5. ECONOMIC STATUS OF HMS FISHERIES

Development of each rule, and of Atlantic HMS fisheries as a whole, is facilitated when there is an economic baseline against which the rule or fishery may be evaluated. In this analysis, NMFS used the past ten years of data to facilitate the analysis of trends. It also should be noted that all dollar figures are reported in nominal dollars (i.e., current dollars). If analysis of real dollar (i.e., constant dollar) trends controlled for inflation is desired, price indexes for 2005 to 2012 are provided in Table 5.1. To determine the real price in base year dollars, divide the base year price index by the current year price index, and then multiply the result by the price that is being adjusted for inflation.

Table 5.1 Inflation Price Indexes

Year	CPI-U	GDP Deflator	PPI Unprocessed Finfish
2005	195.3	92.0	253.1
2006	201.6	94.8	334.6
2007	207.3	97.3	318.1
2008	215.3	99.2	301.6
2009	214.5	100.0	306.9
2010	218.1	101.2	381.5
2011	224.9	103.2	388.1
2012	229.6	105.0	367.4

Note: The CPI-U is the standard Consumer Price Index for all urban consumers (1982-1984=100) produced by U.S. Department of Labor Bureau of Labor Statistics. The source of the Producer Price Index (PPI) for unprocessed finfish (1982=100) is also the Bureau of Labor Statistics. The Gross Domestic Product Implicit Price Deflator (2009=100) is produced by the U.S. Department of Commerce Bureau of Economic Analysis.

5.1 Commercial Fisheries

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

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

5.1.1 Ex-Vessel Prices

The average ex-vessel prices per pound dressed weight (dw) for 2005 to 2012 by species and area are summarized in Table 5.2. Prices are reported in nominal dollars. The ex-vessel

price depends on a number of factors including the quality of the fish (e.g., freshness, fat content, method of storage), the weight of the fish, the supply of fish, and consumer demand.

Average ex-vessel prices for bluefin tuna have risen 11 percent since 2011. The ex-vessel prices for bluefin tuna can be influenced by many factors, including market supply and the Japanese Yen/U.S. Dollar (¥/$) exchange rate. Figure 5.1 shows the average ¥/$ exchange rate, plotted with average ex-vessel bluefin tuna prices, from 1971 to 2012.

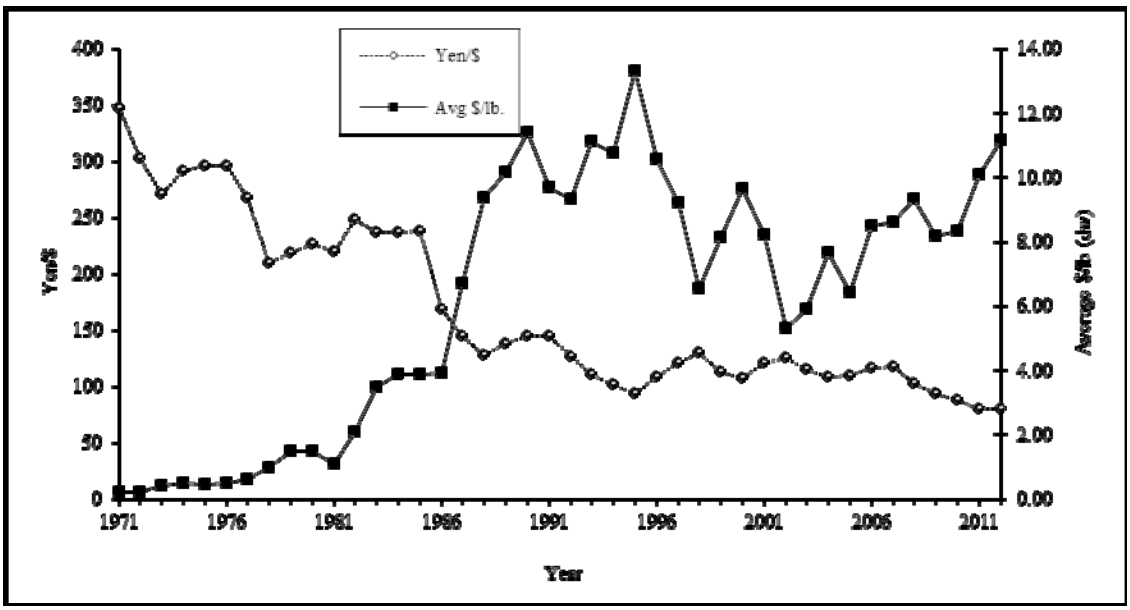

Figure 5.1 Average Annual Yen/$ Exchange Rate and Average U.S. Bluefin Tuna Ex-vessel $/lb (dw) for All Gears (1971-2012)

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

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

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

Sources: Dealer weighout slips from the Southeast Fisheries Science Center (SEFSC), Northeast Fisheries Science Center (NEFSC), and bluefin tuna dealer reports from the Northeast Regional Office. Gulf of Mexico includes: TX, LA, MS, AL, and the west coast of FL. S. Atlantic includes: east coast of FL. GA, SC, and NC dealers reporting to SEFSC. Mid-Atlantic includes: NC dealers reporting to NEFSC, VA, MD, DE, NJ, NY, and CT. N. Atlantic includes: RI, MA, NH, and ME. For bluefin tuna, all NC landings are included in Mid-Atlantic.

5.1.2 Revenues

Table 5.3 summarizes the average annual revenues of the Atlantic HMS fisheries based on average ex-vessel prices. Data for Atlantic HMS landings weight is as reported per the U.S. National Report (NMFS, 2013a), the information used in the shark stock assessments, information given to ICCAT (Cortés pers. comm., 2013), as well as price and weight reported to the NMFS Northeast Regional Office by Atlantic bluefin tuna dealers. These values indicate that the estimated total annual revenue of Atlantic HMS fisheries has increased in 2012 to $64.0 million from $50.0 million in 2011. From 2011 to 2012, the Atlantic tuna fishery's total revenue increased by $9.7 million. A majority of that increase can be attributed to the increased commercial landings of yellowfin tuna. From 2011 to 2012, the annual revenues for the shark fisheries remained virtually unchanged. Finally, the annual revenues for swordfish increased by $4.4 million from 2011 to 2012 due to an increase in landings.

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

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

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

5.1.3 Operating Costs

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

The primary expenses associated with operating an Atlantic HMS permitted PLL commercial vessel include labor, fuel, bait, ice, groceries, other gear, and light sticks on swordfish trips. Unit costs are collected on some of the primary variable inputs associated with trips. The unit costs for fuel, bait, and light sticks are reported in Table 5.4. Fuel costs increased over 89 percent from 2005 to 2012 while the cost per pound for bait remained fairly constant from 2005 to 2010 but nearly doubled between 2010 and 2011 and has remained at this new level in 2012. The unit cost per light sticks has actually declined from 2005 to 2011, but increased in 2012.

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

Input Unit Costs ($)	2005	2006	2007	2008	2009	2010	2011	2012
Fuel (per gallon)	1.85	2.15	2.25	3.55	1.73	2.50	3.38	3.50
Bait (per lb)	0.84	0.85	0.85	0.81	0.81	0.85	1.55	1.58
Light sticks (per stick)	0.50	0.46	0.36	0.37	0.37	0.28	0.25	0.30

Source: Fisheries Logbook System.

Table 5.5 provides the median total cost per trip for the major variable inputs associated with Atlantic HMS trips taken by pelagic longline vessel. Fuel costs are one of the largest variable expenses. While fuel costs increased slightly in 2012, total fuel costs per trip decreased by 14 percent in 2012 suggesting that shorter trips were taken in 2012.

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

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

Source: Fisheries Logbook System.

Labor costs are also an important component of operating costs for HMS pelagic longline vessels. Table 5.6 lists the number of crew on a typical pelagic longline trip. The median number of crew members has been consistently three from 2005 to 2012. Most crew and captains are paid based on a lay system. According to Atlantic HMS logbook reports, owners are typically paid 50 percent of revenues. Captains receive a 25 percent share and crew in 2012

received 30 percent on average. These shares are typically paid out after costs are netted from gross revenues. Median total shared costs per trip on pelagic longline vessels have ranged from $5,000 to $11,306 from 2005 to 2012.

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

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

Source: Fisheries Logbook System.

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

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

5.2 Fish Processing and Wholesale Sectors

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

5.2.1 Dealers

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

Although NMFS does not have specifics regarding HMS dealers, there is some information on the number of employees for processors and wholesalers in the United States provided in *Fisheries of the United States* (NMFS, 2013b) (http://www.st.nmfs.noaa.gov/st1/publications.html). Table 5.7 provides a summary of available information.

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

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

[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, 2013b.

5.2.2 Processing Sector

NMFS does not currently collect wholesale price information from dealers.

NMFS has information regarding the mark-up percentage paid by consumers. A mark-up or margin is the difference between the price paid for the product by the consumer and the wholesale or dockside value for an equivalent weight of the product. This information is presented in Table 5.8. Primary wholesalers and processors on average received a 90 percent margin on sales in 2012, which is relatively unchanged from margins in 2011.

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

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

Source: NMFS, 2013b.

5.3 International Trade

Several Regional Fishery Management Organizations (RFMOs), including ICCAT, have taken steps to improve the collection of international trade data in order to estimate landings related to these fisheries, and to identify potential compliance problems with certain RFMO management measures. This section describes the United States' participation in HMS related international trade programs, a review of U.S. HMS export activity, import activity, and data use.

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

NMFS implemented the HMS International Trade Permit (ITP) in 2005 (69 FR 67268, November 17, 2004) to identify importers and exporters of HMS products that require trade monitoring documentation (i.e., bluefin tuna, swordfish, and frozen bigeye tuna). Traders of shark fins must also be permitted. Currently there are 263 permit holders distributed among 24 U.S. states and territories (Table 5.9). Copies of the ITP application and all trade monitoring documents associated with these programs are found on the NMFS HMS Management Division webpage at http://www.nmfs.noaa.gov/sfa/hms/. These and several other trade monitoring programs established by NMFS for HMS are described in greater detail in the 2011 HMS SAFE Report.

Table 5.9 Number of International Trade Permits (ITPs) by State (as of November 2013)

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

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

CITES is an international agreement that regulates the global trade in endangered plants and wildlife. The goal of CITES is to protect and regulate species of animals and plants to ensure that commercial demand does not threaten their survival in the wild. Countries cooperate through a system of permits and certificates that confirm the trade of specific species is legal. Species listed on Appendix I are considered to be at risk of extinction, and are prohibited from international commercial trade, except in special circumstances. Species listed on Appendix II are those that are vulnerable to overexploitation, but not at risk of extinction. In every case of an import or export of an Appendix II species, an export/import permit may only be issued if, the export/import will not be detrimental to the survival of the species, the specimen was legally acquired (in accordance with the national wildlife protection laws) and any live specimen will be shipped in a manner which will not cause it any damage. During the sixteenth meeting of the Conference of Parties to CITES (CoP16), the United States and Brazil cosponsored a successful Columbian proposal to list oceanic whitetip shark under Appendix II. The United States cosponsored this listing because of concerns that over-exploitation to supply the international fin trade negatively affects the population status of this species. Three species of hammerhead shark (scalloped, smooth, and great) were also added to Appendix II during CoP16, where they joined previously listed whale, basking, and great white sharks, along with oceanic whitetip shark. These Appendix II listings will be effective in September 2014.

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

5.3.1 U.S. Exports of HMS

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

Atlantic and Pacific Bluefin Tuna Exports

Table 5.10 gives bluefin tuna export data for exports from the United States since 2002 and includes data from the NMFS BCD program and Census Bureau data. The Census Bureau usually reports a greater amount of bluefin tuna exported when compared to the amount reported by NMFS. Additional quality control measures are taken by NMFS to ensure data for other species (e.g., Southern bluefin tuna) or other transaction types (e.g., re-exports) are not erroneously included with bluefin tuna export data. Bluefin tuna re-export data are listed separately later in this section (Table 5.18).

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

Year	Atlantic BFT Commercial Landings[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)
2002	964.0	730.4	0.1	730.5	922	10.74
2003	756.9	578.7	2.1	580.8	998	11.36
2004	428.6	247.3	0.0	247.3	370	4.50
2005	419.4	245.7	125.1	370.8	454	5.30
2006	204.6	93.1	0.0	93.1	281	3.60
2007	196.4	85.4	8.2	93.6	238	2.90
2008	266.4	146.5	0.0	146.5	177	2.49
2009	408.5	236.2	0.0	236.2	300	4.05
2010	509.5	334.2	0.0	334.2	346	4.90
2011	453.6	329.5	0.8	330.5	293	4.03
2012	452.2	334.5	0.0	334.5	511	4.91

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

Sources: [1] Northeast Regional Office, [2] NMFS Bluefin Tuna Catch Document Program, and [3] U.S. Census Bureau.

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

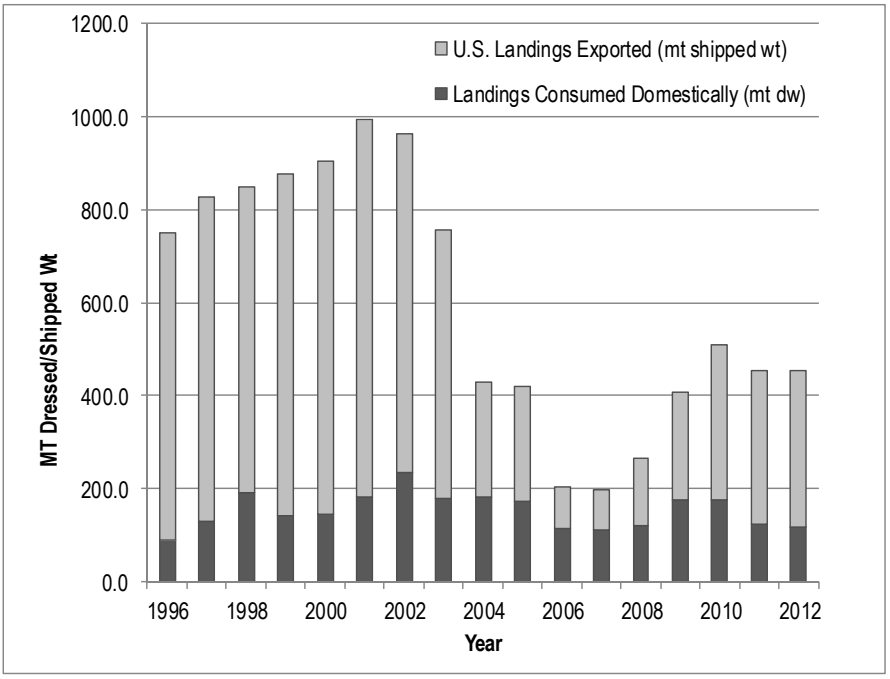

Figure 5.2 Annual U.S. Domestic Landings of Atlantic Bluefin Tuna, Divided into U.S. Export (mt shipped weight) and U.S. Domestic Consumption (mt dw) (1996-2012)

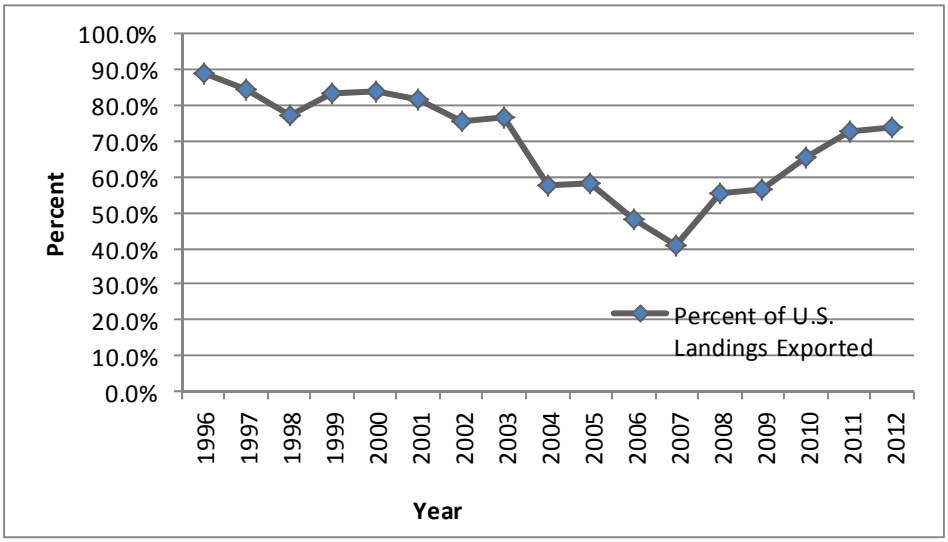

Figure 5.3 Annual Percentage (by weight) of Commercially-Landed U.S. Atlantic Bluefin Tuna that was Exported (1996-2012)

Other Tuna Exports

Export data for other tunas is gathered by the Census Bureau, and includes trade data for albacore, yellowfin, bigeye, and skipjack tuna from all ocean areas of origin combined. The value of annual albacore exports has exceeded the value for any other tuna export for the same year since 2003. The total value of albacore exports has remained over $20 million per year for the last seven years (Table 5.11). Most albacore exports are Pacific in origin, as Atlantic landings have ranged between 188 mt and 640 mt during the time series in Table 5.11, but total U.S. exports has ranged from 12,097 mt in 2004 to a low of 5,163 mt in 2002.

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

		U.S. Exports (from all ocean areas)[2]					
		Fresh		Frozen		Total for all Exports	
Year	Atlantic Landings (mt ww)[1]	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
2002	488	680	1.50	4,483	8.28	5,163	9.78
2003	448	894	1.86	9,731	18.85	10,624	20.71
2004	640	1,360	3.28	10,737	24.11	12,097	27.38
2005	486	549	1.61	7,402	16.99	7,951	18.60
2006	400	378	1.04	8,810	19.56	9,187	20.60
2007	532	275	0.84	11,731	25.52	12,006	26.35
2008	257	997	2.69	7,958	22.54	8,955	25.23
2009	189	417	1.02	9,903	22.58	9,510	23.60
2010	315	1,269	3.25	8,528	23.31	9,798	26.56
2011	449	531	1.47	9,807	23.73	10,338	25.20
2012	425	1,256	4.46	9,787	26.51	11,043	30.97

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

Sources: [1]NMFS, 2013, [2]U.S. Census Bureau.

Table 5.12 and Table 5.13 show U.S. Atlantic landings and U.S. exports from all ocean areas for yellowfin and skipjack tuna, respectively. Yellowfin exports were greater and more valuable than exports for skipjack or bigeye tuna (Table 5.14). Yellowfin tuna exports were unusually high in 2008. The amount of fresh yellowfin product exported usually exceeds the amount of frozen yellowfin product annually. However, export of frozen product was much higher in 2008 than fresh or frozen product for any other year included in Table 5.12. Frozen yellowfin were the lowest of the time series in 2011, but increased dramatically in 2012. Table 5.13 shows that the amount and value of exported fresh and frozen skipjack tuna has varied over the eleven year time series without any perceptible pattern. In 2009, the exported amount was the greatest for the time series (737 mt) while in 2012 the value was the greatest ($1.34 million).

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

Year	Atlantic Landings (mt ww)[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	5,646	1,612	2.37	420	0.81	2,033	3.19
2003	7,685	1,792	2.93	176	0.68	1,968	3.62
2004	6,437	306	1.54	242	0.31	549	1.86
2005	5,562	158	1.70	291	0.97	449	2.67
2006	7,090	183	1.96	108	0.37	291	2.32
2007	5,529	148	1.75	138	0.44	286	2.19
2008	2,407	198	2.09	4,140	9.06	4,338	11.16
2009	2,802	221	2.51	274	0.66	495	3.17
2010	2,482	211	2.31	70	0.33	281	2.64
2011	3,010	278	3.03	56	0.23	334	3.26
2012	4,109	311	3.35	535	1.91	846	5.26

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

Sources: [1]NMFS, 2013, [2]U.S. Census Bureau.

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

Year	Atlantic Landings (mt ww)[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	66	66	0.17	11	0.01	77	0.18
2003	77	81	0.22	0	0.00	81	0.22
2004	102	55	0.30	140	0.18	196	0.48
2005	30	35	0.14	-	-	35	0.14
2006	61	6	0.02	23	0.04	30	0.06
2007	67	17	0.06	77	0.12	94	0.18
2008	67	31	0.15	350	0.41	381	0.56
2009	119	206	0.54	530	0.71	737	1.25
2010	54	194	0.57	126	0.17	319	0.73
2011	87	162	0.47	14	0.05	176	0.52
2012	112	46	0.17	293	1.17	334	1.34

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

Sources: [1] NMFS, 2013, [2] U.S. Census Bureau.

Bigeye tuna exports and Atlantic landings are given in Table 5.14. Atlantic landings have been increasing since 2008, but are still below the 2006 high of 991 mt. Annually, bigeye tuna exports include more fresh than frozen product, except in 2008 and 2012 when exports of frozen product were greater (318 mt and 386 mt, respectively) . The total value and amount of bigeye exports in 2012 are the highest in the time series.

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

		U.S. Exports (from all ocean areas)[2]					
		Fresh		Frozen		Total for all Exports	
Year	Atlantic Landings (mt ww)[1]	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
2002	600	95	0.22	8	0.01	104	0.24
2003	480	255	0.47	40	0.08	295	0.56
2004	419	361	1.40	48	0.10	410	1.51
2005	484	431	1.95	50	0.12	481	2.07
2006	991	223	1.69	76	0.20	299	1.89
2007	527	128	1.38	65	0.14	193	1.52
2008	489	145	1.72	318	0.96	462	2.68
2009	515	121	1.53	78	0.19	199	1.72
2010	571	141	1.96	37	0.11	179	2.07
2011	719	199	2.13	44	0.13	243	2.26
2012	869	293	2.38	386	1.14	679	3.52

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

Sources: [1]NMFS, 2013, [2]U.S. Census Bureau.

Shark Exports

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

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

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

	Dried Shark Fins			Non-specified Fresh Shark			Non-specified Frozen Shark			Total for All Exports	
Year	Amount (mt)	Value ($ million)	Value ($/kg)	Amount (mt)	Value ($ million)	Value ($/kg)	Amount (mt)	Value ($ million)	Value ($/kg)	Amount (mt)	Value ($ million)
2002	123	3.46	28.00	968	1.47	1.52	982	2.34	2.38	2,075	7.28
2003	45	4.03	87.79	837	1.31	1.57	592	1.34	2.28	1,476	6.70
2004	63	3.02	47.53	536	1.18	2.21	472	0.98	2.09	1,071	5.18
2005	31	2.37	76.93	377	1.03	2.73	494	1.06	2.15	902	4.46
2006	34	3.17	94.66	816	1.62	1.99	747	1.38	1.85	1,597	6.17
2007	19	1.78	93.68	502	1.05	2.09	695	1.35	1.94	1,216	4.18
2008	11	0.69	63.00	559	1.21	2.16	4,122	7.21	1.75	4,692	9.11
2009	56	2.82	50.36	254	0.72	2.83	320	1.33	4.16	630	4.87
2010	36	2.89	80.28	222	0.67	3.02	244	0.52	2.11	502	4.08
2011	15	1.51	100.67	333	0.89	2.66	59	0.22	3.77	407	2.62
2012	11	0.99	91.75	436	1.08	2.47	106	4.52	4.28	1,501	6.58

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

Source: U.S. Census Bureau.

Swordfish Exports

HTS categories were modified in 2007 and again in 2012. The low cost and year round availability of swordfish imports into the United States are believed to have reduced the marketability of U.S. domestic swordfish, and created a modest export market for U.S. product in recent years (Table 5.16).

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

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

Source: U.S. Census Bureau.

Re-exports of Atlantic HMS

For purposes of international trade tracking of HMS, the term "re-export" refers to a product that has been entered for consumption into the United States and then exported to another country, with or without further processing in the United States (from 50 CFR Part 300, Subpart M, International Trade Documentation and Tracking Programs for HMS). For most HMS species for most years, re-export activity is a small fraction of export activity and well below relative reference points of 1,000 mt and/or one million dollars annually. Re-exports of yellowfin tuna (fresh or frozen) and shark fins most frequently exceed these values. Annual re-export figures in excess of these relative reference points are given in Table 5.17.

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

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

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

* In 2012, the product classification "shark fin, dried" in the HTS was renamed "shark fins."

Source: U.S. Census Bureau.

Summary of Atlantic HMS Exports

As indicated in the previous section, the value of HMS exports (from all ocean areas combined) is nationally dominated by tuna products. In 2012, fresh and frozen tuna products accounted for 17,291 mt dw or 1.3 percent of the 1,340,181 mt dw of fresh and frozen seafood products exported from the United States, as indicated in *Fisheries of the United States, 2012.* The value of these HMS products accounted for $60.3 million, out of a national total of $4.6 billion.

Data reflecting international trade of HMS species harvested from all ocean areas are of limited value for describing trade of HMS harvested from the Atlantic Ocean. For example, Atlantic landings of albacore tuna (commercial and recreational) for 2010 were reported in the 2011 U.S. National Report to ICCAT as 329 mt (Table 5.11). National trade data show that over 9,798 mt of albacore were exported in 2010, indicating the majority of albacore exports were Pacific Ocean product. Trade tracking programs such as the bluefin tuna, swordfish, and bigeye tuna consignment document programs are more accurate for tracking the international disposition of Atlantic HMS.

5.3.2 U.S. Imports of HMS

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

Atlantic and Pacific Bluefin Tuna Imports

United States imports and re-exports of bluefin tuna for 2002 through 2012, as reported through both CBP and BCD program data, are shown in Table 5.18.

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

	NMFS BFT Catch Document Program		U.S. Customs and Border Protection Data	
Year	Imports (mt)	Re-exports (mt)	Imports (mt)	Value ($ million)
2002	529.8	9.9	605.0	9.75
2003	649.9	38.4	780.3	11.67
2004	823.4	17.1	886.1	15.25
2005	966.1	10.4	1,064.0	19.96
2006	791.5	18.5	865.2	17.05
2007	584.6	17.7	697.1	13.97
2008	412.7	16.8	487.1	11.91
2009	407.7	33.6	476.8	10.29
2010	569.5	61.6	682.5	15.75
2011	442.5	35.1	555.4	14.01
2012	400.2	25.9	770.4	14.74

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

Sources: NMFS Bluefin Tuna Catch Document Program and U.S. Customs and Border Protection.

The rise in popularity of sashimi in the United States may have generated the increase in imports of bluefin tuna in the mid part of the decade, as seen in Table 5.18. Dealers have reported an expanded domestic market for both locally-caught and imported raw tuna. U.S. consumption of bluefin tuna (landings + imports – exports – re-exports) generally increased from 1996 to a high of approximately 800 mt in 2005, and generally ranged between 400 and just over 500 mt since 2008 (Figure 5.4). Consumption of domestic landings has been fairly consistent, ranging between about 100 mt to 200 mt per year. Consumption of imported bluefin tuna is more variable and ranges from a low in 1997 of less than 50 mt to a high in 2006 of almost 700 mt.

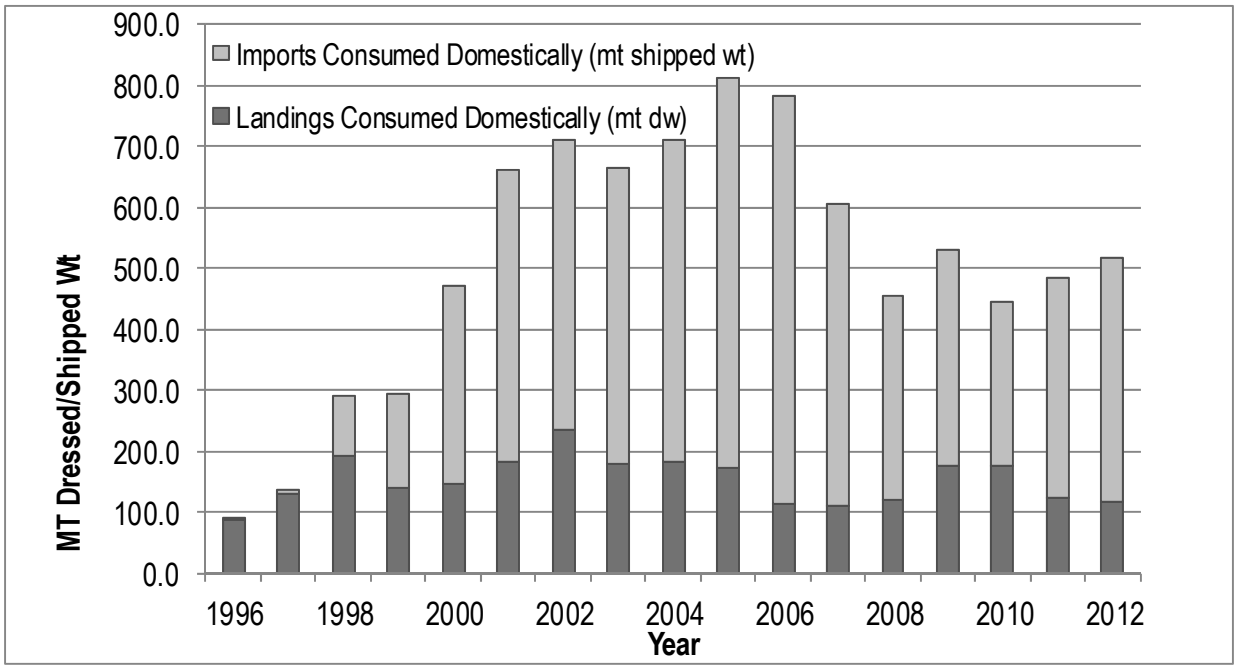

Figure 5.4 U.S. Annual Consumption of Atlantic Bluefin Tuna, by Imports and U.S. Landings (1996-2012)

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

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

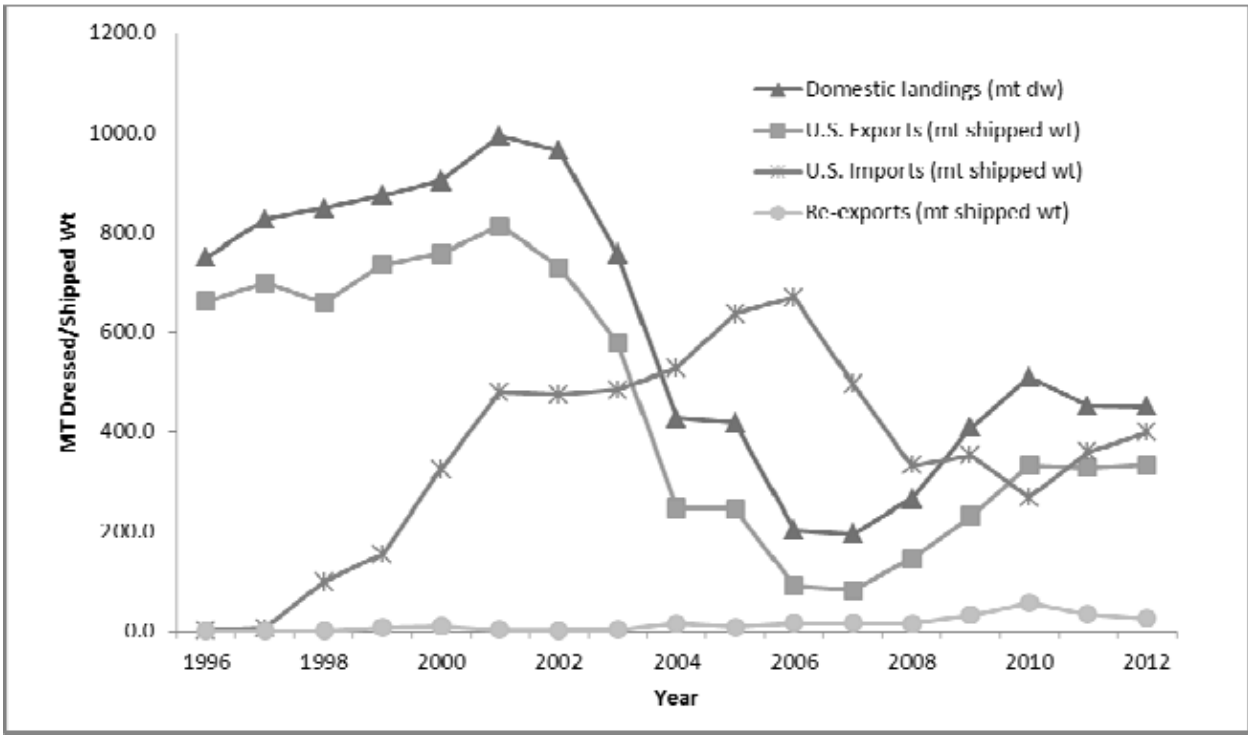

Figure 5.5 U.S. Domestic Landings (mt dw) and Trade (mt shipped wt) of Bluefin Tuna (1996-2012)

Other Tuna Imports

CBP collects species-specific import information for bigeye tuna, grouped to include all ocean areas. The total amount of bigeye tuna imports has ranged between 3,498 (2011) and 8,059 mt (2008) over the time series, as shown in Table 5.19. Total imports of fresh bigeye products in Table 5.19 were the lowest of the time series in 2011, and 2010 for frozen product.

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

Year	Fresh		Frozen		Total for all Imports	
	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
2002	6,312	39.84	319	0.70	6,632	40.55
2003	7,312	51.01	560	1.48	7,872	52.49
2004	6,752	49.10	1,175	2.62	7,928	51.73
2005	5,040	38.18	1,539	3.33	6,579	41.51
2006	4,920	36.55	1,523	3.15	6,442	39.70
2007	5,617	42.30	1,512	3.19	7,129	45.49
2008	5,462	41.43	2,597	5.31	8,059	46.74
2009	5,459	41.72	1,125	2.36	6,584	44.08
2010	4,025	32.39	316	0.73	4,340	33.12
2011	3,011	26.72	487	1.01	3,498	27.73
2012	3,723	33.43	580	1.22	4,304	34.65

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

Source: U.S. Census Bureau.

Annual yellowfin tuna imports into the United States for all ocean areas combined are given in Table 5.20. As indicated by the data in this section, yellowfin tuna products are imported in the greatest quantity of all fresh and frozen tuna products. The annual value and total amount of yellowfin imports had generally increased from 2001 to 2007 and have been lower since then. Most imported yellowfin products are fresh. The least amount of frozen product during this time series was imported in 2012.

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

	Fresh		Frozen		Total for all Imports	
Year	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
2002	15,966	95.22	4,619	29.31	20,585	124.53
2003	15,299	94.03	5,579	39.67	20,878	133.71
2004	15,624	99.41	5,833	35.35	21,457	134.96
2005	17,064	116.58	6,002	46.89	23,066	163.47
2006	17,792	126.47	5,442	42.78	23,234	169.25
2007	17,985	137.42	5,506	44.26	23,492	181.69
2008	15,904	129.59	3,847	27.97	19,751	157.56
2009	14,199	112.34	2,868	24.73	17,067	137.07
2010	15,985	128.69	2,077	16.91	18,062	145.60
2011	15,635	141.83	2,398	17.56	18,033	159.39
2012	15,829	152.66	2,076	25.84	17,905	178.52

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

Source: U.S. Census Bureau.

The amount of fresh and frozen albacore imports from all ocean areas generally declined from 2002 to 2006 (Table 5.21) and has remained relatively low compared to 2002-2003 quantities. In 2003, albacore imports were valued at $30.02 million while in 2005 the value dropped to $5.3 million, and has remained relatively low. Import amounts and value have been fairly stable over the last several years, with a small uptick in 2011. Products in airtight containers (e.g., cans or foil pouches) are not included in these data.

Table 5.21 U.S. Imports of Albacore Tuna from All Ocean Areas Combined (2002-2012)

	Fresh		Frozen		Total for all Imports	
Year	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
2002	1,296	4.81	11,903	24.49	13,200	29.31
2003	1,062	4.11	12,569	25.90	13,632	30.02
2004	1,004	3.12	4,943	11.67	5,947	14.80
2005	706	2.38	1,016	2.96	1,722	5.34
2006	876	3.54	667	1.71	1,543	5.25
2007	945	3.86	718	1.98	1,664	5.86
2008	703	2.95	1,632	4.73	2,335	7.68
2009	718	3.07	1,493	3.46	2,211	6.53
2010	519	2.19	1,860	5.17	2,380	7.36
2011	669	3.05	3,794	7.17	4,462	10.22
2012	748	3.53	1,178	2.61	1,926	6.14

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

Source: U.S. Census Bureau.

Skipjack tuna imports into the United States are comprised mainly of frozen product (Table 5.22). The amount of skipjack imports is variable over this time series, ranging from a low of 112 mt in 2004 to a high of 1,023 mt in 2006. Import value was the highest for 2012 ($1.21 million), which was the year with the second largest import amount (890 mt) for the time series. Products in airtight containers (e.g., cans or foil pouches) are not included in these data.

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

	Fresh		Frozen		Total for all Imports	
Year	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)	Amount (mt)	Value ($ million)
2002	<1	0.01	824	0.83	825	0.84
2003	0	0.00	224	0.43	224	0.43
2004	<1	<0.01	110	0.26	112	0.27
2005	0	0.00	652	0.67	652	0.67
2006	140	0.14	883	0.84	1,023	0.98
2007	31	0.06	835	0.73	866	0.79
2008	14	0.02	685	0.77	699	0.79
2009	20	0.04	498	0.63	519	0.67
2010	36	0.09	542	0.79	578	0.87
2011	2	0.05	594	0.92	595	0.96
2012	2	0.05	866	1.16	890	1.21

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

Source: U.S. Census Bureau.

Swordfish Imports

Table 5.23 summarizes swordfish import data collected by NMFS' Swordfish Statistical Document Program for the 2012 calendar year. According to these data, most swordfish imports were Pacific Ocean product from Central and South America. For Atlantic product, most North Atlantic imports came from Canada, and South Atlantic product came from Brazil and South Africa. CBP data located at the bottom of the table reflect a larger amount of imports than reported by the import monitoring program, and may be used by NMFS staff to follow up with importers, collect statistical documents that have not been submitted, and enforce dealer reporting requirements.

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

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

Source: NMFS Swordfish Statistical Document (SD) Program.

Table 5.24 indicates the amount and value of swordfish products imported by the United States from 2002 to 2012, as recorded by the U.S. Census Bureau, for all ocean areas combined. New import product categories were added in 2007. The amount of each product imported per year and annual totals for product and value were fairly consistent over the past several years. Total imports have generally fallen since their peak in 2002.

Table 5.24 Imported Swordfish Products (2002-2012)

	Fresh (mt)			Frozen (mt)					Total for All Imports	
Year	Steaks		Other	Fillets	Steaks			Other	(mt)	($ million)
2002	195		9,726	4,156	956			677	15,711	88.26
2003	147		8,079	3,929	433			560	13,150	75.62
2004	157		6,568	3,261	387			351	10,726	70.95
2005	172		6,388	2,957	367			304	10,187	77.17
2006	77		6,830	2,875	351			201	10,334	75.63
	Fillets*	Steaks	Other	Fillets	Steaks	Meat >6.8 kg*	Meat ≤6.8 kg*	Other		
2007	174	84	5,412	2,520	171	118	737	205	9,422	70.85
2008	96	13	5,658	2,673	170	55	207	88	8,962	68.98
2009	53	10	5,312	1,632	112	96	23	33	7,272	55.85
2010	125	2	5,228	2,077	153	277	45	31	7,939	68.33
2011	74	1	5,060	2,116	139	1,384	471	12	9,258	68.64
2012	13	2	5,478	2,013	604	824	42	14	8,992	77.01

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

Source: U.S. Census Bureau.

Shark Imports

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

Based on a report from 1996, the United States was an important trans-shipment port for shark fins, which were imported wet, and then processed and exported dried. At that time, U.S.-caught shark fins were exported to Hong Kong or Singapore for processing, and then imported back into the United States for consumption by urban-dwelling Asian Americans (Rose, 1996).

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

Table 5.25 summarizes Census Bureau data on shark imports for 2002 through 2012. Imports of fresh shark products and shark fins have decreased significantly over time since 2002. As of July 2, 2008, shark fin importers, exporters, and re-exporters are required to be permitted under NMFS' HMS ITP regulations (73 FR 31380). Permitting of shark fin traders was implemented to assist in enforcement and monitoring trade of this valuable commodity.

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

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

	Shark Fins Dried		Non-specified Fresh Shark		Non-specified Frozen Shark		Total for All Imports	
Year	(mt)	($ million)	(mt)	($ million)	(mt)	($ million)	(mt)	($ million)
2002	39	1.02	797	1.24	91	1.09	928	3.35
2003	11	0.01	515	0.72	100	0.99	626	1.82
2004	14	0.34	650	1.00	156	2.35	821	3.70
2005	27	0.75	537	1.02	147	2.27	711	4.04
2006	28	1.38	338	0.68	93	1.35	459	3.41
2007	29	1.68	548	1.03	174	1.04	751	3.75
2008	29	1.74	348	0.72	189	1.88	566	4.34
2009	21	0.97	180	0.37	125	1.50	326	2.83
2010	34	1.18	114	0.33	34	1.16	182	2.66
2011	58	1.79	72	0.22	32	1.20	162	3.21
2012*	43	0.77	88	0.30	9	0.07	141	1.14

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

5.3.3 The Use of Trade Data for Management Purposes

Trade data has been used in a number of ways to support the international management of HMS. When appropriate, the SCRS uses trade data on bluefin tuna, swordfish, bigeye tuna, and yellowfin tuna that are submitted to ICCAT as an indication of landings trends. These data can then be used to augment estimates of fishing mortality of these species, which improves scientific stock assessments. Trade data can also be used to assist in assessing compliance with ICCAT recommendations and identify those countries whose fishing practices diminish the effectiveness of ICCAT conservation and management measures. For examples of the use of trade data, please see this section of the 2011 HMS SAFE Report.

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

Country	Species	ICCAT-Recommended Sanction	U.S. Sanction Implemented	ICCAT Sanction Lifted	U.S. Sanction Lifted
Panama	Bluefin tuna	1996	1997	1999	2000
Honduras	Bluefin tuna	1996	1997	2001	2004
	Bigeye tuna	2000	2002	2002	2004
	Swordfish	1999	2000	2001	2004
Belize	Bluefin tuna	1996	1997	2002	2004
	Swordfish	1999	2000	2002	2004
	Bigeye tuna	2000	2002	2002	2004
Equatorial Guinea	Bluefin tuna	1999	2000	2004	2005
	Bigeye tuna	2000	2002	2004	2005
Cambodia	Bigeye tuna	2000	2002	2004	2005
St. Vincent & the Grenadines	Bigeye tuna	2000	2002	2002	2004
Bolivia	Bigeye tuna	2002	2004	2011	2012
Sierra Leone	Bluefin tuna	2002	2004	2004	2005
	Bigeye tuna	2002	2004	2004	2005
	Swordfish	2002	2004	2004	2005
Georgia	Bigeye tuna	2003	2004	2011	2012

5.4 Recreational Fisheries

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

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

5.4.1 Recreational Angling

The 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation was released in August 2012. The final national report and the data CD-ROM are available from the U.S. Fish and Wildlife Service (USFWS). More information on the 2011 national survey is available at http://www.fws.gov/pacific/news/news.cfm?id=2144375111.

In 2011, NMFS conducted the National Marine Recreational Fishing Expenditure Survey to collect national level data on trip and durable good expenditures related to marine recreational fishing, and estimate the associated economic impact (Lovell et al., 2013). Nationally, marine anglers were estimated to have spent $4.4 billion on trip related expenses (e.g., fuel, ice, and bait), and $19 billion on fishing equipment and durable goods (e.g., fishing rods, tackle, and

boats). Using regional input-output models, these expenditures were estimated to have generated $56 billion in total economic impacts, and supported 364 thousand jobs in the United States in 2011.

This survey also included a separate survey of HMS Angling permit holders from the LPS region (Maine to Virginia) plus North Carolina. Estimated trip-related expenditures and the resulting economic impacts for HMS recreational fishing trips are presented in Table 5.27. For the HMS Angler Expenditure Survey, randomly selected HMS Angling permit holders were surveyed every two months, and asked to provide data on the most recent fishing trip in which they targeted HMS. Anglers were asked to identify the primary HMS they targeted, and their expenditures related to the trip. Of the 1,249 HMS anglers that returned a survey, the vast majority (84% or 1,047 anglers) indicated they targeted a species of tuna (i.e., bluefin, yellowfin, bigeye, or albacore tuna) on their trip, or simply indicated they fished for tuna in general without identifying a specific species. The rest of those surveyed were fairly evenly divided between billfish (i.e., blue marlin, white marlin, sailfish) or shark (i.e., shortfin mako, thresher shark, blacktip shark) trips. Average trip expenditures ranged from $540/trip for tuna trips to $1,151 for billfish trips. Boat and automotive fuel was the primary trip-related expenditure for all HMS trips, and made up over 80 percent of trip costs for billfish trips, which is not unexpected given the predominance of trolling as a fishing method for billfish species such as marlin. Total trip-related expenditures for 2011 were estimated by expanding average trip-related expenditures by estimates of total directed boat trips per species group from the LPS and MRIP. Total expenditures were then divided among the appropriate economic sectors, and entered into an input-output model to estimate total economic output and employment supported by the expenditures within the study region (coastal states from Maine to North Carolina). Overall, $24.6 million of HMS angling trip-related expenditures generated approximately $31.2 million in economic output, and supported 202 full time jobs from Maine to North Carolina in 2011.

Table 5.27 HMS Recreational Fishing Trip Related Expenditures and Economic Impacts for Directed HMS Private Boat Trips (ME - NC, 2011)

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

*Source: Large Pelagics Survey.

5.4.2 Atlantic HMS Tournaments

For detailed information about HMS tournaments, please see Section 8.1 of this document, the 2006 Consolidated HMS FMP, and the 2011 HMS SAFE Report.

5.4.3 Atlantic HMS Charter and Party Boat Operations

At the end of 2004 and 2012, NMFS collected market information regarding advertised charterboat rates. The analysis of this data focused on advertised rates for full day charters. Full

day charters vary from 6 to 14 hours long with a typical trip being 10 hours. The average price for a full day boat charter was $1,053 in 2004 and $1,200 in 2012. Sutton et al., (1999) surveyed charterboats throughout Alabama, Mississippi, Louisiana, and Texas in 1998 and found the average charterboat base fee to be $762 for a full day trip. Holland et al. (1999) conducted a similar study on charterboats in Florida, Georgia, South Carolina, and North Carolina and found the average fee for full day trips to be $554, $562, $661, and $701, respectively. Comparing these two studies conducted in the late 1990s to the average advertised daily HMS charterboat rate in 2004 and 2012, it is apparent that there has been a significant increase in charterboat rates.

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

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

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

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

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

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

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

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

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

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

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

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

	The economic impacts of the time/area closure requirements were also estimated. Implementing complementary HMS management measures in Madison-Swanson and Steamboat Lumps Marine Reserves year-round was estimated to have minimal impact on commercial revenues and recreational activity. No economic impacts were expected from establishing the foundation with ICCAT for developing an international rebuilding program for Northern Albacore tuna. Limiting HMS permitted vessels participating in Atlantic billfish tournaments to deploy only non-offset circle hooks when using natural baits or natural bait/artificial lure combinations could have resulted in a an unlikely potential decrease in tournament participation but was expected to result in long-term benefits to anglers as a result of improved stock rebuilding efforts. The implementation of ICCAT recommendations on recreational marlin landings limits was estimated to have no adverse impacts to moderate impacts to anglers depending on whether thresholds for action are met and potential large losses of an estimated $1.3 to $5.5 million worth of tournament activity annual never occurred since we have not reached the thresholds for action on marlin landings. The amendment of the management procedures regarding the General category time-periods, subquotas, as well as geographic set-asides to allow for future adjustments to take place via a regulatory framework action was expected to result in overall positive economic impacts to the General category by allowing fishing in locations and times when bluefin are most available with only minor adverse impacts to New England General category fishermen. The revised General category time-periods and subquotas to allow for a formalized winter fishery was expected to result in positive economic impact for General category participants in the South Atlantic region and minor adverse economic impacts to New England. Clarifying the procedures for calculating the Angling category school size-class bluefin subquota allocation and maintaining the Angling category north/south dividing line was expected to have minimal positive impacts by slightly increasing the school size-class quota. The revised annual bluefin tuna specification process to refer back to the supporting analytical documents of the 2006 Consolidated HMS FMP and include seasonal management measures in annual framework actions was expected to have minor positive economic impacts by allowing for better planning. Establishing an individual quota category carry-over limit of 100 percent of the baseline allocation (i.e., no more than the annual baseline allocation may be carried forward), except for the Reserve category, and authorize the transfer of quota exceeding the 100 percent limit to the Reserve or another domestic quota category, while maintaining status quo overharvest provisions would result in economic benefits by increasing total allowable catch for those quota categories. The revised and consolidated criteria considered prior to performing inseason and some annual bluefin management actions was expected to lead to positive economic benefits. Shifting the fishing year to January 1st through December 31 fist for all HMS species was expected to

	establish consistent timing between U.S. domestic and international management programs and improve international reporting and negotiations. Authorizing speargun fishing gear for recreational BAYS tuna was expected to result in positive economic impacts to recreational speargun fishermen and the chart/headboat sector with only a minor risk of competition for fishing grounds impacting rod and reel fishermen. The authorization of buoy gear as a permissible gear type in the commercial swordfish handgear fishery was expected to have positive economic benefits and the increase in this fishery in recent years appears consistent with that expectation. Clarifying the allowance of hand-held cockpit gears used at boat side for subduing HMS captured on authorized gears was also expected to result in positive economic impacts by reducing confusion of the allowance of these gears. The remaining regulatory housekeeping provisions were expected to have only minor economic impacts. Comments: A. Workshops NMFS received many public comments both in support of and opposed to the protected species workshops. Some commenters were concerned about potential lost revenue on longline trips if bycatch were to be handled correctly, and recommended not limiting these workshops to longline fishermen. Some comments supported extending the workshop requirements to include all HMS fishermen, as well as expanding the release techniques to include additional species. NMFS received many comments suggesting that various combinations of owners, operators, and crew members be required to participate in the workshops. Commenters noted that if the crew members are not required to attend, then the operators should be responsible for training the crew. Several commenters opposed requiring the crew to be certified because of their transient nature and the fact that some crew members are not U.S. citizens and may not be available to attend workshops. A few commenters supported grandfathering in the industry certified individuals, so that they do not need to attend the first round of mandatory workshops (they would still need to be recertified). This rule required that vessel owners and operators attend the workshops. This requirement for vessel owners and operators balances the ecological need to ensure that fishermen on the vessel can use the handling and release gear appropriately and the economic costs to the fishermen to attend the workshops. While the final rule did not require crew members to attend the workshops, it was expected that operators and owners would disseminate this information to the crew in a cost effective manner. NMFS continues to encourage all workshop participants to disseminate this information to all crew members involved with haul-back or fishing activities. This rule also grandfathered in the industry-certified individuals. While

	NMFS realizes that many vessel owners may not operate or be present on the vessels during fishing trips, certifying vessel owners ensures that they are aware of the certification requirements and protocols. The owners are, then, accountable for preventing their vessel from engaging in fishing activities without a certified operator on board. NMFS did not change the proposed rule as a result of these comments, but did clarify portions of the regulatory text to ensure the implementation is clear. NMFS received several comments in support of time periods for renewal of certification that were different than the proposed alternative. NMFS maintained the preferred alternative of recertification generally every three years in order to balance the ecological benefits of maintaining familiarity with the protocols and species identification, and the economic impacts of workshop attendance due to travel costs and lost fishing opportunities. NMFS received comments regarding the need for proxies for dealers attending shark identification workshops under alternative A9, the flexibility required in certifying newly hired proxies, and the need for multiple proxies. Alternative A9 was modified to address these comments and allow for dealer proxies. Because not all shark dealer permit holders may be onsite where vessels unload their catches, this rule permitted a local proxy to attend the workshop to obtain the proper training in species-specific shark identification, while allowing the permit holder to meet the certification requirements. Furthermore, since the actual permit holders may not be involved in fish house activities, the workshops would more effectively decrease the reporting of unknown sharks if a proxy who is directly involved with fish house activities attends and obtains the training in lieu of the permit holder. If a dealer opts to send a proxy, then the dealer is required to designate a proxy from each place of business covered by the dealer's permit. A proxy would be a person who is employed by a place of business, covered by a dealer's permit, a primary participant in identification, weighing, or first receipt of fish as they are offloaded from a vessel, and involved in filling out dealer reports. According to public comment, NMFS should anticipate turnover in dealer proxies. To address this, NMFS allows one-on-one training sessions that would accommodate the replacement of a proxy whose employment was terminated on short notice. These sessions would be at the expense of the permit holder. Public comments were supportive of mandatory HMS identification workshops for federally permitted shark dealers, but also suggested that these workshops be available to others, such as the recreational and commercial fishery, law enforcement, port agents, and state shark dealers. While these workshops are mandatory for federally permitted shark dealers, NMFS has tried to accommodate other interested individuals when it is feasible. At well-attended workshops, those persons for whom the workshops are mandatory are given priority in terms of hands-on instruction. B. Time/Area Closures

	NMFS also received comments on the time/area closure alternatives. A number of commenters expressed concern over the effort redistribution model used to analyze these alternatives. These commenters felt that pelagic longline vessels were not mobile enough to redistribute effort uniformly and that vessels in a certain area would move to adjacent areas (e.g., vessels homeported in the Gulf of Mexico would stay in the Gulf of Mexico and would not move into the mid-Atlantic bight). NMFS received comments that different approaches to effort redistribution should be considered, particularly for closures of bluefin tuna in spawning areas in the Gulf of Mexico. As a result, NMFS considered redistribution of effort based on an analysis of the mobility of the PLL fleet and known effort displacement currently taking place out of the Gulf of Mexico. Based on this revised approach, NMFS determined that the closures in the Gulf of Mexico could increase bycatch for some of the species being considered. Therefore, NMFS decided not to implement any new time/area closures, other than complementary closures for Madison-Swanson and Steamboat Lumps. During the comment period, NMFS also received comments regarding a “decision matrix” that could help to guide the choices that NMFS would have to make between different time/area closures and different species, that NMFS should set bycatch reduction goals, and that the bycatch reduction goals of the existing closures have already been met and, therefore, NMFS should reopen portions of the current closures. As discussed in the response to Comment 20 in the Time/Area Closures section, NMFS agreed that decision matrices and bycatch reduction goals could be useful, but did not believe that NMFS could use these concepts to appropriately balance the needs of the different species involved at that time. NMFS did not change the proposed rule as a result of these comments. C. Northern Albacore Tuna NMFS did not receive many comments in regard to the alternatives considered for northern albacore tuna. None of the comments received were in regard to the economic impacts. NMFS did not change the preferred alternative as a result of public comment. D. Finetooth Sharks NMFS received a range of public comments regarding finetooth shark alternatives indicating support and opposition to Alternatives D2-D4, and additional comments, including, but not limited to: comments on gillnet fisheries in general, the use of VMS, the results of the 2002 SCS stock assessment, reporting of HMS by dealers, identification of finetooth sharks, and the accuracy of data attained from MRFSS. All of these comments were considered prior to selection of the final alternative for preventing overfishing of finetooth sharks. NMFS did not change the proposed alternative as a result of these comments. Additional measures may be necessary to prevent overfishing of finetooth sharks in the future. E. Atlantic Billfish

	NMFS received many comments regarding Atlantic billfish alternatives. NMFS received substantial public comment opposing and supporting circle hook requirements proposed under draft alternatives E2 and E3. A prevalent theme of the comments opposing mandatory circle hook use, in all or portions of the HMS and billfish recreational fisheries, was that the recreational sector has a minor impact on Atlantic billfish populations relative to the commercial pelagic longline fleet. Given the relatively small size of the U.S. domestic pelagic longline fleet and the considerable size of the recreational fishing fleet, NMFS determined that it was appropriate to examine billfish mortality from the domestic perspective in addition to working internationally through ICCAT. NMFS did not change the proposed action, alternative E3, as a result of public comment. The final action requires non-offset circle hooks at all billfish tournaments if natural or natural/artificial baits are used. A second important theme in comments opposing mandatory circle hook use under alternatives E2 and E3 was the need for NMFS to promulgate more detailed specifications for circle hooks. NMFS continued to work on various definitions of circle hooks that may lead to a more refined hook definition in the future. However, NMFS found that it is appropriate to require the use of circle hooks in portions of the recreational billfish fishery, at this time, to reduce post-release mortalities in the recreational billfish fishery. NMFS also received comments that billfish tournament operators would need advance notice of impending circle hook regulations to allow for production of rules, advertising, and informing tournament participants of potential circle hook requirements. In response, NMFS spoke to a number of tournament operators in the Atlantic, Gulf of Mexico and Caribbean to better understand various aspects of tournament operations, and determined that a delayed date of effectiveness of no less than six months would be necessary to minimize adverse impacts to tournament operators and participants. Significant outreach efforts were undertaken by NMFS after the release of the FEIS in July 2006 to address the need for advanced notice. Therefore, the effective date of the requirement was be January 1, 2007. This effective date in combination with continued outreach effort by NMFS provided billfish tournament anglers additional time to familiarize themselves and become proficient in the use of circle hooks, while allowing tournament operators to adjust tournament rules, formats, and informational materials, as appropriate, thereby minimizing any potential adverse socio-economic impacts. Additionally, given the concerns expressed from fishermen in the mid-Atlantic region after the release of the FEIS regarding this requirement, NMFS worked cooperatively with tournaments and anglers to research other bait and/or hook and bait combinations that would achieve the same ecological benefits. In a subsequent rulemaking in 2007, NMFS delayed implementation of the circle hook requirement in tournaments until January 1, 2008. NMFS also received public comments regarding the perceived limited ecological impact of the 250 marlin

	landings limit. These comments could be categorized into two opposing views that suggest two different courses of action. Some commenters suggested that the limited ecological impact was not worth any potential adverse economic impact, even a very limited one, while other commenters suggested that the U.S. must implement the 250 marlin landings limit to comply with U.S. international obligations and as part of a strategy to implement appropriate measures to help limit billfish mortality. Related to these comments, NMFS received suggestions recommending that NMFS automatically carry forward any underharvest to the following management period. Given that the known level of U.S. recreational marlin landings has been within the 250 fish limit for three of the four reported years, and that the 2002 overharvest was offset by the 2001 underharvest, the ecological benefits of this alternative were limited. As noted above, in the response to Comments 3 and 5 of the Atlantic Billfish section, this rule allowed underharvests to be carried forward. However the United States made a commitment to ICCAT not to carry forward underharvest, given the uncertainty surrounding landings of Atlantic marlin in the Commonwealth of Puerto Rico and the U.S. Caribbean, until such time as this is resolved. Thus, NMFS did not change the proposed alternative. This rule was expected to allow the United States to continue to successfully pursue international marlin conservation measures by fully implementing U.S. international obligations and potentially provide a minor ecological impact with, at most, minor adverse economic impacts. NMFS received public comment opposed to, and in support of, the Atlantic white marlin catch and release alternative. The commenters opposed to the alternative expressed concerns over potential adverse economic impacts to the fishery if catch and release only fishing for Atlantic white marlin were required. The commenters supporting the landings prohibition stated concerns over white marlin stock status, the ESA listing review, and maintaining leadership at the international level. Based on these comments as well as a number of other factors, including but not limited to, the impending receipt of a new stock assessment for Atlantic white marlin and upcoming international negotiations on Atlantic marlin, NMFS changed its preferred alternative and chose not to prohibit landings of Atlantic white marlin in the final rule. The implementation of circle hook requirements (alternative E3) is an important first step in reducing mortality in the directed billfish fishery. NMFS may consider, as necessary and appropriate, catch and release only fishing options for Atlantic white marlin as well as other billfish conservation measures in future rulemakings. F. Bluefin Tuna Quota Management NMFS received public comment in the past regarding the publication and timing of annual bluefin tuna specifications. Timely publication of the bluefin tuna specifications is essential to fishermen's inability to make informed business decisions. Fishermen have commented that knowing the exact schedule of bluefin

	tuna restricted fishing days prior to the season facilitates planning and scheduling of trips. NMFS did not change the proposed alternative in the 2013 quota specifications as a result of public comment on the proposed rule. Under this rule, the annual bluefin tuna quota specifications would establish baseline domestic quota category allocations, and adjust those allocations based on the previous years' under- and/or overharvest. Any delay in publishing the annual bluefin tuna quota specifications would prolong the establishment of a baseline quota in any of the domestic categories. Fishermen have commented that knowing the exact schedule of bluefin tuna Restricted Fishing Days prior to the season facilitates planning and scheduling of trips. The preferred alternative F6 should help facilitate the development of timely schedules. NMFS did not change the proposed alternative as a result of public comment on the proposed rule. G. Timeframe for Annual Management of HMS Fisheries Preferred Alternative G2, which changed the timeframe for annual management of HMS fisheries, was modified because the comment period on the proposed rule was extended. The fishing year in 2007, rather than 2006 as described in the Draft Consolidated HMS FMP, would be compressed. During the public comment period, several commenters expressed concern about the effect of a calendar year management cycle on the availability of quota rollover from the previous calendar year during the January portion of the south Atlantic fishery. Under changes to the bluefin tuna management program included in the rule, the January subperiod would receive a quota of 5.3 percent of the annual ICCAT allocation. H. Authorized Fishing Gears With regard to authorized gears, there were public comments in support of preferred alternative H2 to authorize speargun fishing as a permissible gear type for recreational Atlantic BAYS tunas. NMFS received comments indicating that recreational spearfishermen place a high value on spearfishing for tunas, and are currently traveling outside of the United States for the opportunity to participate in tunas speargun fisheries. The final rule allowed recreational BAYS fishing. This was a modification from the proposed rule that would have also allowed recreational fishing for bluefin tuna. Due to concern over the status of bluefin tuna, NMFS decided not to allow spearfishing for bluefin tuna. During the public comment period, NMFS received comments expressing confusion over the current regulatory regime regarding green-stick gear, unease over the potential impacts and intent of the preferred alternative in the Draft Consolidated HMS FMP, and concern over potential negative impacts of the green-stick gear. Therefore, NMFS did not finalize alternative H4, which would have authorized green-stick gear. Rather, NMFS worked with the industry to ensure participants are familiar with current regulations. Greenstick gear was later authorized in a subsequent rulemaking in 2008 (73 FR 54721). In regard to buoy gear, NMFS received public comments requesting that commercial vessels be limited to

	deploying fewer than 35 individual buoy gears. Additionally, commercial fishermen familiar with this gear type requested that they be allowed to attach multiple floatation devices to buoy gears to aid in monitoring and retrieval, as well as allow them to use "bite indicator" floats that will alert them to gears with fish attached. In response to public comment, NMFS modified the preferred alternative to allow fishermen to use more than one floatation device per gear and configure the gear differently depending on vessel and crew capabilities, or weather and sea conditions. This increased flexibility may have resulted in positive social impacts and increased safety at sea. I. Regulatory Housekeeping Measures The public also provided comments on the proposed regulatory housekeeping alternatives. NMFS requested public comment regarding whether or not to define "fishing floats" in the regulations, and on potential language for a "float" definition. Several commenters indicated that the number of floats is not an appropriate gauge to determine the type of fishing gear that is being deployed, and that the presence of "bullet floats," anchors, or the type of mainline would be better indicators. Other commenters stated a float requirement would be an unnecessary burden that could diminish the flexibility of vessel operators to participate in different fishing activities, depending upon the circumstances. Finally, consultations with NMFS Office of Law Enforcement indicated that the float requirement in alternative I1(b) would not be practical. Based on these comments, NMFS chose not to prefer alternative I1(b) in the FEIS. Although alternative I1(b) was preferred in conjunction with alternative I1(c) in the Draft Consolidated HMS FMP, NMFS believed that the objective of this alternative would be effectively achieved by implementing alternative I1(c) (species composition of catch) alone. On the basis of public comment, NMFS modified the list of demersal "indicator" species associated with alternative I1(c) from the list in the Draft Consolidated HMS FMP by removing silky, great hammerhead, scalloped hammerhead, and smooth hammerhead sharks from the list, and by adding tilefish, blueline tilefish, and sand tilefish to the list. NMFS believed these changes were appropriate because these shark species can be caught on both pelagic and bottom longlines, and because the tilefish species are representative of demersal fishing activity. NMFS continues to get comments on this issue, even after the final rule was implemented. NMFS received comments indicating that alternative I1(c) could adversely affect longline vessels that fish, at least part of a trip, in HMS closed areas and that catch both demersal and pelagic species on those trips. Similar to the comments received regarding alternative I1(b), there were concerns that, by establishing a species threshold when fishing in HMS closed areas, this alternative would restrict the flexibility of longline vessel operators to participate in different fishing activities depending upon the circumstances. Also, adverse economic impacts could result if vessel operators are unable to retain a portion of their catch

	that otherwise would have been retained on mixed fishing trips in the closed areas, or if they must choose to fish outside of the closed areas. NMFS received other comments indicating that there could be additional costs on vessels if they are boarded at sea by enforcement, and it was necessary to retrieve or observe fish in the hold in order to calculate the percentages of demersal and pelagic species possessed onboard. NMFS, however, found that this preferred alternative is important in maintaining existing time/area closures. NMFS received comments supporting and opposing preferred alternative I2(b), which required that the second dorsal fin and anal fin remain on all sharks through landing. Some comments confirmed that retention of the second dorsal and anal fins through landing could improve shark identification and species-specific landing data. Other comments indicated that this alternative would do little to improve shark identification. NMFS received comments that, although these fins are valuable, retaining them until landing was acceptable. NMFS received a comment opposing this alternative due to the additional time and revenue losses that may result from removing the smaller/secondary fins after docking. NMFS finalized this alternative. While offloading and processing procedures may initially have to be adjusted, in the long-term this alternative will facilitate improved quota monitoring and stock assessment data which could result in a larger quota and larger net revenues for both the fishermen and dealers. Public comment suggests that, among active fishery participants, a requirement for handlines to remain attached to all vessels could potentially reduce the number of handlines that could be fished or deployed. Operationally, it may be less efficient to fish with several attached handlines, as they may be more prone to entanglement. Because this alternative could restrict or limit fishing effort and because NMFS did not know the number of handline users that already attach the handline to the vessel, it was projected to produce unquantifiable positive ecological impacts, including a reduction in the bycatch of undersized swordfish, other undersized species, protected species, and target species catches. Based upon public comment the practice of detaching handlines did not appear to be widespread, but it may be growing among a small number of vessel operators, primarily targeting swordfish in the East Florida Coast closed area. According to public comment, recreational swordfish catches would most likely be affected, as that is the primary target species. If few recreational vessels are currently fishing with unattached handlines, then any social or economic impacts associated with this alternative would be minimal. NMFS did not change this alternative between proposed and final rules. NMFS received comments indicating that the proposed alternative (I9(b)), which would require vessel owners to report non-tournament recreational landings of North Atlantic swordfish and Atlantic billfish, could potentially disadvantage absentee vessel owners. Based upon this public comment, NMFS modified this alternative slightly from the proposed rule by specifying that a vessel owner's designee may also report

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

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.

Lovell, Sabrina, Scott Steinback, and James Hilger. 2013. The economic contribution of marine angler expenditures in the United States, 2011. U.S. Department of Commerce, NOAA Technical Memo. NMFS-F/SPO-134, 188 p.

Minnesota IMPLAN Group, Inc. 2010. IMPLAN professional: social accounting and impact analysis software. Minnesota IMPLAN Group, Inc., Minneapolis.

NMFS Office of Science and Technology foreign trade statistics website: http://www.st.nmfs.noaa.gov/st1/trade/cumulative_data/TradeDataProduct.html

NMFS. 2013a. Annual report of the United States to ICCAT. USDOC, National Marine Fisheries Service. ANN/045/2013.

NMFS. 2013b. Fisheries of the United States: 2012. Alan Lowther, Editor. Office of Science and Technology, Fisheries Statistics and Economics Division, NOAA, U.S. Department of Commerce, Silver Spring, MD.

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.