28496	5/15/2012	Inseason Action to Adjust the General Category (Commercial) Atlantic Bluefin Tuna Retention Limit for June-August 2012
77 FR 31546	5/29/2012	Inseason Action to Close the Atlantic Bluefin Tuna Incidental Longline Category Southern Area Fishery
77 FR 38011	6/26/2012	Inseason Action to Close the Incidental Longline Category Northern Area Fishery for Atlantic Bluefin Tuna
77 FR 44161	7/27/2012	Final Rule for the 2012 Bluefin Tuna Quota Specifications
Sharks		
77 FR 3393	1/24/2012	Final Rule to Establish the Quotas and Opening Dates for the 2012 Atlantic Shark Commercial Fishing Season
77 FR 8218	2/14/2012	NMFS Announces a Public Meeting for Selected Participants of the 2012 Shark Research Fishery
77 FR 32036	5/25/2012	Inseason Action to Close the Commercial Porbeagle Shark Fishery
77 FR 31562	5/29/2012	NMFS Considers Adding Gulf of Mexico Sharks to Amendment 5 to the 2006 Consolidated HMS FMP
77 FR 32036	5/31/2012	Inseason Action to Close the Commercial Porbeagle Shark Fishery
77 FR 35357	6/13/2012	NMFS Announces the Opening Date of the Commercial Atlantic Region Non-Sandbar Large Coastal Fishery
77 FR 37647	6/21/2012	Proposed Rule to Prohibit Retention of Silky Sharks Caught in ICCAT Fisheries
77 FR 39648	7/5/2012	Inseason Action to Close the Commercial Non-Sandbar Large Coastal Shark Fishery in the Gulf of Mexico Region
77 FR 60632	10/4/2012	Final Rule to Prohibit Retention of Silky Sharks Caught in ICCAT Fisheries
77 FR 61562	10/10/2012	Proposed Rule to Establish the Quotas and Opening Dates for the 2013 Atlantic Shark Commercial Fishing Season
77 FR 67631	10/13/2012	Notice of Intent for Applications to the 2013 Shark Research Fishery

Federal Register Cite	Date	Rule or Notice
77 FR 69596	11/20/2012	Notice to Solicit Nominations for the AP for Atlantic HMS Southeast Data, Assessment, and Review (SEDAR Workshops)
77 FR 70552	10/26/2012	Proposed Rule for Amendment 5 to the 2006 Consolidated HMS FMP
Swordfish and Billfishes		
77 FR 25669	5/1/2012	Proposed Rule to Adjust the 2012 North and South Atlantic Swordfish Quotas and Other Measures
77 FR 34025	6/8/2012	Public Scoping Meeting for Amendment 7 to the 2006 Consolidated HMS FMP
77 FR 45273	7/31/2012	Final Rule to Adjust the 2012 North and South Atlantic Swordfish Quotas and Other Measures

1.2 2012 Accomplishments of the International Commission for the Conservation of Atlantic Tunas

ICCAT is an international regional fishery management organization (RFMO) with 48 members, including the United States. The 18th Special Meeting of ICCAT was held in Agadir, Morocco, November 12-19, 2012. The United States helped develop recommendations aimed at promoting the conservation, management, and rebuilding of Atlantic highly migratory fish stocks (e.g., tunas, billfish, sharks), including those critical to U.S. fishermen. ICCAT made progress on a number of issues, including bluefin tuna, billfish, compliance issues, and monitoring, control, and surveillance measures.

Western Atlantic Bluefin Tuna

In 2012, Recommendation 12-02 was adopted, maintaining the western Atlantic bluefin tuna total allowable catch (TAC) at 1,750 mt for 2013, and placing increased emphasis on research to help guide future management actions. This TAC was agreed to in an effort to take into account the two equally plausible recruitment scenarios presented in 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 12-02 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 requests that ICCAT's 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 SCRS 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. In adopting this recommendation, ICCAT agreed to convene a working group of fisheries managers and scientists from relevant Parties in mid-2013 to guide the work of the SCRS leading up to the next western Atlantic bluefin tuna stock assessment. Participants will discuss ways to improve

communication of management goals, stock assessment results, and management advice between scientists and managers. As the recommended TAC is for 2013 only, ICCAT will renegotiate the recommendation in November 2013.

Eastern Atlantic and Mediterranean Bluefin Tuna

The Commission adopted Recommendation 12-03, amending the recovery plan for eastern Atlantic and Mediterranean bluefin tuna. Recommendation 12-03 increased the TAC for Mediterranean bluefin tuna from the 2010 level of 12,900 mt to 13,400 mt for 2013 onward, until changed, with an additional two-year allocation of 100 mt/year to Algeria. The total level of 13,500 mt is within the scientific range advised by SCRS, i.e., it has a 60% chance or greater of recovering the stock by the end of 2022, and represents an increase of 4.4% compared to the 2010 level. It also shifted the purse seine fishery by 10 days so that it will now be open May 26 through June 24, and made several changes to the monitoring and control measures, including measures expected to improve the tracking of Eastern Atlantic and Mediterranean bluefin tuna trade, particularly of farmed fish.

Blue Marlin and White Marlin/Spearfish

The Commission adopted Recommendation 12-04 which, for the first time, sets country-specific quotas for landings of blue marlin and white marlin/spearfish. These quotas are in line with scientific advice and will reduce the number of fish that may be caught by ICCAT Parties. This recommendation includes the adoption of Atlantic-wide minimum sizes that are equivalent to those that are currently in place in the United States for Atlantic blue and white marlin. This binding measure also includes a ban on all sales of recreationally caught marlins, as well as measures to improve data collection in artisanal fisheries and a requirement for all Parties to report on implementation of this recommendation in 2013.

Sharks

The Commission adopted Recommendation 12-05 which requires ICCAT Parties to submit to the ICCAT Secretariat in advance of the 2013 ICCAT annual meeting a report detailing their implementation and compliance with existing ICCAT shark recommendations 04-10, 07-06, 09-07, 10-08, 10-07, and 11-08, and recommendation 11-15.

Monitoring, Control, and Surveillance Measures

The Commission adopted U.S. proposed amendments to ICCAT's at-sea transshipment program that closes several compliance loopholes and adopted a strengthened set of minimum standards for port inspections. ICCAT Parties also adopted a schedule for the implementation of the electronic bluefin tuna catch document (eBCD) program, Recommendation 12-08. According to this schedule, the electronic system will be completed and operational by May 16, 2013. The current paper based BCD will be accepted until the end of February 2014 and as of March 1, 2014, the eBCD will fully replace the paper-based system. ICCAT also adopted a recommendation that establishes a process towards the establishment of a catch certification scheme for tuna and tuna-like species. The Commission will hold workshops to address technical issues associated with the development of a new catch certification scheme in 2013 and 2014. Included in this recommendation is the commitment to review any draft recommendations

on a catch certification scheme at the 2014 ICCAT annual meeting with a goal of implementation of such scheme in 2015.

ICCAT Parties also adopted Recommendation 12-10 that sets up a process for amending the ICCAT Convention and establishes a working group that will meet intersessionally to discuss issues such as Convention scope, in particular shark conservation and management, decision making processes and procedures, and non-party participation. The intersessional meetings will occur in 2013, 2014, and 2015 with the goal of producing draft convention amendment text and draft recommendations to be considered at the annual ICCAT meetings.

1.3 State Regulations

Table 1.2 outlines the state regulations regarding HMS species as of November 1, 2012. 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. This FMP was modified via Coastal Sharks Addendum I in September 2009 and was effective as of January 1, 2010. All management measures for coastal shark species in the FMP and Addendum I have been implemented by ASMFC members, unless they have been granted *de minimus* status (Maine, 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.

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 Sharks - Code ME R. 13-188 ' 50.01, 50.04 and 50.10	Tuna - Retention limit - 1 tuna/year – non-resident special tuna permit holder; Unlawful to fish for tuna with gear other than harpoon or hook and line or possess tuna taken in unlawful manner; retention limits and size limits mirror federal regulations. Sharks –Commercial harvest of sharks (except spiny dogfish) in state waters prohibited; finning prohibited; sharks harvested elsewhere but landed in Maine, or sharks landed recreationally, must be landed with head, fins, and tail naturally attached to the carcass; porbeagle cannot be landed commercially after federal quota closes dealers who purchase sharks must obtain a federal dealer permit. Recreational anglers must possess a federal HMS angling permits.	ME Department of Marine Resources Phone: (207) 624-6550 Fax: (207) 624-6024
NH			X	X	Billfish - FIS 603.13 Sharks - FIS 603.20	Billfish - Possession limit - 1 billfish/trip; Minimum size (LJFL) - Blue marlin - 99"; White marlin - 66"; Sailfish - 57"; May be taken by rod and reel only; Unlawful to sell billfish, personal use only 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 Douglas Grout Phone: (603) 868-1095 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 Sharks – 322 CMR 6.37	Bluefin Tuna - References ATCA and federal regulations; Bluefin tuna may be retained if caught in a trap as incidental catch; Fishing for bluefin tuna by means of any net is prohibited prior to September 1 of the year; Fishing for tuna by means of purse seine is allowed in state waters if the vessel is compliant with the registration requirements set forth in 322 CMR 6.04(4); Purse seining for bluefin tuna is prohibited in Cape Cod Bay. Sharks – ASMFC Coastal Shark Plan (no shark species may be landed with tails or fins removed 322 CMR 6.37(3)(d)) All MA commercial and recreational fishing regulations are available online at: http://www.mass.gov/dfwele/dmf/commercialfishing/cmr_index.htm	MA Division of Marine Fisheries Jared Silva Phone: (617) 626-1534 Fax: (617) 626-1509
RI				X	Sharks - RIMFC Regulations part VII 7.24	Sharks – ASMFC Coastal Shark Plan All RI commercial and recreational marine fisheries regulations are available online at: http://www.dem.ri.gov/pubs/regs/regs/fishwild/rimftoc.htm RIMFC Regulations part VII 7.24 are available online at: http://www.dem.ri.gov/pubs/regs/regs/fishwild/rimf7.pdf	RI Dept of Environment Management, Div of Fish and Wildlife Eric Schneider Phone: (401) 423-1933
CT				X	Sharks – Regulations of Connecticut State Agencies § 26-159a-1; Connecticut General Statutes §26-142a(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 David Simpson Phone: (860) 434-6043 Fax: (860) 434-6150

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfish	Sharks			
NY			X	X	Billfish - NY Environmental Conservation ' 13-0339 (5) 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 Sharks – ASMFC Coastal Shark Plan	NY Department of Environmental Conservation Stephen W. Heins Phone: (631) 444-0430 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 Russ Babb Phone: (609)748-2020 Fax: (609) 748-2032
DE			X	X	Billfish - DE Code Ann. tit. 7, ' 1310 Sharks - DE Code Regulations 3541	Billfish - Prohibition on sale of Atlantic sailfish and blue/white/striped marlin Sharks – ASMFC Coastal Shark Plan	DE Division of Fish and Wildlife John Clark Phone: (302) 739-9914

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfish	Sharks			
MD	X	X	X	X	Bluefin tuna - Code of Maryland Regulations 08.02.12.03 and 08.02.05.23 Swordfish - Code of Maryland Regulations 08.02.12.03 and 08.02.05.27 Billfish - Code of Maryland Regulations 08.02.12.03 and 08.02.05.26 Sharks - Code of Maryland Regulations 08.02.12.03 and 08.02.22.01-.04	Bluefin tuna - Federal regulations used to control size and seasons and recreational catch required to be tagged Swordfish - Federal regulations used to control size and seasons and recreational catch required to be tagged Billfish (blue/white marlin and sailfish) - Federal regulations control size and seasons and recreational catch required to be tagged Sharks – ASMFC Coastal Shark Plan	MD Department of Natural Resources Gina Hunt Phone: (410) 260-8326
VA			X	X	Billfish - 4 VA Administrative Code 20-350-10 Sharks - 4 VA Administrative Code 20-490-10	Billfish - Prohibition on sale of billfish Sharks – ASMFC Coastal Shark Plan	VA Marine Resources Commission Robert O'Reilly Phone: (757) 247-2247 Fax: (757) 247-2002
NC	X		X	X	Tuna - NC Administrative Code tit. 15A 03M.0520 Billfish -NC Administrative Code tit. 15A, r.3M.0507 and 15A 03M.0507 Sharks -NC Administrative Code tit. 15A, NCAC, 03M .0512 Compliance with Fishery Management Plans	Tuna – Commercial and recreational minimum size: yellowfin tuna – 27" CFL, bigeye tuna - 27" CFL, bluefin tuna – 73" CFL; Recreational bag limit: 3 yellowfin tuna/day Billfish - Recreational possession limit - 1 blue or white marlin/vessel/trip; 1 sailfish/person/day; Minimum size - blue marlin - 99", white marlin - 66", sailfish - 63"; Unlawful to sell or offer for sale blue or white marlin and sailfish Sharks - Director may impose restrictions for size, seasons, areas, quantity, etc. via proclamation; ASMFC Coastal Shark Plan; additionally: longline in the shark fishery shall not exceed 500 yds or have more than 50 hooks	NC Division of Marine Fisheries Randy Gregory Phone: (252) 726-7021 Fax: (252) 726-0254

State	Species				Cite Reference	Regulatory Details	Contact Information
	<i>Tunas</i>	<i>Swordfish</i>	<i>Billfish</i>	<i>Sharks</i>			
SC	X	X	X	X	Tuna/Swordfish -SC Code Ann. ' 50-5-2725 and 2730 Billfish - SC Code Ann. ' 50-5-1700, 1705, 2725 and 2730 ; 50-1-30 (6) Sharks -SC Code Ann. ' 50-5-2725, 2730	Tuna/Swordfish – Defer to federal regulations Billfish – Defer to federal regulations; Unlawful to sell billfish; Hook and line gear only; Unlawful to possess while transporting gillnets, seines, or other commercial gear Sharks – Defer to federal regulations; Gillnets may not be used in the shark fishery in state waters; State permit required for shark fishing in state waters	SC Department of Natural Resources Wallace Jenkins Phone: (843) 953-9835 Fax: (843) 953-9386
GA			X	X	Gear Restrictions/Prohibitions - GA Code Ann. ' 27-4-7; Billfish - GA Code Ann. ' 27-4-130.2; GA Comp. R. & Regs. ' 391-2-4-.04 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 Billfish - Possession prohibited in state waters, except for catch and release 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 Carolyn Belcher Phone: (912) 264-7218 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 Swordfish/Billfish - FL Administrative Code 68B-33	<p>Billfish – Longbill and Mediterranean– harvest/possession/landing/purchase/sale/exchange prohibited Blue/white marlin, roundscale spearfish, and sailfish – Sale prohibited; Aggregate possession of 1 fish/person/day; Gear restriction (hook and line only); Minimum size limit (blue marlin – 99" LJFL; white marlin – 66" LJFL; roundscale spearfish – 66" LJFL; sailfish – 63" LJFL); Recreational catch reporting requirement (all non-tournament landings must be reported NOAA within 24 hours); Must land in whole condition (gutting allowed) Swordfish - Minimum size - 47 in LJFL/29" CK; 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 and a federal LAP for swordfish, so federal regulations apply in state waters unless state regulations are more restrictive; Recreational catch reporting requirement (all non-tournament landings must be reported to NOAA within 24 hours) Sharks – Commercial/recreational: min size – 54" except no min. size on blacknose, blacktip, bonnethead, smoothhound, 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 in state waters, direct and continuous transit through state waters to place of landing of lemon, sandbar, tiger, great hammerhead, smooth hammerhead, and scalloped hammerhead sharks legally caught in federal waters is allowed.</p>	FL Fish and Wildlife Conservation Commission Martha Bademan Phone: (850) 487-0554 Fax: (850) 487-4847

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfish	Sharks			
AL	X	X	X	X	<p>Tunas/Swordfish/Billfish/ Sharks – AL Administrative Code r.220-3-.30</p> <p>Sharks - AL Administrative Code r.220-3-.30, r.220-3-.37, and r.220-2-.77</p>	<p>Tuna/swordfish/billfish/sharks - 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</p> <p>Tuna - Recreational and commercial fishermen must have a federal permit to fish for tunas; Yellowfin and bigeye – 27" CFL min size</p> <p>Sharks – Recreational & commercial: bag limit – 1 sharpnose/person/day and 1 bonnethead/person/day; no min size; all other sharks – 1/person/day; min size – 54" FL or 30" dressed; 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</p> <p>Commercial-state waters close 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</p>	<p>AL Department of Conservation and Natural Resources, Marine Resources Division Phone: (251) 861 2882 www.outdooralabama.com</p>

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfish	Sharks			
LA	X	X	X	X	<p>Tunas - LA Administrative Code Title 76, Pt. VII, Ch. 3, § 361</p> <p>Swordfish/Billfish - LA Administrative Code Title 76, Pt. VII, Ch. 3, § 355</p> <p>Sharks - LA Administrative Code Title 76, Pt. VII, Ch. 3, § 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 in LJFL), white marlin (66" LJFL), sailfish (63 in LJFL), swordfish (29 in carcass length or 33 lbs 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 & rec harvest prohibited: 4/1-6/30; 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 Wildlife and Fisheries Jason Adriance Phone: (504) 284-2032 or 225 765-2889 Fax: (504) 284-5263 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 BFT fishing; only recreational anglers can retain incidentally caught BFT up to 1/boat/week; Recreational and commercial min size for yellowfin and bigeye is 27" CFL; Recreational retention limit for yellowfin is 3/person (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; bag limit - LCS/Pelagics 1/person (possession limit) up to 3/vessel (possession limit); SCS 4/person (possession limit); Commercial and prohibited species – same as federal regulations; Prohibition on finning</p>	MS Department of Marine Resources Kerwin Cuevas Phone: (228) 374-5000
TX		X	X	X	Billfish/Swordfish/Sharks - TX Administrative Code Title 31, Part 2, Parks and Wildlife Code Title 5, Parks and Wildlife Proclamations 57.971, 57.973 and 57.981	<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 Mark Lingo Phone: (956) 350-4490 Fax: (956) 350-3470

State	Species				Cite Reference	Regulatory Details	Contact Information
	Tunas	Swordfish	Billfish	Sharks			
Puerto Rico	X	X	X	X	Regulation #6768 Article 8 – General Fishing Limits Article 13 – Limitations 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.</p> <p>Swordfish or billfish, tuna and shark are covered under the federal Atlantic HMS regulations (50 CFR, Part 635); Fishers who capture these species are required to comply with said regulation; billfish captured incidentally with long line must be released by cutting the line close to the fishhook, avoiding the removal of the fish from the water; in the case of tuna and swordfish, fishers shall obtain a permit according to the requirements of the federal government; Year-round closed season on nurse sharks.</p> <p>http://www.caribbeanfmc.com/REGULATIONS%20PR-USVI/reg%20pesca%20pr/Rgl6768-%20feb%202004.pdf</p>	<p>Puerto Rico Department of Natural and Environmental Resources Craig Lilystrom Phone: (787) 999-2200 x2689 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>http://caribbeanfmc.com/pdfs/booklet%20usvi%20Commercial%202009.pdf</p>	<p>6291 Estate Nazareth St. Thomas, VI 00802 Phone: (340) 775-6762</p> <p>45 Mars Hill Complex Frederiksted, St. Croix, VI 00840 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).

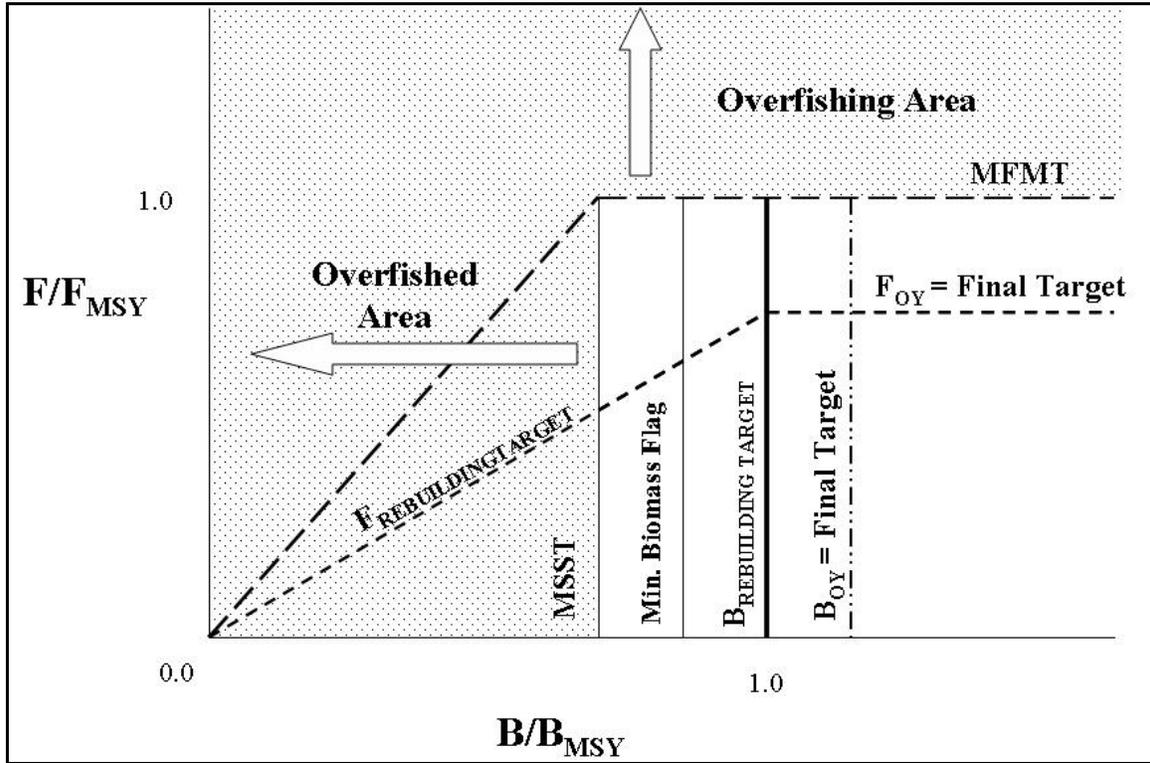


Figure 2.1 Illustration of the Status Determination Criteria and Rebuilding Terms

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) = $F_{limit} = F_{MSY}$;
- Overfishing is occurring when $F_{year} > F_{MSY}$;
- Minimum Stock Size Threshold (MSST) = $B_{limit} = (1-M)B_{MSY}$ when $M < 0.5$; MSST = $0.5B_{MSY}$ when $M \geq 0.5$ (for billfish, the specific MSST values are: blue marlin = $0.9B_{MSY}$; white marlin = $0.85B_{MSY}$; west Atlantic sailfish = $0.75B_{MSY}$); M = natural mortality. In many cases an average M across age classes or sensitivity runs from a stock assessment model is used to calculate MSST.
- Overfished when $B_{year}/B_{MSY} < MSST$;
- Biomass target during rebuilding = B_{MSY} ;
- Fishing mortality during rebuilding $< F_{MSY}$;
- Fishing mortality for healthy stocks = $0.75F_{MSY}$;
- Biomass for healthy stocks = $B_{OY} = \sim 1.25$ to $1.30B_{MSY}$;
- Minimum biomass flag = $(1-M)B_{OY}$; and
- Level of certainty of *at least* 50 percent but depends on species and circumstances.
- For bluefin tuna, spawning stock biomass (SSB) is used as a proxy for biomass
- For sharks, in some cases, spawning stock fecundity (SSF) or 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 2012, the SCRS completed stock assessments for Atlantic bluefin tuna and shortfin mako sharks. 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. A SEDAR assessment for Gulf of Mexico blacktip sharks was recently completed in May 2012. SEDAR assessments for sandbar, blacknose, and dusky sharks were recently completed in September 2011. 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 2011. 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 _{MSY}	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 ₁₁ /SSB _{MSY} * = 1.4 (1.14-1.72) (low recruitment)	12,943 mt (low recruitment; 12,717-13,268 mt)	0.86 SSB _{MSY} (11,131 mt; low recruitment)	F ₀₈₋₁₀ /F _{MSY} ** = 0.61 (0.49-0.74) (low recruitment)	F _{MSY} = 0.17 (0.14-0.19) (low recruitment)	*Low recruitment scenario: Not overfished; overfishing is not occurring.	20	5/1/1999 (2019)
	SSB ₁₁ /SSB _{MSY} * = 0.19 (0.13-0.29) (high recruitment)	93,621 mt (high recruitment; 77,288-116,679 mt)	(80,514 mt; high recruitment)	F ₀₈₋₁₀ /F _{MSY} ** = 1.57 (1.24-1.95) (high recruitment)	F _{MSY} = 0.064 (0.056-0.074) (high recruitment)	*High recruitment scenario: Overfished; overfishing is occurring		
*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.								
Atlantic bigeye tuna	B ₀₉ /B _{MSY} = 1.01 (0.72-1.34)	422,630 mt	0.6 B _{MSY} (253,578 mt)	F ₀₉ /F _{MSY} = 0.95 (0.65-1.55)	F _{MSY} = 0.17	Not overfished (Rebuilding); overfishing not occurring.	Not available††	1/1/1999
Atlantic yellowfin tuna	B ₁₀ /B _{MSY} = 0.85 (0.61-1.12)	<i>Unknown</i>	0.5 B _{MSY} (age 2+)	F _{current} /F _{MSY} = 0.87 (0.68-1.40)	F _{MSY}	Not overfished; overfishing not occurring.		
North Atlantic albacore tuna	B ₀₇ /B _{MSY} = 0.62 (0.45-0.79)	B _{MSY} = 172,000 mt SSB _{MSY} = 58,170 mt	0.7 B _{MSY} (120,400 mt; based on B _{MSY}) (40,719 mt; based on SSB _{MSY})	F ₀₇ /F _{MSY} = 1.05 (0.85-1.23)	F _{MSY} = 0.17	Overfished; overfishing is occurring.	Not Available††	1/1/1999

Species	Current Relative Biomass Level	B _{MSY}	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 skipjack tuna	B ₀₈ /B _{MSY} : most likely >1	Unknown	Unknown	F ₀₈ /F _{MSY} : most likely <1	F _{MSY}	Unknown		
North Atlantic swordfish	B ₀₉ /B _{MSY} = 1.05 (0.94-1.24)	61,860 mt	0.8 B _{MSY} ; (49,488 mt)	F ₀₈ /F _{MSY} = 0.76 (0.67-0.96)	F _{MSY} = 0.22 (0.14-0.27)	Not overfished; overfishing not occurring		
South Atlantic swordfish	B ₀₉ /B _{MSY} = 1.04 (0.82-1.22)	47,700 mt	0.8 B _{MSY} (38,160 mt)	F ₀₈ /F _{MSY} = 0.75 (0.60-1.01)	F _{MSY} = 0.31	Unknown		
Blue marlin	B ₀₉ /B _{MSY} = 0.67 (0.53-0.81)	25,411 mt (SSB _{MSY})	0.9 B _{MSY} (22,870 mt; based on SSB _{MSY})	F ₀₉ /F _{MSY} = 1.63 (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 (0.42-0.60)	29,240 mt (27,260-30,720 mt)	0.85 B _{MSY} (23,171-26,112 mt)	F ₂₀₁₀ /F _{MSY} = 0.99 (0.75-1.27; low productivity) F ₂₀₁₀ /F _{MSY} = 0.72 (0.51-0.93; high productivity)	F _{MSY} = 0.03 (0.027-0.035)	Overfished; overfishing may not be occurring	Not available††	6/1/2001
West Atlantic sailfish	B ₀₇ <B _{MSY} : Possibly	Unknown	0.78 B _{MSY} Unknown	F ₀₇ >F _{MSY} : Possibly	Unknown	Overfished; overfishing is occurring	Not available††	1/1/1999
Longbill spearfish	Unknown	Unknown	Unknown	Unknown	Unknown	Unknown		
Large coastal shark complex	Unknown	Unknown	(1-M) B _{MSY}	Unknown	Unknown	Unknown		
Sandbar	SSF ₀₉ /SSF _{MSY} = 0.51 – 0.72	SSF _{MSY} = 349,330-1,377,800 (numbers of sharks)	301,821 – 1,190,419 (based on SSF _{MSY})	F ₀₉ /F _{MSY} = 0.29-2.62	0.004-0.06	Overfished; overfishing is not occurring	66	1/1/2005 (2070)

Species	Current Relative Biomass Level	B _{MSY}	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)
Gulf of Mexico blacktip	SSF ₂₀₁₀ /SSF _{MSY} = 2.00-2.66	SSF _{MSY} = 1,570,000 - 6,440,000 (numbers of sharks)	1,328,220 - 5,448,240 (based on SSF _{MSY})	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 _{MSY}	<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 _{MSY}	F ₀₉ /F _{MSY} = 1.39-4.35	0.01-0.05	Overfished; overfishing is occurring	100	7/24/2008 (2108)
Scalloped hammerhead sharks	N ₀₅ /N _{MSY} = 1.29	N _{MSY} = 62,000 (numbers of sharks)	(1-M) B _{MSY}	F ₀₅ /F _{MSY} = 0.45	0.11	Overfished; overfishing is occurring	Under Development	
Small coastal shark complex	N ₀₅ /N _{MSY} = 1.69	N _{MSY} = 30,000,000 (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	SSF ₀₅ /SSF _{MSY} = 1.13	SSF _{MSY} = 1,990,000 (numbers of sharks)	1,400,000 (based on SSF _{MSY})	F ₀₅ /F _{MSY} = 0.6	0.31	Not overfished; overfishing not occurring		
Atlantic sharpnose sharks	SSF ₀₅ /SSF _{MSY} = 1.47	SSF _{MSY} = 4,590,000 (numbers of sharks)	4,090,000 (based on SSF _{MSY})	F ₀₅ /F _{MSY} = 0.74	0.19	Not overfished; overfishing not occurring		
Atlantic blacknose sharks	SSF ₀₉ /SSF _{MSY} = 0.43 – 0.64	SSF _{MSY} = 77,577-288,360 (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	Under Development	
Gulf of Mexico blacknose sharks	<i>Unknown</i>	<i>Unknown</i>	(1-M) B _{MSY}	<i>Unknown</i>	<i>Unknown</i>	<i>Unknown</i>		
Finetooth sharks	N ₀₅ /N _{MSY} = 1.80	N _{MSY} = 3,200,000 (numbers of sharks)	2,400,000 (based on N _{MSY})	F ₀₅ /F _{MSY} = 0.17	0.03	Not overfished; overfishing not occurring		

Species	Current Relative Biomass Level	B _{MSY}	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)
Northwest Atlantic porbeagle sharks	B ₀₈ /B _{MSY} = 0.43 – 0.65	29,382-40,676 mt	(1-M) B _{MSY}	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 _{MSY}	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 _{MSY}	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>		

*Note: The Species Information System (SIS), which informs the Status of the Stocks Report, allows only one status determination per stock. Therefore, a joint distribution was calculated, assuming equal plausibility of the high and low recruitment scenarios for West Atlantic bluefin tuna. F_{current} refers to the geometric mean of the estimates for 2008-2010 (a proxy for recent F levels). The median and the 10th and 90th percentiles of the joint distribution are as follows: SSB₂₀₁₁/SSB_{MSY}: 0.64 (0.15-1.63); F_{current}/F_{MSY}: 0.95 (0.53-1.81); SSB_{MSY}: 37,970 (12,780-108,520); F_{MSY}: 0.12 (0.06-0.18). **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 B_{MSY} values. The B_{MSY} range encompasses the 16 scenarios run of the BSP model. Both the BSP and catch-free model estimated F_{MSY}. The F_{MSY} range encompasses the lowest estimate of the 16 scenarios run of the BSP model and the highest estimate of the 10 scenarios run for the catch-free model. ††There is insufficient information to estimate how many years it will take this stock to rebuild.

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

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

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

Atlantic Bigeye Tuna

Assessed by ICCAT's SCRS in 2010:

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

North Atlantic Albacore Tuna

Assessed by ICCAT's SCRS in 2009:

<http://www.iccat.int/Documents/SCRS/DetRep/DET-ALB-NA.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 2009:

http://www.iccat.int/Documents/Meetings/Docs/2009_SWO_ASSESS_ENG.pdf

South Atlantic Swordfish

Assessed by ICCAT's SCRS in 2009:

http://www.iccat.int/Documents/Meetings/Docs/2009_SWO_ASSESS_ENG.pdf

Blue Marlin

Assessed by ICCAT's SCRS in 2011:

http://www.iccat.int/Documents/Meetings/Docs/2011 BUM_ASSESS_ENG.pdf

White Marlin and Roundscale Spearfish

Assessed by ICCAT's SCRS in 2012:

http://www.iccat.int/Documents/Meetings/Docs/2012 WHM_ASSESS_ENG.pdf

West Atlantic Sailfish

Assessed by ICCAT's SCRS in 2009:

http://www.iccat.int/Documents/Meetings/Docs/2009_SAI_ASSESS_ENG.pdf

Longbill Spearfish

Longbill spearfish have not been individually assessed by ICCAT's SCRS due to the paucity of data. Some information can be found in the 2001 sailfish stock assessment:

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

Sandbar Sharks

Assessed in 2010/2011 through the SEDAR process:

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

Atlantic Blacktip Sharks

Assessed in 2006 through the SEDAR process:

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

Small Coastal Shark (SCS) Complex

Assessed in 2007 through the SEDAR process:

http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=13

Bonnethead Sharks

Assessed in 2007 through the SEDAR process:

http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=13

Atlantic Sharpnose Sharks

Assessed in 2007 through the SEDAR process:

http://www.sefsc.noaa.gov/sedar/Sedar_Workshops.jsp?WorkshopNum=13

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

Finetooth Sharks

Assessed in 2007 through the SEDAR process:

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

North Atlantic Blue Sharks

Assessed by ICCAT's SCRS in 2008:

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

Scalloped Hammerhead Sharks

Assessed in Hayes et al. (2009).

Chapter 2 References

Cortés, E., P. Brooks, P. Apostolaki, and C.A. Brown. 2006. Stock assessment of dusky shark in the U.S. Atlantic and Gulf of Mexico. NMFS Panama City Laboratory, Sustainable Fisheries Division Contribution SFD-2006-014, pp.15.

Gibson, A.J.A. and S.E. Campana. 2005. Status and recovery potential of porbeagle shark in the Northwest Atlantic. Canadian Science Advisory Secretariat, Research Document 2005/053. 79 pp. <http://www.dfo-mpo.gc.ca/csas/>

Hayes, C.G., Y. Jiao, and E. Cortes. 2009. Stock assessment of scalloped hammerheads in the Western North Atlantic Ocean and Gulf of Mexico. *North American Journal of Fisheries Management* 29:1406-1417.

NMFS. 2006. SEDAR 11 Stock assessment report: large coastal shark complex, blacktip and sandbar shark. Highly Migratory Species Management Division, 1315 East-West Highway, Silver Spring, MD 20910. 257 pp.

NMFS. 2007. SEDAR 13 Stock assessment report: small coastal sharks, Atlantic sharpnose, blacknose, bonnethead, and finetooth shark. Highly Migratory Species Management Division, 1315 East-West Highway, Silver Spring, MD 20910. 375 pp.

- Restrepo, V.R., G.G. Thompson, P.M. Mace, W.L. Gabriel, L.L. Low, A.D. MacCall, D. Methot, J.E. Powers, B.L. Taylor, P.R. Wade, and J.F. Witzig, 1998. Technical guidance on the use of precautionary approaches to implementing National Standard 1 of the Magnuson-Stevens Fishery Conservation and Management Act. NOAA Tech Memo NMFS-S/SPO. 54 pp.
- SCRS. 2007. Report of the standing committee on research and statistics. ICCAT SCRS. Madrid, Spain, October 1-5, 2007. 216 pp.
- SCRS. 2008. Report of the standing committee on research and statistics. ICCAT SCRS. Madrid, Spain, September 29-October 3, 2008. 241 pp.
- SCRS. 2009a. Report of the standing committee on research and statistics. ICCAT SCRS. Madrid, Spain, October 5-9, 2009. 273 pp.
- SCRS. 2009b. Report of the 2009 porbeagle stock assessment meeting. ICCAT SCRS. Copenhagen, Denmark, June 22-27, 2009. 42 pp.
- SCRS. 2010. Report of the standing committee on research and statistics. ICCAT SCRS. Madrid, Spain, October 4-8, 2010. 270 pp.
- SCRS. 2011. Report of the standing committee on research and statistics. ICCAT SCRS. Madrid, Spain, October 3-7, 2011. 267 pp.
- SCRS. 2012a. Report of the standing committee on research and statistics. ICCAT SCRS. Madrid, Spain, October 1-5, 2012. 303 pp.
- SCRS. 2012b. Report of the 2012 Sharks meeting to apply ecological risk analysis and shortfin mako assessment (Olhao, Portugal - June 11-18, 2012). SCRS/2012/013.
- SEDAR. 2011a. SEDAR 21 complete stock assessment report: HMS Atlantic blacknose shark. SEDAR, 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405. 438 pp.
- SEDAR. 2011b. SEDAR 21 complete stock assessment report: HMS dusky sharks. SEDAR, 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405. 414 pp.
- SEDAR. 2011c. SEDAR 21 complete stock assessment report: HMS Gulf of Mexico blacknose shark. SEDAR, 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405. 415 pp.
- SEDAR. 2011d. SEDAR 21 complete stock assessment report: HMS sandbar shark. SEDAR, 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405. 459 pp.
- SEDAR, 2012. SEDAR 29 stock assessment report: HMS Gulf of Mexico blacknose sharks. SEDAR, 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405. 415p.

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 smoothhound (*Mustelus canis*, also known as smooth dogfish) under Secretarial management. Implementation of that particular provision is pending completion of Endangered Species Act (ESA) Section 7 consultation on the proposed smoothhound actions. 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.

NMFS is currently planning to initiate an EFH five-year review in 2013.

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

FMP or Amendment	EFH and Species
1999 FMP for Atlantic Tunas, Swordfish, and Sharks	EFH first identified and described for Atlantic tunas, swordfish and sharks
1999 Amendment 1 to the Billfish FMP	EFH first identified and described for Atlantic billfish
2003 Amendment 1 to the FMP for Atlantic Tunas, Swordfish and Sharks	EFH updated for five shark species (blacktip, sandbar, finetooth, dusky, and nurse sharks)
2006 Consolidated Atlantic HMS FMP	Comprehensive review of EFH for all HMS. EFH for all Atlantic HMS consolidated into one FMP; no changes to EFH descriptions or boundaries
2009 Amendment 1 to the Consolidated Atlantic HMS FMP	EFH updated for all federally managed Atlantic HMS. HAPC for bluefin tuna spawning area designated in the Gulf of Mexico
2010 Amendment 3 to the Consolidated Atlantic HMS FMP	EFH first defined for smooth dogfish (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, Delaware, North Carolina, South Carolina, Georgia, Florida and the U.S. Virgin Islands. NMFS initiated the GULFSPAN program in 2003 to expand upon the COASTSPAN Survey. This cooperative program, which is administered by the NMFS Southeast Science Center’s Panama City, Florida laboratory, includes, in addition to NMFS scientists, the states of Florida, Alabama, and Mississippi. Following is a summary of the results from the 2011 COASTSPAN and GULFSPAN surveys (Bethea et al., 2011; McCandless et al., 2012).

Massachusetts

COASTSPAN sampling was conducted in Plymouth, Kingston, and Duxbury Bays in 2011. The shark catch consisted entirely of immature sand tiger sharks, with the majority of the catch being young-of-the-year. There were also several captures of age 1 and age 2 sharks this year, including seven sharks that were tagged in Plymouth Bay in 2009 and 2010 as young-of-the-year or age 1 and recaptured there the following years. Two of these individuals returned to Plymouth Bay for three consecutive years (young-of-the-year – age 2), suggesting some sharks utilize this bay repeatedly in their early years of life. This work confirms the importance of this area as summer nursery habitat for this prohibited species.

Rhode Island

COASTSPAN sampling was conducted off Point Judith, Rhode Island in 2011. A total of three sand tigers were tagged and released, all of which were young-of-the-year. These results continue to provide supporting evidence that Rhode Island waters are used as nursery habitat for this prohibited species and transitional habitat during their migrations to northern waters.

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 2011, followed by smoothhound and sand tigers. The majority of sandbar sharks caught were immature, with nearly a quarter of these as young-of-the-year; the remaining sandbar sharks caught were considered mature females based on length and girth measurements. Smoothhound were represented nearly equally by juvenile and adult fish in 2011, with the overwhelming majority of immature and mature fish as young-of-the-year and females, respectively. The number of immature sand tigers caught in 2011 was nearly double that of the mature sand tigers. 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.

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. No sharks were captured in Pamlico Sound and the Pungo and Neuse Rivers in 2011. In the New and Cape Fear Rivers, 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, with bonnetheads at a distant second.

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. Twelve species of sharks were captured, the most abundant of which was Atlantic sharpnose. Other sharks captured, in order of abundance, were sandbar, finetooth, bonnethead, blacktip, blacknose, smoothhound, scalloped hammerhead, spinner, nurse, tiger, and bull sharks. Six species were also captured as young-of-the-year in South Carolina estuarine waters: Atlantic sharpnose, blacktip, finetooth, scalloped hammerhead, sandbar, and spinner sharks. The majority of each shark species captured were immature, with the exception of three species: Atlantic sharpnose, blacknose, and bonnethead sharks. These findings continue to highlight the importance of South Carolina estuarine and nearshore waters as nursery habitat for many small and large coastal shark species and indicate the extensive use of these waters as habitat for several adult small coastal shark species.

Georgia

COASTSPAN sampling took place in both estuarine (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, nurse, and tiger sharks, and one spiny dogfish. Four species captured were also present as young-of-the-year in estuarine waters: Atlantic sharpnose, sandbar, blacktip, and spinner sharks. In addition, Atlantic sharpnose, blacknose, blacktip, sandbar, tiger, and spinner sharks and one bonnethead 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 catch included, in order of abundance: Atlantic sharpnose, blacktip, scalloped hammerhead, bonnethead, blacknose, sandbar, finetooth, nurse, and spinner sharks. In addition, one sand tiger and one smoothhound were caught in 2011. Nassau and Cumberland Sounds continue to provide nursery habitat for juvenile Atlantic sharpnose, scalloped hammerhead, and blacktip sharks. Cumberland Sound also continues to provide habitat for adult female bonnetheads. Northern Florida's nearshore waters provided habitat for mature blacknose sharks in 2011. The multi-year seasonal use of the waters around Pine Island in the Tolomato River by neonate scalloped hammerheads provides 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 January and May 2011. 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 and continues to show connectivity between areas with similar habitat composition (mangrove associated seagrass and macroalgae beds), such as Lameshur Bay and Hurricane Hole, St John. 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. 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

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). 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

GULFSPAN sampling sites were located in five major areas within the waters of the Mississippi Sound, including waters surrounding Horn, Cat, Round, and Deer Islands, and Davis Bayou, capturing five species of sharks and one species of ray. Greater than 75% of individuals encountered were immature.

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.

Chapter 3 References

- Bethea, D.M., A. LaPorte, J. Carlson, M.J. Ajemian, R.D. Grubbs, E.R. Hoffmayer, J. Imhoff, C.A. Campbell, and J. Romine. 2010. Shark nursery grounds and essential fish habitat studies. GULFSPAN Gulf of Mexico-FY 09. Cooperative Gulf of Mexico States Shark Pupping and Nursery Survey. Report to NOAA Fisheries, Highly Migratory Species Division, 62 pp.
- McCandless, C.T., B. Frazier, C. Belcher, J. Gelsleichter, J. Kneebone, B. Legare, B. DeAngelis, G. Skomal, and C. Collier. 2012. Summary report of the 2010 cooperative Atlantic states shark pupping and nursery (COASTSPAN) Survey. An internal report to NOAA Fisheries, Highly Migratory Species Division.

4. FISHERY DATA UPDATE

In this section, HMS fishery data, with the exception of some data on Atlantic sharks, are analyzed by gear type. Section 4.1 provides a summary of landings by species. While HMS fishermen generally target particular species, the non-selective nature of many fishing gears warrants analysis and management on a gear-by-gear basis. In addition, issues such as bycatch and safety are generally better addressed by gear type. A summary of bycatch, incidental catch, and protected resource interaction statistics can be found in Chapter 6 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).”

HMS Fishery	Authorized Gear Types
Swordfish handgear	Rod and reel, harpoon, handline, bandit gear, buoy gear
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 2012 Standing Report of the SCRS (SCRS, 2012). The SCRS data collection is reported by species; therefore, Table 4.1 depicts a summary of U.S. and international HMS catches by species rather than gear type. Catch of billfish includes both recreational landings and dead discards from commercial fisheries; bluefin tuna includes commercial landings and dead discards and recreational landings; and swordfish includes recreational landings and commercial landings and dead discards. International catch and landings data for the pelagic longline and purse seine fisheries are in Sections 4.1 and 4.2. 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 2011)

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	25,599	North Atlantic	12,836	2,887	22.5	11.20
		South Atlantic	12,763	0	0.0	
Atlantic bluefin tuna	11,765	West Atlantic	1,986	883	44.4	7.50
		East Atlantic/Med.	9,779	0	0.0	
Atlantic bigeye tuna	77,795	Atlantic/Med.	77,795	746	0.95	0.95
Atlantic yellowfin tuna	100,277	West Atlantic	19,408	3,015	15.5	3.00
		East Atlantic/Med.	80,869	0	0.0	
Atlantic albacore tuna	48,733	North Atlantic	19,995	449	2.24	0.92
		South Atlantic/Med.	28,738	0	0.0	
Atlantic skipjack tuna	212,668	West Atlantic	39,324	84	0.2	0.03
		East Atlantic/Med.	173,344	0	0.0	
Atlantic blue marlin	1,918	North Atlantic	927	56	6.0	2.90
		South Atlantic	991	0	0.0	
Atlantic white marlin	346	North Atlantic	165	25	15.1	7.20
		South Atlantic	181	0	0.0	
Atlantic sailfish	1,623	West Atlantic	566	14	2.5	0.90
		East Atlantic	1,057	0	0.0	
Blue sharks	29,362	North Atlantic	11,548	1,183	10.2	4.00
		South Atlantic/Med.	17,814	0	0.0	
Porbeagle sharks	94	North Atlantic	72	12	16.6	12.80
		South Atlantic/Med.	21	0	0.0	
Shortfin mako sharks	3,855	North Atlantic	2,154	408	19.0	10.60
		South Atlantic/Med.	1,701	0	0.0	

Source: SCRS, 2012.

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.

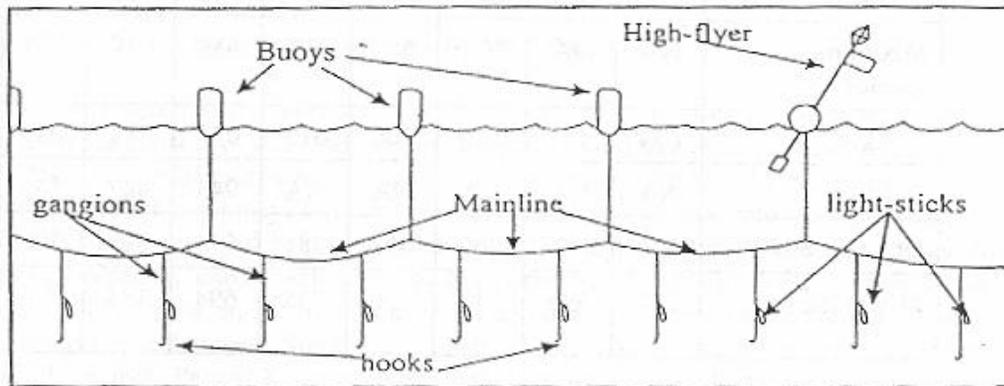


Figure 4.1 Typical U.S. Pelagic Longline Gear

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 (2002-2011)

Target Species	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Swordfish	695	711	701	747	742	672	708	687	759	733
Bigeye tuna	755	967	400	634	754	773	751	755	653	802
Yellowfin tuna	715	720	696	691	704	672	678	689	687	635
Mix of tuna species	767	765	779	692	676	640	747	744	837	786
Shark	640	696	717	542	509	494	377	354	455	348
Dolphin	542	692	1,033	734	988	789	989	1,033	1,131	1,095
Other species	300	865	270	889	236	NA	NA	NA	467	400
Mix of species	756	747	777	786	777	757	749	781	761	749

Source: PLL logbook data.

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

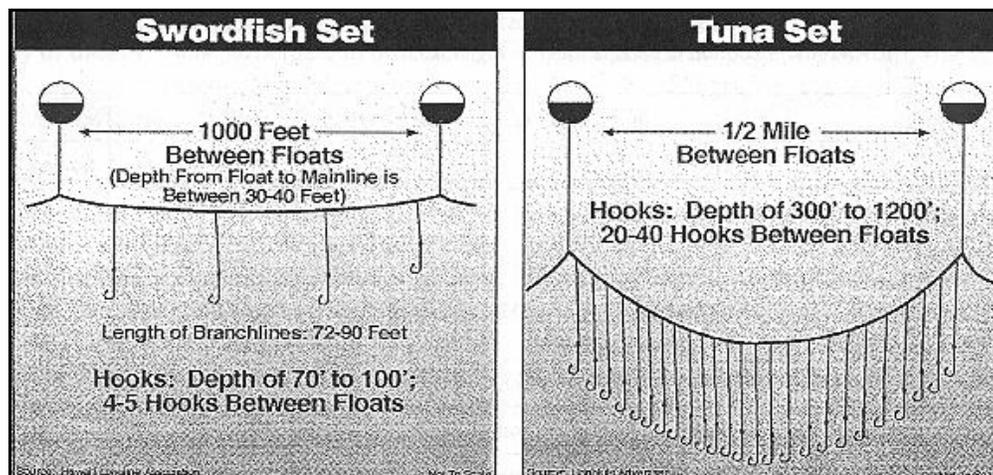


Figure 4.2 Different Pelagic Longline Gear Deployment Techniques

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 2012, approximately 253 tuna longline LAPs had been issued. In addition, approximately 184 directed swordfish LAPs, 73 incidental swordfish LAPs, 215 directed shark LAPs, and 271 incidental shark LAPs had been issued (see Table 8.1 for more detailed data on LAPs). Vessels with limited access swordfish and shark permits do not necessarily use PLL gear, but these are the only permits that allow for the use of PLL gear in HMS fisheries.

For a summary description of regional U.S. PLL Fisheries, Monitoring, and Reporting, please see the 2011 SAFE Report.

PLL Observer Program

During 2011, NMFS observers recorded 864 PLL sets for overall non-experimental fishery coverage of 10.1 percent (Garrison and Stokes, 2012). 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 2011, total observer coverage, including experimental sets, was 10.9 percent (Table 4.3).

Table 4.3 Observer Coverage of the Atlantic Pelagic Longline Fishery (1999-2011)

Year	Number of Sets Observed			Percentage of Total Number of Sets		
1999	420			3.8		
2000	464			4.2		
	Total	Non-NED	NED	Total	Non-NED	NED
2001 ¹	584	398	186	5.4	3.7	100
2002 ¹	856	353	503	8.9	3.9	100
2003 ¹	1,088	552	536	11.5	6.2	100
	Total	Non-EXP	EXP	Total	Non-EXP	EXP
2004 ²	702	642	60	7.3	6.7	100
2005 ²	796	549	247	10.1	7.2	100
2006	568	-	-	7.5	-	-
2007	944	-	-	10.8	-	-
2008 ³	1,190	-	101	13.6	-	100
2009 ³	1,588	1,376	212	17.3	15.0	100
2010 ³	884	725	159	11.0	9.7	100
2011 ³	879	864	15	10.9	10.1	100

NED – Northeast Distant Area; EXP – experimental. ¹In 2001, 2002, and 2003, 100 percent observer coverage was required in the NED research experiment. ²In 2004 and 2005, there was 100 percent observer coverage in EXP. ³In 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.

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.

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 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). Additional information regarding U.S. Atlantic landings and discards is available in the 2012 U.S. National Report to ICCAT.

Table 4.4 Catch Reported in the U.S. Atlantic Pelagic Longline Fishery, in Number of Fish per Species (2002-2011)

Species	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Swordfish kept	49,320	51,835	46,440	41,139	38,241	45,933	42,800	45,378	33,831	38,012
Swordfish discarded	13,035	11,829	10,675	11,134	8,900	11,823	11,194	7,484	6,107	8,510
Blue marlin discarded	1,175	595	712	567	439	611	687	1,013	504	539
White marlin discarded	1,438	809	1,053	989	557	744	670	1,064	605	921
Sailfish discarded	379	277	424	367	277	321	506	774	312	556
Spearfish discarded	148	108	172	150	142	147	197	335	212	281
Bluefin tuna kept	178	273	475	375	261	337	343	629	392	355
Bluefin tuna discarded	585	881	1,031	765	833	1,345	1,417	1,290	1,488	764
Bigeye, albacore, yellowfin, and skipjack tunas kept	79,917	63,321	76,962	57,132	73,058	70,390	50,108	57,461	51,786	68,401
Pelagic sharks kept	2,987	3,037	3,440	3,149	2,098	3,504	3,500	3,060	3,872	3,694
Pelagic sharks discarded	22,828	21,705	25,355	21,550	24,113	27,478	28,786	33,721	45,511	43,778
Large coastal sharks kept	4,077	5,326	2,292	3,362	1,768	546	115	403	434	130
Large coastal sharks discarded	3,815	4,813	5,230	5,877	5,326	7,133	6,732	6,672	6,726	6,085
Dolphin kept	30,384	29,372	38,769	25,707	25,658	68,124	43,511	62,701	30,454	29,442
Wahoo kept	4,188	3,919	4,633	3,348	3,608	3,073	2,571	2,648	749	1,848
Sea turtle interactions	465	399	369	152	128	300	476	137	94	66
<i>Number of Hooks (x 1,000)</i>	<i>7,150</i>	<i>7,008</i>	<i>7,276</i>	<i>5,911</i>	<i>5,662</i>	<i>6,291</i>	<i>6,498</i>	<i>6,979</i>	<i>5,729</i>	<i>5,530</i>

Source: PLL Logbook Data.

Table 4.5 **Reported Landings (mt ww) in the U.S. Atlantic Pelagic Longline Fishery (2002-2011)**

Species	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Yellowfin tuna	2,573.0	2,164.0	2,492.2	1,746.2	2,009.9	2,394.5	1,324.5	1,700.1	1,188.8	1,468.6
Skipjack tuna	2.5	1.4	0.7	0.6	0.2	0.02	1.45	0.5	1.4	0.7
Bigeye tuna	535.8	283.9	310.1	311.9	520.6	380.7	407.7	430.1	443.2	627.1
Bluefin tuna*	49.9	133.9	180.1	211.5	204.6	164.3	232.6	335.0	238.7	220.4
Albacore tuna	155.0	107.6	120.4	108.5	102.9	126.8	126.5	158.3	159.9	267.6
Swordfish N.*	2,598.8	2,756.3	2,518.5	2,272.8	1,960.8	2,474.0	2,353.6	2,691.3	2,206.2	2,681.2
Swordfish S.*	199.9	20.5	15.7	0.0	0.0	0.0	0.0	0.0	0.3	0.0

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

Source: NMFS ICCAT National Report 2011.

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.

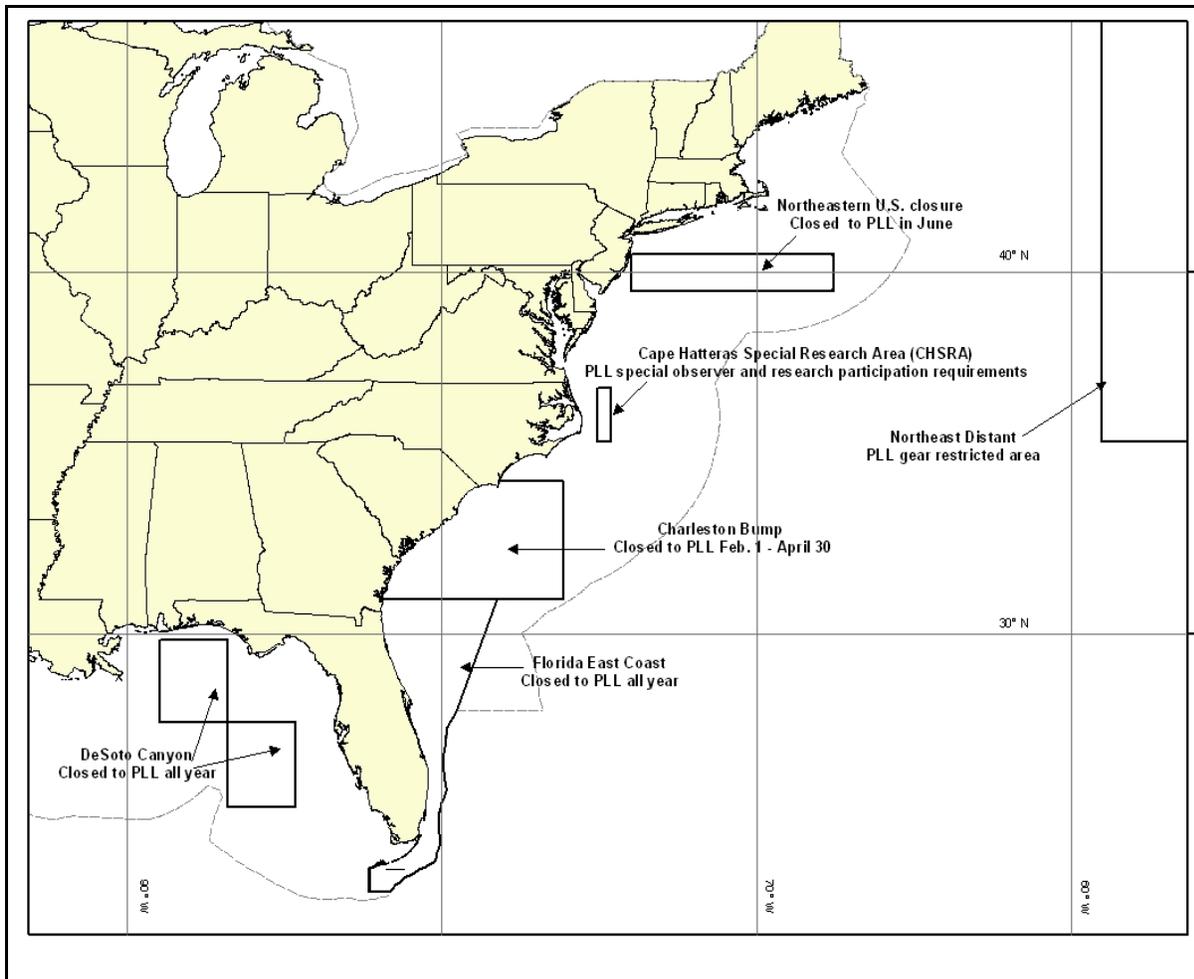


Figure 4.3 Areas Closed to Pelagic Longline Fishing by U.S. Flagged Vessels

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 2002 – 2011 are summarized in Table 4.6. Marine mammals are caught primarily during the third and fourth quarters in the Mid Atlantic Bight (MAB) and Northeast Coastal (NEC) areas (Table 4.6). In 2011, the majority of observed interactions were with pilot whales, short-finned pilot whales, bottlenose dolphins, and Risso’s dolphins (Garrison and Stokes, 2012). NMFS monitors observed interactions with sea turtles and marine mammals on a quarterly basis and reviews data for appropriate action, if any, as necessary.

Table 4.6 Marine Mammal Interactions in the Atlantic Pelagic Longline Fishery (2002–2011)

Year	Species	Total		Mortality		Serious Injury		Alive	
		Obs	Est	Obs	Est	Obs	Est	Obs	Est
2002	Risso's dolphin	10	87.2	-	-	4	11.0	6	59.6
	Pilot whale	10	113.5	-	-	4	49.9	6	67.8
	Common dolphin	1	1.0	-	-	-	-	1	1.0
	Unidentified dolphin	2	2.0	-	-	1	1.0	1	1.0
	Unidentified marine mammal	1	1.0	-	-	1	1.0	-	-
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

Year	Species	Total		Mortality		Serious Injury		Alive	
		Obs	Est	Obs	Est	Obs	Est	Obs	Est
	Unidentified marine mammal	2	22.1	-	-	2	22.1	-	-
2008	Atlantic spotted dolphin		3.1	-	-	-	-	-	3.1
	Bottlenose dolphin	1	6.6	-	-	-	-	1	6.6
	Beaked whale	1	6.1	-	-	-	-	1	6.1
	Killer whale	1	3.4	-	-	-	-	1	3.4
	Pilot whale	8	141.5	-	-	5	98.2	3	43.3
	Risso's dolphin	9	64.4	1	4.4	4	20.4	4	39.6
	Sperm whale	1	1.6	-	-	-	-	1	1.6
	Unidentified dolphin		3.2	-	-	-	-	-	3.2
	Unidentified marine mammal	2	34.7	-	-	1	20.4	1	14.3
2009	Bottlenose dolphin	3	23.0	-	-	2	11.3	1	11.6
	Common dolphin	1	8.5	1	8.5	-	-	-	-
	False Killer whale		2.5	-	-	-	-	-	2.5
	Pantropical spotted dolphin	5	26.6	-	-	4	14.1	1	12.5
	Pilot whale	4	35.7	-	-	2	16.5	2	19.2
	Risso's dolphin	5	38.5	-	-	2	11.4	3	27.1
	Unidentified dolphin	1	1.6	-	-	-	-	1	1.6
	Unidentified marine mammal	1	8.0	-	-	1	8.0	-	-
2010	Bottlenose dolphin	2	16.9	-	-	1	1.0	1	15.9
	Minke whale	1	24.4	-	-	-	-	2	24.4
	Pantropical spotted dolphin	3	6.1	-	-	-	-	2	5.1
	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	-	-

Obs – observed; Est – estimated.

Sources: Yeung, 2001; Garrison, 2003b; Garrison and Richards, 2004; Garrison, 2005; Walsh and Garrison, 2006; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison, Stokes & Fairfield, 2009; Garrison and Stokes, 2010, 2011, 2012.

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 2002- 2009 are summarized in Table 4.7, Table 4.8, and Table 4.9. Loggerhead interactions are more widely distributed; however, the NED and the NEC appear to be areas with high interaction levels each year.

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). The numbers have been reduced recently and in 2011, the U.S Atlantic PLL fishery was estimated to have interacted with 438 loggerhead sea turtles and 239 leatherback sea turtles outside of experimental fishing operations (Garrison and Stokes, 2011) (Table 4.8 and Table 4.9). The majority of loggerhead sea turtle interactions occurred in the NED, NEC, and FEC areas (Table 4.7). The interactions with leatherback sea turtles were highest in the MAB and GOM areas (Table 4.8). NMFS monitors observed interactions with sea turtles and marine mammals on a quarterly basis and reviews data for additional appropriate action, if any, as necessary.

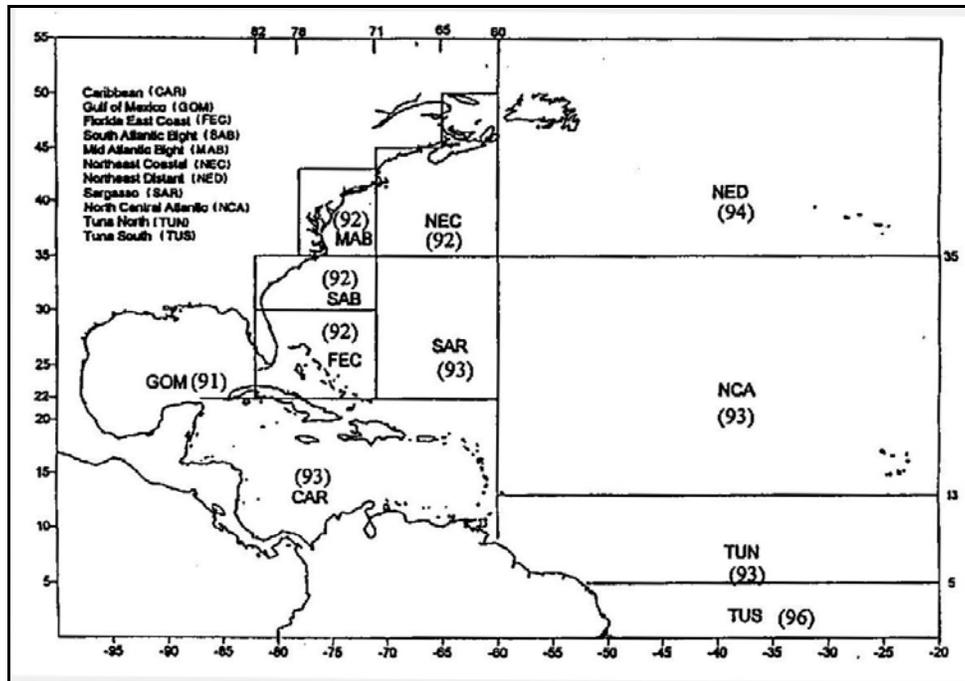


Figure 4.4 Geographic Areas Used in Summaries of Pelagic Logbook Data.

Source: Cramer and Adams, 2000.

Table 4.7 Estimated Number of Loggerhead Sea Turtle Interactions in the U.S. Atlantic Pelagic Longline Fishery, by Statistical Area (2002-2011)

Area	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
CAR	43	36	61	40	16	7	17	9	12	4
GOM	170	135	45	19	17	10	10	38	2	0
FEC	99	137	99	0	40	83	47	41	26	92
SAB	22	52	194	34	18	34	70	47	39	9
MAB	94	18	92	54	70	155	20	37	55	81
NEC	147	241	150	67	135	48	237	43	101	103
NED	0	0	52	20	235	200	352	22	97	105
SAR	0	70	41	38	19	4	16	7	13	44
NCA	0	39	0	3	10	2	1	0	0	0
TUN	0	0	0	0	0	0	0	9	0	0
TUS	0	0	0	0	0	0	0	0	0	0
Total	575	728	734	275	559	543	770	243	344	438
NED experimental fishery (2001-03)	100	92	-	-	-	-	-	-	-	-
Experimental fishery (2004-05; 2008-11)	-	-	0	8	-	-	1	0	0	0
Total	675	820	734	283	559	543	771	243	344	438

Sources: Walsh and Garrison, 2006; Garrison, 2005; Garrison and Richards, 2004; Garrison 2003; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison et al., 2009; Garrison and Stokes, 2010, 2011, 2012.

Table 4.8 Estimated Number of Leatherback Sea Turtle Interactions in the U.S. Atlantic Pelagic Longline Fishery, by Statistical Area (2002-2011)

Area	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
CAR	0	0	17	2	4	1	2	1	10	3
GOM	695	838	780	179	109	212	144	93	26	33
FEC	100	27	64	62	28	7	30	19	20	17
SAB	93	75	164	7	39	0	0	31	13	12
MAB	70	94	184	11	30	114	43	31	0	140
NEC	5	76	33	6	73	76	140	73	40	26
NED	0	0	98	63	116	84	0	37	55	8
SAR	0	0	18	20	14	5	14	3	2	0
NCA	0	2	0	0	1	0	0	0	0	0
TUN	0	0	0	0	0	0	8	1	0	1
TUS	0	0	0	0	0	0	0	0	0	0
Total	962	1,113	1,359	351	415	499	381	286	166	239
NED experimental fishery (2001-03)	158	79	-	-	-	-	-	-	-	-
Experimental fishery (2004-05; 2008-10)	-	-	3	17	-	-	4	4	2	1
Total	1,120	1,192	1,362	368	415	499	385	290	168	240

Sources: Walsh and Garrison, 2006; Garrison, 2005; Garrison and Richards, 2004; Garrison 2003; Fairfield-Walsh and Garrison, 2007; Fairfield and Garrison, 2008; Garrison et al, 2009; Garrison and Stokes, 2010, 2011, 2012.

Table 4.9 Estimated Sea Turtle and Marine Mammal Interactions and Incidental Take Levels (ITS) in the US Atlantic Pelagic Longline Fishery (by Species, 2002-2011)

Species	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	3 year ITS 2004-06 / 2007-09*
											Total
Leatherback	962	1,112	1,362	368	415	500	385	286	168	239	1,981 / 1,764
Loggerhead	575	727	734	282	558	542	772	243	344	438	1,869 / 1,905
Other/unidentified sea turtles	50	38	0	0	11	1	0	0	3	4	105 / 105
Marine mammals	201	300	164	372	313	151	265	144	238	452	NA

* Applies to all subsequent 3-year ITS periods

Protected Species - Sea Birds

Observer data indicate that seabird bycatch is low in the U.S. Atlantic PLL fishery (Table 4.10) (NMFS, 2012). In 2011, there were 115 active U.S. PLL vessels fishing for swordfish in the Atlantic Ocean, Gulf of Mexico, and Caribbean Sea that reportedly set approximately 5.5 million hooks. A total of seven seabirds were observed taken, including a northern gannet, a

herring gull, a greater shearwater, and two unidentified seabirds. All of these seabirds were released dead. Extrapolated estimates of seabird bycatch from 2000 – 2007 are available in the 2011 SAFE Report. The 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 4.10 Observed Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery (2004-2011)

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

* Experimental fishery takes.

Source: NMFS, 2008; NMFS PLL fishery observer program (POP).

Table 4.11 Status of Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery (1992-2011)

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	1	1	2	50.0
Unidentified gull	15	8	23	65.2
Northern gannet	3	9	12	25.0
Storm petrel	1	-	1	100.0
Unidentified seabird	41	19	60	68.3
Brown pelican	2	0	2	100.0
Total	116	42	158	73.4

Source: NMFS Pelagic longline fishery observer program (POP).

4.1.3 International Issues and Catch

For a summary description of the international PLL fishery and ICCAT observer requirements, please see the 2011 SAFE Report.

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 (2002 - 2011), U.S. longline landings have averaged 5.0 percent of total Atlantic longline landings, ranging from a high of 5.8 percent in 2011 to a low of 4.5 percent in 2010. Table 4.12 contains aggregate longline landings of HMS, other than sharks, for all countries in the Atlantic for the period 2002 - 2011.

Table 4.12 Estimated International Longline Landings (mt ww) of HMS (Excluding Sharks) for All Countries in the Atlantic (2002-2011)

Species (Region)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Swordfish (N. Atl + S. Atl)	22,240	21,709	23,891	24,442	24,563	26,507	22,096	23,403	23,178	24,287
Yellowfin tuna (W. Atl) ²	11,921	10,166	16,019	14,449	14,249	13,557	13,192	13,019	12,659	9,634
Bigeye tuna	46,438	54,466	48,396	38,035	34,182	46,232	41,063	43,533	42,515	37,393
Bluefin tuna (W. Atl.) ²	730	186	644	425	565	420	606	366	529	743
Albacore tuna (N. Atl + S. Atl)	27,851	28,325	21,652	19,888	22,963	18,324	15,865	15,320	17,384	20,070
Skipjack tuna (W. Atl) ²	349	95	206	207	286	52	49	20	13	31
Blue marlin (N. Atl. + S. Atl.) ³	1,378	1,767	1,427	1,571	1,357	2,042	2,000	1,810	1,706	1,163
White marlin (N. Atl. + S. Atl.) ³	727	624	658	577	374	554	532	558	361	298
Sailfish (W. Atl.) ⁴	1,265	873	747	1,062	646	765	1,018	965	529	447
Total International longline landings ⁶	112,899	118,211	113,640	100,656	99,131	108,453	96,421	98,994	98,874	94,066
Total U.S. longline landings ⁵	6,194	5,509	5,638	4,918	5,035	5,817	4,709	5,529	4,408	5,443
U.S. landings as a percent of total International landings	5.5	4.7	5.0	5.0	5.1	5.4	4.9	5.6	4.5	5.8

¹ Landings include those classified by the SCRS as longline landings. ² Note that the United States has not reported participation in the E. Atl yellowfin tuna fishery since 1983 and has not participated in the E. Atl bluefin or the E. Atl skipjack tuna fishery since 1982. ³ Includes U.S. dead discards and Brazilian live discards. ⁴ Includes U.S. dead discards. ⁵ From U.S. National Reports to ICCAT, 2003-2012. Includes swordfish, blue marlin, white marlin, and sailfish longline discards. ⁶ From SCRS, 2012.

Sources: SCRS, 2009; U.S. ICCAT National Reports 2003 – 2012; SCRS, 2012.

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 4.13 provides the most recent catch totals for blue, shortfin mako, and porbeagle sharks.

Sea Turtles

The 2011 HMS SAFE Report provides a summary description of sea turtle bycatch in the international PLL fisheries.

Table 4.13 Estimated International Longline Landings (mt ww)¹ of Pelagic Sharks for All Countries in the Atlantic (2002-2011)

Species (Region)	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Blue shark (N. Atl + S. Atl + Med)	31,189	34,591	34,750	41,809	39,116	46,126	53,375	58,002	64,301	28,375
Shortfin mako (N. Atl + S. Atl + Med)	5,080	7,189	7,104	6,305	6,022	6,714	5,175	5,599	6,026	3,228
Porbeagle (N. Atl + S. Atl + Med)	848	648	745	571	507	515	600	475	134	94
Total International longline catches	37,117	42,428	42,599	48,685	45,645	53,355	59,150	64,076	70,461	31,697
U.S. blue shark catches ¹	68	0	72	72	68	55	138	107	176	1,183
U.S. shortfin mako catches ¹	415	142	411	469	469	382	188	354	385	408
U.S. porbeagle catches ¹	1	0	1	0	1	0	1	1	4	12
Total U.S. catches ¹	484	142	484	541	538	437	327	462	565	1,603
U.S. catches ¹ as a percent of total International catch	1.3	0.3	1.1	1.1	1.2	0.8	0.6	0.7	0.8	5.1

¹Includes catches and discards.

Source: SCRS, 2012.

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 prior years' HMS SAFE Reports.

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 (≥ 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 4.14).

4.2.2 Recent Catch and Landings

Table 4.14 shows purse seine landings of Atlantic tunas from 2003 through 2011. 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 4.14 only includes bluefin tuna.

Table 4.14 Domestic Atlantic Tuna Landings (mt ww) for the Purse Seine Fishery in the Northwest Atlantic Fishing Area (2004-2011)

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

Source: U.S. National Report to ICCAT, 2012.

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 4.15 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 4.15 Estimated International Atlantic Tuna Landings (mt ww) for the Purse Seine Fishery in the Atlantic and Mediterranean (2004-2011)

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

Source: SCRS, 2012.

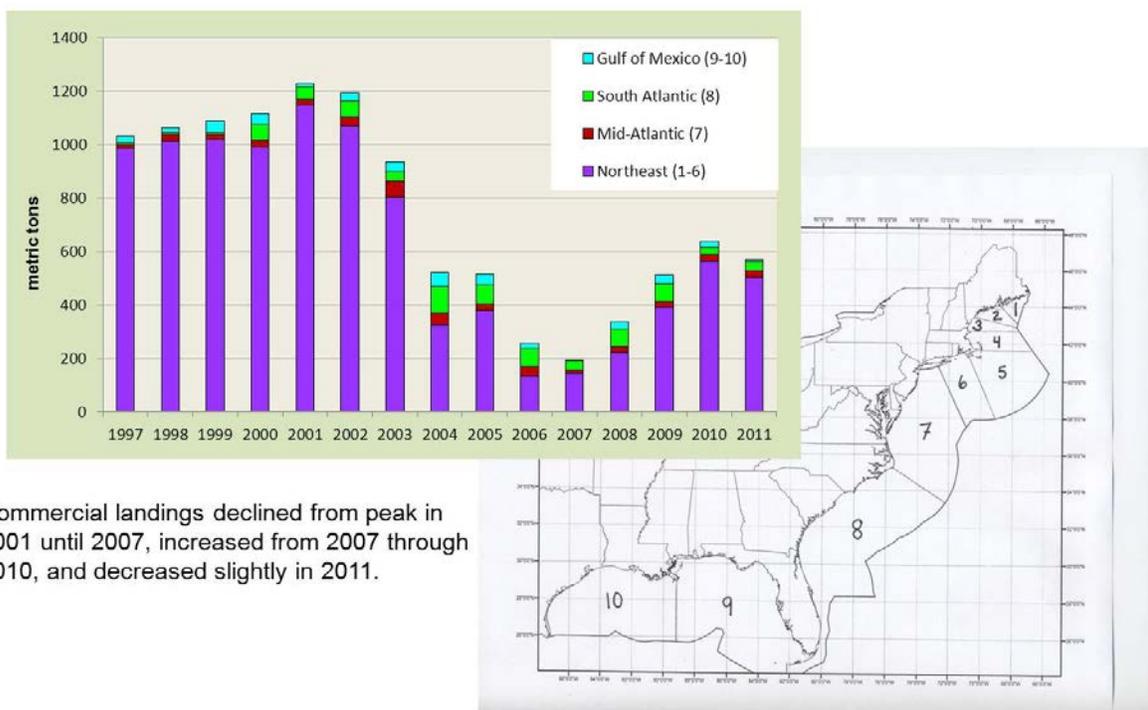
4.3 Commercial Handgear

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. 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.



Commercial landings declined from peak in 2001 until 2007, increased from 2007 through 2010, and decreased slightly in 2011.

Figure 4.5 U.S. Atlantic and Gulf of Mexico Commercial Bluefin Tuna Landings by Geographic Area (1997 – 2011)

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. For a brief history of the harpoon fishery in the United States, see previous years’ HMS SAFE Reports. In recent years, a new commercial swordfish fishery utilizing handgear (especially buoy-gear) has developed off the east coast of Florida. For information regarding the commercial buoy gear fishery, refer to Section 0.

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 4.16. In 2011, bluefin tuna commercial handgear landings accounted for approximately 66 percent of the total U.S. bluefin tuna landings, and 87 percent of commercial bluefin tuna landings. Figure 4.6 shows the U.S. Atlantic bluefin tuna landings in metric tons by category since 1996. Note that the commercial handgear landings are comprised of bluefin tuna landed by both the general and harpoon categories.

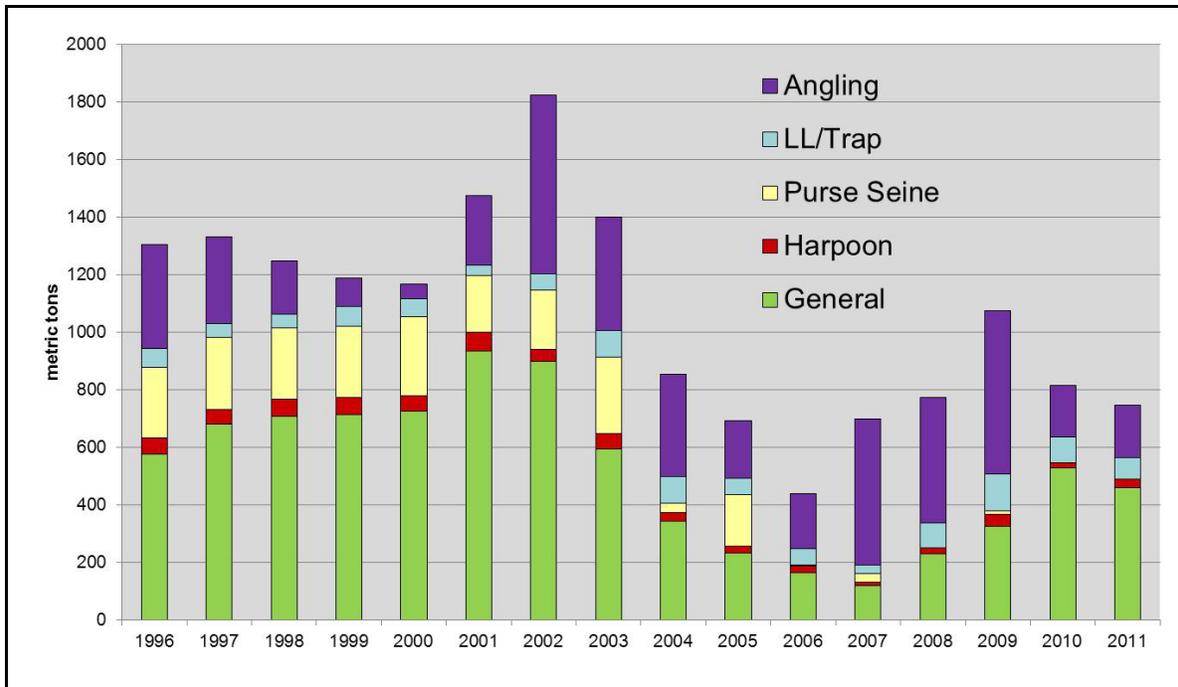


Figure 4.6 Landings of Bluefin Tuna by Category (1996 – 2011)

Source: NMFS Commercial BFT Landings Database.

Also in 2011, one percent of the total yellowfin catch, or three percent of the commercial yellowfin catch, was attributable to commercial handgear. Commercial handgear landings of skipjack tuna accounted for approximately seven percent of total skipjack landings, or about 81 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 less than one percent of total commercial bigeye landings. Updated landings for the commercial handgear fisheries by gear and by area for 2004 – 2011 are presented in the following tables.

Table 4.16 U.S. Atlantic Commercial Handgear Landings of Tunas and Swordfish (mt ww) by Gear Type (2004-2011)

Species	Gear	2004	2005	2006	2007	2008	2009	2010	2011
Bluefin tuna	Rod and Reel	353.2	226.6	164.1	120.8	226.6	301.7	515.1	418.6
	Handline	1.5	2.3	0.3	0.0	0.6	0.1	2.7	0.9
	Harpoon	41.2	31.5	30.3	22.5	30.2	66.1	29.0	70.1
	Total	395.9	260.4	194.7	143.3	257.4	367.9	546.8	489.6
Bigeye tuna	Troll	0.0	0.0	0.0	0.9	0.8	0.6	0.0	0.1
	Handline	3.5	6.3	21.5	16.8	6.9	4.6	2.5	3.4
	Total	3.5	6.3	21.5	17.7	7.7	5.2	2.5	3.5
Albacore tuna	Troll	0.0	0.0	0.0	0.2	0.2	0.07	0.04	0.0
	Handline	8.2	4.2	2.6	5.4	0.2	0.5	2.0	0.7
	Total	8.2	4.2	2.6	5.6	0.4	0.57	2.04	0.7
Yellowfin tuna	Troll	0.0	0.0	0.0	6.9	2.4	5.4	1.2	0.5
	Handline	248.5	160.3	105.1	113.2	30.1	58.7	44.2	33.1
	Total	248.5	160.3	105.1	120.1	32.5	64.1	45.4	33.6
Skipjack tuna	Troll	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	1.7	1.2
	Total	10.4	11.8	0.2	0.3	0.4	2.8	1.7	1.2
Swordfish	Handline	22.7	34.7	32.5	125.2	83.2	123.0	220.6	124.6
	Harpoon	0.5	0.0	0.3	0.0	0.0	0.05	0.6	0.6
	Total	23.2	34.7	32.8	125.2	83.2	123.05	221.2	125.2

Source: U.S. National Report to ICCAT: 2012.

Table 4.17 U.S. Atlantic Commercial Handgear Landings of Tunas and Swordfish (mt ww) by Region (2002-2011)

Species	Region	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bluefin tuna	NW Atl	938.3	607.3	395.6	260.4	194.7	143.3	257.3	366.3	546.8	491.6
Bigeye tuna	NW Atl	13.8	6.0	3.3	6.2	21.5	16.8	6.9	4.6	2.5	3.4
	GOM	0.6	0.3	0.2	0.1	1.5	1.01	0.0	0.07	1.8	0.0
	Caribbean	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.05
Albacore tuna	NW Atl	3.9	1.7	6.1	3.0	2.6	5.4	0.2	0.5	1.9	0.7
	GOM	0.0	≤0.05	0.0	0.1	0.07	0.0	0.0	0.01	0.0	0.0
	Caribbean	2.7	2.6	2.1	1.1	0.4	0.2	0.4	0.003	0.05	0.1
Yellowfin tuna	NW Atl	137.0	149.1	213.2	105.1	105.1	113.2	30.1	58.7	43.5	33.1
	GOM	100.0	39.9	28.3	45.5	49.9	26.2	11.2	21.6	2.9	8.7
	Caribbean	7.0	10.7	7.0	9.7	7.8	9.1	3.7	3.3	1.9	1.0
Skipjack tuna	NW Atl	0.2	0.2	0.6	0.9	0.2	0.3	0.4	2.8	1.2	1.2
	GOM	0.0	0.0	0.2	0.0	0.0	0.2	0.06	0.2	0.02	0.2
	Caribbean	12.5	12.9	9.6	12.9	10.0	13.7	16.0	8.8	6.2	4.5
Swordfish	NW Atl	11.6	10.8	19.2	34.4	32.8	125.2	83.2	123.05	126.9	124.6
	GOM	2.9	9.8	4.0	0.3	0.1	0.2	1.2	1.9	2.6	0.6

Source: U.S. National Report to ICCAT: 2012.

Handgear Trip Estimates

Table 4.18 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 2002 through 2011. The trips include commercial and recreational trips, and are not specific to any particular species. It should be noted that the 2011 estimates are preliminary and subject to change.

Table 4.18 Estimated Number of Rod and Reel and Handline Trips Targeting Atlantic Large Pelagic Species, by State (ME-VA, 2002-2011)

Year	AREA							Total
	NH/ME	MA	CT/RI	NY	NJ (North)	NJ (South) and MD/DE	VA	
Private Vessels								
2002	5,090	15,180	2,558	7,692	2,762	22,757	6,524	62,563
2003	4,501	13,411	2,869	12,466	3,214	21,619	5,067	63,147
2004	2,025	10,033	3,491	11,525	3,632	22,433	4,406	57,545
2005	4,607	12,052	7,603	8,051	2,446	19,759	4,631	59,148
2006	3,303	24,951	5,430	11,114	3,043	19,187	5,274	72,302
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
Charter Vessels								
2002	1,132	3,357	937	1,686	1,331	6,300	1,510	16,253
2003	221	2,561	1,246	2,035	1,331	5,201	546	13,141
2004	312	2,021	1,564	2,285	1,094	5,080	1,579	13,935
2005	329	2,397	551	2,033	1,024	3,476	763	10,573
2006	96	1,294	677	1,057	891	3,452	828	8,296
2007	789	4,073	1,141	1,445	1,420	4,579	610	14,057
2008	892	3,295	751	1,525	1,026	4,340	370	12,199
2009	568	4,930	726	1,677	1,142	3,348	534	12,923
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

Source: Large Pelagics Survey database.

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. 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 Pelagic Survey (LPS), Southeast Headboat Survey (HBS), Texas Headboat Survey, Recreational Billfish Survey (RBS) tournament data, and the recreational non-tournament swordfish and billfish landings database. Descriptions of these surveys, the geographic areas they include, and their limitations 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 4.19 from 2002 through 2011.

Table 4.19 Domestic Landings (mt ww)* for the Atlantic Tunas and Swordfish Recreational Rod and Reel Fishery (2002-2011)

Species	Region	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bluefin tuna*	NW Atlantic	519.3	314.6	370.2	254.4	158.2	398.6	352.2	143.3	111.4	173.3
	GOM	1.5	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
	Total	520.8	314.6	370.2	254.4	158.8	398.6	352.2	143.3	111.4	173.3
Bigeye tuna**	NW Atlantic	49.6	188.5	94.6	165.0	422.3	126.8	70.9	77.6	116.8	72.4
	GOM	0.0	0.0	6.0	0.0	24.3	0.0	0.0	0.0	0.8	34.9
	Caribbean	0.0	4.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.3
	Total	49.6	192.5	100.6	165.0	446.6	126.8	70.9	77.6	117.6	109.6
Albacore**	NW Atlantic	323.0	333.8	500.5	356.0	284.2	393.6	125.2	22.8	46.2	170.6
	Caribbean	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	103.4	0.0
	Total	323.0	333.8	500.5	356.0	284.2	393.6	125.2	22.8	149.6	170.6
Yellowfin tuna**	NW Atlantic	2,624.0	4,672.1	3,433.7	3,504.8	4,649.2	2,726.0	657.1	742.6	1,209.0	1,134
	GOM	200.0	640.0	247.1	146.9	258.4	227.6	366.3	264.7	18.0	362.8
	Caribbean	7.2	16.0	0.0	0.0	0.0	12.4	0.0	3.5	4.5	0.9
	Total	2,831.2	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
Skipjack tuna**	NW Atlantic	23.3	34.1	27.3	8.1	34.6	27.4	21.0	75.7	29.1	50.3
	GOM	13.2	11.1	6.3	3.1	6.4	23.9	16.3	22.0	15.5	23.7
	Caribbean	13.2	15.7	40.4	3.9	7.7	0.2	11.3	4.3	0.4	3.0
	Total	49.7	60.9	74.0	15.1	48.7	51.5	48.6	102.0	45.0	77.0
Swordfish	Total	21.5	6.1	25.2	61.2	52.7	68.2	75.7	31.6	49.3	53.6

* 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; and NMFS, 2011.

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 4.20 documents the number of billfish and swordfish reported to the RBS that were landed in tournaments from 2002 – 2012.

Table 4.20 Atlantic HMS Tournament Billfish Landings, in Numbers of Fish (2002-2012)

Species	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*
Blue marlin	84	96	110	64	72	46	44	35	18	27	40
White marlin	33	20	25	26	36	31	47	46	63	31	23
Roundscale spearfish	-	-	-	-	-	-	-	5	10	3	4
Sailfish	14	24	9	3	4	1	-	-	3	7	7
Swordfish	16	48	168	385	207	274	114	85	46	29	14

* Incomplete landings.

Source: NMFS Recreational Billfish Survey (RBS).

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 4.21 provides a summary of non-tournament billfish and swordfish landings since 2004.

Table 4.21 Atlantic Recreational (Non-tournament) Billfish Landings, in Numbers of Fish (2004-2012)

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	122
Swordfish	290	388	549	716	369	389	285	318	360

* Incomplete landings.

Source: HMS Online Recreational Reporting System.

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 4.22 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 4.22 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
White marlin	39	59	53	72	56
Blue marlin	59	58	44	28	43
Roundscale spearfish*	-	-	-	19	7
Total landings	98	117	97	119	106
Balance remaining (from 250 limit)	152	133	153	131	144

* Roundscale spearfish were added to the HMS management unit (September 22, 2010; 75 FR 57698) and 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 non-tournament landings, the HMS Catch Card Programs in NC and MD, the Large Pelagic Survey, and the Marine Recreational Information Program

Shark Recreational Fishery

The following tables provide a summary of landings for each of the three species groups, LCS, pelagic sharks, and SCS.

Table 4.23 Estimates of Total Recreational Harvest of Atlantic Sharks* (2002-2011)

Species Group	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
LCS	80.6	89.0	67.4	85.0	59.1	68.8	45.0	64.5	89.5	60.9
Pelagic	4.7	4.3	5.0	5.4	16.5	9.0	2.8	7.8	6.8	5.2
SCS	152.5	134.3	127.0	118.9	117.2	167.6	107.9	101.1	81.3	109.3
Unclassified	5.4	18.4	28.5	47.6	7.5	23.9	6.1	15.1	0.6	7.5

LCS – Large coastal sharks; SCS – Small coastal sharks. *In thousands of fish. Estimates include prohibited species.

Sources: Cortés and Neer 2005, Cortés, pers. comm.

Table 4.24 Recreational Harvest of Atlantic Large Coastal Sharks by Species, in Number of Fish (2004-2011)

Species	2004	2005	2006	2007	2008	2009	2010	2011
Basking ²	0	0	0	0	0	0	0	0
Bignose ¹	17	0	0	55	0	0	0	0
Bigeye sand tiger ²	0	0	0	0	0	0	0	0
Blacktip	30,885	43,408	31,038	28,864	13,318	12,921	23,640	16,005
Bull	5,186	1,561	4,262	5,849	1,735	6,811	260	1,639
Caribbean reef ¹	652	5	47	0	0	1	0	0
Dusky ¹	36	3,040	194	112	2,391	447	546	148
Galapagos ¹	0	0	0	0	0	0	0	0
Hammerhead, great	9	55	98	786	13	128	3	112
Hammerhead, scalloped	879	5,021	458	1,726	119	1,667	199	369
Hammerhead, smooth	0	0	2	0	0	0	0	0
Hammerhead, unclassified	0	2,676	1,099	807	0	0	0	0
Lemon	5,578	510	1,145	3	818	597	2,013	1,046
Night ¹	0	15	1	2	0	22	0	0
Nurse	3,463	2,341	1,553	334	268	822	251	1,312
Sandbar ³	3,724	2,798	821	7,060	5,801	4,908	6,277	1,565
Sand tiger ²	0	0	1,040	0	0	0	0	0
Silky ³	399	3,576	2,108	1,973	1,226	782	157	438
Spinner	4,041	3,269	2,281	6,547	3,824	3,347	5,715	3,015
Tiger	1	1,321	1,309	1,815	1,418	4	473	89
Whale ²	0	0	0	0	0	0	0	0
White ²	0	0	0	0	0	0	0	0
Requiem shark, unclassified	12,488	15,423	11,652	12,837	11,519	32,024	49,920	35,145
Total	67,359	85,019	59,108	68,770	45,010	64,481	89,454	60,883

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

Sources: Cortés and Neer 2005, Cortés, pers. comm.

Table 4.25 Recreational Harvest of Atlantic Pelagic Sharks by Species, in Number of Fish (2002-2011)

Species	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bigeye thresher*	65	0	0	0	42	0	0	0	0	0
Bigeye sixgill*	0	0	0	0	0	0	0	0	0	0
Blue Shark	0	376	0	31	980	1,622	117	0	1,384	0
Mako, longfin*	0	0	0	0	0	0	0	0	0	0
Mako, shortfin	3,206	3,906	5,052	3,857	3,352	2,556	1,904	4,991	5,156	509
Mako, unclassified	0	0	0	0	0	0	0	9	0	4,562
Oceanic whitetip	0	0	0	0	0	0	0	0	0	0
Porbeagle	0	0	0	0	0	0	0	0	0	17
Sevengill*	0	0	0	0	0	0	0	0	0	0
Sixgill*	0	0	0	0	0	0	0	0	0	0
Thresher	1,467	0	0	1,504	12,171	4,822	755	2,768	267	0
Pelagic shark, unclassified	-	-	-	-	-	-	-	-	-	111
Total	4,673	4,282	5,052	5,392	16,545	9,000	2,776	7,759	6,807	5,199

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

Sources: Cortés and Neer 2005, Cortés, pers. comm.

Table 4.26 Recreational Harvest of Atlantic Small Coastal Sharks by Species, in Number of Fish (2004-2011)

Species	2004	2005	2006	2007	2008	2009	2010	2011
Atlantic angel*	0	0	0	0	0	0	0	0
Blacknose	15,101	7,101	9,914	9,177	3,718	5,845	2,050	2,281
Bonnethead	42,429	32,227	24,885	42,444	22,973	28,743	14,683	57,023
Finetooth	366	3,129	572	4,048	2,308	797	862	67
Atlantic sharpnose	69,067	76,347	81,817	111,967	78,885	65,709	63,695	49,916
Caribbean sharpnose*	0	0	0	0	0	0	0	0
Smalltail*	67	71	0	0	0	0	0	0
Total	127,030	118,875	117,188	167,636	107,884	101,094	81,290	109,287

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

Sources: Cortés and Neer 2005, 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 4.27 and Table 4.28.

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

Table 4.27 Observed or Reported Number of HMS Kept in the Rod and Reel Fishery (ME-VA, 2002-2011)

Species	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
White marlin ²	8	12	6	5	8	4	13	8	9	17
Blue marlin ²	0	4	5	3	2	2	3	3	3	1
Sailfish ²	0	0	0	1	0	1	0	0	0	0
Swordfish	5	9	9	22	27	42	30	7	9	27
Giant bluefin tuna ³	176	58	50	48	15	15	20	46	54	51
Large medium bluefin tuna ³	11	11	13	12	1	5	11	0	36	28
Small medium bluefin tuna	62	83	30	22	48	69	48	205	11	14
Large school bluefin tuna	391	287	291	179	171	298	398	107	174	77
School bluefin	556	509	927	638	84	314	228	180	201	180
Young school bluefin	7	4	16	25	0	3	4	1	2	0
Bigeye tuna	32	21	46	32	35	59	55	58	36	66
Yellowfin tuna	2,595	3,216	3,858	3,700	3,572	2,988	1,029	1,886	1,906	3,474
Skipjack tuna	117	681	197	79	104	34	64	242	151	278
Albacore	534	546	1,458	835	542	934	168	67	154	550
Thresher shark	20	24	58	45	34	62	59	66	44	41
Mako shark	72	141	216	99	111	143	169	159	159	172
Sandbar shark	0	9	7	1	1	9	1	1	0	1
Dusky shark	1	1	0	0	3	6	1	0	1	0
Tiger shark	1	0	0	1	0	1	1	3	1	0
Porbeagle	1	0	1	1	1	0	0	0	2	2
Blacktip shark	0	1	0	1	1	0	-	-	0	0
Atlantic sharpnose shark	0	0	0	0	0	0	-	-	10	5
Blue shark	36	65	74	67	61	109	43	54	26	30
Hammerhead shark	0	0	1	0	0	0	1	0	0	0
Smooth hammerhead	0	0	0	0	0	0	1	0	0	0
Scalloped hammerhead	0	0	0	0	1	0	0	0	0	0
Unidentified hammerhead	0	0	0	0	0	0	0	0	0	0
Wahoo	49	68	110	112	85	190	172	69	111	63
Dolphin	2,509	4,209	3,050	6,366	3,921	2,536	5,739	3,317	6,063	4,935
King mackerel	36	66	11	376	170	82	67	14	14	3
Atlantic bonito	704	315	410	96	262	283	51	138	57	41
Little tunny	240	121	231	181	90	195	93	175	239	151
Amberjack	7	44	0	2	1	5	31	81	99	25
Spanish mackerel	5	35	9	4	1	2	67	9	8	24

¹NMFS 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. ²Amendment 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. ³Includes some commercial handgear landings.

Source: Large Pelagic Survey (LPS) Data.

Table 4.28 Observed or Reported Number of HMS Released in the Rod and Reel Fishery (ME-VA, 2002-2011)

Species	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
White marlin ²	215	160	378	397	160	359	454	936	1,070	1,355
Blue marlin ²	30	39	80	52	42	69	69	60	86	106
Sailfish ²	6	6	2	6	3	1	6	69	11	11
Swordfish	6	21	22	23	52	40	45	13	15	27
Giant bluefin tuna ³	8	0	3	0	3	0	0	0	1	0
Large medium bluefin tuna ³	2	0	36	4	1	3	11	7	22	2
Small medium bluefin tuna	8	13	21	30	18	32	23	93	46	32
Large school bluefin tuna	47	40	107	141	85	99	286	77	172	53
School bluefin tuna ⁴	200	174	1,297	1,917	290	347	358	173	392	345
Young school bluefin tuna ⁴	182	10	1,885	282	117	83	55	52	68	44
Bigeye tuna	1	3	2	2	2	1	0	13	0	2
Yellowfin tuna ^{4, 5}	328	200	1,093	502	351	171	411	2,038	374	1,479
Skipjack tuna ⁴	250	526	362	105	129	17	217	610	188	479
Albacore tuna	95	31	66	67	41	40	14	5	10	84
Thresher shark ⁵	5	8	27	9	15	24	35	23	21	9
Mako shark	120	208	350	142	177	190	242	250	276	224
Sandbar shark	17	26	68	37	158	168	222	219	37	45
Dusky shark	9	44	60	49	73	87	128	152	116	84
Tiger shark	3	12	0	6	7	11	20	11	13	25
Porbeagle	14	3	1	6	8	2	2	6	11	31
Blacktip shark	6	0	1	19	9	31	-	-	34	10
Atlantic sharpnose shark	0	0	0	11	0	0	-	-	5	3
Blue shark ^{4, 5}	505	2,060	2,242	920	884	1,978	2,735	4,185	3,333	3,752
Hammerhead shark	6	38	2	5	0	0	0	0	0	1
Smooth hammerhead shark	0	0	0	0	1	2	0	1	1	3
Scalloped hammerhead shark	0	0	0	0	0	0	4	2	0	0
Unidentified hammerhead shark	0	0	0	0	11	14	27	31	32	10
Wahoo	6	3	5	7	6	9	4	4	6	2
Dolphin ⁵	111	677	192	375	394	227	372	222	344	380
King mackerel	5	5	1	7	20	3	5	5	1	0
Atlantic bonito ⁴	176	282	389	231	114	60	36	124	55	55
Little tunny	585	443	1,130	505	102	387	614	1,028	886	640
Amberjack	57	111	1	2	13	33	145	101	119	17
Spanish mackerel ⁴	0	1	0	0	0	2	37	1	8	0

¹NMFS 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. ²Amendment 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. ³Includes some commercial handgear landings. ⁴Includes dead releases in 2010. ⁵Includes dead releases in 2011.

Source: Large Pelagic Survey (LPS) Data.

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 2011 HMS SAFE Report. 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 proposals to amend the 2006 Consolidated HMS fishery management plan, including one amendment (Amendment 5) that could change certain shark regulations based on recent stock assessments for sandbar sharks, dusky sharks, scalloped hammerhead sharks, Atlantic and Gulf of Mexico blacknose sharks, and Gulf of Mexico blacktip 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 4-6% for shark directed (Hale et al., 2012).

In 2011, the BLL observer program selected 20 vessels with a total of 465 BLL hauls (defined as setting gear, soaking gear for some duration of time, and retrieving gear) were

observed in a total of 139 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) (Hale et al., 2012). The data were grouped by targets into three groups: a) hauls targeting reef fish, b) hauls targeting sandbar shark (part of the shark research fishery), and c) hauls targeting non-sandbar LCS species (part of the normal commercial shark fishery). 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). Vessels targeting sandbar sharks participating in the shark research fishery are subject to unique retention limits (33 sandbar sharks and 33 non-LCS sandbar sharks/vessel/trip). These vessels averaged 2.6 trips per month in 2011. Table 4.29, Table 4.30, and Table 4.31 summarize the shark catch composition and disposition for observed BLL trips in 2011.

Table 4.29 Shark Species Caught on Observed Bottom Longline Trips Targeting Sandbar Sharks in the Gulf of Mexico and South Atlantic Shark Research Fishery (2011)

Species	Total Number Caught	Percent Kept	Percent Discarded Dead	Percent Discarded Alive	Percent Disposition Unknown
Sandbar shark	3,141	87.4	2.8	9.1	0.7
Blacktip shark	765	69.1	23.4	6.8	0.7
Tiger shark	561	42.8	5.9	49.3	2.0
Atlantic sharpnose shark	430	37.9	58.6	3.5	0.0
Nurse shark	373	1.6	0.3	97.6	0.5
Bull shark	313	88.2	0.3	9.9	1.6
Scalloped hammerhead shark	307	90.2	7.5	1.6	0.7
Spinner shark	190	62.1	27.9	10.0	0.0
Great hammerhead shark	129	81.3	17.1	1.6	0.0
Blacknose shark	127	77.1	21.3	1.6	0.0
Dusky shark	107	5.6	45.8	46.7	1.9
Lemon shark	91	91.2	0.0	8.8	0.0
Smoothhound	52	65.4	34.6	0.0	0.0
Sand tiger shark	32	0.0	0.0	96.9	3.1
Silky shark	17	47.1	47.1	5.8	0.0
Finetooth shark	6	100.0	0.0	0.0	0.0
Caribbean reef shark	5	0.0	80.0	20.0	0.0
Sharks	3	0.0	0.0	66.7	33.3
Bonnethead shark	3	33.3	66.7	0.0	0.0
Atlantic angel shark	2	0.0	0.0	100.0	0.0
Great white shark	1	0.0	100.0	0.0	0.0
Shortfin mako shark	1	100.0	0.0	0.0	0.0
Total	6,656				

Source: Hale et al., 2012.

Table 4.30 Shark Species Caught on Observed Bottom Longline Trips Targeting Large Coastal Sharks in the Gulf of Mexico and South Atlantic Commercial Shark Fishery (2011)

Species	Total Number Caught	Percent Kept	Percent Discarded Dead	Percent Discarded Alive	Percent Disposition Unknown
Blacktip shark	126	69.0	29.4	0.8	0.8
Atlantic sharpnose shark	125	55.2	44.8	0.0	0.0
Blacknose shark	78	78.2	21.8	0.0	0.0
Bull shark	39	100.0	0.0	0.0	0.0
Bonnethead shark	37	59.2	40.5	0.0	0.0
Tiger shark	25	40.0	20.0	24.0	16.0
Lemon shark	23	100.0	0.0	0.0	0.0
Nurse shark	19	0.0	0.0	100.0	0.0
Spinner shark	17	11.8	88.2	0.0	0.0
Sandbar shark	17	0.0	47.1	52.9	0.0
Finetooth shark	16	93.7	6.3	0.0	0.0
Great hammerhead shark	12	100.0	0.0	0.0	0.0
Sand tiger shark	2	0.0	0.0	100.0	0.0
Scalloped hammerhead shark	1	0.0	100.0	0.0	0.0
Total	537				

Source: Hale et al., 2012.

Table 4.31 Shark Species Caught on Observed Bottom Longline Trips Targeting Reef Fish in the Gulf of Mexico (2011)

Species	Total Number Caught	Percent Kept	Percent Discarded Dead	Percent Discarded Alive	Percent Disposition Unknown
Atlantic sharpnose shark	278	2.2	25.9	71.9	0.0
Blacknose shark	92	1.1	2.2	96.7	0.0
Smoothhound	59	1.7	3.4	93.2	1.7
Silky shark	28	10.7	42.9	46.4	0.0
Scalloped hammerhead shark	26	3.8	11.5	84.7	0.0
Sandbar shark	14	7.1	0.0	92.9	0.0
Bigeye sixgill shark	9	0.0	55.6	44.4	0.0
Nurse shark	7	0.0	0.0	85.7	14.3
Spinner shark	6	0.0	16.7	83.3	0.0
Sharks	6	16.7	0.0	83.3	0.0
Spiny dogfish	6	0.0	66.7	33.3	0.0
Finetooth shark	5	0.0	20.0	80.0	0.0
Dusky shark	5	0.0	0.0	100.0	0.0
Total	541				

Source: Hale et al., 2012.

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. NMFS is currently engaged in a formal Section 7 consultation in accordance with the ESA on the proposed measures in Amendment 3 related to smoothhound sharks. Once a Biological Opinion is received from the NMFS Office of Protected Resources, NMFS will work to identify and implement measures to reduce impacts (if any) to listed species as it carries out the federal smoothhound fishery.

Table 4.32 provides information on observed interactions with protected resources for BLL vessels fishing in the Gulf of Mexico and South Atlantic regions. In 2011, two smalltooth sawfish and four loggerhead sea turtles were observed on sets targeting sandbar sharks as part of the shark research fishery. 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. Table 4.33 provides information on observed interactions with protected resources for BLL vessels fishing in the Gulf of Mexico targeting reef fish in 2011. One loggerhead sea turtle and one laughing gull were observed caught in BLL gear. No sawfish or marine mammal interactions were observed (Hale et al., 2012).

Table 4.32 Protected Species Interactions on Observed Bottom Longline Trips Targeting Sandbar Sharks in the Gulf of Mexico and South Atlantic Shark Research Fishery (2011)

Species	Total Number Caught	Percent Discarded Dead	Percent Discarded Alive	Percent Disposition Unknown
Smalltooth sawfish	2	0.0	100.0	0.0
Loggerhead sea turtle	4	75.0	25.0	0.0

Table 4.33 Protected Species Interactions on Observed Bottom Longline Trips Targeting Reef Fish in the Gulf of Mexico (2011)

Species	Total Number Caught	Percent Discarded Dead	Percent Discarded Alive	Percent Disposition Unknown
Loggerhead sea turtle	1	0.0	100.0	0.0
Laughing gull	1	100.0	0.0	0.0

4.6 Gillnet Fishery

Gillnet gear is the primary gear for vessels directing on SCS, 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 2011, a total of 402 sets comprising of various gillnet fisheries were observed. No drift gillnet vessels were observed in 2011. A total of 2 strike gillnet fishery vessels were observed making 4 strike sets on 4 trips in 2011. A total of 71 trips making 398 sink net sets on 23 vessels were observed in 2011. These nets had a 6.4-19.1 cm (2.5-7.5 in) stretched mesh size, were 91.4-548.6 m (300-1,800 ft) in length, and 1.5-7.6 m (5-25 ft) in deep. The entire fishing process of net setting to haul back averaged 7.64 hours (Gulak et al., 2012). Table 4.34 through Table 4.37 of this section outline shark species composition, disposition, and summary information for sharks caught during observed in sink gillnet trips with observers onboard in 2011.

Table 4.34 Shark Species Caught on Observed Sink Gillnet Trips Targeting Sharks (2011)

Species	Total Number Caught	Percent		
		Percent Kept	Discarded Alive	Discarded Dead
Spiny dogfish	3,133	97.1	2.3	0.6
Atlantic sharpnose shark	306	97.3	2.0	0.7
Bonnethead shark	24	87.5	4.2	8.3
Blacktip shark	14	0.0	95.6	4.4
Finetooth shark	11	100.0	0.0	0.0
Blacknose shark	9	100.0	0.0	0.0
Scalloped hammerhead shark	6	33.3	66.7	0.0
Smoothhound	5	80.0	20.0	0.0
Spinner shark	3	0.0	66.7	33.3
Thresher shark	1	0.0	100.0	0.0
Total	3,512			

Source: Gulak et al., 2012.

Table 4.35 Shark Species Caught on Observed Sink Gillnet Trips Targeting Spanish Mackerel (2011)

Species	Total Number Caught	Percent		
		Percent Kept	Discarded Alive	Discarded Dead
Atlantic sharpnose shark	711	9.7	57.5	32.8
Bonnethead shark	320	33.1	35.0	31.9
Blacktip shark	23	39.1	52.2	8.7
Sandbar shark	19	0.0	100.0	0.0
Smoothhound	16	0.0	100.0	0.0
Scalloped hammerhead shark	12	16.7	58.3	25.0
Finetooth shark	7	100.0	0.0	0.0
Spinner shark	6	50.0	33.3	16.7
Blacknose shark	5	100.0	0.0	0.0
Sand tiger shark	1	0.0	100.0	0.0
Total	1,120			

Source: Gulak et al., 2012.

Table 4.36 Shark Species Caught on Observed Sink Gillnet Trips Targeting Atlantic Croaker (2011)

Species	Total Number Caught	Percent		
		Percent Kept	Discarded Alive	Discarded Dead
Spiny dogfish	680	0.0	99.7	0.3
Atlantic sharpnose shark	89	46.1	49.4	4.5
Smoothhound	33	9.1	84.8	6.1
Scalloped hammerhead shark	3	0.0	33.3	66.7
Spinner shark	2	0.0	100.0	0.0
Sandbar shark	2	0.0	100.0	0.0
Atlantic angel shark	2	0.0	100.0	0.0
Total	811			

Source: Gulak et al., 2012.

Table 4.37 Shark Species Caught on Observed Sink Gillnet Trips Targeting Mixed Teleost (2011)

Species	Total Number Caught	Percent		
		Percent Kept	Discarded Alive	Discarded Dead
Atlantic sharpnose shark	287	29.6	31.7	38.7
Smoothhound	75	90.7	9.3	0.0
Bonnethead shark	26	100.0	0.0	0.0
Scalloped hammerhead shark	9	100.0	0.0	0.0
Blacknose shark	8	100.0	0.0	0.0
Sandbar shark	7	0.0	85.7	14.3
Blacktip shark	3	100.0	0.0	0.0
Atlantic angel shark	3	0.0	100.0	0.0
Total	418			

Source: Gulak et al., 2012.

4.6.3 Gillnet Bycatch

This section describes the non-shark bycatch observed in the southeast sink gillnet fishery during trips targeting sharks (Gulak et al., 2012).

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, spot, and Atlantic menhaden. All of the observed interactions with protected species between 2000 and 2011 in the observed gillnet fisheries are on Table 4.38.

Sea Turtles

There was one green sea turtle (*Chelonia mydas*) observed caught in sink gillnet gear targeting Spanish mackerel in 2011. The sea turtle was released alive (Gulak et al., 2012).

Sea Birds

There were no sea birds observed caught in sink gillnet gear in 2011 (Gulak et al., 2012).

Marine Mammals

The MMPA Category II classification refers to occasional serious injuries and mortalities. In 2011, there were no marine mammals observed caught in gillnet gear in the shark fisheries (Gulak et al. 2012).

Smalltooth Sawfish

In 2011, 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 4.38 Protected Species Interactions in the Shark Gillnet Fishery (2000-2011)

Year	Sea Turtles	Sea Birds	Marine Mammals	Smalltooth Sawfish	Total
2000	1 (U)	-	2 (2D)	-	3
2001	1 (U)	-	-	-	1
2002	3 (3A)	-	-	-	3
2003	-	-	2 (1D, 1U)	1(A)	3
2004	-	-	-	-	0
2005	7 (6A, 1D)	-	-	-	7
2006	3 (2A, 1D)	-	-	-	3
2007	4 (3A, 1D)	-	-	-	4
2008	-	-	-	-	0
2009	2 (A)	1 (A)	1 (D)	-	4
2010	-	1 (D)	-	-	1
2011	1 (A)	-	-	-	1
Total	22	2	5	1	30

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

Table 4.39 Bycatch by Species on Observed Sink Gillnet Fishery Trips Targeting Sharks (2011)

Common Name	Total Number Caught	Percent		
		Percent Kept	Discarded Alive	Discarded Dead
Spot	344	100.0	0.0	0.0
Atlantic croaker	327	99.7	0.3	0.0
Bluefish	69	49.3	36.2	14.5
Southern kingfish	65	96.9	0.0	3.1
Yellowfin menhaden	55	67.3	0.0	32.7
Banded drum	46	58.7	17.4	23.9
Sea urchins	23	0.0	95.6	4.4
Seatrouts	12	41.7	8.3	50.0
Atlantic bumper	9	100.0	0.0	0.0
Atlantic butterfish	9	66.7	0.0	33.3
Cobia	7	14.3	28.6	57.1
Stingrays	6	100.0	0.0	0.0
Bluntnose stingray	4	0.0	100.0	0.0
Coral	3	0.0	100.0	0.0
Cownose ray	3	0.0	66.7	33.3
Pinfish	2	0.0	100.0	0.0
Horseshoe crab	2	0.0	100.0	0.0
Eagle rays	2	0.0	100.0	0.0
Flounders	2	100.0	0.0	0.0
King mackerel	2	100.0	0.0	0.0
Spanish mackerel	2	100.0	0.0	0.0
Jellyfish	2	0.0	100.0	0.0
Florida pompano	2	100.0	0.0	0.0
Sea stars	1	0.0	100.0	0.0
Atlantic menhaden	1	0.0	100.0	0.0
Flame box crab	1	0.0	100.0	0.0
Bluerunner jack	1	100.0	0.0	0.0
Little tunny	1	100.0	0.0	0.0
Molluscs	1	0.0	100.0	0.0
Searobins	1	0.0	0.0	100.0
Vermillion snapper	1	0.0	100.0	0.0
Moonfish	1	100.0	0.0	0.0
Lesser amberjack	1	100.0	0.0	0.0
Porgy family	1	100.0	0.0	0.0
Barracuda family	1	100.0	0.0	0.0
Crab	1	0.0	100.0	0.0
Total	1,009			

Source: Gulak et al., 2012.

4.7 Buoy Gear

4.7.1 Domestic History and Current Management

A detailed history of the buoy gear fishery may be found in the 2006 Consolidated HMS FMP and the 2011 HMS SAFE Report.

4.7.2 Recent Catch, Landings, and Discards

Buoy gear effort and catch data are available for 2007 through 2011 (Table 4.40, Table 4.41, and Table 4.42). Prior to 2007, buoy gear catch data were included in handline catch data.

Table 4.40 Buoy Gear Effort (2007-2011)

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

Source: NMFS Pelagic Logbook Program.

Table 4.41 Buoy Gear Landings (lb dw, 2007-2011)

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

Source: NMFS Pelagic Logbook Program.

Table 4.42 Buoy Gear Catches and Discards, in Numbers of Fish per Species (2007-2011)

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

Source: NMFS Pelagic Logbook Program.

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 HMS SAFE Report (NMFS 2008). Data on landings specific to green-stick gear are expected to improve because a green-stick gear code was designated for use in dealer reporting systems such as trip tickets in the southeast and electronic reporting programs in the northeast. NMFS has also, with some success, 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 electronic dealer reporting system (eDealer) is anticipated to improve the available green-stick landings data also.

Additional discussion about green-stick data collection may be found in the 2011 HMS SAFE Report (NMFS 2011).

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 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.

4.10 Fishery Data: Landings by Species

The following tables (Table 4.43 - Table 4.48) of Atlantic HMS landings are taken from the 2012 National Report of the United States to ICCAT (NMFS, 2012). 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 4.49 - Table 4.51) were compiled from the most recent stock assessment documents and updates provided from the NMFS Southeast Fisheries Science Center.

Table 4.43 U.S. Landings (mt) of Atlantic Bluefin Tuna, by Area and Gear (2004-2011)

Area	Gear	2004	2005	2006	2007	2008	2009	2010	2011	
NW Atlantic	Longline**	63.6	72.7	104.4	70.7	107.4	166.7	164.7	202.2	
	Handline	1.5	2.3	0.3	0.0	0.6	0.1	2.7	0.9	
	Purse seine	31.8	178.3	3.6	27.9	0.0	11.4	0.0	0.0	
	Harpoon	41.2	31.5	30.3	22.5	30.2	65.6	29.0	70.1	
	Rod and reel (>145 cm LJFL)*	348.0	170.4	217.2	235.4	305.7	717.1	570.8	-	
	Rod and reel (<145 cm LJFL)*	370.2	254.4	158.2	398.6	352.2	143.3	111.4	-	
	Unclassified	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	
	Commercial rod and reel	-	-	-	-	-	-	-	-	418.6
	Recreational rod and reel	-	-	-	-	-	-	-	-	173.3
	Trawl	-	-	-	0.0	0.0	0.0	0.0	0.0	0.4
Gulf of Mexico	Longline	102.8	118.5	88.1	81.2	111.7	111.6	56.2	11.2	
	Rod and reel*	0.0	0.0	0.6	0.0	0.0	0.0	0.0	-	
NC Area 94a	Longline	13.7	20.3	12.1	12.4	13.5	56.7	17.8	6.4	
Caribbean	Longline	-	-	-	0.0	0.0	0.0	0.0	0.6	
All areas	All gears	973.0	848.4	614.8	848.7	919.9	1,272.6	952.6	883.7	

* 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, 2012.

Table 4.44 U.S. Landings (mt) of Atlantic Yellowfin Tuna, by Area and Gear (2004-2011)

Area	Gear	2004	2005	2006	2007	2008	2009	2010	2011
NW Atlantic	Longline	658.9	394.2	701.7	757.8	460.5	416.4	673.4	698.3
	Rod and reel*	3,433.7	3,504.8	4,649.2	2,726.0	657.1	742.6	1,209.0	1,134.0
	Troll	0.0	0.0	0.0	6.9	2.4	5.4	1.2	0.5
	Gillnet	3.2	0.1	4.7	4.2	0.6	0.0	0.5	0.05
	Trawl	1.6	0.2	0.7	2.4	0.0	0.0	1.4	1.3
	Handline	213.2	105.1	105.1	113.2	30.1	58.7	43.5	33.1
	Trap	0.0	0.01	0.0	0.0	0.05	0.1	0.5	0.0
	Unclassified	10.6	3.8	3.9	7.0	1.4	2.2	9.5	4.2
Gulf of Mexico	Longline	1,811.9	1,210.9	1,128.5	1,379.5	756.5	1,147.0	303.2	634.1
	Rod and reel*	247.1	146.9	258.4	227.6	366.3	264.7	18.0	362.8
	Handline	28.3	45.5	49.9	26.2	11.2	21.6	2.9	0.7
	Gillnet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
	Unclassified	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
Caribbean	Longline	4.5	140.6	179.7	255.6	107.1	136.7	212.2	132.1
	Handline	7.0	9.7	7.8	9.1	3.7	3.3	1.9	1.0
	Gillnet	0.06	**	0.0	0.0	0.04	0.04	0.0	0.0
	Trap	0.1	**	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
NC Area 94a	Longline	0.08	0.5	0.0	1.8	0.4	0.0	0.0	4.1
SW Atlantic	Longline	16.8	0.0	0.0	0.0	0.0	0.0	28.7	-
All areas	All gears	6,515.7	5,568.1	7,090.0	5,529.5	2,407.2	2,802.3	2,481.7	3,015.2

* Rod and reel catches and landings represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector. ** ≤ 0.05 mt.

Source: NMFS, 2012.

Table 4.45 U.S. Landings (mt) of Atlantic Skipjack Tuna, by Area and Gear (2004-2011)

Area	Gear	2004	2005	2006	2007	2008	2009	2010	2011
NW Atlantic	Longline	0.1	0.05	0.04	0.0	0.1	0.4	1.4	0.4
	Rod and reel*	27.3	8.1	34.6	27.4	21.0	75.7	29.1	50.3
	Gillnet	16.7	2.2	0.2	0.05	0.04	3.3	0.2	0.04
	Trawl	0.2	0.07	0.7	0.005	0.003	0.0	0.0	0.0
	Handline	0.6	0.9	0.2	0.3	0.4	2.8	1.2	1.2
	Trap	0.006	0.0	0.3	0.0	0.0	0.0	0.0	-
	Pound net	0.0	0.0	0.5	0.0	0.0	0.0	0.0	-
	Unclassified	0.2	0.01	0.06	0.6	0.5	1.2	0.1	0.8
Gulf of Mexico	Longline	0.3	0.3	0.0	0.0	0.05	0.05	0.0	0.2
	Rod and reel*	6.3	3.1	6.4	23.9	16.3	22.0	15.5	23.7
	Handline	0.2	0.02	0.0	0.2	0.06	0.2	0.02	0.2
Caribbean	Longline	0.3	0.2	0.2	0.02	1.3	0.05	0.0	0.05
	Gillnet	0.3	0.06	0.02	0.0	0.01	0.6	0.0	0.0
	Rod and reel*	40.4	3.9	7.7	0.2	11.3	4.3	0.4	3.0
	Handline	9.6	10.9	10.0	13.7	16.0	8.8	6.2	4.5
	Trap	0.02	0.1	0.05	0.0	0.0	0.0	0.0	-
All areas	All gears	102.5	29.9	61.0	66.5	67.1	119.4	54.2	84.3

* 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, 2012.

Table 4.46 U.S. Landings (mt) of Atlantic Bigeye Tuna, by Area and Gear (2004-2011)

Area	Gear	2004	2005	2006	2007	2008	2009	2010	2011
NW Atlantic	Longline	267.0	272.9	469.4	331.9	380.2	384.7	431.1	622.1
	Rod and reel*	94.6	165.0	422.3	126.8	70.9	77.6	116.8	72.4
	Troll	0.0	0.0	0.0	0.9	0.8	0.6	0.0	0.1
	Handline	3.3	6.2	21.5	16.8	6.9	4.6	1.8	3.4
	Trawl	0.9	0.6	0.0	0.4	0.0	0.0	0.7	1.2
	Unclassified	0.5	0.6	0.8	0.9	2.1	1.9	6.7	4.7
Gulf of Mexico	Longline	20.2	25.2	37.7	37.0	14.0	19.5	6.9	2.1
	Rod and reel*	6.0	0.0	24.3	0.0	0.0	0.0	0.8	34.9
	Handline	0.2	0.1	1.5	0.01	0.0	0.07	0.09	0.0
Caribbean	Longline	3.5	6.9	10.5	3.4	8.9	22.2	5.0	2.9
	Rod and reel*	-	-	-	0.0	0.0	0.0	0.0	2.3
	Handline	0.0	0.04	0.0	0.0	0.0	0.0	0.0	0.05
NC Area 94a	Longline	5.0	6.9	3.0	8.4	4.6	3.7	3.7	-
SW Atlantic	Longline	14.4	0.0	0.0	0.0	0.0	0.0	0.2	0.0
All areas	All gears	416.0	484.4	991.4	527.3	488.5	515.2	571.3	746.1

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

Source: NMFS, 2012.

Table 4.47 U.S. Landings (mt) of Atlantic Albacore Tuna, by Area and Gear (2004-2011)

Area	Gear	2004	2005	2006	2007	2008	2009	2010	2011
NW Atlantic	Longline	106.6	88.9	84.8	109.9	115.9	141.3	87.8	147.8
	Gillnet	4.9	6.0	2.1	1.0	2.1	5.6	0.5	0.2
	Handline	6.1	3.0	2.6	5.4	0.2	0.5	1.9	0.7
	Trawl	2.7	1.7	1.1	0.3	0.01	0.08	0.2	2.0
	Trap	-	-	0.5	0.4	0.005	0.01	0.01	0.0
	Troll	0.0	0.0	0.0	0.2	0.2	0.07	0.04	0.0
	Rod and reel*	500.5	356.0	284.2	393.6	125.2	22.8	46.2	170.6
	Unclassified	3.6	9.9	5.6	4.2	1.9	1.3	2.2	7.8
Gulf of Mexico	Longline	9.9	6.9	7.6	15.4	10.2	16.7	7.1	119.8
	Rod and reel*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Handline	0.0	0.1	0.07	0.0	0.0	0.01	0.01	0.1
Caribbean	Longline	3.2	12.1	10.5	1.2	0.4	0.3	0.7	**
	Gillnet	0.005	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	0.0	-
	Handline	2.1	1.1	0.4	0.2	0.4	0.003	0.05	**
NC Area 94a	Longline	0.2	0.6	0.03	0.3	0.8	0.3	0.6	-
SW Atlantic	Longline	0.5	0.0	0.0	0.0	0.0	0.0	0.0	-
All areas	All gears	646.6	488.0	399.5	532.1	256.7	188.8	314.5	449.0

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

Source: NMFS, 2012.

Table 4.48 U.S. Catches and Landings (mt) of Atlantic Swordfish, by Area and Gear (2004-2011)

Area	Gear	2004	2005	2006	2007	2008	2009	2010	2011
NW Atlantic	Longline*	1,169.7	1,096.2	1,165.2	1,649.6	1,622.5	1,696.0	1,647.7	1,898.8
	Gillnet	0.05	0.0	0.0	0.2	0.0	0.05	0.0	0.0
	Handline	18.7	34.4	32.5	125.2	83.2	123.0	126.9	124.6
	Trawl	8.3	8.2	3.5	6.5	7.6	23.7	21.2	17.9
	Unclassified	0.0	0.5	0.2	0.2	0.2	0.0	2.1	0.1
	Unclassified discards	3.9	4.2	5.1	5.5	4.1	3.0	3.6	4.8
	Harpoon	0.5	0.0	0.3	0.0	0.0	0.05	0.6	0.6
	Rod and reel**	24.3	53.1	50.6	65.9	56.7	19.0	47.6	48.7
	Trap	0.0	0.0	0.0	0.0	0.0	0.0	1.8	-
Gulf of Mexico	Longline*	453.0	480.9	328.1	457.7	361.6	476.1	212.3	329.8
	Handline	4.0	0.3	0.1	0.2	1.2	1.9	2.6	0.6
	Rod and reel**	0.5	1.5	2.1	2.3	19.0	12.6	1.7	4.9
	Unclassified	0.0	0.2	0.0	0.0	0.0	2.9	-	-
	Unclassified discards	0.03	3.9	2.7	5.5	4.6	3.5	1.3	2.9
Caribbean	Longline	295.9	143.5	88.9	27.8	57.9	22.6	41.4	14.2
	Trap*	0.0	0.0	0.0	0.0	0.0	-	-	-
	Rod and reel**	0.4	6.6	0.0	0.0	0.0	0.0	-	-
	Handline	0.006	0.0	0.0	0.0	0.0	0.003	0.0	0.0
	Unclassified discards	0.08	0.7	0.0	0.0	0.0	0.2	0.04	0.8
NC Atlantic	Longline*	599.9	552.2	378.6	338.9	311.6	496.4	304.8	438.4
SW Atlantic	Longline*	15.7	0.0	0.0	0.0	0.0	0.0	0.3	0.0
All areas	All gears	2,595.1	2,387.6	2,057.9	2,682.8	2,530.3	2,878.0	2,412.1	2,887.6

* 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, 2012.

Table 4.49 Commercial Landings of Atlantic Large Coastal Sharks (lb dw, 2003-2011)

Large Coastal Sharks	2003	2004	2005	2006	2007	2008	2009	2010	2011
Basking ²	0	0	0	0	0	0	0	0	0
Bignose ¹	318	0	98	46	0	104	0	0	0
Bigeye sand tiger ²	0	0	0	0	0	0	0	0	0
Blacktip	1,474,362	1,092,600	894,768	1,255,255	1,091,502	573,723	601,116	858,311	572,209
Bull	93,816	49,556	118,364	173,375	154,945	186,882	207,502	222,795	228,522
Caribbean reef ¹	0	0	0	0	0	0	0	0	0
Dusky ¹	23,288	1,025	874	4,209	2,064	0	486	0	14
Galapagos ¹	0	0	0	0	0	0	0	0	0
Hammerhead, great	0	0	0	0	0	0	0	0	49
Hammerhead, scalloped	0	0	0	0	0	0	0	0	0
Hammerhead, smooth	0	92	54	150	0	358	4,025	7,802	110
Hammerhead, unclassified	150,368	116,546	182,387	141,068	65,232	55,907	159,937	95,654	104,324
Large coastal, unclassified	51,433	0	0	0	0	0	0	0	0
Lemon	80,688	67,810	74,436	65,097	72,583	53,427	82,311	46,397	82,290
Narrowtooth ¹	0	0	0	0	0	0	0	0	0
Night ¹	20	0	0	0	0	0	0	0	208
Nurse	70	317	152	2,258	15	58	147	71	27
Sandbar	1,425,628	1,223,241	1,246,966	1,501,277	691,928	86,640	167,958	129,332	140,333
Sand tiger ²	624	1,832	4,149	3,555	210	0	15	18	20
Silky	51,588	11,808	18,237	16,173	16,496	4,794	5,474	1,188	1,635
Spinner	12,133	14,806	47,670	96,259	17,888	123,660	37,047	91,087	71,189
Tiger	18,536	30,976	39,387	50,749	34,169	29,712	23,046	48,954	58,753
Whale ²	0	0	0	0	0	0	0	0	0
White ²	1,454	58	0	122	0	117	0	0	0

Large Coastal Sharks	2003	2004	2005	2006	2007	2008	2009	2010	2011
Unclassified, assigned to large coastal	908,077	603,229	519,654	499,069	182,240	247,639	224,137	17,994	225,784
Unclassified, fins	181,431	137,375	135,774	152,111	98,010	55,482	79,849	73,513	75,675
Total (excluding fins)	4,292,403 (1,947 mt dw)	3,213,896 (1,458 mt dw)	3,147,196 (1,428 mt dw)	3,808,662 (1,728 mt dw)	2,329,272 (1,057 mt dw)	1,363,021 (618 mt dw)	1,513,201 (686 mt dw)	1,519,603 (689 mt dw)	1,485,467 (684 mt dw)

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

Sources: Cortés 2003; Cortés and Neer 2002, 2005; Cortés pers. comm. 2012.

Table 4.50 Commercial Landings of Atlantic Small Coastal Sharks (lb dw, 2003-2010)

Small Coastal Sharks	2003	2004	2005	2006	2007	2008	2009	2010	2011
Atlantic angel*	1,397	818	3,587	500	29	91	0	96	11
Blacknose	131,511	68,108	124,039	187,907	91,438	134,255	149,874	220,271	32,273
Bonnethead	38,614	29,402	33,295	33,408	53,638	60,970	55,319	11,741	41,270
Finetooth	163,407	121,036	109,774	80,536	138,542	80,833	150,932	92,698	211,876
Sharpnose, Atlantic	190,960	230,880	354,255	459,184	332,160	324,622	277,261	220,271	261,295
Sharpnose, Caribbean*	0	0	0	0	0	0	0	0	0
Unclassified, assigned to small coastal	8,634	1,407	9,821	1,289	2,384	23,077	34,429	851	36,639
Total (excluding fins)	534,523 (242 mt dw)	451,651 (205 mt dw)	634,885 (288 mt dw)	763,327 (346 mt dw)	618,191 (280 mt dw)	623,848 (283 mt dw)	667,815 (303 mt dw)	357,855 (162 mt dw)	583,364 (265 mt dw)

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

Sources: Cortés and Neer, 2002, 2005; Cortés, 2003; Cortés pers. comm. 2012.

Table 4.51 Commercial landings of Atlantic Pelagic Sharks (lb dw, 2003-2010)

Pelagic Sharks	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bigeye thresher*	0	719	267	68	0	0	0	28	135
Bigeye sixgill*	0	0	0	0	0	0	0	0	0
Blue shark	6,324	423	0	588	0	3,229	4,793	9,135	13,370
Mako, longfin*	1,831	1,827	403	2,198	2,042	1,896	25,264	289	3,465
Mako, shortfin	151,428	217,171	156,082	103,040	165,966	120,255	141,456	220,400	207,630
Mako, unclassified	33,203	50,978	35,241	28,557	38,170	39,661	9,383	0	0
Oceanic whitetip	2,559	1,082	713	354	787	1,899	933	796	2,435
Porbeagle	1,738	5,832	2,452	3,810	3,370	5,259	3,609	4,097	5,933
Sevengill*	0	0	0	0	0	0	0	0	0
Sixgill*	0	0	0	0	0	0	0	0	0
Thresher	46,502	44,915	41,230	27,740	46,391	47,528	33,333	61,290	47,462
Unclassified, pelagic	79,439	0	0	571	0	0	154	0	0
Unclassified, assigned to pelagic	314,300	356,522	16,427	25,917	5,453	14,819	6,650	16,160	33,884
Unclassified, pelagic, fins	0	41	0	0	0	0	0	0	0
Total (excluding fins)	637,324 (289 mt dw)	679,469 (308 mt dw)	252,815 (115 mt dw)	192,843 (87 mt dw)	262,179 (119 mt dw)	234,546 (106 mt dw)	225,575 (102 mt dw)	312,195 (142 mt dw)	314,314 (143 mt dw)

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

Sources: Cortés and Neer 2002, 2005; Cortés 2003; Cortés pers. comm. 2012.

Chapter 4 References

- Garrison, L.P. and L. Stokes. 2012. Estimated bycatch of marine mammals and sea turtles in the U.S. Atlantic pelagic longline fleet during 2011. NOAA Technical Memorandum NMFS-SEFSC-632, 61 p.
- Gulak, S.J.B, M.S. Passerotti, and J.K. Carlson. 2012. Catch and bycatch in U.S. southeast gillnet fisheries, 2011. NOAA Technical Memorandum NMFS-SEFSC-629, 28 p.
- Hale, L.F., S.J.B. Gulak, and J.K. Carlson. 2010. Characterization of the shark bottom longline fishery, 2009. NOAA Technical Memorandum NMFS-SEFSC-596, 25 p.
- Hale, L.F., S.J.B. Gulak, A.M. Napier, and J.K. Carlson. 2011. Characterization of the shark bottom longline fishery, 2010. NOAA Technical Memorandum NMFS-SEFSC-611, 32 p.
- Hale, L.F., S.J.B. Gulak, A.N. Mathers, and J.K. Carlson. 2012. Characterization of the shark and reef fish bottom longline fishery: 2011. NOAA Technical Memorandum NMFS-SEFSC-634, 24 p.
- Lewison, R.L. and L.B. Crowder. 2007. Putting longline bycatch of sea turtles into perspective. *Conservation Biology* Volume 21, No. 1, 79-86. 2007 Society for Conservation Biology.
- NMFS. 2012. Annual report of the United States to ICCAT. USDOC, NMFS. ANN/045/2012.
- NMFS. 2011. Stock assessment and fishery evaluation (SAFE) report for Atlantic highly migratory species. Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD 20910. 294 pp.
- NMFS. 2008. U.S national report to ICCAT, 2008. NMFS Office of Sustainable Fisheries, Silver Spring, MD. ANN/045/2008.
- NMFS. 2008. Stock assessment and fishery evaluation (SAFE) report for Atlantic highly migratory species. Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD 20910. 446 pp.
- NMFS. 2004. Biological opinion on the pelagic longline fishery in the U.S. Atlantic and Gulf of Mexico.
- Passerotti, M.S., J.K. Carlson, and S.J.B. Gulak. 2011. Catch and bycatch in U.S. southeast gillnet fisheries, 2010. NOAA Technical Memorandum NMFS-SEFSC-612. 16 p.
- Richards, W.J. 1999. Problems with unofficial and inaccurate geographical names in the fisheries literature. *Marine Fisheries Review* 61(3): 56-57.
- Wescott, W. 1996. The Wanchese green-stick tuna rig. NC Sea Grant. UNC-SG-96-04.
- SCRS. 2012. Report of the standing committee on research and statistics. ICCAT SCRS. Madrid, Spain, October 1-5, 2012. 296 pp.

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 2002 to 2011 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
2002	179.9	92.1	201.5
2003	184.0	94.1	195.8
2004	188.9	96.8	224.1
2005	195.3	100.0	253.1
2006	201.6	103.2	334.6
2007	207.3	106.2	318.1
2008	215.3	108.6	301.6
2009	214.5	109.5	306.9
2010	218.1	111.0	381.5
2011	224.9	113.4	388.1

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 (2005=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 2012b. 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. In 2010, 8.2 billion pounds valued at \$4.5 billion were landed for all fish species by U.S. fisherman at U.S. ports. The overall value of landings between 2010 and 2011 increased by 17 percent. The total value of commercial HMS landings in 2011 was \$52.4 million (Table 5.3).

The estimated value of the 2011 domestic production of all fishery products was \$9.6 billion. This is \$406.6 million more than the estimated value in 2010. The total import value of fishery products was \$30.8 billion in 2011. This is an increase of \$3.4 billion from 2010. The total export value of fishery products was \$26.0 billion in 2011. This is an increase of \$3.7 billion from 2010.

5.1.1 Ex-Vessel Prices

The average ex-vessel prices per pound dressed weight (dw) for 2004 to 2011 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 21 percent since 2010. 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 2011.

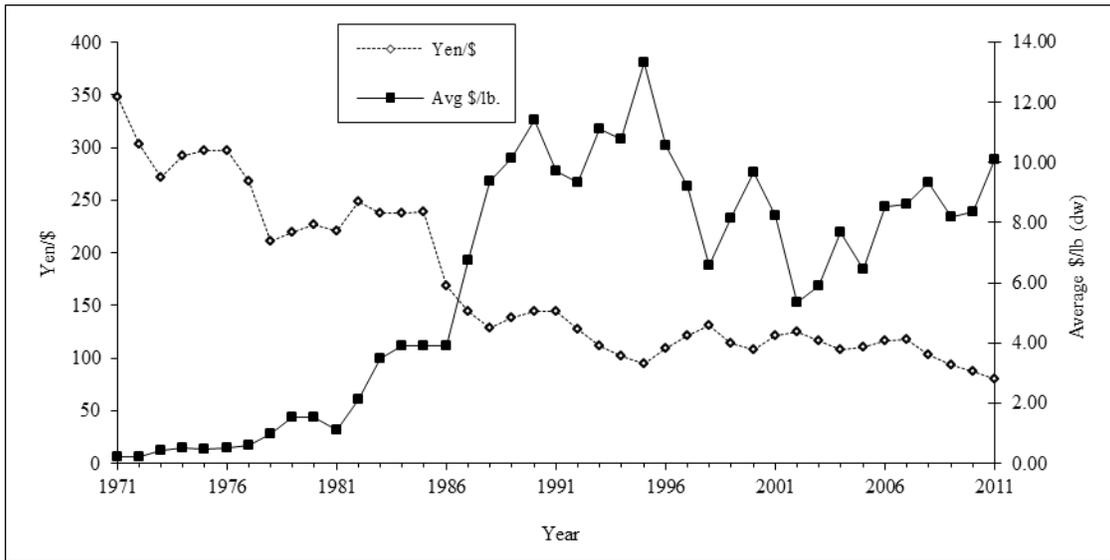


Figure 5.1 Average Annual Yen/\$ Exchange Rate and Average U.S. Bluefin Tuna Ex-vessel \$/lb (dw) for All Gears (1971-2011)

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

Table 5.2 Average Ex-vessel Prices per Pound for Atlantic HMS, by Area (2004-2011)

Species	Area	2004	2005	2006	2007	2008	2009	2010	2011
Bigeye tuna	Gulf of Mexico	\$5.42	\$5.75	\$5.73	\$5.66	\$6.12	\$5.80	\$5.79	\$5.99
	S. Atlantic	3.10	3.61	3.94	4.34	4.34	4.11	4.03	4.73
	Mid-Atlantic	4.22	4.55	4.96	5.48	5.70	5.42	5.86	6.38
	N. Atlantic	4.60	4.48	4.54	5.31	5.60	5.18	4.79	5.39
Bluefin tuna	Gulf of Mexico	5.01	4.56	4.78	5.63	4.51	4.65	5.42	6.38
	S. Atlantic	9.30	10.64	10.42	11.16	13.29	14.43	8.75	7.34
	Mid-Atlantic	7.76	8.14	7.92	6.95	7.94	10.10	8.94	10.64
	N. Atlantic	7.38	5.54	7.68	8.31	8.31	7.06	8.38	10.21
Yellowfin tuna	Gulf of Mexico	3.21	3.32	2.89	3.02	3.51	3.04	3.72	3.60
	S. Atlantic	2.23	2.60	2.32	2.69	2.99	2.90	3.53	3.93
	Mid-Atlantic	1.91	2.27	2.39	2.99	3.30	2.50	3.43	3.45
	N. Atlantic	2.69	3.06	2.63	3.17	3.82	2.86	2.80	3.39
Albacore tuna	Gulf of Mexico	0.68	0.61	0.62	0.53	0.49	0.55	1.40	1.00
	S. Atlantic	0.76	0.94	0.93	1.24	1.21	1.29	1.36	1.42
	Mid-Atlantic	0.54	0.76	0.82	0.86	0.97	1.10	1.30	1.19
	N. Atlantic	0.70	0.91	0.98	1.37	2.00	1.26	1.56	1.55
Skipjack tuna	Gulf of Mexico	-	-	-	-	-	0.50	-	0.90
	S. Atlantic	1.11	0.70	0.74	0.73	0.95	0.95	1.13	1.25
	Mid-Atlantic	0.84	1.13	0.79	2.22	4.50	-	-	0.60
	N. Atlantic	2.65	-	-	-	-	-	-	-
Swordfish	Gulf of Mexico	3.42	3.20	2.90	3.07	2.93	2.69	3.53	4.22
	S. Atlantic	3.88	4.00	3.86	4.24	4.11	4.12	4.63	4.84
	Mid-Atlantic	3.42	3.54	3.52	4.07	3.50	3.40	4.45	4.45
	N. Atlantic	3.96	3.69	3.65	4.11	4.20	3.49	4.61	4.23
Large coastal sharks	Gulf of Mexico	0.73	0.86	0.75	0.42	0.67	0.52	0.48	0.38
	S. Atlantic	0.46	0.52	0.47	0.54	0.72	0.55	0.65	0.61
	Mid-Atlantic	0.36	0.29	0.28	0.56	0.71	0.57	0.64	0.54
	N. Atlantic	0.66	-	-	-	-	-	-	-
Pelagic sharks	Gulf of Mexico	1.15	1.19	1.21	1.29	1.18	1.25	1.47	1.54
	S. Atlantic	1.20	1.19	1.23	1.29	1.29	1.25	1.27	1.46
	Mid-Atlantic	0.89	1.21	1.15	1.06	1.20	1.16	1.19	1.30
	N. Atlantic	1.08	0.92	0.73	0.85	0.96	1.23	1.28	1.48
Small coastal sharks	Gulf of Mexico	0.35	0.47	0.51	0.58	0.62	0.69	0.55	0.58
	S. Atlantic	0.67	0.71	0.68	0.80	0.78	0.71	0.79	0.81
	Mid-Atlantic	0.44	0.39	0.45	0.43	0.48	0.57	0.57	0.59
	N. Atlantic	-	-	-	-	-	-	-	-
Shark fins	Gulf of Mexico	15.76	16.22	16.40	13.22	14.94	15.09	16.48	15.11
	S. Atlantic	12.55	13.93	13.24	11.44	12.73	13.15	15.35	14.91
	Mid-Atlantic	7.72	10.58	9.82	6.12	3.74	3.62	6.83	3.50
	N. Atlantic	1.39	4.55	6.23	3.24	3.00	3.67	2.40	1.60

Sources: Dealer weighout slips from the Southeast Fisheries Science Center (SEFSC), Northeast Fisheries Science Center, and bluefin tuna dealer reports from the Northeast Regional Office. Gulf of Mexico includes: TX, LA, MS, AL, and the west coast of FL. S. Atlantic includes: east coast of FL. GA, SC, and NC dealers reporting to 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 the 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, 2012a), the information used in the shark stock assessments, information given to ICCAT (Cortés pers. comm., 2011), 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 2011 to \$52.4 million from \$42.4 million in 2010. From 2010 to 2011, the Atlantic tuna fishery's total revenue increased by \$6.0 million. A majority of that increase can be attributed to the increased commercial landings of bigeye and yellowfin tuna and an increase in price for bluefin tuna. From 2010 to 2011, the annual revenues for the shark fisheries remained virtually unchanged. Finally, the annual revenues for swordfish increased by \$4 million from 2010 to 2011 due to an increase in landings.

Table 5.3 Estimates of the Total Ex-vessel Annual Revenues of Atlantic HMS Fisheries (2004-2011)

Species		2004	2005	2006	2007	2008	2009	2010	2011
Bigeye tuna	Ex-vessel \$/lb dw	\$5.73	\$5.24	\$5.47	\$6.04	\$6.35	\$6.23	\$7.40	\$7.85
	Weight lb dw	556,270	563,325	960,863	706,361	736,520	774,087	799,934	1,122,619
	Fishery revenue	\$3,187,427	\$2,951,823	\$5,255,921	\$4,266,420	\$4,676,902	\$4,822,562	\$5,919,512	\$8,812,559
Bluefin tuna	Ex-vessel \$/lb dw	\$7.68	\$6.43	\$8.51	\$8.63	\$9.35	\$8.18	\$8.35	\$10.08
	Weight lb dw	1,010,599	772,500	528,404	515,176	720,823	899,477	1,119,937	996,661
	Fishery revenue	\$7,761,400	\$4,967,175	\$4,496,718	\$4,445,969	\$6,739,695	\$7,357,722	\$9,351,474	\$10,046,343
Yellowfin tuna	Ex-vessel \$/lb dw	\$2.31	\$2.66	\$2.50	\$2.90	\$3.22	\$2.87	\$3.46	\$3.59
	Weight lb dw	4,999,908	3,379,951	3,849,095	4,521,240	2,423,498	3,159,665	2,154,728	2,676,682
	Fishery revenue	\$11,549,787	\$8,990,670	\$9,622,738	\$13,111,596	\$7,803,664	\$9,068,239	\$7,455,359	\$9,609,288
Skipjack tuna	Ex-vessel \$/lb dw	\$0.95	\$1.16	\$0.75	\$0.75	\$1.01	\$0.91	\$1.15	\$1.17
	Weight lb dw	307,942	26,103	21,693	26,455	32,628	30,688	16,269	12,931
	Fishery revenue	\$292,545	\$30,279	\$16,270	\$19,841	\$32,954	\$27,926	\$18,709	\$15,129
Albacore tunas	Ex-vessel \$/lb dw	\$0.60	\$0.82	\$0.86	\$0.97	\$1.15	\$1.11	\$1.36	\$1.29
	Weight lb dw	307,942	232,808	203,354	244,272	216,759	291,187	290,827	491,133
	Fishery revenue	\$184,765	\$190,903	\$174,884	\$236,944	\$249,273	\$323,218	\$395,525	\$633,562
Total tuna	Fishery revenue	\$22,975,925	\$17,130,850	\$19,566,530	\$22,080,770	\$19,502,488	\$21,599,666	\$23,140,579	\$29,116,881
Swordfish	Ex-vessel \$/lb dw	\$3.60	\$3.66	\$3.54	\$3.99	\$3.68	\$3.46	\$4.41	\$4.51
	Weight lb dw	4,301,003	3,466,728	3,002,597	3,643,926	3,414,513	3,762,280	3,676,324	4,473,140
	Fishery revenue	\$15,483,611	\$12,688,224	\$10,629,193	\$14,539,265	\$12,565,408	\$13,017,489	\$16,212,589	\$20,173,861
Large coastal sharks	Ex-vessel \$/lb dw	\$0.57	\$0.64	\$0.62	\$0.48	\$0.70	\$0.54	\$0.60	\$0.53
	Weight lb dw	3,213,896	3,147,196	3,808,662	2,329,272	1,363,021	1,513,201	1,519,603	1,485,467
	Fishery revenue	\$1,831,921	\$2,014,205	\$2,361,370	\$1,118,051	\$954,115	\$817,129	\$911,762	\$787,298
Pelagic sharks	Ex-vessel \$/lb dw	\$0.99	\$1.19	\$1.17	\$1.12	\$1.21	\$1.18	\$1.22	\$1.35
	Weight lb dw	679,469	252,815	192,843	262,179	234,546	225,575	312,195	314,314
	Fishery revenue	\$672,674	\$300,850	\$225,626	\$293,640	\$283,801	\$266,179	\$380,878	\$424,324
Small coastal sharks	Ex-vessel \$/lb dw	\$0.62	\$0.65	\$0.61	\$0.70	\$0.69	\$0.69	\$0.69	\$0.75
	Weight lb dw	451,651	634,885	763,327	618,191	623,848	667,815	357,855	583,364
	Fishery revenue	\$280,024	\$412,675	\$465,629	\$432,734	\$430,455	\$460,792	\$246,920	\$437,523
Shark fins (5% of all sharks landed)	Ex-vessel \$/lb dw	\$12.87	\$14.22	\$14.80	\$11.63	\$12.43	\$12.45	\$13.99	\$11.90
	Weight lb dw	217,251	201,745	238,242	160,482	111,071	120,330	110,539	110,539
	Fishery revenue	\$2,796,018	\$2,868,811	\$3,525,976	\$1,866,407	\$1,380,609	\$1,498,103	\$1,531,662	\$1,417,971
Total sharks	Fishery revenue	\$5,580,636	\$5,596,542	\$6,578,602	\$3,710,832	\$3,048,980	\$3,042,202	\$3,071,222	\$3,067,116
Total HMS	Fishery revenue	\$44,040,172	\$35,415,616	\$36,774,326	\$40,330,867	\$35,116,875	\$37,659,357	\$42,424,389	\$52,357,858

Sources: CFDBS, QMS, and NMFS 2012.

5.1.3 Operating Costs

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

The primary expenses associated with operating an Atlantic HMS permitted 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 170 percent from 2004 to 2011 while the cost per pound for bait remained fairly constant from 2004 to 2010 but nearly doubled between 2010 and 2011. The unit cost per light sticks has actually declined from 2004 to 2011.

Table 5.4 Pelagic Longline Vessel Median Unit Costs for Fuel, Bait, and Light Sticks (2004–2011)

Input Unit Costs (\$)	2004	2005	2006	2007	2008	2009	2010	2011
Fuel (per gallon)	1.25	1.85	2.15	2.25	3.55	1.73	2.50	3.38
Bait (per lb)	0.80	0.84	0.85	0.85	0.81	0.81	0.85	1.53
Light sticks (per stick)	0.50	0.50	0.46	0.36	0.37	0.37	0.28	0.25

Source: Atlantic HMS logbooks.

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 and the total costs of fuel increased substantially per trip in 2011 in line with the increase in the unit cost of fuel.

Table 5.5 Median Input Costs for Pelagic Longline Vessel Trips (2004–2011)

Input Costs (\$)	2004	2005	2006	2007	2008	2009	2010	2011
Fuel	2,029	2,786	1,728	3,012	3,600	3,000	2,480	3,445
Bait	1,110	1,200	1,115	1,200	1,500	1,875	1,731	3,671
Light sticks	715	700	728	648	600	600	493	663
Ice costs	480	495	498	540	540	625	225	726
Grocery expenses	790	793	696	786	800	1,000	752	900
Other trip costs	1,000	1,500	1,200	1,500	1,651	1,670	1,500	2,000

Source: Atlantic HMS logbooks.

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 2004 to 2011. Most crew and captains are paid based on a lay system. According to Atlantic HMS logbook reports, owners are typically paid 50 percent of revenues. Captains receive a 20 percent share and crew in 2011 received 29 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 \$4,903 to \$11,306 from 2004 to 2011.

Table 5.6 Median Labor Inputs for Pelagic Longline Vessel Trips (2004–2011)

Labor	2004	2005	2006	2007	2008	2009	2010	2011
Number of crew	3	3	3	3	3	4	3	3
Owner share (%)	50	50	50	47	45	45	50	50
Captain share (%)	20	20	20	20	20	20	23	20
Crew share (%)	13	12	13	15	15	30	29	29
Total shared costs (\$)	4,903	5,000	5,657	5,566	6,037	7,000	6,500	11,306

Source: Atlantic HMS logbooks.

In 2011, median reported total trip sales were \$26,650. In 2010, median reported total trip sales were \$17,768. In 2009, the median reported total trip sales were \$17,584. After adjusting for operating costs, median net earnings per trip in 2010 were \$7,525. Median net earnings per trip increased to \$11,255 in 2011.

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 \$85.9 billion for fishery products in 2011, including \$57.7 billion at food service establishments, \$27.6 billion in retail sales for home consumption, and \$625 million for industrial fish products. The commercial marine fishing industry contributed \$43.9 billion (in value added) to the U.S. Gross National Product in 2011 (NMFS, 2012b).

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, 2012b) (<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 (2010)

Area and State	Processing ¹		Wholesale ²		Total	
	Plants	Employment	Plants	Employment	Plants	Employment
New England						
Maine	36	778	177	1,024	213	1,802
New Hampshire	9	239	11	*	20	239
Massachusetts	57	2,744	166	2,030	223	4,774
Rhode Island	9	*	36	*	45	*
Connecticut	6	72	17	190	23	262
Total	117	3,833	407	3,244	524	7,077
Mid-Atlantic						
New York	20	362	269	1,931	289	2,293
New Jersey	15	454	91	973	106	1,427
Pennsylvania	4	77	31	582	35	659
Delaware	1	*	6	23	7	23
District of Columbia	-	-	2	*	2	*
Maryland	20	573	49	545	69	1,118
Virginia	39	1,469	59	506	98	1,975
Total	99	2,935	507	4,560	606	7,495
South Atlantic						
North Carolina	28	567	60	506	88	1,073
South Carolina	2	*	22	162	24	162
Georgia	5	419	28	469	33	888
Florida	35	1,284	287	2,394	322	3,678
Total	70	2,270	397	3,531	467	5,801
Gulf						
Alabama	35	1,362	15	150	50	1,512
Mississippi	23	2,778	22	91	45	2,869
Louisiana	67	1,964	105	500	172	2,464
Texas	28	1,444	99	928	127	2,372
Total	153	7,548	241	1,669	394	9,217
Inland States or Other						
Areas**, Total	63	1,850	223	2,749	286	4,599

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

Source: NMFS, 2012b.

5.2.2 Processing Sector

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

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

presented in Table 5.8. Primary wholesalers and processors on average received a 90.3 percent margin on sales in 2011, down from 126 percent in 2009.

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

	2009	2010	2011
Purchase of fishery inputs (\$)	7,000,518,000	8,128,293,000	9,142,981,000
Percent mark-up of fishery inputs (%)	126.0	114.7	90.3
Total mark-up (\$)	6,675,397,000	9,326,111,000	8,942,039,000
Value added as percent of total mark-up (%)	60.2	60.2	60.4
Value added within sector (\$)	5,311,542,000	5,618,427,000	5,398,531,000
Total value of sales within sector (\$)	15,822,199,000	17,454,404,000	18,085,020,000

Source: NMFS 2012b.

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 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. Traders of shark fins must also be permitted. Copies of the ITP application and all trade monitoring documents associated with these programs are found on the NMFS HMS Management Division webpage at <http://www.nmfs.noaa.gov/sfa/hms/>. These and several other trade monitoring programs established by NMFS for HMS are described in greater detail in the 2011 HMS SAFE Report.

Table 5.9 Number of International Trade Permits (ITPs) by State (as of October 2012)

State	Number of ITPs	State	Number of ITPs
CA	73	NC	3
CT	1	NH	1
DC	1	NJ	12
FL	62	NY	28
GA	2	OH	1
HI	14	OR	0
IL	1	PA	1
KS	0	PR	1
LA	1	RI	7
MA	32	TX	5
MD	1	VA	2
ME	8	WA	9
MP	1	Total	271

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 to confirm that trade is legal. Species listed on Appendix II are those that are vulnerable to overexploitation, but not at risk of extinction. In every case of an import or export of an Appendix II species, an export/import permit may only be issued if, the export/import will not be detrimental to the survival of the species, the specimen was legally acquired (in accordance with the national wildlife protection laws) and any live specimen will be shipped in a manner which will not cause it any damage. Currently there are three species of sharks listed on Appendix II: whale, basking and great white sharks. Species listed on Appendix I are considered to be at risk of extinction, and are prohibited from international commercial trade, except in special circumstances. The United States is co-sponsoring with Brazil and Colombia a proposal to list oceanic whitetip sharks in Appendix II for consideration at the sixteenth meeting of the Conference of Parties to CITES (CoP16) to be held in Bangkok, Thailand in March 2013. The United States is cosponsoring this proposal due to concerns that over-exploitation to supply the international fin trade negatively affects the population status of this species.

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 f.a.s. (free alongside ship) value defined as the value at the port of export based on a transaction price including inland freight, insurance, and other charges incurred in placing the merchandise

alongside the carrier. It excludes the cost of loading the merchandise, freight, insurance, and other charges or transportation costs beyond the port of export.

Atlantic and Pacific Bluefin Tuna Exports

Table 5.10 gives bluefin tuna export data for exports from the United States since 2001 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 (2001-2011)

Year	Atlantic BFT Commercial Landings ¹ (mt dw)	Atlantic BFT Exports ² (mt dw)	Pacific BFT Exports ² (mt dw)	Total U.S. Exports ² (mt dw)	Total U.S. Exports ³ (mt)	Value of U.S. Exports ³ (\$ million)
2001	987.0	812.3	67.0	879.0	1,020	10.70
2002	964.0	730.4	0.1	730.5	922	10.74
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	566.7	329.5	0.8	330.5	293	4.03

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

Sources: ¹ Northeast Regional Office, ² NMFS Bluefin Catch Document Program, and ³ 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, from 2006 to 2008.

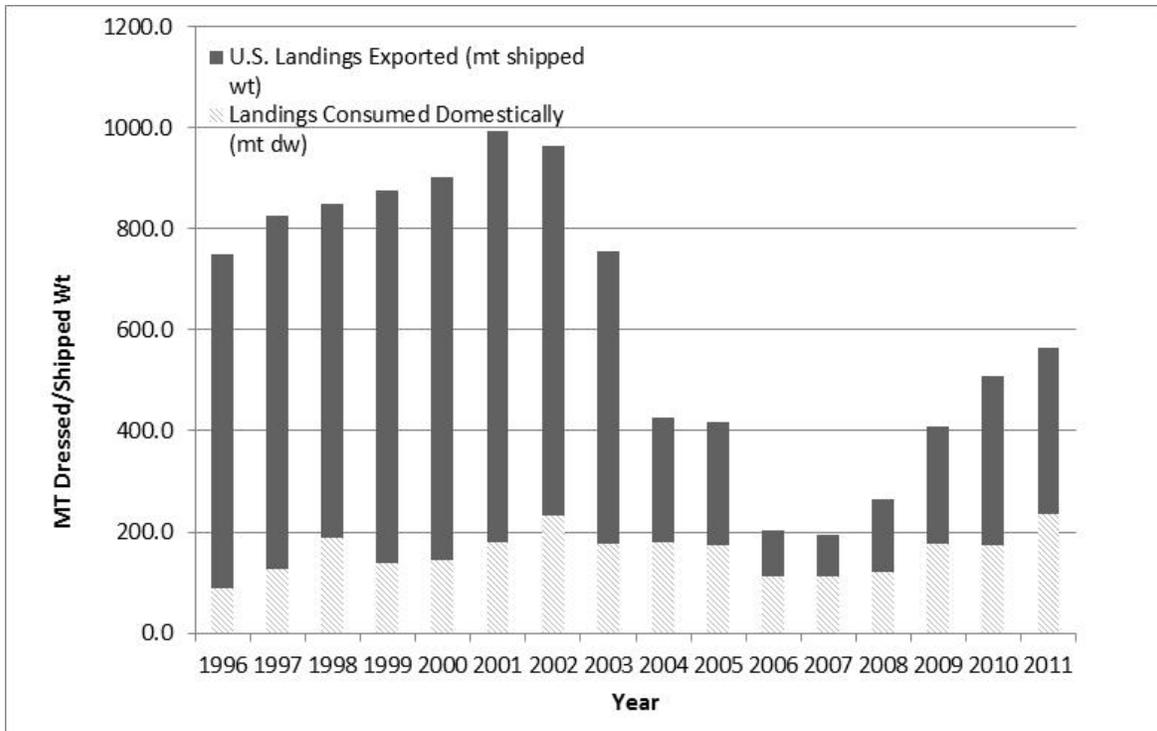


Figure 5.2 Annual U.S. Domestic Landings of Atlantic Bluefin Tuna, Divided into U.S. Export (mt shipped weight) and U.S. Domestic Consumption (mt dw) (1996-2011)

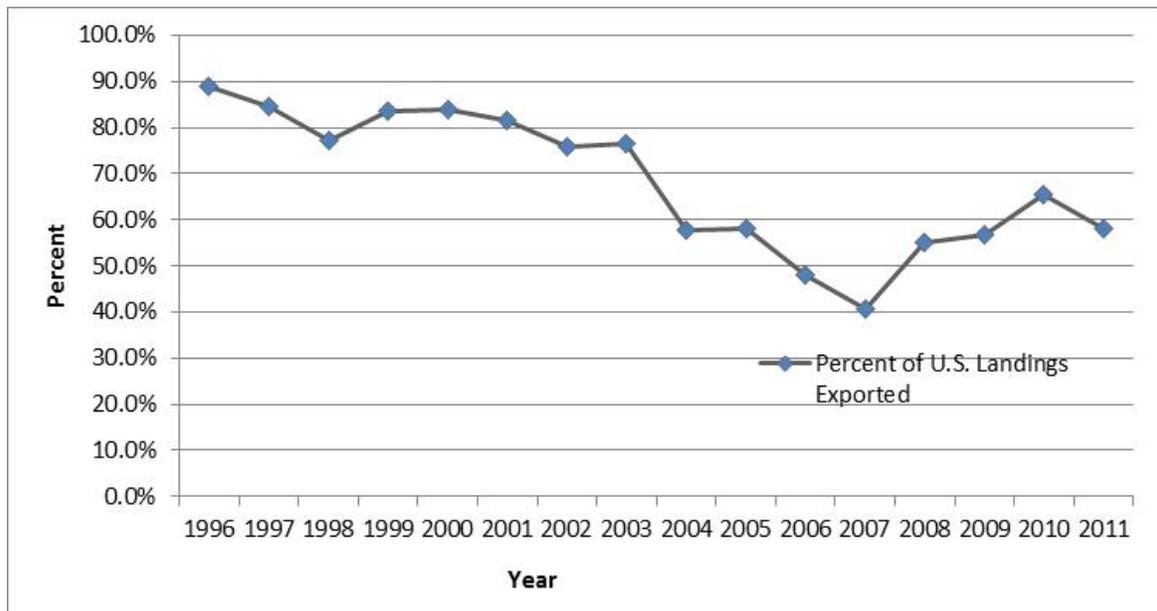


Figure 5.3 Annual Percentage (by weight) of Commercially-Landed U.S. Atlantic Bluefin Tuna that was Exported (1996-2011)

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 seven of the last eight 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. Landings of Atlantic albacore have increased over the last three years, and were the fifth highest in the time series in 2011.

Table 5.11 U.S. Atlantic Landings and Total U.S. Exports of Albacore Tuna (2001–2011)

Year	Atlantic Landings (mt ww) ¹	U.S. Exports (from all ocean areas) ²					
		Fresh		Frozen		Total for all Exports	
		Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)
2001	324	1,542	3.62	4,609	9.83	6,151	13.45
2002	488	680	1.50	4,483	8.28	5,163	9.78
2003	448	894	1.86	9,731	18.85	10,624	20.71
2004	640	1,360	3.28	10,737	24.11	12,097	27.38
2005	486	549	1.61	7,402	16.99	7,951	18.60
2006	400	378	1.04	8,810	19.56	9,187	20.60
2007	532	275	0.84	11,731	25.52	12,006	26.35
2008	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	566	1.56	9,639	23.49	10,205	25.05

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: ¹U.S. National Report 2012, ²U.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 any other year included in Table 5.12. Frozen yellowfin exports have been decreasing from the last four years, and were the lowest of the time series in 2011. Table 5.13 shows that the amount and value of exported fresh and frozen skipjack tuna has varied over the eleven year time series with a general increase over the last four years. Exports of skipjack in 2009 greatly exceeded values for any of the previous years in the time series.

Table 5.12 U.S. Atlantic Landings and Total U.S. Exports of Yellowfin Tuna (2001-2011)

Year	Atlantic Landings (mt ww) ¹	U.S. Exports (from all ocean areas) ²					
		Fresh		Frozen		Total for all Exports	
		Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)
2001	6,703	290	0.71	834	1.45	1,124	2.17
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	3,015	275	2.99	56	0.23	331	3.22

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: ¹U.S. National Report 2012, ²U.S. Census Bureau.

Table 5.13 U.S. Atlantic Landings and Total U.S. Exports of Skipjack Tuna (2001-2011)

Year	Atlantic Landings (mt ww) ¹	U.S. Exports (from all ocean areas) ²					
		Fresh		Frozen		Total for all Exports	
		Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)
2001	69	82	0.15	34	0.04	117	0.20
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	84	185	0.56	14	0.05	198	0.61

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: ¹U.S. National Report 2012, ²U.S. Census Bureau.

Bigeye tuna exports and Atlantic landings are given in Table 5.14. Atlantic landings have been increasing since 2008. No data were available for bigeye tuna exports in 2001, and prior to 2001 bigeye exports were included in the category of unspecified tuna. Annually, bigeye tuna exports include more fresh than frozen product, except in 2008 when export of frozen product increased dramatically. The value of bigeye exports in 2011 is the second highest in the time series.

Table 5.14 U.S. Atlantic Landings and Total U.S. Exports of Bigeye Tuna (2002-2011)

Year	Atlantic Landings (mt ww) ¹	U.S. Exports (from all ocean areas) ²					
		Fresh		Frozen		Total for all Exports	
		Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)
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	746	197	2.11	44	0.13	240	2.24

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: ¹U.S. National Report 2012, ²U.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 Harmonized Tariff Schedule 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 2001 – 2011. The reduction in shark fin exports from 2000 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 at a low in 2008 (11 mt) and increased for the next several years, but dropped in 2011. 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 (2001-2011)

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)
2001	335	3.16	9.44	332	0.54	1.64	634	2.34	3.69	1,301	6.04
2002	123	3.46	28.00	968	1.47	1.52	982	2.34	2.38	2,075	7.28
2003	45	4.03	87.79	837	1.31	1.57	592	1.34	2.28	1,476	6.70
2004	63	3.02	47.53	536	1.18	2.21	472	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	0.87	2.61	59	0.22	3.73	407	2.62

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

U.S. Census data only report exports of swordfish since 2007 (Table 5.16). 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 Amount and Value of U.S. Swordfish Product Exported (2007-2011)

Year	Swordfish Fillet Fresh		Swordfish Fillet Frozen		Swordfish Fresh		Swordfish Frozen		Swordfish Meat Frozen		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)
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	0	0.00	31	0.26	133	0.80	72.0	0.45	0.5	0.01	269	1.8

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 2000, 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 (2004–2011)

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

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 2011, fresh and frozen tuna products accounted for 17,808 mt dw or 1.3 percent of the 1,332,858 mt dw of fresh and frozen seafood products exported from the United States, as indicated in *Fisheries of the United States, 2011*. The value of these HMS products accounted for \$58.9 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 the 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 2000 through 2011, 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 (2001–2011)

Year	NMFS BFT Catch Document Program		U.S. Customs and Border Protection Data	
	Imports (mt)	Re-exports (mt)	Imports (mt)	Value (\$ million)
2001	512.9	7.0	532.3	8.21
2002	529.8	9.9	605.0	9.75
2003	649.9	38.4	780.3	11.67
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

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 through 2005, and has generally declined since then, with a slight uptick in 2011(

Figure 5.4). Consumption of domestic landings was fairly consistent and ranged between about 100 mt to 200 mt per year. Consumption of imported bluefin tuna is more variable and ranged from a low in 1997 of less than 50 mt to a high in 2006 of almost 700 mt.

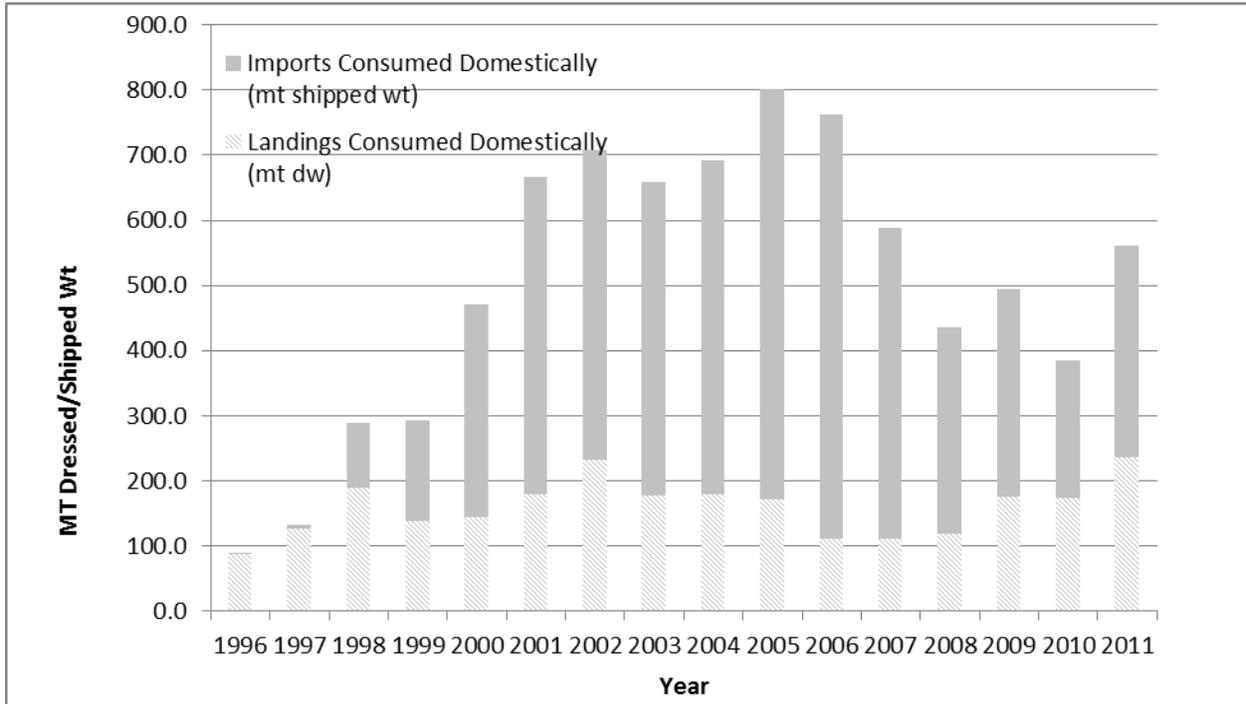


Figure 5.4 U.S. Annual Consumption of Bluefin Tuna, by Imports and U.S. Landings (1996-2011)

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 2011, the United States imported more bluefin tuna than it exported (except for 2010). This trade gap was greatest between 2005 and 2007, but narrowed over the last several years and ended in 2010.

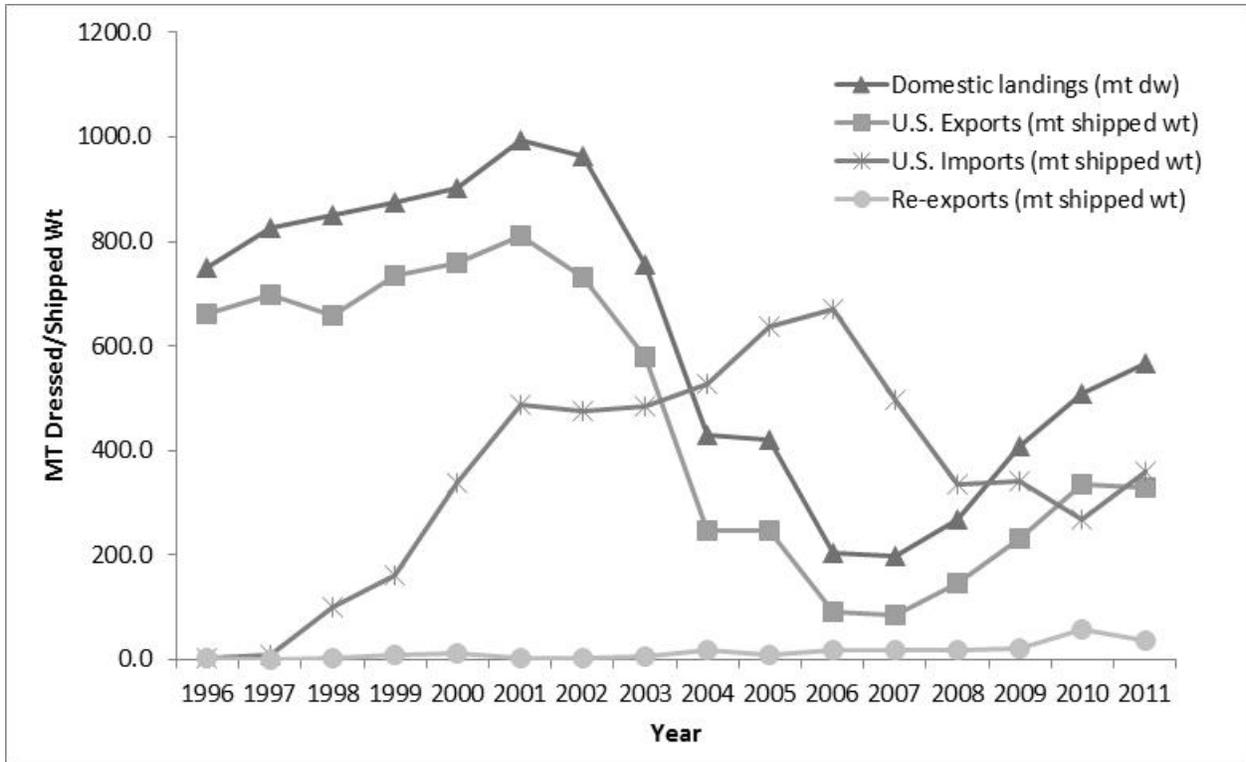


Figure 5.5 U.S. Domestic Landings (mt dw) and Trade (mt shipped wt) of Bluefin Tuna (1996-2011)

Other Tuna Imports

Since January 2001, CBP has been collecting species-specific import information for bigeye tuna (grouped to include all ocean areas). Previously, bigeye tuna had been grouped with other tuna under general tuna imports. The total amount of bigeye tuna imports has ranged between 3,498 (2011) and 8,059 mt (2008) over the time series, as shown in Table 5.19. Imports of all 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 (2001-2011)

Year	Fresh		Frozen		Total for all Imports	
	Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)
2001	4,684	25.70	135	0.32	4,820	26.02
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

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 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 2010.

Table 5.20 U.S. Imports of Yellowfin Tuna from All Ocean Areas Combined (2001–2011)

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

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 albacore imports from all ocean areas generally declined from 2001 to 2006 (Table 5.21) and was relatively low since. In 2001, albacore imports were valued at \$109 million while in 2005 the value dropped to approximately \$5 million, and has remained fairly 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 (2001-2011)

Year	Fresh		Frozen		Total for all Imports	
	Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)
2001	1,107	3.85	40,428	105.58	41,536	109.43
2002	1,296	4.81	11,903	24.49	13,200	29.31
2003	1,062	4.11	12,569	25.90	13,632	30.02
2004	1,004	3.12	4,943	11.67	5,947	14.80
2005	706	2.38	1,016	2.96	1,722	5.34
2006	876	3.54	667	1.71	1,543	5.25
2007	945	3.86	718	1.98	1,664	5.86
2008	703	2.95	1,632	4.73	2,335	7.68
2009	718	3.07	1,493	3.46	2,211	6.53
2010	519	2.19	1,860	5.17	2,380	7.36
2011	669	3.05	3,794	7.17	4,462	10.22

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 and value of skipjack imports is variable over this time series, with the greatest amount of imports and highest value in 2006. 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 (2001–2011)

Year	Fresh		Frozen		Total for all Imports	
	Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)	Amount (mt)	Value (\$ million)
2001	<1	<0.01	377	0.61	378	0.62
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

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 2011 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 (2011)

Flag of Harvesting Vessel	Ocean Area of Origin								Total (mt dw)
	Atlantic (mt dw)	North Atlantic (mt dw)	South Atlantic (mt dw)	Med. (mt dw)	Pacific (mt dw)	Western Pacific (mt dw)	Indian (mt dw)	Not Provided (mt dw)	
Australia	-	-	-	-	-	62.3	-	5.7	68.0
Barbados	-	-	0.3	-	-	-	-	-	0.3
Brazil	-	-	369.8	-	-	-	-	-	369.8
Canada	-	983.3	-	-	-	-	-	-	983.3
Chile	-	-	-	-	578.3	-	-	-	578.3
China	-	-	-	-	15.3	-	-	-	15.3
Chinese Taipei	-	-	-	-	-	-	19.1	-	19.1
Costa Rica	-	-	-	-	594.3	-	-	-	594.3
Ecuador	-	0.2	-	1.5	868.8	-	0.1	7.6	878.2
Fiji Islands	-	-	0.9	-	27.4	-	-	32.3	60.6
Indonesia	-	-	-	-	-	-	297.2	1.3	298.5
Japan	-	-	-	-	8.2	-	-	-	8.2
Mexico	-	0.8	-	-	200.2	-	-	10.3	211.3
Micronesia	-	-	-	-	1.3	-	-	-	1.3
New Zealand	-	-	-	-	-	238.7	-	5.4	244.1
Nicaragua	-	-	-	-	10.8	-	-	-	10.8
Panama	-	-	-	-	575.8	-	-	-	575.8
South Africa	-	-	100.2	-	-	-	121.4	6.1	227.7
Spain	-	0.5	-	-	-	-	-	-	0.5
Sri Lanka	-	-	-	-	-	-	0.0	-	0.0
Trinidad & Tobago	-	12.0	-	-	-	-	-	0.3	12.3
Uruguay	-	-	6.2	-	-	-	-	-	6.2
Vietnam	-	-	-	-	165.1	-	-	23.7	188.8
Not provided	1.6	0.4	0.8	5.0	664.9	0.9	1.5	20.0	695.1
Total Imports Reported by SDs	1.6	997.2	478.2	6.5	3,710.4	301.9	439.3	112.7	6,047.8
Total Imports Reported by U.S. Customs & Border Protection									8,076.5
Total Imports Not Reported by SDs									2,028.7

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 2001 through 2011. Imports of fresh shark products and shark fins have decreased significantly over time since 2001. 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 2001 to 2011, the overall annual amount of shark imports has generally decreased to a low in 2011, 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 2001 (50 mt).

Table 5.25 U.S. Imports of Shark Products from All Ocean Areas Combined (2001-2011)

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

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

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. 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). The 2011 National Survey data show that hunters, anglers and wildlife watchers spent \$145 billion last year on related gear, trips and other purchases such as licenses, tags and land leasing or ownership. More information on the 2011 national survey is available at <http://www.fws.gov/pacific/news/news.cfm?id=2144375111>

For a detailed discussion of recreational economic information, please see the 2011 HMS SAFE Report.

5.4.2 Atlantic HMS Tournaments

For detailed information about HMS tournaments, please see Section 8.2 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.

For additional information on HMS charter fishing, please see the 2006 Consolidated HMS FMP and the 2011 HMS SAFE Report.

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 (77 FR 41728, July 16, 2012). 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, 2012, NMFS will review all such rules issued during 2003 and 2004." Table 5.27 reviews the Atlantic HMS regulations between 2003 and 2004 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 5.27 Regulatory Flexibility Act Section 610 Review of Atlantic Highly Migratory Species Regulations between 2003 and 2004

#1	Atlantic Highly Migratory Species; Incidental Catch Requirements of Bluefin Tuna RIN 0648-A075; 68 FR 32414, May 30, 2003
Rescinded, Amended, or Continuing	Continuing with parts amended
Description of Management Measures and Complexity	NMFS amended regulations under the framework provisions of the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks governing the Atlantic bluefin tuna fishery as they affected landing of Atlantic bluefin tuna in the Atlantic pelagic longline fishery. The intent of this action was to minimize dead discards of Atlantic bluefin tuna and improve management of the Atlantic pelagic longline fishery, while complying with the National Standards of the Magnuson-Stevens Act and allowing harvest consistent with recommendations of ICCAT.
Economic Impacts of Management Measures and Nature of Public Comments	<p>The economic analysis of this rule found that the final actions under this rule would have beneficial impacts. When this rule was proposed, there were approximately 171 pelagic longline vessels permitted to retain Atlantic tunas and swordfish, all of which are considered small entities, and average annual gross revenues per vessel was approximately \$168,000 with annual gross revenues from the Atlantic pelagic longline fishery of approximately \$29 million. NMFS selected this final action because the selected target catch requirements will minimize bluefin tuna discards while allowing retention of truly incidentally caught bluefin tuna and preventing a directed fishery. One target catch alternative considered was rejected because it would not reduce bluefin tuna discards as much as the final action, and it would have negative economic impacts. While the other alternatives generally had positive economic impacts, NMFS did not select them because they maintained differential target catch requirements, which no longer seemed warranted based on available data, or because they would not have reduced bluefin tuna discards as much as the final action. The final action was anticipated to have a positive economic impact on revenues, approximately a 1.2 to 1.5% increase for pelagic longline vessels. While the north/south boundary line and inseason adjustment authority was not expected to have any direct economic impacts, NMFS selected these measures as part of the final action because they could help prevent negative impacts on small entities due to closures. In addition, the new boundary line was selected to address confusion regarding the applicability of regulations.</p> <p>No comments were received concerning the economic impact of this rule.</p>
Overlap with other State or	This final rule does not duplicate, overlap, or conflict with any other Federal rules.

Federal Rules	
Recommendation and Need for Continuing the Rule	This rule is continuing and needed to address the ongoing need to minimize dead discards of Atlantic bluefin tuna and maintain consistency with the recommendations of ICCAT. Many of the provisions in this regulation are being revisited during the development of draft Amendment 7 to the 2006 Consolidated HMS FMP.
#2	Atlantic Highly Migratory Species; Atlantic Bluefin Tuna Quota Specifications, General Category Effort Controls, and Permit Revisions RIN 0648-AQ38; 68 FR 56783, October 2, 2003
Rescinded, Amended, or Continuing	Continuing with parts amended
Description of Management Measures and Complexity	NMFS established the final initial 2003 fishing year specifications for the Atlantic bluefin tuna fishery for each of the established fishing categories; to set General category effort controls; to allocate 25 metric tons (mt) of Atlantic bluefin tuna to account for incidental catch of Atlantic bluefin tuna by pelagic longline vessels “in the vicinity of the management boundary area;” to define the management boundary area and applicable restrictions; to revise permit requirements to allow General category permitted vessels to fish in registered recreational HMS fishing tournaments; and to allow permit applicants a 10-calendar-day period to make permit category changes to correct potential errors. The final initial quota specifications, including the quota allocation to account for incidental catch of Atlantic bluefin tuna by pelagic longline vessels in the vicinity of the management boundary area and the General category effort controls, were necessary to implement recommendations of ICCAT, pursuant to the Atlantic Tunas Convention Act, and to achieve domestic management objectives under the Magnuson-Stevens Act. The definition of the management boundary area was to assist management, monitoring, and enforcement of the 25 mt allocated to the Longline category. The permit revisions to allow General category permitted vessels to participate in registered recreational HMS fishing tournaments and to allow a time period for permit category changes were intended to relieve restrictions and help achieve domestic management objectives.
Economic Impacts of Management Measures and Nature of Public Comments	An analysis was conducted to assess the impacts of the various quota alternatives on the vessels that participate in the bluefin tuna fisheries, all of which are considered small entities. In order to do this, NMFS has estimated the average impact that the alternative to establish the 2003 bluefin tuna quota for all domestic fishing categories would have on individual categories and the vessels within those categories. The 2002 ICCAT Recommendation increased the bluefin tuna quota allocation to 1,489.6 mt. This increase includes 77.6 mt to be redistributed to the domestic fishing categories based on the allocation percentages established in the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks, as well as a set-aside quota of 25

mt to account for incidental catch of bluefin tuna related to directed pelagic longline swordfish and BAYS (bigeye, albacore, yellowfin, skipjack) fisheries in the vicinity of the management area boundary. In 2002, the annual gross revenues from the commercial bluefin tuna fishery were approximately \$18 million. There are approximately 11,091 vessels that are permitted to land and sell bluefin tuna under four bluefin tuna quota categories. The four quota categories and their 2002 gross revenues are General (\$13,948,190), Harpoon (\$588,884), Purse Seine (\$3,066,034), and Incidental Longline (\$588,352). The analysis assumed that all category vessels have similar catch and gross revenues. Regardless of this assumption, the analyses are sufficient to show the relative impact of the various final actions on vessels. The final action increased the quota by 77.6 mt and was expected to have positive impacts for fishermen.

The final action to establish Restricted Fishing Days (RFD) late in the season to provide a late Fall, southern Atlantic fishery would have positive economic impacts to those south Atlantic fishermen, but could have potentially negative economic impacts to those northern area fishermen who would have otherwise caught and sold fish earlier in the season. These negative impacts would be slightly mitigated if northern area fishermen are willing to travel south late in the season. NMFS selected this final action because extending the season as late as possible enhances the likelihood of increasing participation by southern area fishermen and increasing overall access to the fishery over a greater range of the fish migration.

The final action, which allows General category permitted vessels to participate in registered recreational HMS tournaments, was expected to have positive economic and social impacts by relieving a restriction on General category vessels. The final action also provides a 10–calendar day time period for permit changes due to errors which would have positive social and economic impacts. The alternative to allow dual permits would further liberalize the restriction and alleviate any negative economic impacts by allowing General category vessels to choose on any given day whether they wish to fish commercially or recreationally. However, there would be some administrative impacts to vessel owners/operators as they would have to declare with NMFS their intent before making a trip, and difficulties in monitoring and enforcing the declarations in real-time and providing multiple permits for the same vessel may end up causing more confusion within the fishery than alleviating any perceived negative economic impacts, thus this alternative was rejected. The final action provides a 10–calendar day time period for permit changes due to errors and would have positive economic impacts by allowing permit holders to fish in the manner intended.

The final action which defines the area “in the vicinity of the management boundary area” as the Northeast Distant area and will allow retention of the 25 mt quota of bluefin tuna with no target catch

	<p>requirements was anticipated to provide slight positive economic impacts by allowing more retention of incidentally caught bluefin tuna relative to the other alternatives because no target requirements would apply.</p> <p>No comments were received concerning the economic impact of this final 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 consistency with the recommendations ICCAT. Some of the provisions in this regulation may be revisited during the development of draft Amendment 7 to the 2006 Consolidated HMS FMP.
#3	Atlantic Highly Migratory Species; Atlantic Shark Management Measures RIN 0648-AQ95; 68 FR 74746, December 24, 2003
Rescinded, Amended, or Continuing	Amended with parts continuing
Description of Management Measures and Complexity	This final rule was necessary to ensure that shark regulations were based on the results of the 2002 stock assessments for large coastal sharks and small coastal sharks. The results of these stock assessments indicated that the large coastal shark complex continued to be overfished, and overfishing was occurring; that sandbar sharks were not overfished, but overfishing was occurring; that blacktip sharks were rebuilt and healthy; that the small coastal shark complex was healthy; and that finetooth sharks were not overfished, but overfishing was occurring. Based on these results, NMFS revised the rebuilding timeframe for large coastal sharks to 26 years starting from 2004; changed some of the commercial regulations; changed some of the recreational regulations; implemented measures to reduce bycatch and bycatch mortality, including a time/area closure; removed the deepwater/other sharks from the management unit; established criteria regarding adding or removing sharks from the prohibited species group; and established a display permit for fishermen who wish to harvest HMS for public display. NMFS also updated essential fish habitat identifications for sandbar, blacktip, finetooth, dusky, and nurse sharks. NMFS also notified eligible participants of the opening and closing dates for the Atlantic large coastal, small coastal, and pelagic shark fishing seasons.
Economic Impacts of Management Measures and Nature of Public Comments	The economic analyses conducted for the final rule acknowledged that reductions in commercial quotas, implementation of trimesters, regional quotas, VMS requirements, and the time/area closure would likely result in economic impacts to the fishery as a whole, some of which may be significant for small entities/vessel owners. However, all of these alternatives, when compared to the other alternatives

considered, mitigate undesirable or greater economic impacts associated with continued overfishing, shortened seasons, bycatch of vulnerable species, and economic instability of fishery participants and associated fishing communities in the long-term. The combination of these preferred alternatives is necessary for large coastal sharks to rebuild and small coastal sharks to achieve optimum yield, consistent with the objectives of this rule, the Magnuson-Stevens Act, and other domestic laws.

As of September 2003, there were approximately 256 directed permit holders and 351 incidental permit holders for a total of 607 permit holders who are authorized to fish for sharks and could be affected by the preferred alternatives outlined in the final rule. Only about 20 percent of all permit holders are actually active in the fishery. Currently, 120 vessels (i.e., number of vessels that reported landings of shark during 2001) would be directly affected by changes (i.e., increases/decreases) in shark quotas or other changes to the commercial management measures. The revised time/area closure would have a direct economic impact on a total of 23 vessels (out of 256 total directed permits issued in 2003 or approximately 9 percent) with directed shark permits. As of September 2003, only eight vessels with home ports in North Carolina reported shark landings during 2001. NMFS knows of fewer than 11 shark fishermen who have used drift gillnet gear to target sharks at some point in the past and only five in recent years. The recreational requirements proposed in this rulemaking could affect all recreational HMS permit holders including HMS Angling category permit holders (18,249 as of September 2003) and HMS charter/headboat permit holders (4,041 as of September 2003). These permit holders can target any HMS; however, few actually target sharks. Other sectors of HMS fisheries such as dealers, processors, bait houses, and gear manufacturers might be affected by these regulations, particularly the shift to trimester seasons for commercial fisheries, reduction in commercial large coastal shark quota/increase in commercial small coastal shark quota, and time/area closure off North Carolina during the winter commercial fishery.

The costs associated with implementing a VMS program in the Atlantic shark gillnet fishery include an initial average cost per vessel of approximately \$2,275 (not including postage costs for returning certification statement), an average annual maintenance cost of approximately \$500/year, and approximately \$197.28/year for communications during the right whale calving season. Costs associated with implementing a VMS program in the directed shark bottom longline fishery include an initial average cost per vessel of approximately \$2,275 (not including postage costs for returning certification statement), an average annual maintenance cost of approximately \$500/year, and approximately \$305.28/year for communications during the seven month shark bottom longline time/area closure. Installation of VMS likely increased costs to the vessel owner but should not increase the needed skill level required for HMS fisheries.

The increase in the recreational bag and size limits, change in authorized gear types, addition of the bottom longline time/area closure, requirement to have and use release equipment, and requirement to move 1 nmi after interacting with a protected species may have changed the way and areas in which fishermen can fish and set their gear, require the possession and use of specific equipment, limit the gears authorized for use in recreational shark fisheries, and increase the skill level needed to participate in HMS fisheries. The increased recreational bag and size limit could result in positive economic benefits if they resulted in increased tournament participation and business profits within the charter/headboat industry for sharks. NMFS does not expect changes to the recreational authorized gear to have any substantive economic impacts, because sharks caught recreationally in Federal waters cannot be sold and the majority of HMS recreational fishermen already use the gears being authorized in this final rule.

The bottom longline time/area closure and VMS was anticipated to have significant economic impacts, particularly for those fishermen in states bordering the closure (i.e., North Carolina). However, for vessels not directly affected by the closure there might be a few economic benefits, and NMFS anticipates long-term benefits to the fishery as a whole when the large coastal shark complex rebuilds. The bycatch release equipment and moving 1 nmi after an interaction would likely only have minor economic impacts (e.g., the purchase of stainless-steel hooks and release equipment and minor increases in fuel costs to move one mile after an interaction). Although the release equipment is relatively simple to use, limited training may be required to use them effectively.

No economic impacts were anticipated from the display permit alternative, because this is an administrative name change that does not affect current application processes or related regulations. In addition, the quotas and fishing seasons in this final rule are not likely to change reporting or compliance in the fishery.

The final actions for commercial management measures (i.e., the large coastal shark complex classification, regional quotas, trimester seasons, MSY based quotas, and no minimum size) were designed to minimize economic impacts incurred on fishermen, while simultaneously enhancing equity among users groups, allowing healthy stocks to be managed at optimum yield, and allowing overfished stocks to rebuild.

Aggregating the large coastal shark complex was expected to reduce costs associated with the lengthening of trips (i.e., fuel, bait, and ice) due to sorting inefficiencies and simplify compliance and reporting requirements. Implementation of regional quotas was not anticipated to result in any changes to economic benefits or costs because it maintained historic fishing patterns based on dealer reports and was anticipated to enhance equity among user regions. Trimester seasons would spread open seasons out more evenly over

the calendar year and could, in the long-term, result in greater economic stability for fishermen and associated communities because the amount of time between open and closed seasons would likely be reduced. Thus, in the long-term, the combination of regional quotas and trimester seasons was expected to help minimize any economic impacts caused by other final actions.

The final action alternatives (quota based on MSY and aggregating the large coastal shark complex) will implement commercial quota levels of 1,017 mt dw for the large coastal shark aggregate and 454 mt dw for the small coastal shark aggregate, resulting in a 21-percent reduction in large coastal shark quota and a 10-percent increase in small coastal shark quota, respectively, from the baseline quotas outlined in Amendment 1 to the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks.

This final rule eliminated the current commercial minimum size, thus relieving a restriction that would impose negative economic impacts on the commercial shark fishery. Given that the previous minimum size for commercial fishery has never been implemented due to litigation, NMFS did not anticipate any significant changes in economic benefits or costs from this final action.

Similar to the final actions for commercial quotas, the final action alternatives for recreational retention (i.e., existing limits plus one bonnethead) and minimum size limits (i.e., existing size limits plus no minimum size for bonnethead) were designed to minimize the economic impacts on recreational fishermen, while simultaneously allowing healthy stocks to be managed at optimum yield and overfished stocks to rebuild. Since one shark per vessel per trip plus one Atlantic sharpnose and one bonnethead shark per person per trip allows the additional retention of bonnethead sharks, this alternative may increase revenues to charter/headboats and other small entities above the no action and catch and release only alternatives.

The final size limit, 4.5 ft fork length for all sharks and no size limit for Atlantic sharpnose and bonnethead sharks, takes into account the fact that bonnethead sharks do not reach the minimum size currently in place and simplifies compliance for small entities with the final retention limits for bonnethead sharks. The final size limit alternative was anticipated to increase the willingness to pay, angler consumer surplus, and current revenues to charter/headboat captains and other small entities who rely on the recreational shark fishery for income.

The final action regarding recreational authorized gear limits fishermen in the recreational fishery to handline and rod and reel and addresses the need for NMFS to clarify which gear types are authorized specifically for recreational fishing activities. Most recreational HMS fishermen already use handline as well as rod and reel in the fishery.

As such, there were no anticipated economic costs or benefits associated with implementation of the final action.

The final action to remove the deepwater and other sharks from the management unit seeks to simplify compliance and reporting requirements under the final rule for small entities. No economic costs were anticipated with from this alternative.

The final action that retains the current 19 prohibited species and establishes a criteria for the addition/removal of other species to/from the prohibited species group, also simplifies compliance and reporting requirements. Given the possibility that recreationally or commercially valuable species may either be added/removed from the prohibited species group, it is possible that economic impacts/benefits would be experienced by small entities. While removing or adding sharks to the prohibited list could have economic impacts, maintaining the status quo while establishing a process to add or remove, should not have economic impacts on a substantial numbers of small entities.

The final actions for bycatch reduction (i.e., install and activate VMS, obtain and use release equipment, use non-stainless steel corrodible hooks, and move 1 nm after an interaction with a protected species) were designed to minimize the economic impacts on fishermen, while simultaneously promoting bycatch reduction of protected species in shark fisheries. Installation of VMS units could result in economic impacts to small entities in the short-term. However, in the long-term, this alternative could result in increased revenues by preventing more burdensome regulations and allowing more fishing time.

Additionally, bottom longline vessels would be able to traverse the closed area, while gillnet vessels may require less observer coverage.

Under the VMS requirement approximately five gillnet shark fishing vessels and approximately eight directed category bottom longline shark fishing vessels would need to install VMS units. Requiring VMS for only a portion of the shark fishing fleet minimizes the economic impact on the remainder of the fleet. Economic analyses of the impacts associated with VMS requirements on small entities indicate that the average gross revenue by permit holder, during the first year of implementation, will be reduced by nine percent. For every year thereafter, economic analyses on small entities indicate that the average gross revenue by permit holder will be reduced by two percent.

As noted above, to minimize economic impacts, NMFS delayed the effective date of this requirement and will, in the future, type approve VMS units for use in the Atlantic shark fisheries.

The final alternative regarding release equipment, corrodible hooks, and moving after an interaction with a protected species would likely result in minor economic impacts to small entities, primarily because the

cost associated with purchasing release equipment is minimal and is a one-time cost. Although many shark fishermen may already use non-stainless steel corrodible hooks, this may increase the financial burden on fishermen who will have to purchase new hooks. The requirement to move one nautical mile after an interaction with a marine mammal, sea turtle, or sawfish would likely increase fuel costs due to increased time transiting to another fishing area and increased time needed to fish if alternate fishing grounds are not as productive for target species. However, because few marine mammals, sea turtles, or protected species have been observed caught, NMFS does not believe that this requirement would affect more than a few trips for all vessels combined, each year.

NMFS also finalized a time/area closure for sandbar and dusky shark nursery and pupping areas offshore North Carolina during the winter fishery. This alternative is designed to reduce bycatch of neonate and juvenile sandbar sharks and prohibited dusky sharks by 92 percent and 61 percent, respectively. This alternative is likely to have significant impacts on the small entities/vessel owners directly affected by the closure. As discussed above, NMFS has refined the size of the time/area closure in this final action, thus reducing the number of vessels affected from 13 to 8 and mitigating the economic impacts by \$17,956 in total gross revenues for the small entities directly affected by the closure as compared with the original preferred alternative. For those vessels affected by the time/area closure, the closure would impose a reduction in catch and income from areas traditionally relied upon and affect fishing practices by requiring fishermen to travel further offshore. Due to greater distances traveled, fishermen would spend more time at sea, and associated costs of food, fuel, and labor could increase. This could cause some fishermen to go out of business, move to new areas, or alter fishing patterns in other ways. This alternative could result in a change in the distribution of benefits and costs, with the financial costs of operating in the fishery increasing and benefits decreasing. However, the time/area closure will facilitate rebuilding of the large coastal shark complex, thus providing for longer term economic stability, and it minimizes the economic impacts compared to the other larger time/area closure alternative considered.

The provision for identifying EFH would not affect small entities in any way that would complicate compliance and reporting requirements for EFH or result in significant economic impacts for small entities. The EFP provision was also not expected to affect small entities in any way that would complicate compliance and reporting requirements for EFPs or result in significant economic impacts for small entities.

As set forth above, NMFS received many comments on the proposed rule and draft Amendment 1 to the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks during the comment period. NMFS did not receive any comments specific to the IRFA, but did receive a limited number of comments on the potential for

	substantial impacts related to the proposed commercial quota reductions, implementation of trimester seasons and regional quotas, gillnet restrictions, VMS requirements, and the time/area closure. In summary, commenters noted that commercial quota reductions, VMS requirements, and the bottom longline time/area closure off North Carolina would put fishermen out of business and create less economic stability among industry participants; implementation of trimester seasons and regional quotas could disrupt existing markets and lead to insufficient income; and requiring the strikenet method only would not allow the commercial shark gillnet fishery to continue while minimizing interactions, as it was originally intended.
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	NMFS recommends continuing this rule as currently amended to meet the objectives of the Magnuson-Stevens Act and the 2006 Consolidated HMS FMP. Some of the provisions in this regulation are being revisited in draft Amendment 5 to the 2006 Consolidated HMS FMP.
#4	Atlantic Highly Migratory Species; Bluefin Tuna Season and Size Limit Adjustments RIN 0648-AR12; 68 FR 74504, December 24, 2003
Rescinded, Amended, or Continuing	Continuing with parts amended
Description of Management Measures and Complexity	Under the framework provisions of the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks governing the Atlantic bluefin tuna fishery, NMFS amended the regulations regarding the opening date of the Purse seine category, closure dates of the Harpoon and General categories, and size tolerances of large-medium Atlantic bluefin tuna for the Purse seine and Harpoon categories. The intent of this final rule was to further achieve domestic management objectives under the 1999 FMP for Atlantic Tunas, Swordfish, and Sharks and the Magnuson-Stevens Act and to implement recommendations of ICCAT pursuant to the Atlantic Tunas Convention Act.
Economic Impacts of Management Measures and Nature of Public Comments	The economic analysis for this rule assessed the impacts of the various alternatives on the vessels that participate in the bluefin tuna fisheries, all of which are considered small entities. This final action would affect vessels in three permit categories, namely the Purse seine, Harpoon, and General categories. The gross revenues for 2002 and number of vessels to date for 2003 for each category are as follows: General category, \$13.9 million, 6,797 vessels; Purse seine category, \$3.0 million, 5 vessels; and the Harpoon category, \$0.5 million, 59 vessels. The selected alternative of a July 15 start date would minimize the negative impacts on the Harpoon

category by reducing by more than half the amount of overlap with the Purse seine category season relative to the June 1 start date alternative, while still reducing the mid-season market glut, which should positively impact Purse seine and General category ex-vessel prices. Under this alternative, increase in overlap with the Harpoon category would be reduced to 30 days and such overlap would occur during the time period when the Harpoon category averages approximately 26 percent of its gross revenues annually. Due to the large amount of landings, gross revenues and numbers of participants attributed to the Purse seine and General category commercial bluefin tuna sectors, this alternative is expected to provide the greatest positive impacts to the bluefin tuna fishery as a whole, even though the smaller Harpoon category may experience slightly negative economic impacts. Any negative impact to the Harpoon category could be partially mitigated by the increase in this final rule of the Harpoon category tolerance limit for large medium bluefin tuna to two fish per vessel per day, which would improve the ability of the Harpoon category to catch its annual quota. In addition, in response to comment, the final rule for this alternative includes a provision for delaying the start date to no later than August 15 if such a delay would further reduce gear conflicts or overlap between the different categories.

The final provision was designed to maintain the Harpoon category quota for the traditional New England fishery and impact only the Harpoon category vessels. This alternative was selected as it is expected to provide positive impacts for the traditional New England Harpoon category fishery since it would close the fishery near the time period when bluefin tuna migrate out of the New England area. Negative impacts to southern area fishermen interested in participating in the Harpoon category fishery under this alternative are expected to be negligible since there had been no bluefin tuna landings against the Harpoon category quota in such area prior to 2002, few vessels have participated in the Harpoon category fishery in the south Atlantic since that time, and there has been little investment in gear and equipment in a Harpoon category fishery outside of the New England area. Finally, vessel owners/operators that fish outside the traditional New England area that wish to use a harpoon as a primary gear type would still be allowed to do so under the General category permit, albeit under General category retention limits and restrictions.

The General category season is scheduled to end on December 31 of each fishing year or when the General category quota is harvested, whichever comes first. A winter fishery for large medium and giant bluefin tuna has existed in the south Atlantic since the early 1990s, and when quota is available, fish have been harvested under the General category. This final regulation moved the General category end date to January 31 of each fishing year. Overall economic impacts of this alternative to the General category bluefin tuna fishery as a whole would be neutral since the same overall amount of the General category quota would be landed and the value of the General category quota would not be changed. General

	<p>category fishermen in the northern region may experience negative economic and social impacts, when compared to the status quo, since any unharvested quota as of December 31 would otherwise be rolled over to the following year. General category fishermen in the southern region would be positively affected by this alternative as it would allow greater utilization of existing investment in gear and equipment if quota was still available for harvest after December 31, and since bluefin tuna are usually available in the southern region during the end of the calendar year due to the fall migration from the north. The Purse seine and Harpoon categories have recently experienced difficulties in landing the full annual quota provided for each of these categories with the result of decreased annual gross revenues. Eliminating the trip limit and establishing the annual limit at 15 percent would provide access to the same total amount of landings as alternative two, but may also increase net revenues by increasing flexibility in meeting the annual tolerance limit. This rule also allowed an increase in the daily retention limit for the Harpoon category from the status quo of one large medium bluefin tuna per day to two large medium bluefin tuna per day, and was selected since it is expected to provide an acceptable balance between positive economic effects and a modest increase in mortality of large medium bluefin tuna. Large medium bluefin tuna mortality is not expected to increase significantly under this alternative because of a harpooner's ability to visually determine the size class of bluefin tuna prior to throwing a harpoon.</p> <p>No comments were received on the IRFA concerning the economic impact of this final rule.</p>
Overlap with other State or Federal Rules	This final rule does not duplicate, overlap, or conflict with any other Federal or State rules.
Recommendation and Need for Continuing the Rule	NMFS recommends continuing this rule to meet the objectives of the Magnuson-Stevens Act and the 2006 Consolidated HMS FMP. Some of the provisions in this regulation may be revisited during the development of draft Amendment 7 to the 2006 Consolidated HMS FMP.
#5	Atlantic Highly Migratory Species; Pelagic Longline Fishery RIN 0648-AR80; 69 FR 40734, July 6, 2004
Rescinded, Amended, or Continuing	Continuing
Description of Management Measures and Complexity	This final rule implemented new sea turtle bycatch and bycatch mortality mitigation measures for all Atlantic vessels that have pelagic longline gear onboard and that have been issued, or are required to have, Federal HMS limited access permits, consistent with the requirements of the Endangered Species Act, the Magnuson-Stevens Act, and other domestic laws. These measures included mandatory circle hook and bait requirements, and mandatory possession and use of sea turtle release equipment to reduce bycatch mortality. This final rule also allowed vessels with pelagic longline gear onboard that have been issued, or

	<p>are required to have, Federal HMS limited access permits to fish in the Northeast Distant, if they possess and/or use certain circle hooks and baits, sea turtle release equipment, and comply with specified sea turtle handling and release protocols.</p>
<p>Economic Impacts of Management Measures and Nature of Public Comments</p>	<p>The final provisions of this rule are intended to reduce sea turtle interaction and mortality levels while minimizing adverse economic impacts to the extent practicable, consistent with the Endangered Species Act, Magnuson-Stevens Act, and other applicable law. The rule provide flexibility to utilize circle hooks and baits that are effective at reducing sea turtle interactions and post-hooking mortality, without adversely impacting catches of swordfish and tunas.</p> <p>An average annual vessel gross revenue estimate of \$178,619 was assumed for these analyses.</p> <p>This rule limits vessels with pelagic longline gear onboard, at all times, in all areas open to pelagic longline fishing, excluding the NED, to possessing onboard and/or using only 16/0 or larger non-offset circle hooks and/or 18/0 or larger circle hooks with an offset not to exceed 10 degrees. Only whole finfish and squid baits may be possessed and/or utilized with allowable hooks. Under this provision, fishermen may experience little or no change in catches of tunas (i.e., tuna catch remains at 58.6 percent by weight), and a 10 to 20 percent decrease in catches of swordfish. Based on this, vessel revenues attributable to tunas would likely remain at approximately \$104,670. Vessel revenues attributable to swordfish may possibly decrease by 3.88 (\$6,925) to 7.75 (\$13,850) percent to between \$171,694 and \$164,769. However, because fishermen have the option of using a hook and bait combination shown to be more effective at catching swordfish, this reduction in revenues is not expected to occur. Actual impacts of this alternative would depend on the frequency with which particular hook and bait combinations are employed and species targeted.</p> <p>This rule allows pelagic longline vessels to fish in the Northeast Distant, but requires vessels in that area, at all times, to possess onboard and/or use only 18/0 or larger circle hooks with an offset not to exceed 10 degrees. Only whole mackerel and squid baits may be possessed and/or utilized with the allowable hooks. Depending upon whether fishermen use the 18/0 offset circle hook with whole mackerel bait or the 18/0 non-offset circle hook with squid, respectively, there may be a -32.58 percent to +30.24 percent change in swordfish catches (by weight) and a -87.64 to possibly as much as +29.22 percent (by weight) change in tuna catches. Thus, the portion of landings of historically attributable to swordfish may shift from 88.54 percent (by weight) of landings to between 59.69 and 115 percent. Gross revenues attributable to swordfish may vary between -28.72 percent (-\$51,292) and +26.65 percent (\$47,608), resulting in overall gross vessel revenues of between \$127,327 and \$226,227. The portion of vessel landings historically attributable to tuna may shift from 9.85 percent of landings to between 1.22 and 12.73 percent. Gross revenues of</p>

vessels attributable to tuna may vary by -9.88 percent (-\$17,642) to +3.29 percent (\$5,882), resulting in overall gross vessel revenues of between \$160,997 and \$184,501. For vessels engaging in mixed target trips, estimated gross vessel revenues could range between \$109,685 and \$232,109. These figures likely represent over estimates of both losses and gains. The actual impact would likely fall between these estimates, depending on the frequency with which particular hook and bait combinations are employed and species targeted. Given that no pelagic longline vessels can currently fish in the Northeast Distant Area, any revenues generated from fishing in that area, would increase gross vessel revenues, compared with the status quo.

This regulation also requires the possession and use of sea turtle release gear, and compliance with careful handling protocols. This alternative would likely have only minor initial adverse economic impacts, as there are currently similar requirements in the pelagic longline fishery, with some positive long-term impacts resulting from reduced hook replacement costs. NMFS estimates that a full suite of release gear could cost between \$485.00 and \$1056.50. These costs could be reduced if fishermen were able to construct some pieces of equipment themselves, rather than purchasing pre-assembled gear from commercial suppliers.

The final measures will likely result in an initial increase in costs, but may result in longer-term cost savings because circle hooks have lower replacement costs than “J”-hooks, and because the newly-required release gears may result in increased hook retention. An informal internet and telephone survey of hook suppliers provides a range in price of approximately \$0.28 to \$0.50 (\$0.3539 avg) per hook for 16/0 circle hooks, and \$0.26 to \$0.66 (\$0.4176 avg) per hook for 18/0 commercial grade circle hooks. Large commercial grade “J”-hooks range from approximately \$0.26 to \$1.00 (avg. \$0.5733) per hook. Assuming that an average of 2,500 hooks per vessel are needed to initially comply with the hook requirements (equip vessels with enough hooks for one trip), the compliance cost for 16/0 circle hooks, on a per vessel basis, may range from \$697.50 to \$1,241.75 with an anticipated average cost of approximately \$884.75. Similarly, assuming that an average of 2,500 18/0 circle hooks per vessel are needed to initially comply with the hook requirements, the compliance cost, on a per vessel basis, may range from \$657.25 to \$1,650.00, with an anticipated average cost of approximately \$1,044.00. The circle hook requirements should not increase the needed skill level required for HMS fisheries, as the physical act of switching hook types is a normal aspect of commercial fishing operations. However, there probably will be a period of time during which fishing crews adjust, as with any new gear. Circle hooks are not expected to be prohibitively difficult to work with, as some vessels are already utilizing them.

The requirement to purchase and use sea turtle release gear would require additional skills and would

impose a compliance cost for purchase of the gear of between \$485.00 and \$1,056.50. These costs may be reduced if fishermen are able to construct various pieces of equipment themselves, rather than purchasing pre-assembled gear from a commercial supplier. In addition, specific protocols regarding the proper use of sea turtle release equipment and onboard turtle handling procedures are being implemented. These protocols may increase the needed skill level required for HMS fisheries. A document containing the sea turtle careful release protocols will be required to be onboard. Also, NMFS will conduct training on the proper use of the release equipment.

Traditionally, bait accounts for 16 to 26 percent of the total costs per trip. Any fluctuations in the price and availability of mackerel, whole finfish, or squid baits could have a substantial positive or negative impact on profitability. These baits are generally abundant, but availability will likely depend upon harvesting and distributional capacities. There could also be unquantifiable compliance costs as fishing crews who have not traditionally fished with a particular hook and bait combination familiarize themselves with the most efficient techniques.

As described in the Comments and Responses section of the preamble, NMFS received many comments on the potential for substantial economic impacts associated with the proposed regulations, and two comments specifically related to the IRFA. Many commenters stated that there would be potentially reduced revenues from the preferred alternatives due to: (1) the lack of flexibility for fishermen to select various hook and bait combinations; (2) potentially reduced catches of target species, both inside and outside the Northeast Distant area, due to the proposed 18/0 circle hooks; and, (3) potentially reduced catches outside the Northeast Distant Area due to the proposed “exotic” baits (i.e., squid or Atlantic mackerel only). Several commenters stated that more concern should be focused on the potential loss of jobs and social costs. Regarding the economic analyses in the DSEIS/RIR/IRFA, two commenters stated that the ex-vessel prices presented in the analyses were not up to date. Another commenter stated that the analyses overstate potential increases in target catches and understates potential losses in target catches. Commenters also requested that the following additional factors be considered: (1) overhead costs will increase because of the need to buy new hooks and more expensive, non-indigenous baits outside the Northeast Distant Area; (2) there would be irretrievable lost costs because existing inventories of fishing hooks would become obsolete; and, (3) U.S. pelagic longline fishermen could be put at a competitive disadvantage to foreign vessels because of potentially increased costs and decreased revenues. The Agency modified the final rule, in response to public comment, to provide more flexibility regarding baits, offset and non-offset circle hooks, and minimum hook sizes outside the Northeast Distant area. However, pursuant to the 2004 Biological Opinion, additional rulemaking may be necessary to consider a new time

	and area closure(s), which could have adverse economic impacts. The economic impacts of such a closure, if necessary, would be analyzed and addressed in that rulemaking. In response to the comment that the IRFA used outdated ex-vessel price information, the Agency has updated the RIR and FRFA using actual 2002 ex-vessel prices. The IRFA utilized 2001 ex-vessel prices adjusted to 2002 dollars using the Consumer Price Index on-line adjustment calculator. The result of this adjustment is that the 2002 annual gross vessel revenue estimate used in the economic analyses was lowered from \$187,074 to \$178,619, due to generally lower ex-vessel prices received in 2002.
Overlap with other State or Federal Rules	The final regulations do not duplicate, overlap, or conflict with any other relevant regulations, federal or otherwise.
Recommendation and Need for Continuing the Rule	NMFS recommends continuing this rule to maintain compliance with the 2004 Biological Opinion for the Atlantic pelagic longline fishery and to meet the objectives of the Magnuson-Stevens Act and the 2006 Consolidated HMS FMP.
#6	International Fisheries; Atlantic Highly Migratory Species RIN 0648- AQ37; 69 FR 67268, November 17, 2004
Rescinded, Amended, or Continuing	Continuing
Description of Management Measures and Complexity	This final rule implemented international trade tracking recommendations of ICCAT and the Inter-American Tropical Tuna Commission for bluefin tuna, swordfish, and frozen bigeye tuna, regardless of ocean area of origin. Trade monitoring requirements for species covered under the recommendations and for southern bluefin tuna were established by this rule, including: An HMS international trade permit; statistical documents and re-export certificates; and recordkeeping, reporting, and inspection requirements.
Economic Impacts of Management Measures and Nature of Public Comments	<p>This final rule was expected to affect approximately 1,890 (930 foreign and 960 domestic) seafood businesses that participate in international trade of swordfish, bluefin tuna, southern bluefin tuna and bigeye tuna, all of which are considered small entities. Impacts to businesses would occur in two areas - permitting and reporting (reporting includes documentation and recordkeeping). NMFS expects only minor negative economic impacts from the final rule because the regulatory measures only involve adjusting permitting and reporting requirements.</p> <p>The final action would implement the recordkeeping requirements by linking them to the HMS international dealer trade permit. Overall, the immediate costs associated with the final action was expected to be greater than for the no action alternative; however, access to international markets could be</p>

	<p>reduced under the status quo, which is expected to have much greater negative economic impacts in the long term.</p> <p>The initial cost of obtaining the permit for each U.S. business under the final action was expected to be \$100 plus the time to fill out the form and the cost of postage, which would be approximately \$2. NMFS expects this amount to be a minor negative impact for the affected businesses. The permit-associated cost for the final action differs from building onto existing systems in an amount between \$0 and \$100 per business, depending upon the other permits held by the business. However, if the business were required to have a swordfish permit for importing or exporting swordfish, the cost could be either \$25 or \$100, depending upon whether the business has another permit issued by NMFS. NMFS estimated that approximately 960 businesses would be impacted by the final action.</p> <p>Impacts of reporting for the final action were expected to be approximately the same since all businesses must submit the required reports, regardless of whether the permitting is accomplished through the HMS international trade permit or by adding on to other permitting programs. The professional skills necessary to complete the reporting requirements are equivalent to an educational level of high school completion. The annual economic impacts of the reporting requirements, in addition to the potential costs of the HMS international trade permit discussed in the previous paragraph, would be approximately \$386 per permit holder, including statistical document and re-export certificate opportunity costs (\$285) and mailing (\$2), biweekly opportunity cost (\$90) and mailing (\$9). This amount will vary depending on the volume of HMS imported or exported or the number of forms submitted.</p> <p>NMFS received one comment specifically addressing the IRFA and several comments addressing economic concerns. The primary economic concern identified by the public was the potential impact of the validation requirement, including the potential dollar cost of validation and the time cost of validation procedures. Of particular concern to island businesses on Guam and Hawaii was the potential that validation procedures could delay shipments significantly enough to impact shipment schedules. Other economic concerns expressed by the public included general concern about the costs of the reporting requirements.</p>
Overlap with other State or Federal Rules	This final rule does not duplicate, overlap, or conflict with any other Federal or State rules.
Recommendation and Need for Continuing the Rule	This rule is continuing and needed to consistency with the recommendations of ICCAT.

#7	Atlantic Highly Migratory Species; Atlantic Commercial Shark Management Measures RIN 0648-AS08; 69 FR 69537, November 30, 2004
Rescinded, Amended, or Continuing	Amended with parts continuing
Description of Management Measures and Complexity	<p>This final rule adjusted the regional quotas and established new trimester season quotas for large coastal sharks and small coastal sharks based on updated landings information. This final rule included a framework mechanism for the annual adjustment of quotas, a method of accounting for over- or under harvests in the transition from semi-annual to trimester seasons, and a new process for notifying participants of season opening and closing dates and quotas. This final rule also announced the opening and closing dates for the large coastal sharks fishery based on adjustments to the regional and trimester quotas. This action was necessary to ensure that the landings quotas in the Atlantic commercial shark fishery represent the latest landings data and accurately reflected historic fishing effort.</p>
Economic Impacts of Management Measures and Nature of Public Comments	<p>This rule directly impacted commercial shark fishermen and dealers in the Atlantic, Gulf of Mexico, and Caribbean. NMFS estimated that as of April 2004, there were approximately 253 directed and 358 incidental permit holders, of which 199 (32 percent) reported landings in 2003. As of September 2003, there were 267 commercial shark dealers. Average annual gross revenues from sharks for commercial shark fishermen in 2003 was \$31,085.60 and \$1,946.18 for directed and incidental permit holders, respectively. Average ex-vessel prices were \$0.79 and \$0.53/lb dw for large coastal shark and small coastal shark flesh, respectively and shark fins averaged \$19.86/lb dw.</p> <p>The final measure to modify the regional large coastal shark and small coastal shark quotas based on updated landings information will increase the existing large coastal shark regional quotas, and therefore potential landings, by 3 percent for the North Atlantic and 10 percent for the Gulf of Mexico, while reducing the South Atlantic quota by 13 percent. For small coastal sharks, the regional quotas were increased by 6 percent for the Gulf of Mexico and 4 percent for the South Atlantic, and will be decreased by 10 percent for the North Atlantic. Based on landings and revenue information obtained from the 2003 logbooks, these potential increases or decreases in landings may result in similar increases or decreases to gross revenue, however, NMFS is unable to predict future ex-vessel prices for shark products.</p> <p>The final measures of this rule were selected for the commercial Atlantic large coastal shark and small coastal shark fisheries because they minimize economic, ecological, and social impacts incurred on fishermen while, consistent with the Magnuson-Stevens Act and other domestic laws, enhancing equity among user groups, and allowing stocks to be managed on a sustainable basis.</p>

The alternative to remove the 30-day requirement to publish a fishing season's length and quotas will be replaced with a proposed and final rule process. This will provide greater opportunity for public comment, and is not expected to result in negative economic impacts.

Overall economic impacts of adjusting the regional quotas were expected to be minimal. Economic data from large coastal shark revenues generated in 2003 indicate that the final adjustments to the regional quotas would result in an increase in gross revenues to the Gulf of Mexico (+3.5 percent; \$62,503) and North Atlantic (+.01 percent; \$3,083) regions, and a decrease in gross revenues to the South Atlantic (-2.6 percent; \$60,006) region. Economic data for the small coastal shark fishery indicate that gross revenues for the Gulf of Mexico would decrease (-57 percent; \$14,885) while the gross revenues would increase for the South Atlantic (+54 percent; \$27,443) and the North Atlantic (+3 percent; revenues unknown because of lack of landings in 2003). The percentage change in gross revenues for small coastal sharks is larger than for large coastal sharks in some of the regions, however, the total dollar value for the small coastal shark fishery is minimal compared to the total gross revenues generated by the large coastal shark fishery (approximately \$93,734 for small coastal sharks vs. approximately \$4,402,136 in 2003 for large coastal sharks).

NMFS received comments in support of establishing a single quota for large coastal sharks or small coastal sharks and eliminating the existing regional quotas. While a single quota system would simplify management and monitoring of the fishery, regional quotas provide a more effective means of ensuring that historical catches and equitable distribution of quotas are maintained, accounting for regional differences in fishing effort, and providing flexibility to reduce mortality on juveniles and reproductive female sharks.

The final preferred alternatives for trimester season quota allocations and accounting for over- or under-harvests in the transition from semi-annual to trimester seasons are not expected to have adverse economic impacts. The final preferred alternative for allocating trimester season quotas equally in the Gulf of Mexico and South Atlantic regions, and according to historical landing in the North Atlantic was selected because it provides equitable distribution of quotas based on the requirements of each of the regions. The final preferred alternative of dividing any over- or under-harvests from the first semiannual season equally between the first and second trimester seasons will help minimize any economic impacts to the South Atlantic and should have little or no impact on the Gulf of Mexico or the North Atlantic.

Economically, the final alternatives provide the greatest benefit to those fishermen who will not have an opportunity to fish for sharks during the mid-Atlantic closure from January through July 2005. By dividing regional quotas equally among the trimester seasons, and dividing over- or under-harvests from the 2004

	<p>first semi-annual season equally between the 2005 first and second trimester seasons, fishermen in the South Atlantic region will have an opportunity to harvest a potentially larger quota during the second and third trimester seasons compared to the other alternatives.</p> <p>NMFS received several comments on the proposed rule and draft EA during the comment period. NMFS did not receive any comments specific to the IRFA, but did receive a limited number of comments on the potential impact of regional quotas, trimester season quota allocations, and transferring over- or under-harvest from semiannual to trimester seasons. In summary, commenters noted that regional quotas would result in a reduction in quota for the South Atlantic that, coupled with allocating regional quotas to trimester seasons based on historical landings, could have negative economic impacts on fishermen affected by the time/area closure off North Carolina.</p> <p>The IRFA for the proposed rule acknowledged that there could be negative economic impacts as a result of lowering quotas for the South Atlantic, but noted that the quotas were based upon updated landings that indicate a shift in fishing effort in recent years from the South Atlantic to the Gulf of Mexico. In order to mitigate some of the impacts described in the comments, NMFS will divide the regional quotas for the South Atlantic and the Gulf of Mexico equally between the three trimester seasons, rather than dividing them according to historic landings, which would have resulted in the largest quota during the first trimester season when the time/area closure off North Carolina is in effect. Dividing the quotas equally between the trimester seasons will result in a higher quota for the second and third trimester seasons for the South Atlantic region. Given that NMFS is considering a delay to the start date of the second trimester season, a larger portion of the South Atlantic quota may be available to fishermen off North Carolina during the second and third trimester seasons when the time/area closure will no longer be in effect. In addition, NMFS will transfer over- or under-harvests from the 2004 first semi-annual season to the 2005 first and second trimester seasons, rather than to the first trimester season only, to further mitigate the impact of overharvests that occurred during the 2004 first semiannual season.</p>
Overlap with other State or Federal Rules	This final rule does not conflict with current relevant regulations, Federal or otherwise.
Recommendation and Need for Continuing the Rule	NMFS recommends continuing this rule as currently amended. Some of the provisions in this regulation may be revisited in draft Amendment 5 to the 2006 Consolidated HMS FMP.

#8	Atlantic Highly Migratory Species; Atlantic Trade Restrictive Measures RIN 0648-AR10; 69 FR 70396, December 6, 2004
Rescinded, Amended, or Continuing	Continuing
Description of Management Measures and Complexity	<p>NMFS adjusted the regulations governing the trade of species regulated by ICCAT in the North and South Atlantic Ocean to implement recommendations adopted at the 2002 and 2003 meetings. This final rule lifted or implemented import prohibitions for bigeye tuna, bluefin tuna, and swordfish on Honduras, St. Vincent and the Grenadines, Belize, Sierra Leone, Bolivia, and Georgia. This rule also prohibited imports from vessels on the ICCAT illegal, unreported, and unregulated fishing list and from vessels that are not listed on ICCAT's record of vessels that are authorized to fish in the Convention Area. Additionally, this rule required issuance of a chartering permit before a vessel begins fishing under a chartering arrangement.</p>
Economic Impacts of Management Measures and Nature of Public Comments	<p>As this final rule impacts the trade and importation of HMS (e.g., ICCAT regulated species) in the United States and chartering arrangements with foreign entities, the regulations will not directly impact a specific domestic fishery. However, these measures could impact HMS dealers and vessels that participate in chartering arrangements, all of which NMFS considers to be small entities. In December 2003, there were approximately 516 and 302 dealer permits issued for tuna and swordfish, respectively. NMFS estimates that less than 10 domestic vessels may participate in chartering arrangements in any given calendar year.</p> <p>Imposing or lifting trade restrictions, establishing chartering notification and permit requirements, and implementing measures designed to prevent illegal, unreported, and unregulated fishing and fishing by unauthorized large scale fishing vessels were not expected to have significant economic or social impacts. By prohibiting the import of bigeye tuna, bluefin tuna, and swordfish from Sierra Leone and bigeye tuna from Bolivia and Georgia, NMFS could reduce the economic benefits to importers and dealers. Conversely, by lifting the trade restrictions on imports of bluefin tuna and swordfish from Honduras and lifting the prohibition of imports of bigeye tuna from Belize and St. Vincent and the Grenadines and bluefin tuna and swordfish from Belize, NMFS could provide economic benefits to importers and dealers. However, because current and past import levels of these fish species from these countries are either low or nonexistent, NMFS does not anticipate major positive or negative economic impacts as a result of implementing this measure.</p> <p>The chartering permit was not expected to significantly increase the administrative burden to the vessel owners or result in significant economic impacts. The application process requires the provision, through mail or facsimile, of information, including, but not limited to: name and registration number of the vessel,</p>

	<p>name and address of the owner, description of the vessel, targeted species, quota allocated to the chartering party, and the duration of the chartering arrangement. Additional information such as copies of fishing licenses, permits, other authorizations (e.g., High Seas Fishing Compliance Act Permit, 50 CFR 300.10), and documentation regarding the legal establishment of the chartering company will be requested. A vessel shall not be authorized to fish under more than one chartering arrangement at the same time and all interactions with protected species outside the United States exclusive economic zone will be included against the authorized take levels of the relevant Biological Opinions. NMFS will issue permits only if it is determined that the chartering arrangement is in conformance with ICCAT's conservation and management programs. NMFS does not anticipate major economic impacts to domestic vessels as a result of a permit denial, given that these vessels will continue to be able to fish in domestic waters for HMS and may decide to sell HMS domestically or export product to other countries depending upon which market has the higher product price. Given that only one exempted fishing permit exempting vessels from U.S. regulations for chartering arrangements has been issued under current requirements in the fishery, NMFS does not anticipate any significant economic impacts to a substantial number of domestic vessels as a result of taking this action.</p> <p>NMFS did not anticipate any significant impacts to U.S. entities by prohibiting the import of ICCAT regulated species from vessels known to be illegal, unreported, and unregulated fishing or from unauthorized large scale fishing vessels. Currently, NMFS does not have specific information concerning the amount of HMS imported from such vessels; however, NMFS believes that the amount of HMS imported from these types of vessels is insignificant, and therefore does not expect any major economic impacts associated with implementation of the management measure.</p> <p>No comments were received regarding the economic impact of this rule or the initial regulatory flexibility analysis.</p>
Overlap with other State or Federal Rules	This action does not duplicate, overlap, or conflict with any other relevant Federal rules.
Recommendation and Need for Continuing the Rule	This rule is continuing and needed to consistency with the recommendations of ICCAT.

Chapter 5 References

- American Sportfishing Association 2008. Sportfishing in America. Available at:
<http://www.asafishing.org/images/statistics/resources/Sportfishing%20in%20America%20Rev.%207%2008.pdf>
- Ditton, R.B., D.K. Anderson, J.F. Thigpen III, B.L. Bohnsack, and S.G. Sutton. 2000. 1999 Pirates cove big game tournaments: participants' characteristics, participation in fishing, attitudes, expenditures, and economic impacts. Human Dimensions of Fisheries Laboratory Report #HD-615, Texas A & M University, College Station, TX. 126 pp.
- Ditton, R.B. and D.J. Clark. 1994. Characteristics, attitudes, catch-and-release behavior, and expenditures of billfish tournament anglers in Puerto Rico. Report prepared for The Billfish Foundation, Ft. Lauderdale, FL. 27pp.
- Ditton, R.B. and J.R. Stoll. 2003. Social and economic perspective on recreational billfish fisheries. Marine & Freshwater Research (54)4: 545-554.
- Holland, S. M., A. J. Fedler, and J. W. Milon. 1999. The operations and economics of the charter and head boat fleets of the Eastern Gulf of Mexico and South Atlantic Coasts. Memo NOAA Fisheries - F/SPO-38.
- NMFS Office of Science and Technology foreign trade statistics website:
http://www.st.nmfs.noaa.gov/st1/trade/cumulative_data/TradeDataProduct.html
- NMFS. 2012a. Annual report of the United States to ICCAT. USDOC, National Marine Fisheries Service. ANN/045/2012.
- NMFS. 2012b. Fisheries of the United States: 2011. Alan Lowther, Editor. Office of Science and Technology, Fisheries Statistics and Economics Division, NOAA, U.S. Department of Commerce, Silver Spring, MD. 124 p.
- NMFS. 2010a. U.S National Report to ICCAT, 2009. NMFS Office of Sustainable Fisheries, Silver Spring, MD. ANN/045/2009.
- NMFS. 2010b. Fisheries of the United States: 2010. E.S. Pritchard, Editor. Office of Science and Technology, Fisheries Statistics and Economics Division, NOAA, U.S. Department of Commerce, Silver Spring, MD.
- NMFS. 2010c. Stock Assessment and Fishery Evaluation (SAFE) Report for Atlantic Highly Migratory Species, 2009. NMFS Office of Sustainable Fisheries, Silver Spring, MD. 234 p.
- Pritchard, E.S. 2009. Fisheries of the United States, 2008. NMFS. Office of Science and Technology. Silver Spring, MD.
- Rose, D. 1996. An overview of world trade in sharks. TRAFFIC International. 105 p.

- Sutton, S.G., R.B. Ditton, J.R. Stoll, and J.W. Milon. 1999. A cross-sectional study and longitudinal perspective on the social and economic characteristics of the charter and party boat fishing industry of Alabama, Mississippi, Louisiana, and Texas. Report prepared for the National Marine Fisheries Service with MARFIN funding support (Grant Number NA 77FF0551.) Human Dimensions of Fisheries Research Laboratory Report #HD-612. Texas A&M University, College Station. 198p.
- Thailing, C.E., R.B. Ditton, D.K. Anderson, T.J. Murray, J.E. Kirkley, J. Lucy. 2001. The 2000 Virginia Beach red, white, and blue fishing tournament: participants' characteristics, attitudes, expenditures, and economic impacts. VIMS, College of William and Mary, Virginia Marine Resources Report No. 2001-9, VSG-01-88, Texas A & M University, College Station, TX. 110pp.
- U.S. Fish and Wildlife Service and U.S. Department of Commerce Census Bureau. 2011. National survey of fishing, hunting, and wildlife-associated recreation.
- U.S. Fish and Wildlife Service and U.S. Department of Commerce U.S. Census Bureau. 2011 national survey of fishing, hunting, and wildlife-associated recreation. FHW/-6-NAT.

6. COMMUNITY PROFILES

This Chapter identifies and describes the HMS fishing communities, as required under the Magnuson-Stevens Act and other laws, and consolidates all of the communities profiled in previous HMS FMPs or FMP amendments and updates the community information where possible. 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.

Of the communities profiled in this chapter, ten were originally selected due to the proportion of HMS landings in the town, the relationship between the geographic communities and the fishing fleets, the existence of other community studies, and input from the HMS and Billfish Advisory Panels (which preceded the combined HMS Advisory Panel that currently exists). The remaining 14 communities, although not selected initially, have been identified as communities that could be impacted by changes to the current HMS regulations because of the number of HMS permits associated with these communities, and their community profile information has been incorporated into the document.

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. The demographic profile tables found in the 2011 HMS SAFE Report were modified 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. At the time of publication of the 2011 HMS SAFE Report, some of the 2010 Census data was unavailable, therefore, the community profile data tables for these communities were incomplete. In this SAFE Report, these tables have been updated with 2010 Census data that is now available. The community descriptions that did not require additional data are not included, and are available in the 2011 HMS SAFE Report.

6.1 Community Impacts from Hurricanes

This section is an overview of the impacts on HMS communities caused by hurricanes during 2011. Please refer to prior SAFE reports for hurricane impact information prior to 2011.

The 2011 hurricane season had more storms than average with 19 named storms, of which 7 became hurricanes and 4 became major (Category 3-5) hurricanes. The number of storms 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). Only one of these storms, Hurricane Irene, made landfall in the United States, and was the first hurricane to make landfall in the United States since 2008. The storm first made landfall in the

United States in North Carolina as a Category 1 hurricane then later made a second landfall as a tropical storm in New Jersey. Irene caused immense flooding in the northeastern part of the country. More than 7 million homes and businesses lost power during the storm, and Irene caused more than \$7.3 billion in damages (NOAA, 2011a). Irene was the first hurricane to hit the United States since Ike in September 2008 and was the most significant tropical system to make a direct landfall in the Northeast since Hurricane Bob in 1991 (NOAA, 2011a). The Storm was responsible for 40 deaths in the U.S. and 48 overall (NOAA, 2012). Tropical Storm Lee was the only tropical storm to make landfall in the United States in 2011 (NOAA, 2011b), making initial landfall over Louisiana, and may have affected HMS communities in Louisiana, Mississippi, Alabama, and Texas (Brown, 2011). Lee resulted in three deaths and most of the damage resulted from storm surge or freshwater flooding (Brown, 2011).

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://sero.nmfs.noaa.gov/deepwater_horizon/index.html

6.3 Community Profile Census Data that was Not Available in 2011 HMS SAFE Report

Table 6.1 Demographic Profile of Wakefield, Rhode Island

Wakefield, RI	1990	2000	2010
Total Population	7,134	8,468	8,487
Gender Ratio (Male / Female)	3,368 / 3,766	3,958 / 4,510	4,024 / 4,463
Age (Percent of total population)			
Under 18 years of age	25.1	28.4	20.1
18 to 64 years of age	59.9	58.4	65.5
65 years and over	15.0	13.2	14.4
Ethnicity or Race (Percent)			
White	6,631	90.3	90.3
Black or African American	182	2	1.8
American Indian and Alaskan Native	257	3.1	2.6
Asian	64	1.2	1.4
Native Hawaiian and other Pacific Islander		<0.1	0.0
Some other race	0	0.6	0.7
Two or more races	-	2.8	3.2
Hispanic or Latino (any race)	-	1.6	2.5
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	3.9	3	2.8
Percent high school graduate or higher	62.6	89.8	94.7
Percent with a Bachelor's degree or higher	22.7	41.9	49.8
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	3.7	5.9	3.3
And Percent who speak English less than very well	-	1.2	0.5
Household Income (Median \$)	39,500	50,313	61,108
Poverty Status (Percent of population with income below poverty line)	-	5.4	9.6
Percent Female Headed Household	4.3	13.1	12.7
Home Ownership (Percent)			
Owner occupied	-	71.3	69.7
Renter occupied	-	28.7	30.3
Value Owner-occupied Housing (Median \$)	143,400	151,700	340,400
Monthly Contract Rent (Median \$)	530	427	751
Employment Status (Population 16 yrs and over)			
Percent in the labor force	-	70.4	71.6
Percent of civilian labor force unemployed	-	3.2	3.8
Occupation (Percent in workforce)			
Management, professional, and related occupations	-	42.2	45.8
Service occupations	-	23.3	17.4
Sales and office occupations	-	21.2	21.4
Farming, fishing, and forestry occupations	-	0.7	N/A
Construction, extraction, and maintenance occupations	-	5.6	8.7*
Production, transportation, and material moving occupations	-	6.9	6.8
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	-	1.2	0.5
Manufacturing	-	9.4	4.8
Government	-	23.9	21.2

*Data from natural resources, construction, and maintenance occupations category from 2010 census.

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.2 Demographic Profile of Montauk, New York

Montauk, NY	1990	2000	2010
Total Population	3,001	3,851	3,326
Gender Ratio (Male/Female)	-	1,976 / 1,875	1,661 / 1,665
Age (Percent of total population)			
Under 18 years of age	-	20	16.9
18 to 64 years of age	-	65.5	62.6
65 years and over	14.9	14.5	20.5
Ethnicity or Race (Percent)			
White	-	87	90.3
Black or African American	-	0.9	2.8
American Indian and Alaskan Native	-	0.1	0.2
Asian	-	0.8	0.9
Native Hawaiian and other Pacific Islander	-	<0.1	0.1
Some other race	-	9.8	4.4
Two or more races	-	1.4	1.3
Hispanic or Latino (any race)	-	23.9	16.1
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	7	7.6	2.0
Percent high school graduate or higher	88.5	84	94.0
Percent with a Bachelor's degree or higher	25.7	24.8	37.2
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	17.6	30.3	21.8
And Percent who speak English less than very well	8.2	15.6	10.1
Household income (Median \$)	31,849	42,329	69,917
Poverty Status (Percent of population with income below poverty line)	2.9	7.7	4.7
Percent female headed household	6.7	8.7	9.6
Home Ownership (Percent)			
Owner occupied	-	65.7	73.3
Renter occupied	-	34.3	26.7
Value Owner-occupied Housing (Median \$)	-	290,400	819,600
Monthly Contract Rent (Median \$)	804	863	1,165
Employment Status (Population 16 years and over)			
Percent in the labor force	70.1	61.5	66.4
Percent of civilian labor force unemployed	5	7.7	2.9
Occupation (Percent in workforce)			
Management, professional, and related occupations	23.5	20.3	37.9
Service occupations	-	23.3	22.8
Sales and office occupations	25.7	27.9	19.2
Farming, fishing, and forestry occupations	9	5.8	N/A
Construction, extraction, and maintenance occupations	-	19	15.5*
Production, transportation, and material moving occupations	-	3.6	4.6
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	8	6.1	3.5
Manufacturing	1.8	2.0	0.6
Government	8.4	11.8	10.6

*Insert text.

Source: U.S. Census, 1990, 2000, and 2011.

Table 6.3 Demographic Profile of Barnegat Light

Barnegat Light, NJ	1990	2000	2010
Total population	681	764	574
Sex			
Male	52.0%	50.9%	49.7%
Female	48.0%	49.1%	50.3%
Age			
Median age	50.9	54.9	60.3
<20	12.8%	15.4%	8.8%
20-44	29.8%	20.9%	15.3%
45-64	27.0%	29.4%	34.5%
>65	30.4%	34.3%	41.2%
Race			
White	99.6%	98.3%	97.7%
Black or African American	0.4%	0.5%	1.0%
American Indian & Alaska Native	0.0%	0.0%	0.0%
Asian	0.0%	0.6%	0.0%
Other	0.0%	0.4%	1.3%
Household			
Total	342	371	274
Family households	62.0%	62.0%	184
Nonfamily households	38.0%	38.0%	90
Average household size	1.99	2.05	2.06
Average family size	2.42	2.60	2.48
Housing Occupancy			
Total housing units	1,167	1,207	1,282
Vacant housing units	71.0%	69.3%	1,008
Housing Tenure			
Owner-occupied housing units	82.6%	87.9%	86.5%
Renter-occupied housing units	17.4%	12.1%	13.5%
Education			
High school graduates (25 years or older)	84.9%	92.1%	96.2%
Employment			
Labor force (16 years and over)	52.6%	46.9%	50.6%
Unemployment rate	0.5%	1.2%	0.9%
Median household income	\$37,955	\$52,361	\$63,750
Individuals below the poverty line*	7.2%	4.7%	8.5%
Industry			
Forestry, fishing, hunting, mining, and agriculture	12.6%	8.2%	14.8%
Construction	12.6%	10.3%	12.6%
Manufacturing	7.4%	4.8%	5.2%
Wholesale trade	1.3%	1.7%	3.5%
Retail trade	21.0%	9.2%	4.3%
Education, health & social services	7.4%	16.8%	7.0%

Barnegat Light, NJ	1990	2000	2010
Arts, recreation, lodging & food services	2.9%	11.0%	14.3%

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.4 Demographic Profile of Brielle, New Jersey

Brielle, NJ	1990	2000	2010
Total population	4,406	4,893	4,744
Sex			
Male	48.2%	47.4%	49.3%
Female	51.8%	52.6%	50.7%
Age			
Median age	42.7	42.9	44.9
<20	23.2%	25.2%	28.0%
20-44	28.6%	27.9%	22.3%
45-64	29.1%	29.1%	32.8%
>65	19.2%	17.8%	16.8%
Race			
White	93.8%	93.1%	94.6%
Black or African American	5.4%	3.5%	2.5%
American Indian & Alaska Native	0.8%	0.1%	0.1%
Asian	0.0%	0.7%	0.9%
Other	0.0%	2.7%	1.9%
Household			
Total	1,735	1,938	1,805
Family households	74.6%	73.0%	74.0%
Nonfamily households	25.4%	27.0%	26.0%
Average household size	2.54	2.52	2.64
Average family size	3.00	3.00	3.13
Housing Occupancy			
Total housing units	1,986	2,123	2,034
Vacant housing units	12.6%	8.7%	11.3%
Housing Tenure			
Owner-occupied housing units	82.3%	83.4%	87.8%
Renter-occupied housing units	17.7%	16.6%	12.2%
Education			
High school graduates (25 years or older)	91.3%	94.8%	94.7%
Employment			
Labor force (16 years and over)	58.6%	59.4%	59.4%
Unemployment rate	4.4%	2.1%	2.2%
Median household income	\$53,485	\$68,368	\$98,419
Individuals below the poverty line*	2.3%	3.9%	3.7%

Brielle, NJ	1990	2000	2010
Industry			
Forestry, fishing, hunting, mining, and agriculture	1.6%	0.7%	0.4%
Construction	5.9%	7.4%	4.9%
Manufacturing	11.7%	8.4%	7.7%
Wholesale trade	6.7%	2.5%	1.7%
Retail trade	21.4%	7.3%	6.3%
Education, health & social services	18.7%	23.1%	22.7%
Arts, recreation, lodging & food services	2.1%	7.8%	13.6%

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.5 Demographic Profile of Cape May, New Jersey

Cape May, NJ	1990	2000	2010
Total Population	4,668	4,034	3,607
Gender Ratio (Male/Female)	-	1,987 / 2,047	1,845 / 1,762
Age (Percent of total population)			
Under 18 years of age	-	16.3	12.8
18 to 64 years of age	-	55.2	59.6
65 years and over	25	28.5	27.6
Ethnicity or Race (Percent)			
White	-	91.3	89.0
Black or African American	-	5.3	4.9
American Indian and Alaskan Native	-	0.2	0.3
Asian	-	0.4	0.7
Native Hawaiian and other Pacific Islander	-	<0.1	0.1
Some other race	-	1.3	2.3
Two or more races	-	1.5	2.7
Hispanic or Latino (any race)	-	3.8	8.6
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	3.8	2.6	1.0
Percent high school graduate or higher	84.4	87.6	89.3
Percent with a Bachelor's degree or higher	25.2	30.8	35.2
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	4.7	8.9	7.0
And Percent who speak English less than very well	0.7	2.9	0.3
Household income (Median \$)	-	33,462	50,846
Poverty Status (Percent of population with income below poverty line)	-	9.1	4.8
Percent female headed household	-	7	7.5
Home Ownership (Percent)			
Owner occupied	-	56.8	54.3
Renter occupied	-	43.2	45.7
Value Owner-occupied Housing (Median \$)	-	212,900	700,000
Monthly Contract Rent (Median \$)	-	564	752
Employment Status (Population 16 years and over)			
Percent in the labor force	63.8	57.5	53.7
Percent of civilian labor force unemployed	2.7	3.8	2.7

Cape May, NJ	1990	2000	2010
Occupation (Percent in workforce)			
Management, professional, and related occupations	40.9	33.7	25.5
Service occupations	16.9	21	31.4
Sales and office occupations	26	33.3	25.0
Farming, fishing, and forestry occupations	2.1	0.9	-
Construction, extraction, and maintenance occupations	-	5.9	12.1*
Production, transportation, and material moving occupations	-	5.2	5.9
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	1.7	0.4	0.0
Manufacturing	5.5	2.4	0.9
Government	26.5	20.2	13.7

*Data from natural resources, construction, and maintenance occupations category from 2010 census.

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.6 Demographic Profile of Ocean City, Maryland

Ocean City, MD	1990	2000	2010
Total Population	5,074	7,173	7,102
Gender Ratio (Male/Female)	2,415 / 2,659	3,680 / 3,493	3,652 / 3,450
Age (Percent of total population)			
Under 18 years of age	-	21.3	9.1
18 to 64 years of age	-	63.5	61.3
65 years and over	-	25.2	29.6
Ethnicity or Race (Percent)			
White	4,852	95.3	92.2
Black or African American	143	2.5	2.7
American Indian and Alaskan Native	33	0.1	0.2
Asian	46	0.7	1.3
Native Hawaiian and other Pacific Islander		<0.1	0.0
Some other race	0	0.3	2.2
Two or more races	-	0.9	1.4
Hispanic or Latino (any race)	-	1.2	5.9
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	4.8	2.6	1.8
Percent high school graduate or higher	61	87.1	91.7
Percent with a Bachelor's degree or higher	13.4	28	32.8
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	4.1	7	12.6
And Percent who speak English less than very well	-	2.9	4.9
Household Income (Median \$)	33,350	35,772	49,000
Poverty Status (Percent of population with income below poverty line)	-	8.4	11.3
Percent female headed household	3.7	6.4	6.3
Home Ownership (Percent)			
Owner occupied	-	67.4	68.4
Renter occupied	-	32.6	31.6
Value Owner-occupied Housing (Median \$)	136,100	152,200	374,600
Monthly Contract Rent (Median \$)	517	640	728
Employment Status (Population 16 years and over)			
Percent in the labor force	-	60.4	50.1
Percent of civilian labor force unemployed	-	9.3	3.4

Ocean City, MD	1990	2000	2010
Occupation (Percent in workforce)			
Management, professional, and related occupations	-	31.6	31.7
Service occupations	18	24.1	20.3
Sales and office occupations	-	29.2	34.0
Farming, fishing, and forestry occupations	-	0.3	-
Construction, extraction, and maintenance occupations	-	9.5	9.2*
Production, transportation, and material moving occupations	-	5.2	4.7
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	-	0.5	0.0
Manufacturing	-	2.4	1.5
Government	-	11.3	15.7

*Data from natural resources, construction, and maintenance occupations category from 2010 census

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.7 Demographic Profile of Atlantic Beach, North Carolina

Atlantic Beach, NC	1990	2000	2010
Total Population	1,938	1,781	1,495
Gender Ratio (Male/Female)	-	941 / 840	800 / 695
Age (Percent of total population)			
Under 18 years of age	-	9.8	10.2
18 to 64 years of age	-	72	70.1
65 years and over	12.5	18.2	19.7
Ethnicity or Race (Percent)			
White	-	98	94.4
Black or African American	-	0.6	0.7
American Indian and Alaskan Native	-	0.2	0.5
Asian	-	0.7	0.9
Native Hawaiian and other Pacific Islander	-	<0.1	0.1
Some other race	-	<0.1	1.1
Two or more races	-	0.4	2.1
Hispanic or Latino (any race)	-	0.7	1.5
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	3	2.8	1.1
Percent high school graduate or higher	85.1	90	96.9
Percent with a Bachelor's degree or higher	24.1	30.7	40.0
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	2.6	3.9	6.5
And Percent who speak English less than very well	1	1	0.0
Household income (Median \$)	-	38,312	48,112
Poverty Status (Percent of population with income below poverty line)	-	7.3	16.3
Percent female headed household	-	5	6.4
Home Ownership (Percent)			
Owner occupied	-	64.7	51.2
Renter occupied	-	35.3	48.8
Value Owner-occupied Housing (Median \$)	-	207,800	408,100
Monthly Contract Rent (Median \$)	-	582	704
Employment Status (Population 16 years and over)			
Percent in the labor force	69.8	63.3	60.2
Percent of civilian labor force unemployed	2.9	3.2	6.3

Atlantic Beach, NC	1990	2000	2010
Occupation (Percent in workforce)			
Management, professional, and related occupations	27	36.6	30.9
Service occupations	11.1	8.8	25.1
Sales and office occupations	23.7	35.4	30.7
Farming, fishing, and forestry occupations	2.6	0.5	-
Construction, extraction, and maintenance occupations	-	14.8	7.3*
Production, transportation, and material moving occupations	-	3.8	6.1
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	2.7	0.7	0.0
Manufacturing	7.6	2.2	3.8
Government	17.6	17.6	12.8

*Data from natural resources, construction, and maintenance occupations category from 2010 census.

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.8 Demographic Profile of Beaufort, North Carolina

Beaufort, NC	1990	2000	2010
Total Population	3,808	3,771	4,039
Gender Ratio (Male/Female)	-	1,755 / 2,016	1,916 / 2,123
Age (Percent of total population)			
Under 18 years of age	-	18.3	16.1
18 to 64 years of age	-	61.9	63.2
65 years and over	19.1	19.8	20.7
Ethnicity or Race (Percent)			
White	-	75.9	79.0
Black or African American	-	20	17.0
American Indian and Alaskan Native	-	0.1	0.2
Asian	-	0.4	0.7
Native Hawaiian and other Pacific Islander	-	0.1	0.0
Some other race	-	2.4	0.6
Two or more races	-	1.2	2.4
Hispanic or Latino (any race)	-	3.8	2.6
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	45	6.2	2.6
Percent high school graduate or higher	85.1	78.9	87.1
Percent with a Bachelor's degree or higher	24.1	21.7	30.8
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	2.6	7	4.6
And Percent who speak English less than very well	1.1	2.7	2.3
Household income (Median \$)	21,532	28,763	31,623
Poverty Status (Percent of population with income below poverty line)	17.4	16.6	16.5
Percent female headed household	23.8	15.3	14.2
Home Ownership (Percent)			
Owner occupied	-	56.1	47.8
Renter occupied	-	43.9	52.2
Value Owner-occupied Housing (Median \$)	-	119,200	234,300
Monthly Contract Rent (Median \$)	373	502	452
Employment Status (Population 16 years and over)			
Percent in the labor force	60	56.3	62.8

Beaufort, NC	1990	2000	2010
Percent of civilian labor force unemployed	8.1	4.7	3.3
Occupation (Percent in workforce)			
Management, professional, and related occupations	22	26.9	33.5
Service occupations	14.1	18.6	29.6
Sales and office occupations	15.8	28.7	20.9
Farming, fishing, and forestry occupations	0.9	1.2	-
Construction, extraction, and maintenance occupations	-	14.9	8.7
Production, transportation, and material moving occupations	-	9.7	7.3
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	3	2.4	1.7
Manufacturing	10.9	7.6	7.9
Government	25.3	13.5	26.0

*Data from natural resources, construction, and maintenance occupations category from 2010 census.

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.9 Demographic Profile of Hatteras, North Carolina

Hatteras, NC	1990	2000	2010
Total population	2,675	2,596	2,921
Sex			
Male	51.6%	49.2%	50.8%
Female	48.4%	50.8%	49.2%
Age			
Median age	35.1	42.1	44
<20	23.9%	20.4%	21.77%
20-44	39.6%	33.7%	29.8%
45-64	25.4%	39.6%	33.8%
>65	11.1%	17.2%	14.7%
Race			
White	98.8%	97.1%	96.6%
Black or African American	0.4%	0.0%	0.3%
American Indian & Alaska Native	0.8%	0.0%	0.1%
Asian	0.3%	0.0%	0.0%
Other	0.9%	2.3%	3.0%
Household			
Total	1,078	1,171	1,259
Family households	69.7%	78.1%	65.0%
Nonfamily households	30.3%	21.4%	35.0%
Average household size	2.46	2.2	2.32
Average family size	2.97	2.73	2.78
Housing Occupancy			
Total housing units	1,919	2,156	2,824
Vacant housing units	43.4%	45.7%	55.4%
Housing Tenure			
Owner-occupied housing units	72.3%	79.1%	70.3%

Renter-occupied housing units	27.7%	20.9%	29.7%
Education			
High school graduates (25 years or older)	74.4%	68.1%	100%
Employment			
Labor force (16 years and over)	67.3%	83.1%	78.0%
Unemployment Rate	2.8%	4.6%	0.0%
Median Household Income	\$24,667	\$39,881	\$42,593
Individuals below the poverty line*	6.4%	4.7%	2.5%
Industry			
Forestry, fishing, hunting, mining, and agriculture	6.4%	10.4%	14.4%
Construction	16.2%	15.5%	8.5%
Manufacturing	3.4%	2.4%	0.0%
Wholesale trade	2.7%	4.0%	16.9%
Retail trade	26.1%	14.9%	0.0%
Education, health & social services	11.3%	14.0%	5.0%
Arts, recreation, lodging & food services	1.2%	13.4%	31.3%

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.10 Demographic Profile of Morehead City, North Carolina

Morehead City, NC	1990	2000	2010
Total Population	6,046	7,691	8,661
Gender Ratio (Male/Female)	-	3,507 / 4,184	4,029 / 4,632
Age (Percent of total population)			
Under 18 years of age	-	20.2	19.4
18 to 64 years of age	-	59	61.3
65 years and over	16.7	20.8	19.3
Ethnicity or Race (Percent)			
White	-	81.7	82.0
Black or African American	-	14	10.7
American Indian and Alaskan Native	-	0.7	0.5
Asian	-	0.8	1.6
Native Hawaiian and other Pacific Islander	-	<0.1	0.2
Some other race	-	1.1	2.4
Two or more races	-	1.7	2.5
Hispanic or Latino (any race)	-	2.3	6.9
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	11.9	8.1	4.5
Percent high school graduate or higher	70.6	80.1	91.9
Percent with a Bachelor's degree or higher	13.2	20.8	26.2
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	3.9	4.7	-
And Percent who speak English less than very well	1.4	1.4	-
Household Income (Median \$)	20,041	28,737	37,720
Poverty Status (Percent of population with income below poverty line)	19.1	14.6	16.8
Percent female headed household	25.4	13.7	13.1
Home Ownership (Percent)			

Morehead City, NC	1990	2000	2010
Owner occupied	-	55.5	50.2
Renter occupied	-	44.5	49.8
Value Owner-occupied Housing (Median \$)	-	106,400	117,100
Monthly Contract Rent (Median \$)	376	507	531
Employment Status (Population 16 years and over)			
Percent in the labor force	59.4	60.2	63.9
Percent of civilian labor force unemployed	3.6	4.6	6.1
Occupation (Percent in workforce)			
Management, professional, and related occupations	21.3	33.1	35.7
Service occupations	17.4	19.7	18.3
Sales and office occupations	27.1	21	22.0
Farming, fishing, and forestry occupations	3.4	1.1	-
Construction, extraction, and maintenance occupations	-	14.4	11.8
Production, transportation, and material moving occupations	-	10.7	12.3
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	3	1.1	0.0
Manufacturing	8.9	7.4	4.7
Government	15.7	18.1	23.2

*Data from natural resources, construction, and maintenance occupations category from 2010 census.

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.11 Demographic Profile of Wanchese, North Carolina

Wanchese, NC	1990	2000	2010
Total Population	1,374	1,527	1,642
Sex			
Male	51.2%	50.7%	48.8%
Female	48.8%	49.3%	51.2%
Age			
Median Age	27.7	37.2	40.9
<20	36.8%	25.9%	24.2%
20-44	35.7%	37.9%	31.0%
45-64	20.2%	24.1%	30.0%
>65	7.2%	12.0%	14.6%
Race			
White	98.5%	98.1%	95.9%
Black or African American	0.0%	0.3%	0.2%
American Indian & Alaska Native	1.5%	0.6%	0.2%
Asian	0.0%	0.1%	0.2%
Other	0.0%	0.5%	3.5%
Household			
Total	503	614	680
Family households	76.1%	70.5%	69.1%
Nonfamily households	23.9%	29.5%	30.9%
Average household size	2.73	2.49	2.41
Average family size	3.25	2.96	2.88

Wanchese, NC	1990	2000	2010
Housing Occupancy			
Total housing units	574	614	680
Vacant housing units	10.8%	11.0%	13.8%
Housing Tenure			
Owner-occupied housing units	72.0%	89.0%	69.7%
Renter-occupied housing units	27.9%	11.0%	30.3%
Education			
High school graduates (25 years or older)	74.4%	68.1%	84.1%
Employment			
Labor force (16 years and over)	67.3%	83.1%	67.6%
Unemployment Rate	2.8%	4.6%	0.0%
Median Household Income	\$24,667	\$39,881	\$47,405
Individuals below the poverty line*	6.4%	4.7%	8.2%
Industry			
Forestry, fishing, hunting, mining, and agriculture	6.4%	10.4%	7.4%
Construction	16.2%	15.5%	5.8%
Manufacturing	3.4%	2.4%	2.8%
Wholesale trade	2.7%	4.0%	6.5%
Retail trade	26.1%	14.9%	8.4%
Education, health & social services	11.3%	14.0%	12.3%
Arts, recreation, lodging & food services	1.2%	13.4%	13.9%

Source: U.S. Census 1990, 2000, and 2010.

Table 6.12 Demographic Profile of Apalachicola, Florida

Apalachicola, FL	1990	2000	2010
Total Population	2,707	2,334	2,231
Gender Ratio (Male/Female)	-	1,107 / 1,227	1,057 / 1,174
Age (Percent of total population)			
Under 18 years of age	-	21.9	21.1
18 to 64 years of age	-	57.6	59.9
65 years and over	16.3	20.5	19.0
Ethnicity or Race (Percent)			
White	-	63.4	66.9
Black or African American	-	34.9	26.4
American Indian and Alaskan Native	-	0.2	0.6
Asian	-	0.4	0.3
Native Hawaiian and other Pacific Islander	-	<0.1	0.3
Some other race	-	0.5	3.0
Two or more races	-	0.6	2.4
Hispanic or Latino (any race)	-	1.7	6.6
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	21.9	9.1	6.3
Percent high school graduate or higher	52.9	69.2	76.5
Percent with a Bachelor's degree or higher	12	15.3	17.5

Apalachicola, FL	1990	2000	2010
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	2.3	2.6	5.2
And Percent who speak English less than very well	1.2	1	0.0
Household income (Median \$)	12,813	23,073	24,732
Poverty Status (Percent of population with income below poverty line)	34.6	25.3	34.9
Percent female headed household	23.3	15	14.6
Home Ownership (Percent)			
Owner occupied	-	69	62.0
Renter occupied	-	31	38.0
Value Owner-occupied Housing (Median \$)	-	83,800	158,400
Monthly Contract Rent (Median \$)	285	393	466
Employment Status (Population 16 years and over)			
Percent in the labor force	48.7	50.5	67.1
Percent of civilian labor force unemployed	3.8	3.6	6.2
Occupation (Percent in workforce)			
Management, professional, and related occupations	16.8	25.4	20.5
Service occupations	21.6	27.5	35.5
Sales and office occupations	24.7	21.2	21.7
Farming, fishing, and forestry occupations	4.6	5.9	-
Construction, extraction, and maintenance occupations	-	5.6	20.3*
Production, transportation, and material moving occupations	-	14.4	2.0
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting, and mining	5.4	4	4.4
Manufacturing	5	2.9	4.9
Government	22.5	20.3	24.7

*Data from natural resources, construction, and maintenance occupations category from 2010 census.

Source: U.S. Census 1990, 2000, and 2010.

Table 6.13 Demographic Profile of Destin, Florida

Destin, FL	1990	2000	2010
Total Population	8,080	11,119	12,305
Gender Ratio (Male/Female)	-	5,610 / 5,509	6,241 / 6,064
Age (Percent of total population)			
Under 18 years of age	-	19.4	18.6
18 to 64 years of age	-	63.6	66.1
65 years and over	13.2	17	15.3
Ethnicity or Race (Percent)			
White	-	96.2	90.1
Black or African American	-	0.4	1.5
American Indian and Alaskan Native	-	0.4	0.3
Asian	-	0.1	2.1
Native Hawaiian and other Pacific Islander	-	0.1	0.1
Some other race	-	0.4	3.0
Two or more races	-	1.5	3.0
Hispanic or Latino (any race)	-	2.7	6.5
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	1.6	2.3	2.1
Percent high school graduate or higher	88.1	91.9	92.4

Destin, FL	1990	2000	2010
Percent with a Bachelor's degree or higher	24.9	31.4	34.6
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	4.3	6.8	13.5
And Percent who speak English less than very well	0.9	2.4	7.7
Household income (Median \$)	32,712	53,042	65,650
Poverty Status (Percent of population with income below poverty line)	7	5.5	6.5
Percent female headed household	10.9	8	8.3
Home Ownership (Percent)			
Owner occupied	-	75.3	64.5
Renter occupied	-	24.7	35.5
Value Owner-occupied Housing (Median \$)	-	153,800	317,100
Monthly Contract Rent (Median \$)	506	774	1,057
Employment Status (Population 16 years and over)			
Percent in the labor force	66.6	60	67.7
Percent of civilian labor force unemployed	1.8	3.8	2.2
Occupation (Percent in workforce)			
Management, professional, and related occupations	28.6	36.3	35.6
Service occupations	-	14.6	18.7
Sales and office occupations	28.3	28.4	27.1
Farming, fishing, and forestry occupations	4.7	2	-
Construction, extraction, and maintenance occupations	-	10.7	14.2*
Production, transportation, and material moving occupations	-	8.1	4.4
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting, and mining	4.3	1.2	0.5
Manufacturing	5.5	4.2	1.5
Government	11.5	9.1	8.8

*Data from natural resources, construction, and maintenance occupations category from 2010 census.

Source: U.S. Census 1990, 2000, and 2010.

Table 6.14 Demographic Profile of Madeira Beach, Florida

Maderia Beach, FL	1990	2000	2010
Total Population	4,225	4,500	4,263
Sex			
Male	50.9%	52.0%	51.1%
Female	49.1%	48.0%	48.9%
Age			
Median Age	34.2	47.6	52.7
<20	11.2%	9.5%	14.2%
20-44	35.3%	32.5%	20.2%
45-64	28.0%	36.0%	41.3%
>65	25.6%	21.9%	24.2%
Race			
White	99.8%	97.4%	95.4%
Black or African American	0.0%	0.0%	0.9%
American Indian & Alaska Native	0.0%	0.8%	0.6%
Asian	0.2%	0.0%	0.1%

Maderia Beach, FL	1990	2000	2010
Other	0.0%	1.8%	3.0%
Household			
Total	2,230	2,523	2,302
Family households	50.5%	59.8%	46.7%
Nonfamily households	49.5%	40.2%	53.3%
Average household size	1.89	1.78	1.85
Average family size	2.49	2.39	2.45
Housing Occupancy			
Total housing units	3,788	3,971	4,044
Vacant housing units	41.1%	36.5%	43.1%
Housing Tenure			
Owner-occupied housing units	-	-	59.4%
Renter-occupied housing units	-	-	40.6%
Education			
High school graduates (25 years or older)	83.8%	87.3%	86.5%
Employment			
Labor force (16 years and over)	56.9%	61.5%	61.1%
Unemployment Rate	1.6%	2.7%	6.1%
Median Household Income	\$24,748	\$36,671	\$50,800
Individuals below the poverty line*	8.4%	9.8%	6.0%
Industry			
Forestry, fishing, hunting, mining, and agriculture	1.4%	0.0%	0.0%
Construction	8.8%	7.0%	8.4%
Manufacturing	7.5%	11.3%	7.3%
Wholesale trade	4.5%	4.1%	1.9%
Retail trade	30.7%	11.4%	10.9%
Education, health, & social services	11.4%	7.9%	21.3%
Arts, recreation, lodging & food services	2.5%	21.6%	13.2%

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Source: U.S. Census 1990, 2000, and 2010.

Table 6.15 Demographic Profile of Panama City, Florida

Panama City, FL	1990	2000	2010
Total Population	34,378	36,417	38,484
Sex			
Male	46.7%	48.6%	49.1%
Female	53.3%	51.4%	50.9%
Age			
Median Age	33.9	37.2	39.7
<20	28.6%	25.6%	23.3%
20-44	34.9%	36.8%	33.5%

Panama City, FL	1990	2000	2010
45-64	19.6%	21.7%	26.9%
>65	16.9%	16.0%	16.3%
Race			
White	76.1%	73.6%	71.6%
Black or African American	21.0%	21.5%	22.0%
American Indian & Alaska Native	0.7%	0.6%	0.5%
Asian	1.6%	1.6%	1.6%
Other	0.6%	0.8%	4.3%
Household			
Total	14,033	14,819	14,792
Family households	69.2%	61.0%	58.2%
Nonfamily households	30.8%	39.0%	41.8%
Average household size	2.37	2.30	2.28
Average family size	2.90	2.92	2.91
Housing Occupancy			
Total housing units	15,928	16,548	17,438
Vacant housing units	11.8%	10.4%	15.2%
Housing Tenure			
Owner-occupied housing units	58.3%	57.8%	53.3%
Renter-occupied housing units	41.7%	42.2%	46.7%
Education			
High school graduates (25 years or older)	70.3%	79.2%	84.5%
Employment			
Labor force (16 years and over)	54.0%	53.9%	59.6%
Unemployment Rate	4.6%	3.1%	6.6%
Median Household Income	\$21,881	\$31,572	\$38,066
Individuals below the poverty line*	19.6%	17.2%	20.2%
Industry			
Forestry, fishing, hunting, mining, and agriculture	1.6%	0.5%	0.9%
Construction	7.0%	6.7%	10.9%
Manufacturing	7.7%	7.0%	6.3%
Wholesale trade	3.3%	0.1%	1.7%
Retail trade	21.4%	13.8%	13.3%
Education, health & social services	19.4%	22.2%	18.7%
Arts, recreation, lodging & food services	1.5%	14.2%	13.7%

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Source: U.S. Census 1990, 2000, and 2010.

Table 6.16 Demographic Profile of Islamorada, Florida

Islamorada, FL	1990	2000	2010
Total Population	1,293	6,846	6,119
Sex			
Male	54.2%	53.0%	51.8%
Female	45.8%	47.0%	48.2%
Age			
Median Age	42.3	46.2	52.0
<20	13.3%	17.0%	15.5%
20-44	40.8%	30.6%	21.1%
45-64	26.7%	35.6%	41.5%
>65	19.2%	16.9%	22.0%
Race			
White	95.3%	96.8%	96.5%
Black or African American	0.9%	0.5%	0.7%
American Indian & Alaska Native	0.0%	0.2%	0.4%
Asian	0.0%	0.7%	0.6%
Other	3.9%	0.8%	1.8%
Household			
Total	672	3,174	2,882
Family households	51.6%	58.4%	58.0%
Nonfamily households	48.4%	41.6%	42.0%
Average household size	1.92	2.10	2.07
Average family size	2.54	2.63	2.57
Housing Occupancy			
Total housing units	966	5,461	5,692
Vacant housing units	32.4%	41.9%	49.4%
Housing Tenure			
Owner-occupied housing units	65.9%	71.1%	67.7%
Renter-occupied housing units	34.1%	28.9%	32.3%
Education			
High school graduates (25 years or older)	77.8%	91.7%	95.5%
Employment			
Labor force (16 years and over)	73.2%	62.9%	60.9%
Unemployment Rate	0.9%	2.3%	8.0%
Median Household Income	\$26,266	\$41,522	\$62,130
Individuals below the poverty line*	9.1%	6.9%	13.4%
Industry			
Forestry, fishing, hunting, mining, and agriculture	6.8%	3.7%	2.8%
Construction	3.8%	6.6%	9.5%
Manufacturing	4.6%	1.9%	4.7%
Wholesale trade	2.9%	1.2%	1.8%
Retail trade	39.4%	20.2%	6.4%

Islamorada, FL	1990	2000	2010
Education, health & social services	6.1%	12.7%	7.0%
Arts, recreation, lodging & food services	3.2%	21.1%	20.0%

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Source: U.S. Census, 1990, 2000, 2010.

Table 6.17 Demographic Profile of Port Salerno, Florida

Port Salerno, FL	1990	2000	2010
Total Population	7,786	10,104	10,091
Gender Ratio (Male/Female)	3,748 / 4,038	4,928 / 5,176	4,959 / 5,132
Age (Percent of total population)			
Under 18 years of age	19.2	19.9	18.2
18 to 64 years of age	56.8	55.4	57.1
65 years and over	23.9	24.7	24.7
Ethnicity or Race (Percent)			
White	88.0	88.8	82.2
Black or African American	6.9	7.0	9.1
American Indian and Alaskan Native	0.2	0.1	0.6
Asian	0.4	0.7	0.7
Native Hawaiian and other Pacific Islander	-	0.1	0.1
Some other race	0.1	2.3	5.2
Two or more races	-	1.3	2.1
Hispanic or Latino (any race)	4.4	8.2	14.7
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	6.3	3.2	6.0
Percent high school graduate or higher	81.2	85.4	86.3
Percent with a Bachelor's degree or higher	17.9	21.5	23.1
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	10	9.5	13.4
And Percent who speak English less than very well	3.2	4.5	9.3
Household Income (Median \$)	31,687	39,839	47,771
Poverty Status (Percent of population with income below poverty line)	6.9	9.6	11.5
Percent Female-Headed Household	7.7	9.3	10.2
Home Ownership (Number)			
Owner occupied	-	3262	3,218
Renter occupied	-	1204	1,237
Value Owner-occupied Housing (Median \$)	-	116,900	213,700
Monthly Contract Rent (Median \$)	-	559	878
Employment Status (Population 16 years and over)			
Percent in the labor force	57.1	54.3	64.3
Percent of civilian labor force unemployed	5.5	2.8	4.9
Occupation (Percent in workforce)			
Management, professional, and related occupations	-	28.5	31.7
Service occupations	-	19.3	25.1
Sales and office occupations	-	27.6	18.5
Farming, fishing, and forestry occupations	3.6	0.8	-
Construction, extraction, and maintenance occupations	-	13.9	14.1*
Production, transportation, and material moving occupations	-	10	10.7

Port Salerno, FL	1990	2000	2010
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	3.1	0.9	1.6
Manufacturing	12.0	8.8	6.1
Government	9.8	10.4	12.9

*Data from natural resources, construction, and maintenance occupations category from 2010 census

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.18 Demographic Profile of Orange Beach, Alabama

Orange Beach, AL	1990	2000	2010
Total Population	2,253	3,784	5,441
Gender Ratio (Male/Female)	1,153 / 1,100	1,967 / 1,817	2,704 / 2,737
Age (Percent of total population)			
Under 18 years of age	15	16.6	18.7
18 to 64 years of age	63.4	65.2	62.1
65 years and over	21.6	18.2	19.2
Ethnicity or Race (Number)			
White	99.2	94.8	94.3
Black or African American	0.1	0.4	0.6
American Indian and Alaskan Native	0.5	0.7	0.7
Asian	0.1	0.2	0.8
Native Hawaiian and other Pacific Islander	0.0	0.0	0.0
Some other race	0.1	2.0	1.4
Two or more races	0.0	1.9	2.2
Hispanic or Latino (any race)	0.6	2.8	2.6
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	3.1	2.1	1.6
Percent high school graduate or higher	84.3	88.4	97.3
Percent with a Bachelor's degree or higher	21.2	24.7	43.2
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	4.3	6.3	9.1
And Percent who speak English less than very well	1.1	4.3	3.9
Household Income (Median \$)	30,445	40,542	66,656
Poverty Status (Percent of population with income below poverty line)	8.6	10.6	3.0
Percent Female-Headed Household	5.9	7.8	7.5
Home Ownership (Percent)			
Owner occupied	798	1,305	65.9
Renter occupied	228	474	34.1
Value Owner-occupied Housing (Median \$)	94,700	204,500	424,000
Monthly Contract Rent (Median \$)	374	577	941
Employment Status (Population 16 years and over)			
Percent in the labor force	56.7	62.7	57.0
Percent of civilian labor force unemployed	3.9	3.1	4.3
Occupation (Percent in workforce)			
Management, professional, and related occupations	-	25.9	39.5
Service occupations	-	18.4	20.4
Sales and office occupations	-	27.6	22.1
Farming, fishing, and forestry occupations	3.7	1.2	-
Construction, extraction, and maintenance occupations	-	20.4	12.6

Orange Beach, AL	1990	2000	2010
Production, transportation, and material moving occupations	-	6.5	5.4
Industry (Percent in workforce)			
Agriculture, forestry, fishing and hunting	2.7	0.6	3.8
Manufacturing	8.6	3.8	1.4
Government	10.3	9.4	9.8

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.19 Demographic Profile of Venice, Louisiana

Venice, LA	1990	2000	2010
Total Population	2,669	2,220	202
Sex			
Male	51.4%	51.0%	51.5%
Female	48.6%	49.0%	48.5%
Age			
Median Age	26.3	31.7	38.3
<20	42.0%	35.2%	28.6%
20-44	35.1%	35.2%	27.6%
45-64	18.3%	22.0%	28.8%
>65	4.6%	7.6%	15.0%
Race			
White	63.9%	61.9%	84.7%
Black or African American	31.3%	28.7%	5.9%
American Indian & Alaska Native	3.3%	3.4%	2.0%
Asian	1.4%	4.0%	1.0%
Other	0.0%	0.3%	6.4%
Household			
Total	836	746	71
Family households	84.7%	78.3%	62.0%
Nonfamily households	15.3%	21.7%	38.0%
Average household size	3.23	2.96	2.70
Average family size	3.58	3.38	3.52
Housing Occupancy			
Total housing units	960	933	119
Vacant housing units	14.0%	20.0%	40.3%
Housing Tenure			
Owner-occupied housing units	87.5%	87.1%	84.5%
Renter-occupied housing units	12.5%	12.9%	15.5%
Education			
High school graduates (25 years or older)	43.5%	53.0%	60.0%
Employment			
Labor force (16 years and over)	48.1%	53.0%	70.5
Unemployment Rate	3.3%	2.0%	0.0%
Median Household Income	\$16,250	\$33,813	\$16,840

Venice, LA	1990	2000	2010
Individuals below the poverty line*	36.2%	17.3%	-
Industry			
Forestry, fishing, hunting, mining, and agriculture	22.5%	22.7%	67.2%
Construction	10.8%	8.1%	0.0%
Manufacturing	7.1%	4.8%	0.0%
Wholesale trade	9.4%	0.0%	0.0%
Retail trade	16.0%	13.1%	0.0%
Education, health & social services	5.6%	14.4%	11.9%
Arts, recreation, lodging & food services	0.0%	10.4%	0.0%

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.20 Demographic Profile of Dulac, Louisiana

Dulac, LA	1990	2000	2010
Total Population	3,273	2,458	1,463
Sex			
Male	49.3%	50.0%	50.9%
Female	50.7%	50.0%	49.1%
Age			
Median Age	25.5	31.8	35.8
<20	41.8%	35.2%	30.1%
20-44	35.2%	32.2%	30.1%
45-64	17.0%	22.8%	27.0%
>65	6.0%	9.8%	12.8%
Race			
White	49.4%	54.0%	48.5%
Black or African American	2.3%	2.5%	1.9%
American Indian & Alaska Native	48.1%	39.4%	42.2%
Asian	0.0%	0.5%	0.8%
Other	0.3%	0.5%	6.6%
Household			
Total	922	768	490
Family households	85.8%	79.3%	73.7%
Nonfamily households	14.2%	20.7%	26.3%
Average household size	3.55	3.20	2.99
Average family size	3.93	3.55	3.48
Housing Occupancy			
Total housing units	1,182	1,063	646
Vacant housing units	33.0%	27.8%	24.1%
Housing Tenure			
Owner-occupied housing units	80.1%	79.3%	82.9%
Renter-occupied housing units	19.9%	20.7%	17.1%

Education			
High school graduates (25 years or older)	27.1%	39.1%	85.6%
Employment			
Labor force (16 years and over)	37.8%	44.9%	64.4%
Unemployment Rate	8.0%	3.0%	10.8%
Median Household Income	\$12,653	\$22,900	\$21,534
Individuals below the poverty line*	49.3%	30.9%	37.4%
Industry			
Forestry, fishing, hunting, mining, and agriculture	23.6%	25.9%	6.5%
Construction	3.7%	3.1%	3.7%
Manufacturing	14.0%	10.0%	17.5%
Wholesale trade	8.5%	5.7%	2.3%
Retail trade	17.7%	10.3%	22.6%
Education, health & social services	9.7%	8.5%	9.0%
Arts, recreation, lodging & food services	0.0%	10.7%	12.9%

*U.S. Census uses data from 1989 and 1999 to estimate these values.

Source: U.S. Census, 1990, 2000, 2010.

Table 6.21 Demographic Profile of Grand Isle, Louisiana

Grand Isle, LA	1990	2000	2010
Total Population	1,455	1,541	1,296
Gender Ratio (Male/Female)	738 / 717	788 / 753	693 / 603
Age (Percent of total population)			
Under 18 years of age	28.4	23.7	17.3
18 to 64 years of age	49.4	63.1	65.7
65 years and over	7.8	13.2	17.0
Ethnicity or Race (Percent)			
White	99.5	96	93.7
Black or African American	0.1	0.2	0.8
American Indian and Alaskan Native	0.4	2.3	2.2
Asian	0.0	0.2	0.2
Native Hawaiian and other Pacific Islander	-	<0.1	0.0
Some other race	0.0	0.4	1.1
Two or more races	-	0.9	2.1
Hispanic or Latino (any race)	0.8	1.5	3.9
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	23.9	17	19.3
Percent high school graduate or higher	57	68.3	72.1
Percent with a Bachelor's degree or higher	5.6	13.3	7.5
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	28.2	18.4	20.7
And Percent who speak English less than very well	10.9	3.2	3.1
Household Income (Median \$)	19,454	33,548	37,326
Poverty Status (Percent of population with income below poverty line)	25.8	13.2	13.6
Percent female headed household	9.7	8.4	6.5
Home Ownership (Percent)			

Grand Isle, LA	1990	2000	2010
Owner occupied	74	80.1	56.0
Renter occupied	26	19.9	44.0
Value Owner-occupied Housing (Median \$)	42,100	69,500	168,900
Monthly Contract Rent (Median \$)	249	409	937
Employment Status (Population 16 years and over)			
Percent in the labor force	55.1	57.8	51.2
Percent of civilian labor force unemployed	3.9	4.7	9.5
Occupation (Percent in workforce)			
Management, professional, and related occupations	-	22	24.5
Service occupations	-	16.9	20.1
Sales and office occupations	-	22.5	27.3
Farming, fishing, and forestry occupations	5.4	8.8	-
Construction, extraction, and maintenance occupations	-	13.9	28.1
Production, transportation, and material moving occupations	-	15.9	0.0
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	13.9	15.3	16.9
Manufacturing	17.6	8.9	1.6
Government	13.8	14.2	29.7

Source: U.S. Census, 1990, 2000, 2010.

Table 6.22 Demographic Profile of Freeport, Texas

Freeport, TX	1990	2000	2010
Total Population	11,389	12,708	12,049
Gender Ratio (Male/Female)	5,692 / 5,697	6,353 / 6,355	6,034 / 6,015
Age (Percent of total population)			
Under 18 years of age	34.2	35.7	34.1
18 to 64 years of age	56.7	56.2	57.8
65 years and over	9.1	8.1	8.1
Ethnicity or Race (Percent)			
White	62.2	61.6	65.0
Black or African American	15.3	13.4	12.2
American Indian and Alaskan Native	0.4	0.6	0.8
Asian	0.3	0.4	0.5
Native Hawaiian and other Pacific Islander	0.0	<0.1	0.0
Some other race	21.9	20.9	17.1
Two or more races	0.0	3.2	4.4
Hispanic or Latino (any race)	38.6	52	59.9
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	21.3	22.6	20.0
Percent high school graduate or higher	58.1	55.1	67.3
Percent with a Bachelor's degree or higher	6.4	5.4	6.5
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	31.9	45.3	51.1
And Percent who speak English less than very well	13.7	23.5	22.8
Household income (Median \$)	21,483	30,245	40,697
Poverty Status (Percent of population with income below poverty line)	24.1	22.3	19.4
Percent female headed household	13.4	16.8	20.1
Home Ownership (Percent)			
Owner occupied	57	57	56.0

Freeport, TX	1990	2000	2010
Renter occupied	43	43	44.0
Value Owner-occupied Housing (Median \$)	35,800	35,700	-
Monthly Contract Rent (Median \$)	259	439	465
Employment Status (Population 16 years and over)			
Percent in the labor force	63.6	54.3	62.6
Percent of civilian labor force unemployed	9.5	13.7	6.6
Occupation (Percent in workforce)			
Management, professional, and related occupations	-	16.4	16.3
Service occupations	-	16.8	22.1
Sales and office occupations	-	24	19.7
Farming, fishing, and forestry occupations	2.3	0.1	-
Construction, extraction, and maintenance occupations	-	20.5	24.7
Production, transportation, and material moving occupations	-	22.2	17.2
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	3.8	0.4	2.1
Manufacturing	24.9	17.7	12.8
Government	10.1	10.5	7.6

Source: U.S. Census, 1990, 2000, and 2010.

Table 6.23 Demographic Profile of Port Aransas, Texas

Port Aransas, TX	1990	2000	2010
Total Population	2,233	3,370	3,480
Gender Ratio (Male/Female)	1,146 / 1,087	1,753 / 1,617	1,779 / 1,701
Age (Percent of total population)			
Under 18 years of age	21.6	18.9	16.4
18 to 64 years of age	64.5	65.4	64.5
65 years and over	13.9	15.7	19.1
Ethnicity or Race (Percent)			
White	96.1	93.9	94.2
Black or African American	0.2	0.4	0.3
American Indian and Alaskan Native	0.4	1.2	0.9
Asian	1.3	0.9	1.3
Native Hawaiian and other Pacific Islander	-	<0.1	0.1
Some other race	1.9	2.2	1.2
Two or more races	-	1.4	2.0
Hispanic or Latino (any race)	6.2	6.1	7.7
Educational Attainment (Population 25 and over)			
Percent with less than 9th grade	3.7	2.5	1.1
Percent high school graduate or higher	81.2	87.4	90.7
Percent with a Bachelor's degree or higher	23.9	27.9	33.8
Language Spoken at Home (Population 5 years and over)			
Percent who speak a language other than English at home	8.3	9	12.0
And Percent who speak English less than very well	3.1	2.2	30.8
Household income (Median \$)	23,396	39,432	39,294
Poverty Status (Percent of population with income below poverty line)	15.8	11.3	16.1
Percent Female-Headed Household	8.1	7.3	7.5
Home Ownership (Percent)			
Owner occupied	59	69.3	66.4
Renter occupied	41	30.7	33.6

Port Aransas, TX	1990	2000	2010
Value Owner-occupied Housing (Median \$)	67,100	110,500	-
Monthly Contract Rent (Median \$)	317	571	-
Employment Status (Population 16 years and over)			
Percent in the labor force	65.6	61.5	54.6
Percent of civilian labor force unemployed	4.6	4.1	1.9
Occupation (Percent in workforce)			
Management, professional, and related occupations	-	36.4	28.7
Service occupations	-	21	30.9
Sales and office occupations	-	20.3	23.0
Farming, fishing, and forestry occupations	6.3	2.8	-
Construction, extraction, and maintenance occupations	-	11.8	6.1
Production, transportation, and material moving occupations	-	7.7	11.2
Industry (Percent in workforce)			
Agriculture, forestry, fishing, hunting and mining	7.3	3.6	7.9
Manufacturing	5.0	1.0	2.8
Government	20.6	21.4	13.5

Source: U.S. Census, 1990, 2000, and 2010.

Chapter 6 References

- Bell, G., E. Blake, C. Landsea, T. Kimberlain, S. Goldenberg, J. Schemm and R. Pasch. 2012. The 2011 North Atlantic hurricane season: a climate perspective. Available at: http://www.cpc.noaa.gov/products/expert_assessment/hursummary_2011.pdf
- Brown, D. 2011. Tropical cyclone report tropical storm Lee (AL132011) 2-5 September 2011. National Hurricane Center. Available at: http://www.nhc.noaa.gov/data/tcr/AL132011_Lee.pdf
- Grattan, L.M., Roberts, S., Mahan Jr., W.T., McLaughlin, P.K., Otwell, S.W., and Morris Jr., J.G. 2011. The early psychological impacts of the deepwater horizon oil spill on Florida and Alabama communities. *Environ Health Perspect* 119(6):838-843.
- Impact Assessment, Inc. 2004. Identifying Communities Associated with the Fishing Industry in Louisiana. La Jolla, California. (NOAA-NMFS-Contract WC133F-02-SE-0297).
- Kirkley, J.E. 2005. The communities of the Atlantic highly migratory species (HMS) fishery: an overview of change associated with the HMS fishery management plan. Department of Coastal and Ocean Policy, School of Marine Science, Virginia Institute of Marine Science, College of William and Mary, Gloucester Point, Virginia. (NOAA-NMFS-HMS contract report).
- MRAG Americas, Inc. 2008. Updated profiles for hms dependant fishing communities, social impact assessment services for hms fishing communities. Solicitation Number: DG133F-06-RQ-0381. Available at: <http://www.mragamericas.com/pdf/sr/SIA%20for%20HMS%20Fishing%20Communities%20Final%20Report.pdf>

- NMFS, 2001. NMFS operational guidelines – fishery management process: appendix 2(g): guidelines for assessment of the social impact of fishery management actions. Silver Spring, MD: U.S. Department of Commerce, National Marine Fisheries Service.
- NOAA. 2011a. Extreme Weather 2011: Hurricane Irene. Available at: <http://www.noaa.gov/extreme2011/irene.html>
- NOAA. 2011b. State of the Climate Hurricanes and Tropical Storms Annual 2011. National Climatic Data Center. Available at: <http://www.ncdc.noaa.gov/sotc/tropical-cyclones/2011/13>
- NOAA. 2011c. NOAA: All federal waters of the Gulf of Mexico once closed to fishing due to spill now open. Press Release. Available at: http://www.noaanews.noaa.gov/stories2011/20110419_gulfreopening.html
- NOAA. 2012. “Irene” retired from list of Atlantic Basin storm names http://www.noaanews.noaa.gov/stories2012/20120413_irene.html
- Sepez, J., B.D. Tilt, C.L. Package, H.M. Lazrus and I. Vaccaro. 2005. Community profiles for North Pacific fisheries – Alaska. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-AFSC-160
- Sumaila, U.R., A.M. Cisneros-Montemayor, A. Dyck, L. Huang, W. Cheung, J. Jacquet, K. Kleisner, V. Lam, A. McCrea-Strub, W. Swartz, R. Watson, D. Zeller, D. and Pauly. 2012. Impact of the Deepwater Horizon Well Blowout on the Economics of US Gulf Fisheries. *Can. J. Fish. Aquat. Sci.* 69:499-510
- Upton, H.F. 2011. The deepwater horizon oil spill and the Gulf of Mexico fishing industry. Congressional Research Service (R41640; February 17, 2011).
- Wilson, D., B.J. McCay, D. Estler, M. Perez-Lugo, J. LaMargue, S. Seminski, and A. Tomczuk. 1998. Social and cultural impact assessment of the highly migratory species fishery management plan and the amendment to the Atlantic billfish fisheries management plan. The Ecopolicy Center for Agriculture, Environmental, and Resource Issues, New Jersey Agricultural Experiment Station, Cook College, Rutgers, the State University of New Jersey (NOAA-NMFS-HMS contract report).

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 the Agency's bycatch plan activities is to implement conservation and management measures for living marine resources that will minimize, to the extent practicable, bycatch and the mortality of bycatch that cannot be avoided. Inherent in this goal is the need to avoid bycatch, rather than create new ways to utilize bycatch. The plan also established a definition of bycatch as fishery discards, retained incidental catch, and unobserved mortalities resulting from a direct encounter with fishing gear. 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. Bycatch reporting methods are addressed in Section **Error! Reference source not found.** 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 Pelagic Survey (LPS) and the Marine Recreational Information Program (MRIP). Recreational bycatch estimates (numbers of fish released alive and dead) are not currently available, except for bluefin tuna. For some species, encounters are considered rare events, which might result in bycatch estimates with considerable uncertainty. Due to improvements in survey methodology, increased numbers of intercepts (interviews with fishermen) have been collected since 2002. NMFS may develop bycatch estimates (live and dead discards) and estimates of uncertainty for the recreational fishery from the LPS. These data will be included in future HMS SAFE Reports. Bycatch estimates may also be examined for the recreational fishery with the use of tournament data.

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

Fishery/Gear Type	Bycatch Species	MMPA Category	ESA Requirements	Bycatch Data Collection	Management Measures
Pelagic longline	Bluefin tuna Billfish Undersize target species Marine mammals Sea turtles Seabirds Non-target finfish Prohibited shark species Large coastal shark species after closure	Category I	Jeopardy findings in 2000 & 2004; Reasonable and Prudent Alternative implemented 2001-04; ITS, Terms & Conditions, RPMs	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 Target species after closure Sea turtles Smalltooth sawfish Non-target finfish	Category III	ITS, Terms & Conditions, RPMs	Permit requirement (1993); logbook requirement (1993); observer coverage (1994)	Quotas (1993); trip limit (1994); gear marking (1999); handling & release guidelines (2001); line clippers, dipnets, corrodible hooks, de-hooking devices, move 1 nm after an interaction (2004); South Atlantic closure, VMS (2005); shark identification workshops for dealers (2007); sea turtle control device (2008); shark research fishery (2008)
Shark gillnet	Prohibited shark species Sea turtles Marine mammals	Category II	ITS, Terms & Conditions, RPMs	Permit requirement (1993); logbook requirement (1993); observer coverage	Quotas (1993); trip limit (1994); gear marking (1999); deployment restrictions (1999); 30-day closure for leatherbacks (2001); handling & release guidelines (2001); net checks (2002); whale sighting (2002); VMS

Fishery/Gear Type	Bycatch Species	MMPA Category	ESA Requirements	Bycatch Data Collection	Management Measures
	Non-target finfish Smalltooth sawfish			(1994)	(2004); closure for right whale mortality (2006); shark identification workshops for dealers (2007)
Bluefin tuna purse seine	Undersize target species Non-target finfish	Category III	ITS, Terms & Conditions	Permit requirement (1982); observer requirement (1996, 2001 only); EFPs (2002-03)	Quotas (1975); limited access, individual vessel quotas (1982); minimum size (1982)
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 Non-target finfish	Category III	ITS, Terms & Conditions	Permit requirement (BFT - 1982; SWO 1987; SHK - 1993); logbook requirement (SWO - 1985; SHK - 1993)	Regulations vary by species, including quotas, minimum sizes, retention limits, landing form
Handgear - recreational	Undersize target species Non-target finfish	Category III	ITS, Terms & Conditions	Large Pelagic Survey (1992); MRFSS (1981)	Regulations vary by species, including minimum sizes, retention limits, landing form; BFT quotas

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 402 gillnet sets were observed in 2011. The majority of species caught were finfish (93.7%) versus sharks (6.3%). Only one individual protected species was observed; a common loon was caught and discarded dead. 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 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 (Cortes 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 2012 MMPA LOF was published on November 29, 2011 (76 FR 73319). 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 4.6. 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 2011.

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 2011. 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 22.4 mt ww of yellowfin tuna, skipjack tuna, albacore tuna, bigeye tuna, and swordfish in 2011 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. A retention limit of 30 swordfish per trip allows squid trawl fishermen to land some of the swordfish that are encountered, although regulatory discards may still occur.

Table 7.2 Atlantic HMS Landed (mt ww) Incidental to Trawl Fisheries (2002-2011)

Species	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Yellowfin tuna	0.3	2.20	1.6	0.20	0.7	2.40	0.00	0.0	1.4	1.3
Skipjack tuna	<0.05	0.50	0.2	0.07	0.7	<0.01	<0.01	0.0	0.0	0.0
Bigeye tuna	0.5	0.03	0.9	0.60	0.0	0.40	0.00	0.0	0.7	1.2
Albacore tuna	0.3	0.02	2.7	1.70	1.1	0.30	0.01	0.08	0.2	2.0
Swordfish	3.9	5.60	8.3	8.20	3.5	6.50	7.60	22.7	21.2	17.9
Total	5.0	8.35	13.7	10.77	6.0	9.61	7.61	22.8	22.5	22.4

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 (Cortes, 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 2005-2011 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 28 percent during 2005-2011 from 1997-1999 (Table 7.3). Declines were noted for both the numbers of kept and discards of almost all species examined including swordfish, tunas, sharks, billfish, and sea turtles. The only positive changes from the base period were the numbers of bluefin tuna and dolphin kept. The reported number of bluefin tuna kept increased by 62.9 percent for 2005-2011 compared to 1997-1999 (Table 7.3). The number of reported discards of bluefin tuna increased by almost 30 percent between the same time periods, which is almost triple the predicted 11 percent increase from the analyses in Regulatory Amendment 1, while the number of dolphin kept increased by 2.7 percent (Table 7.3). Billfish (blue marlin, white marlin, and sailfish) discards reportedly decreased by 60 - 67 percent from 1997-1999 to 2005-2011 (Table 7.4). The reported discards of spearfish declined by only 1.6 percent, although the absolute number of discards was also low (less than 200 fish in most years). The reported number of turtle interactions decreased by 67.5 percent from 1997-1999 to 2005-2011.

The reported declines in swordfish kept and discarded, large coastal sharks kept, and dolphin kept decreased more than the predicted values developed for Regulatory Amendment 1. Reported discards of pelagic sharks, all billfish (with the exception of spearfish for which no predicted change was developed in Regulatory Amendment 1), and total BAYS tunas kept also declined more than the predicted values. The number of large coastal shark discards remained almost unchanged from 1997-1999 to 2005-2011, while the number of bluefin tuna discards and dolphin kept increased more than predicted.

The reported distribution of effort over the same time periods was also examined for changes in fishing behavior (Table 7.5). Declines in the number of hooks set were noted for 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 3.5 percent of the overall effort reported in this fishery. Overall, reported effort decreased by 28 percent from 1997-1999 to 2005-2011. Reported effort declined by only 4.3 percent in the MAB area, 4.6 percent in the South Atlantic Bight (SAB), and 8.1 percent in the Florida East Coast (FEC). Reported effort

declined by 45 percent or more in all other areas with the exception of the SAR and 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 2011 increased slightly from 2010, but was still below the pre-spill effort. Although reported effort declined by 77.5 percent in the SAT area (Tuna North and Tuna South combined), this represents less than one 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 2011. 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 – 2011) 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
(B) 2005-11	6,142.3	41,517	9,311	388	1,129	43,423	1,298	11,474	365	61,206	2,835
% dif (A)	-13.7	-26.5	-38.5	-10.9	-30.7	-23.7	-26.6	-36.5	-65.2	-25.0	-27.3
% dif (B)	-28.0	-40.0	-56.7	62.9	28.7	-40.0	-47.8	-46.2	-67.8	-39.7	-32.9
Pred ¹		-24.6	-41.5		-1.0					-5.2	
Pred ²		-13.0	-31.4		10.7					10.0	

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

Source: HMS Logbook data.

Table 7.4 Total Number of Pelagic Sharks, Large Coastal Sharks, Dolphin (Mahi mahi), and Wahoo Reported Landed or Discarded and Number of Billfish (Blue and White Marlin, Sailfish, and Spearfish) and Sea Turtles Reported Caught and Discarded in the U.S. Atlantic Pelagic Longline Fishery (1997 – 2011) 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
(B) 2005-11	3,268	32,135	966	6,365	40,800	487	2,551	96	623	793	445	210	194
% dif (A)	-17.0	-55.8	-40.1	-27.4	-26.1	-47.0	-27.0	-57.8	-49.7	-47.0	-74.6	-34.6	-28.1
% dif (B)	-16.2	-38.3	-89.1	0.9	2.7	-19.9	-50.7	-45.2	-61.6	-59.8	-66.9	-1.6	-67.5
Pred ¹	-9.5	-2.0	-32.1	-42.5	-29.3				-12.0	-6.4	-29.6		-1.9
Pred ²	4.1	8.4	-18.5	-33.3	-17.8				6.5	10.8	-14.0		7.1

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

Source: HMS logbook data.

Table 7.5 **Reported Distribution of Hooks Set by Area (1997-2011) 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
(B) 2005-11	73,799	2,312,701	664,422	776,045	1,212,623	496,197	279,863	135,685	23,163	165,162	6,139,654
% dif (A)	-46.6	10.0	-32.3	-29.9	-25.4	-30.7	-11.5	431.9	16.0	-70.8	-13.7
% dif (B)	-77.5	-30.9	-8.1	-4.6	-4.3	-45.0	-45.3	848.1	-87.9	-62.2	-28.1

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: HMS logbook data.

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 (1997-2011)

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

BFT - Bluefin tuna; SWO – Swordfish; PEL - Pelagic; LCS - Large coastal sharks; MAB - Mid-Atlantic Bight; NEC - Northeast coastal.

Source: HMS logbook Data.

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 (1997-2011)

Year	Hooks Set (x1000)	BFT		SWO		PEL Shark		LCS		Billfish Discards	Turtle 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

BFT - Bluefin tuna; SWO – Swordfish; PEL - Pelagic; LCS - Large coastal sharks; MAB - Mid-Atlantic Bight; NEC - Northeast coastal.

Source: HMS logbook Data.

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 PLL fishery. Reported discards of all species of billfish have declined. The reported number of turtles caught, swordfish discarded, and pelagic and large coastal shark discards have also declined.

7.6 Evaluation of Other Bycatch Reduction Measures

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

Chapter 7 References

- Angliss, R.P. and D.P. DeMaster. 1998. Differentiating serious and non-serious injury of marine mammals taken incidental to commercial fishing operations. NOAA Tech. Mem. NMFSOPR-13: 48 p.
- Cortés, E. 2005. Stock assessment of small coastal sharks in the U.S. Atlantic and Gulf of Mexico. NOAA, NMFS, Southeast Fisheries Science Center, Panama City, FL. SFD-02/03-177. 222 pp.
- Cortes, E. and I. Baremore. 2011. Updated catches of sandbar, dusky, and blacknose sharks. SEDAR21-DW-09.
- de Silva, J.A., R.E. Condrey, B.A. Thompson. 2001. Profile of shark bycatch in the U.S. Gulf menhaden fishery. North Amer. Jour. of Fish. Mgmt. 21:111-124.
- NMFS. 1998. Managing the nation's bycatch: programs, activities, and recommendations for the National Marine Fisheries Service. USDOC, NOAA, NMFS, Silver Spring, MD, 192 p.
- NMFS. 1999. Final fishery management plan for Atlantic tunas, swordfish and sharks. NOAA, NMFS, HMS Management Division.
- NMFS. 2000. Regulatory amendment 1 to the 1999 HMS FMP: reduction of bycatch, bycatch mortality, and incidental catch in the Atlantic pelagic longline fishery, June 14, 2000. NOAA, NMFS, HMS Management Division.
- NMFS. 2002. Regulatory adjustment 2 to the Atlantic tunas, swordfish, and sharks fishery management plan. USDOC, NOAA, NMFS, Highly Migratory Species Management Division, 174 p.
- NMFS. 2003a. Final amendment 1 to the fishery management plan for Atlantic tunas, swordfish, and sharks. USDOC, NOAA, NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.

- NMFS. 2004. Evaluating bycatch: A national approach to standardized bycatch monitoring programs. USDOC, NOAA Tech. Memo. NMFS-F/SPO-66, 108 p.
- NMFS. 2006. Final consolidated Atlantic highly migratory species fishery management plan. NOAA, NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.
- NMFS. 2011a. Stock assessment and fishery evaluation (SAFE) report for Atlantic highly migratory species. Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD 20910.
- NMFS. 2011b. US national bycatch report. Karp et al., eds. USDOC NOAA TM NMFS-F/SPO-117C, 508 p.
- NMFS. 2012. Annual report of the United States to ICCAT. USDOC, National Marine Fisheries Service. ANN/045/2012.
- Rago, P.J., S.E. Wigley, and M.J. Fogarty. 2005. NEFSC bycatch estimation methodology: allocation, precision, and accuracy. USDOC, Northeast Fish Sci Cent Ref Doc. 05-09; 44 p.
- Ryder, C.E., T.A. Conant, and B.A Schroeder. 2006. Report of the workshop on marine turtle longline post-interaction mortality. USDOC, NOAA Tech. Mem. NMFS-F/OPR-29.
- SEDAR 11. 2006. Stock assessment report: large coastal shark complex, blacktip, and sandbar shark. NOAA/NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.
- SEDAR 13. 2007. Stock assessment report: small coastal shark complex, Atlantic sharpnose, blacknose, bonnethead, and finetooth shark. NOAA/NMFS, Highly Migratory Species Management Division, 1315 East West Highway, Silver Spring, MD.

8. HMS PERMITS AND TOURNAMENTS

This section provides updates for the number of permits issued in conjunction with HMS fishing and dealer activities in 2012. The number of permits for Atlantic HMS fisheries and the number of dealer permits for sharks, swordfish, and tunas are updated through October 2012 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 2011 tournaments season.

8.1 HMS Permits

Detailed information about HMS permits is 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.

HMS Charter/Headboat Permit

Owners of charter boats or headboats that are used to fish for, take, retain, or possess Atlantic tunas, sharks, swordfish, or billfish must obtain an Atlantic HMS Charter/Headboat permit. The distribution of 2012 Atlantic HMS Charter/Headboat permits is presented in Table 8.1 **Error! Reference source not found.**

Table 8.1 Number of Atlantic HMS Charter/Headboat Permits by State (as of October 2012)

State/ Territory	Atlantic HMS Charter/Headboat Permits	State/ Territory	Atlantic HMS Charter/Headboat Permits
AL	80	NJ	528
CT	77	NY	314
DE	104	OH	1
FL	663	OK	1
GA	22	PA	27
ID	1	PR	24
KY	1	RI	152
LA	87	SC	122
MA	832	TN	1
MD	126	TX	148
ME	143	VA	133
MI	1	VI	16
MN	1	VT	1
MS	21	WI	1
NC	402	WV	4
NH	95	Total	4,129

Atlantic Tunas Permits

Commercial Atlantic tunas permits are categorized by gear type (longline, harpoon, trap, purse seine, and General category) (Table 8.2). 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 8.3. HMS Charter/Headboat permit holders (Table 8.3) may also participate in the commercial tuna fishery.

Table 8.2 Number of Commercial Atlantic Tunas Permit Holders by Category (2005-2012)

Category	2005	2006	2007	2008	2009	2010	2011	2012*
Longline	200	214	218	241	259	248	242	253
Harpoon	40	40	26	26	23	29	24	13
Trap	7	7	9	9	4	6	6	8
General	4,494	4,824	3,616	4,031	3,824	3,849	3,764	4,084
Purse seine	5	5	4	4	3	3	3	3
Total	4,746	5,090	3,873	4,311	4,113	4,135	4,039	4,361

* As of October 2012. The actual number of 2012 permit holders in each category is subject to change as individuals renew their permits or allow them to expire.

Table 8.3 Number of General Category Permits by State or Territory (as of October 2012)

State	General Category Permits	State	General Category Permits
AL	25	NJ	185
AZ	2	NY	171
CA	2	OH	1
CT	65	OK	1
DE	22	OR	1
FL	204	PA	9
GA	4	PR	73
IN	1	RI	166
LA	46	SC	35
MA	1,347	TX	21
MD	44	VA	140
ME	808	VI	14
MI	1	VT	1
MS	19	WA	1
NC	406	WV	1
NH	267	Total	4,084

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 8.4.

Table 8.4 Number of Atlantic HMS Angling Permits (as of October 2012)

State/Country	Permits by Home Port*	Permits by Residence**	State/Country	Permits by Home Port*	Permits by Residence**
AK	6	2	MT	2	2
AL	416	367	NC	1,561	1,463
AR	5	10	ND	1	1
AZ	1	3	NE	-	4
BVI	1	4	NH	352	435
CA	3	10	NJ	3,204	2,743
CO	5	9	NV	3	5
CT	582	669	NY	1,709	1,789
DC	1	7	OH	15	25
DE	853	531	OK	6	14
FL	3,953	3,675	PA	224	1,118
GA	115	197	PR	578	592
HI	1	-	RI	608	441
IA	-	4	SC	619	595
ID	-	2	SD	1	4
IL	6	29	TN	23	43
IN	6	12	TX	761	795
KS	2	3	UT	1	3
KY	4	6	VA	1,677	1,762
LA	647	653	USVI	41	20
MA	3,156	3,110	VT	18	40
MD	1,137	1,113	WA	2	4
ME	520	433	WI	7	12
MI	21	37	WV	9	14
MN	5	6	WY	2	4
MO	5	11	Canada	9	13
MS	177	217	Total	23,061	23,061

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

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 8.5 Number of Shark, Swordfish, and Atlantic Tuna Longline Limited Access Permits by State (2004-2012)

State	Directed Swordfish	Incidental Swordfish	Swordfish Handgear	Directed Shark	Incidental Shark	Tuna Longline	Permit Holders/ Permits
ME	4	-	1	2	5	4	8 / 16
NH	-	-	-	-	1	-	1 / 1
MA	6	2	8	2	10	7	19 / 35
RI	-	-	11	-	3	-	11 / 14
CT	-	-	-	-	-	-	- / -
NY	17	4	4	11	12	21	27 / 69
PA	1	-	-	-	1	1	1 / 3
NJ	29	11	3	24	28	41	54 / 136
DE	-	-	1	-	-	-	1 / 1
MD	4	-	-	2	2	4	04 / 12
VA	1	-	-	-	1	1	1 / 3
NC	11	7	-	17	13	18	30 / 66
SC	4	1	-	8	10	5	18 / 28
GA	-	-	-	2	2	-	4 / 4
FL	74	38	49	125	133	110	303 / 529
AL	-	-	-	5	2	-	7 / 7
MS	-	-	-	-	1	-	1 / 1
LA	30	5	-	12	35	34	48 / 116
TX	3	5	-	5	11	7	16 / 31
CA	-	-	-	-	1	-	1 / 1
Annual Totals							
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
2005	190	91	92	235	320	200	639 / 1,128

* As of October 2012. Number of permit holders in each category and state is subject to change as permits are renewed or expire.

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 8.6.

Table 8.6 Number of Domestic Atlantic Tunas, Swordfish, and Sharks Dealer Permits (2012 by State; 2005-2012 Totals by Permit)

State/Territory	Bluefin Only	BAYS Only	Bluefin and BAYS	Atlantic Swordfish	Atlantic Sharks	Total
AL	-	-	1	3	2	6
CA	2	-	1	4	-	7
CT	-	1	1	1	-	3
DE	-	1	1	-	-	2
FL	2	-	15	74	27	118
GA	-	-	2	1	1	4
HI	-	-	2	2	-	4
LA	-	1	7	11	7	26
MA	8	7	87	17	6	125
MD	-	1	8	4	3	16
ME	8	1	10	3	-	22
NC	5	4	25	18	16	68
NH	-	-	6	1	-	7
NJ	1	11	38	9	7	66
NY	2	19	55	10	4	90
PA	-	-	3	-	-	3
PR	-	4	1	-	-	5
RI	1	9	31	10	2	53
SC	-	1	2	7	13	23
TX	-	1	1	2	1	5
VA	1	4	13	1	3	22
VI	-	2	1	-	-	3
VT	-	-	1	-	-	1
WA	-	-	1	1	-	2
Annual Totals						
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
2005	68	66	332	294	228	988

* As of October 2012. 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 2007 – 2012 by category and species are listed in Table 8.7. Amendment 2 to the 2006 Consolidated HMS FMP implemented the shark research fishery. In 2012, NMFS received 19 applications for entrance into the shark research fishery. Based on the qualification criteria, 5 were chosen to participate.

Table 8.7 Number of Atlantic HMS Exempted Fishing Permits (EFPs), Display Permits, and Scientific Research Permits (SRPs) (2008-2012)

Permit Type		2008	2009	2010	2011	2012*
Exempted Fishing Permit	Sharks for display	5	4	2	3	4
	HMS** for display	1	2	2	2	2
	Tunas for display	0	0	0	0	0
	Shark research on a non-scientific vessel	4	4	9	8	10
	Tuna research on a non-scientific vessel	4	4	5	5	5
	HMS** research on a non-scientific vessel	7	5	2	2	3
	Billfish research on a non-scientific vessel	3	1	2	2	1
	Shark fishing	0	0	0	0	0
	HMS** chartering	0	0	0	0	0
	Tuna fishing	0	0	0	0	0
	Total	24	20	22	22	25
Scientific Research Permit	Shark research	0	4	1	3	4
	Tuna research	0	0	1	1	3
	Billfish research	0	0	0	0	0
	HMS** research	1	0	4	6	4
	Total	1	4	6	10	11
Letters of Acknowledgement	Shark research	6	5	8	7	7
	Total	6	5	8	7	7

*As of October 1, 2012. **Multiple species.

8.2 Atlantic HMS Tournaments

An Atlantic HMS tournament is defined as any fishing competition involving Atlantic HMS in which participants must register or otherwise enter or in which a prize or award is offered, for catching or landing such fish. 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 2011, over 100 tournaments requested and received outreach materials from the HMS Management Division through the tournament registration process. As of October 2012, more than 120 tournaments had requested and received outreach materials for the 2012 tournament season.

The number of HMS tournaments that registered each year from 2003 to 2012 is reported in Table 8.8. On annual average (2003-2011), 259 HMS tournaments register each year. In 2011, a final count of 249 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.

Table 8.8 Number of Registered Atlantic HMS Tournaments by Year (2003-2012)

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012*	Average**
Total	244	215	256	259	299	267	270	270	249	235	259

*As of October 2012. **Averages only final numbers (2003-2011); excludes preliminary 2012 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. In 2011, most HMS fishing tournaments were conducted in Florida (78), Louisiana (26), New Jersey (25), Texas (20), South Carolina (16), North Carolina (15), Puerto Rico (14), New York (12), Maryland (12), US Virgin Islands (7), Massachusetts (6), and Alabama (5). Since 2003, Florida has consistently been the state in which there is the highest number of registered HMS tournaments.

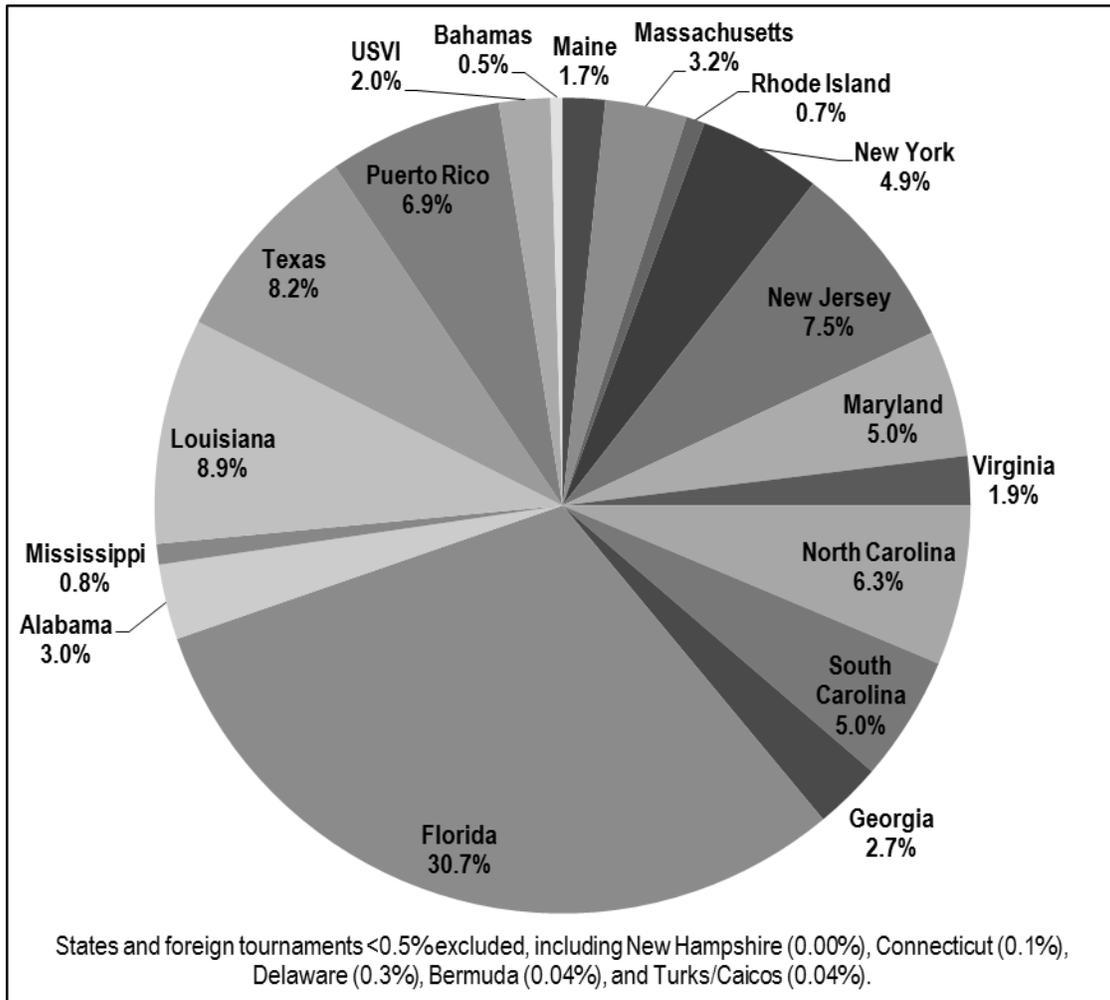


Figure 8.1 Percentage of Atlantic HMS Tournaments in each State (Average, 2003-2011)

Source: NMFS Atlantic HMS Tournament Registration Database.

Table 8.9 indicates the number of HMS tournaments in 2010 and 2011 that registered to award points or prizes for the catch or landing of each HMS. From 2010 to 2011, the number of tournaments decreased for all billfishes and swordfish; all tunas except bigeye; and for all shark categories. Figure 8.2 shows that sailfish, blue marlin, yellowfin tuna, and white marlin are the predominant target species in HMS fishing tournaments.

Table 8.9 Number of Atlantic HMS Tournaments per Species (2010-2011)

Species	2010	2011
Blue marlin	157	146
White marlin	146	134
Longbill spearfish	75	66
Roundscale spearfish	-	30
Sailfish	160	151
Swordfish	83	75
Bigeye tuna	83	85
Albacore tuna	40	36
Yellowfin tuna	151	137
Skipjack tuna	23	21
Bluefin tuna	91	86
Pelagic sharks	69	55
Small coastal sharks	18	15
Non-ridgeback sharks	21	16
Ridgeback sharks	20	17

- Not available. Roundscale spearfish was not added to the HMS tournament registration form until the end of 2010.

Source: NMFS Atlantic HMS Tournament Registration Database.

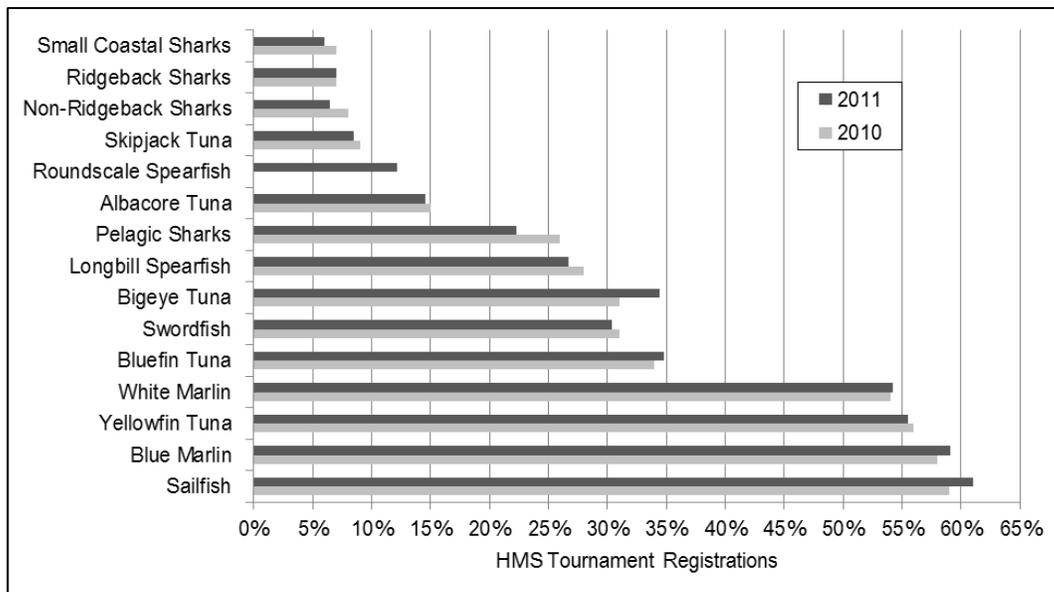


Figure 8.2 Species Composition of HMS Tournaments (2010-2011)

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.

The following pages show the number of tournaments in 2011 that selected sailfish (Figure 8.3), blue marlin (Figure 8.4), and white marlin (Figure 8.5) as categories on the HMS tournament registration form. These graphs illustrate that Florida is the leading state in terms of numbers of registered billfish tournaments, followed by Louisiana and Texas.

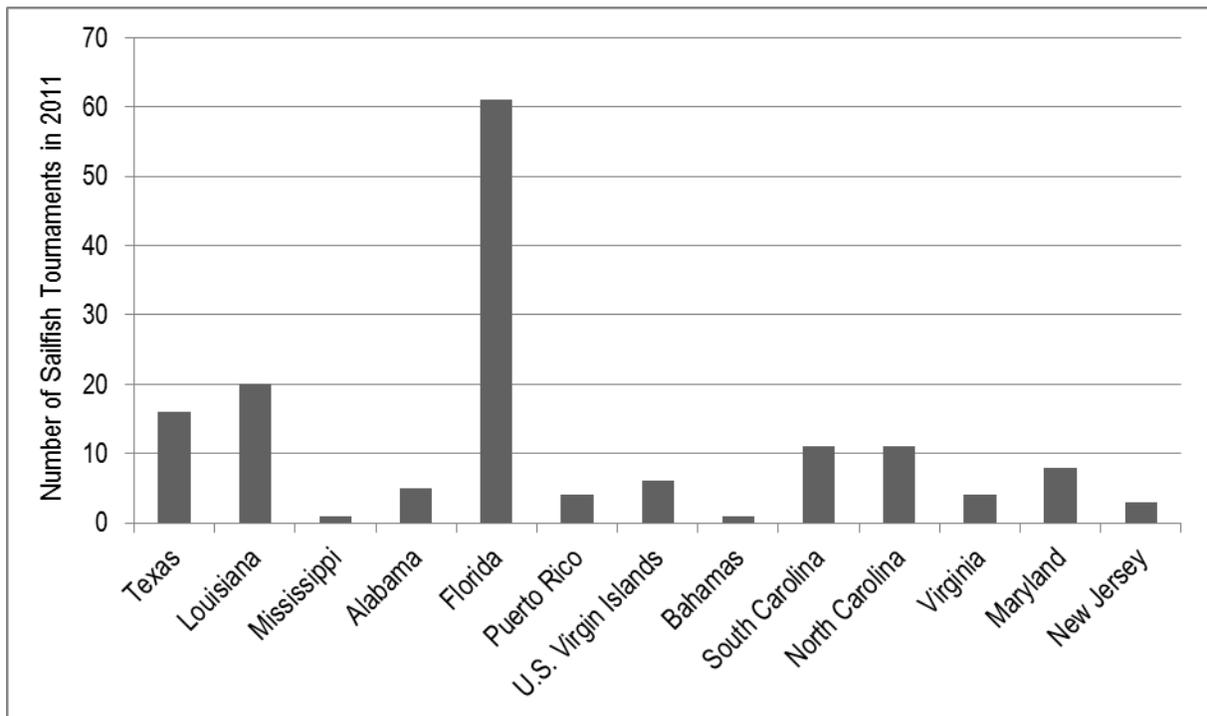


Figure 8.3 Number of Sailfish Tournaments by State (2011)

Source: NMFS Atlantic HMS Tournament Registration Database.

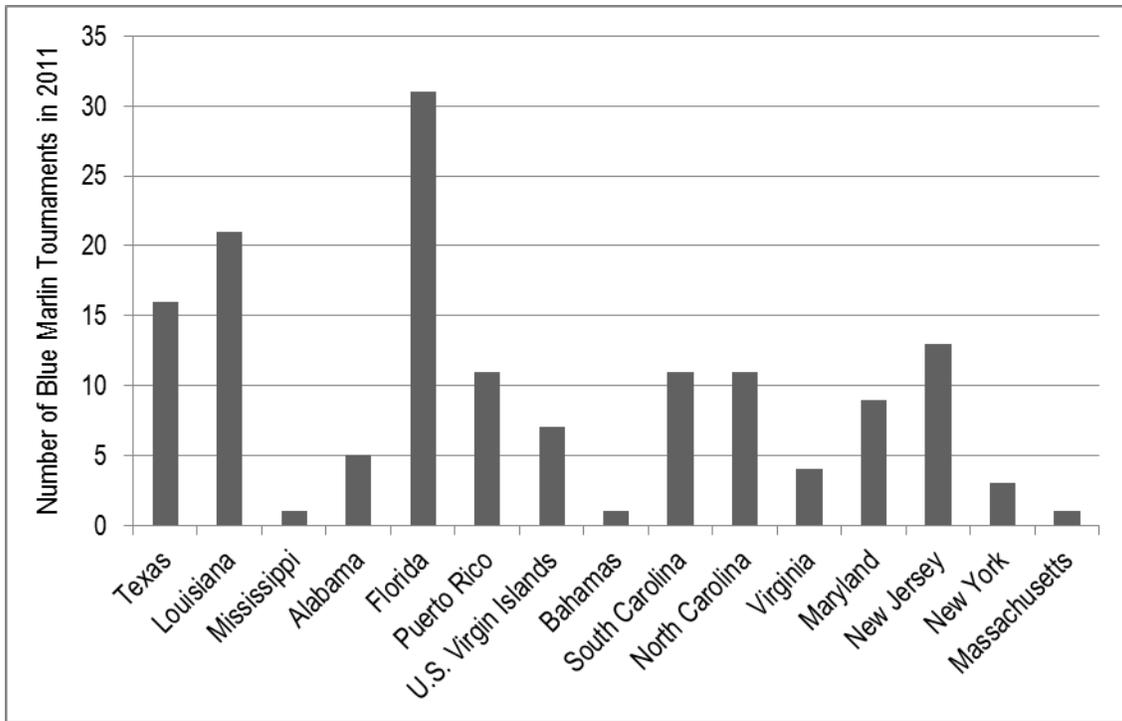


Figure 8.4 Number of Blue Marlin Tournaments by State (2011)

Source: NMFS Atlantic HMS Tournament Registration Database.

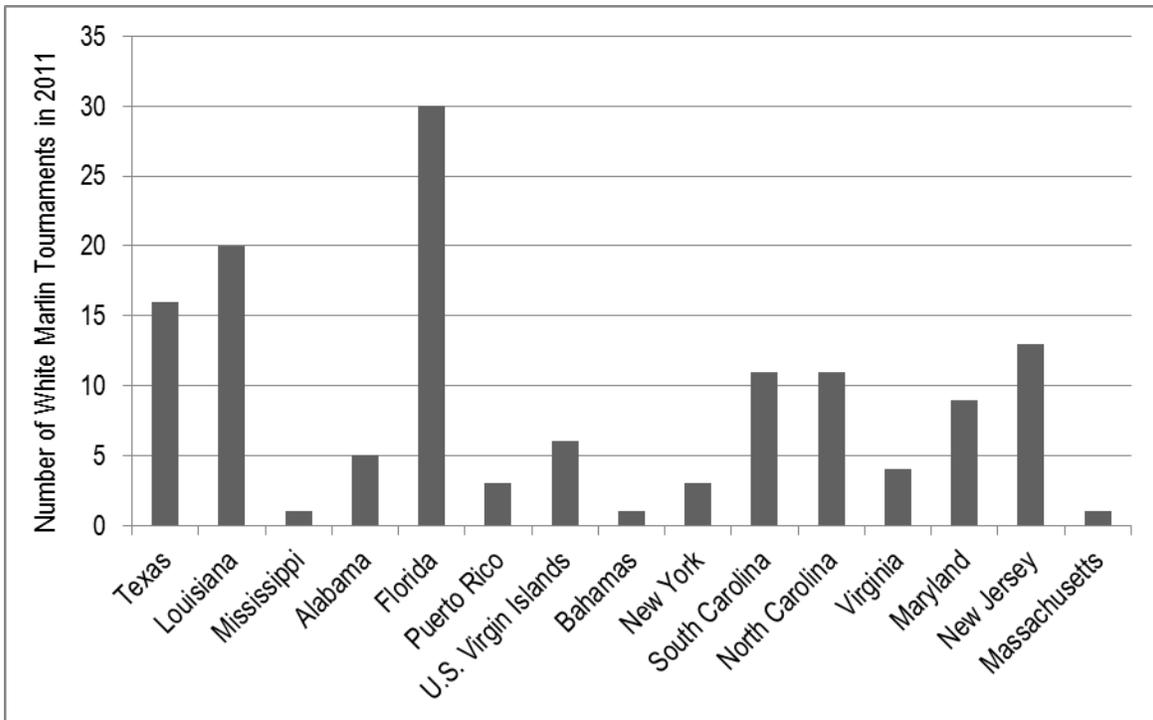


Figure 8.5 Number of White Marlin Tournaments by State (2011)

Source: NMFS Atlantic HMS Tournament Registration Database.