

5. ECONOMIC STATUS OF HMS FISHERIES

Under the Magnuson-Stevens Act, NOAA Fisheries must prepare an annual SAFE report in order to account for the best scientific information available. Each SAFE report should, among other things, provide information on the economic condition of the recreational and commercial fishing interests, communities, and industries.

In 1996, the Small Business Regulatory Enforcement Fairness Act amended the Regulatory Flexibility Act (RFA). This amendment added section 610 to the RFA. Section 610 requires NOAA Fisheries to periodically review rules that had or will have a significant economic impact on a substantial number of small entities. The purpose of this review is to determine whether the significant rules should be continued without change or if they should be amended or rescinded in order to minimize the impact on small entities. The review should examine the impact of these rules consistent with the stated objectives of applicable statutes. NOAA Fisheries has 10 years after the adoption of each rule in which to review the impact of the rule.

Thus, both the SAFE report and Section 610 to the RFA require similar information. For this reason, NOAA Fisheries believes that the following section of the 2003 SAFE Report should fulfill NOAA Fisheries' requirements under both the Magnuson-Stevens Act and Section 610 of the RFA. In addition to the information needed to fulfill Section 610 of RFA, this section will provide comprehensive economic information for all components of HMS fisheries including price and cost information.

The review of each rule and of HMS fisheries as a whole is facilitated when there is a baseline against which the rule or fishery may be evaluated. In this report, as in past reports, NOAA Fisheries decided to use 1996 as a baseline. NOAA Fisheries believes that this baseline is appropriate because RFA was amended in 1996, the Magnuson-Stevens Act was amended in 1996, NOAA Fisheries began to collect economic information voluntarily for vessels using the pelagic logbook, and regarding HMS specifically, no rules were implemented in 1996 that were classified as significant under RFA. Additionally, while the HMS FMP and the Billfish Amendment 1 were finalized in 1999, scoping for these two major documents and its final rule began in 1997. It is possible that anticipation of these documents and any potential changes in their implementing regulations could have begun to impact the decisions made by HMS fishermen and any associated businesses. Where noted, NOAA Fisheries converted 2001 dollars to 1996 dollars using the consumer price index in order to help comparisons between years.

5.1 Commercial Fisheries

5.1.1 Economics of Commercial Fisheries across the United States in General¹

In 2001, the total commercial landings at ports in the 50 states by U.S. fishermen were 9.5 billion pounds and were valued at \$3.2 billion. While this was a four percent increase from 2000 landings, the overall value decreased by \$321.2 million. Compared to 1996, this was an increase of one percent from the estimated 1996 landings and \$258.5 million from the estimated 1996 value. The total value of commercial HMS landings in 2001 was \$120.9 million (table 5.2). The 2001 ex-vessel price index indicated that 18 species of the 34 species tracked had increasing ex-vessel prices, 11 species had decreasing ex-vessel prices, four species maintained ex-vessel prices, and ex-vessel prices were unavailable for one species.

The estimated value of the 2001 domestic production of all fishery products was \$7.4 billion. This is \$731.5 million less than the estimated value in 2000. The estimated value of domestic production in 1996 was \$7.4 billion. The estimated value of U.S. production of HMS was 969.4 million in 2003 (table 5.3). The total import value of fishery products was \$18.5 billion in 2001. This is an decrease of \$466.3 million from 2000. The total import value in 1996 was \$13.1 billion. The total export value of fishery products was \$11.8 billion in 2001. This is an increase of \$1.1 billion from 2000. The total export value in 1996 was \$8.7 billion.

Consumers spent an estimated \$55.3 billion for fishery products in 2001 including \$38.2 billion at food service establishments, \$16.8 billion for home consumption, and \$276.3 million for industrial fish products. The commercial marine fishing industry contributed \$28.6 billion to the U.S. Gross National Product in 2001. In 1996, consumers spent an estimated \$41.2 billion including \$27.8 billion at food service establishments, \$13.2 billion for home consumption, and \$283.9 billion for industrial fish products. The commercial marine fishing industry contributed \$21.0 billion to the U.S. Gross National Product in 1996.

In both 1996 and 2001, Alaska, Louisiana, Massachusetts, and Maine ranked in the top five states in value of commercial landings (Table 5.1). No HMS ranked in the top ten species for the United States in terms of landings or value for 1996 or 2001. The value of all HMS species (both Atlantic and Pacific) constituted 9.5 percent and 8.2 percent in 1996 and 2001, respectively, of the total U.S. finfish value. The ex-vessel values of HMS landings are listed in Table 5.2. Domestic landings of swordfish and sharks decreased in 2001, as compared to 1996 landings, by 54.3 percent and 33.6 percent respectively. Values for United States production of fresh and frozen fillets for swordfish and sharks also decreased by 71.3 percent and 23.4 percent

¹ All the information and data presented in this section were obtained from NOAA Fisheries 1997a and NOAA Fisheries 2002a. None of the 2001 prices in this section were converted to 1996 prices.

respectively. The values of processed HMS products are listed in Table 5.3.

Table 5.1 The top five states in the United States as ranked by value of commercial landings (in thousands of dollars). Source: NOAA Fisheries, 1997a; NOAA Fisheries, 2002a. 2001 dollars are not converted to 1996 dollars.

Rank in value of commercial landings	1996		2001	
	State	Value	State	Value
1	Alaska	\$1,200,000	Alaska	\$869,900
2	Louisiana	\$267,300	Louisiana	\$342,700
3	Massachusetts	\$231,400	Massachusetts	\$281,100
4	Florida	\$205,200	Maine	\$251,400
5	Maine	\$200,900	Texas	\$218,000

Table 5.2 U.S. domestic commercial landings in thousand dollars of HMS, by Species. Note: Value includes Atlantic and Pacific landings. Source: NOAA Fisheries, 1997a; NOAA Fisheries, 2002a. 2001 dollars are not converted to 1996 dollars.

Species		1996	
Sharks	Dogfish	\$11,804	\$1,778
	Other	\$10,824	\$5,822
	Total	\$22,628	\$7,600
Swordfish		\$36,494	\$19,831
Tunas	Albacore	\$30,157	\$25,149
	Bigeye	\$23,673	\$25,588
	Bluefin	\$21,857	\$18,900
	Little (Tunny)	--	\$430
	Skipjack	\$7,084	\$2,176
	Yellowfin	\$27,060	\$20,860
	Unknown	\$425	\$394
	Total	\$110,256	\$93,497

Species	1996	
Total value all HMS	\$169,378	\$120,928
Total value all finfish species	\$1,790,966	\$1,479,988

Table 5.3 U.S. production in thousand dollars of HMS, by Species. Note: Value includes Atlantic and Pacific caught fish. Source: NOAA Fisheries, 1997a; NOAA Fisheries, 2002a. 2001 dollars are not converted to 1996 dollars.

Product	Species	1996	2001	
Fresh and Frozen Fillets	Shark	\$5,992	\$1,401	
	Swordfish	\$34,277	\$24,425	
	Tuna	\$62,456	\$49,627	
	Total HMS	\$102,725	\$75,453	
Fresh and Frozen Steaks	Shark	\$27	-	
	Swordfish	\$12,725	\$7,496	
	Tuna	\$14,669	\$11,860	
	Total HMS	\$27,421	\$19,356	
Total Fillets and Steaks, all finfish		\$885,665	\$914,987	
Canned products	Tuna	Albacore	\$362,690	\$371,518
		Light meat	\$594,234	\$286,637
		Total	\$956,924	\$658,155
	Total, all finfish		\$1,298,489	\$969,362

5.1.2 Ex-Vessel Prices of Atlantic HMS

The average ex-vessel prices per pound dressed weight (dw) for 1996 and 2001 by Atlantic HMS, major gear types, and area are summarized in Table 5.4. The average ex-vessel prices per lb. dw for 1996 and 2001 by species and area are summarized in Table 5.5. For both of these tables, 2001 dollars are converted to 1996 dollars using the consumer price index conversion factor of 0.886. This conversion allows for easy comparisons in price. The ex-vessel price indices for some HMS for aggregate national commercial landings in the United States can be found in Table 5.6. The ex-vessel price depends on 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.

Tables 5.4 and 5.5 indicate that the average ex-vessel prices for bigeye tuna have generally increased in three of the four regions assessed. The gears used also influenced the average price of bigeye tuna with longline-caught fish bringing the highest average value in 2001 in the Mid and South Atlantic while trawl-caught bigeye tuna received the highest average value in the North-Atlantic. The Mid-Atlantic region is the only region that had consistent use of gear types in both 1996 and 2001. This region also showed a switch from high average values for bigeye tuna caught with net or trawl gear to high average values for net- and bottom long line-caught bigeye tuna.

Average ex-vessel prices for bluefin tuna have generally declined in all regions (Tables 5.4 and 5.5). This is contrary to the ex-vessel value of bluefin tuna across the United States, which increased from 1998 through 2000 (Table 5.6). The highest average ex-vessel prices were found in the North Atlantic (Table 5.5). As with bigeye tuna, the combination of region and gear used to land bluefin tuna made a difference in the ex-vessel price (Table 5.4). In the North Atlantic, bluefin tuna caught with handgear had the highest average ex-vessel price in 2001. In 1996, bluefin tuna caught with handgear had higher average prices than those caught with longline, but purse seine-caught fish had the highest ex-vessel prices in the North Atlantic, and gillnet-caught fish (although few in number) had the highest average price in the Mid-Atlantic. 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 2001.

The average ex-vessel prices for yellowfin tuna have decreased slightly in the South and Mid-Atlantic and have increased in the North-Atlantic (Table 5.5). No data was available from 1996 in the Gulf of Mexico region. In the United States, even though the ex-vessel price has increased since 1996, the ex-vessel price of all yellowfin tuna has generally decreased since 1995 (Table 5.6). Gears influenced the average prices, but changed between regions (Table 5.4).

The average ex-vessel prices for other tunas have generally decreased in all regions except the Gulf of Mexico, where it increased. (Table 5.5). The average price of other tunas is lowest in the South Atlantic compared to the other regions. In the North and South Atlantic regions, the highest average price was obtained using bottom longline gear (Table 5.4). In the Mid-Atlantic, the highest average price was obtained using handgear.

In the South and North Atlantic regions, the average ex-vessel price for swordfish has generally increased while the average ex-vessel price has decreased in the Mid-Atlantic region (Table 5.5). Overall in the United States the ex-vessel price has decreased from 1996 to 2001 (Table 5.6). The highest average ex-vessel prices changed by area, region, and year and did not have a discernable pattern (Table 5.4).

The average ex-vessel price for large coastal sharks (LCS) increased in the Gulf of Mexico, Mid-Atlantic and North Atlantic regions and decreased slightly in the South Atlantic

region (Table 5.5). Average prices changed across regions and gear-type (Table 5.4).

The average ex-vessel price for pelagic sharks decreased in the Gulf of Mexico, Mid-, and North Atlantic regions (Table 5.5). The highest average prices were found with a variety of gears, mainly longline and handgear (Table 5.4). Small coastal sharks (SCS) have the lowest average ex-

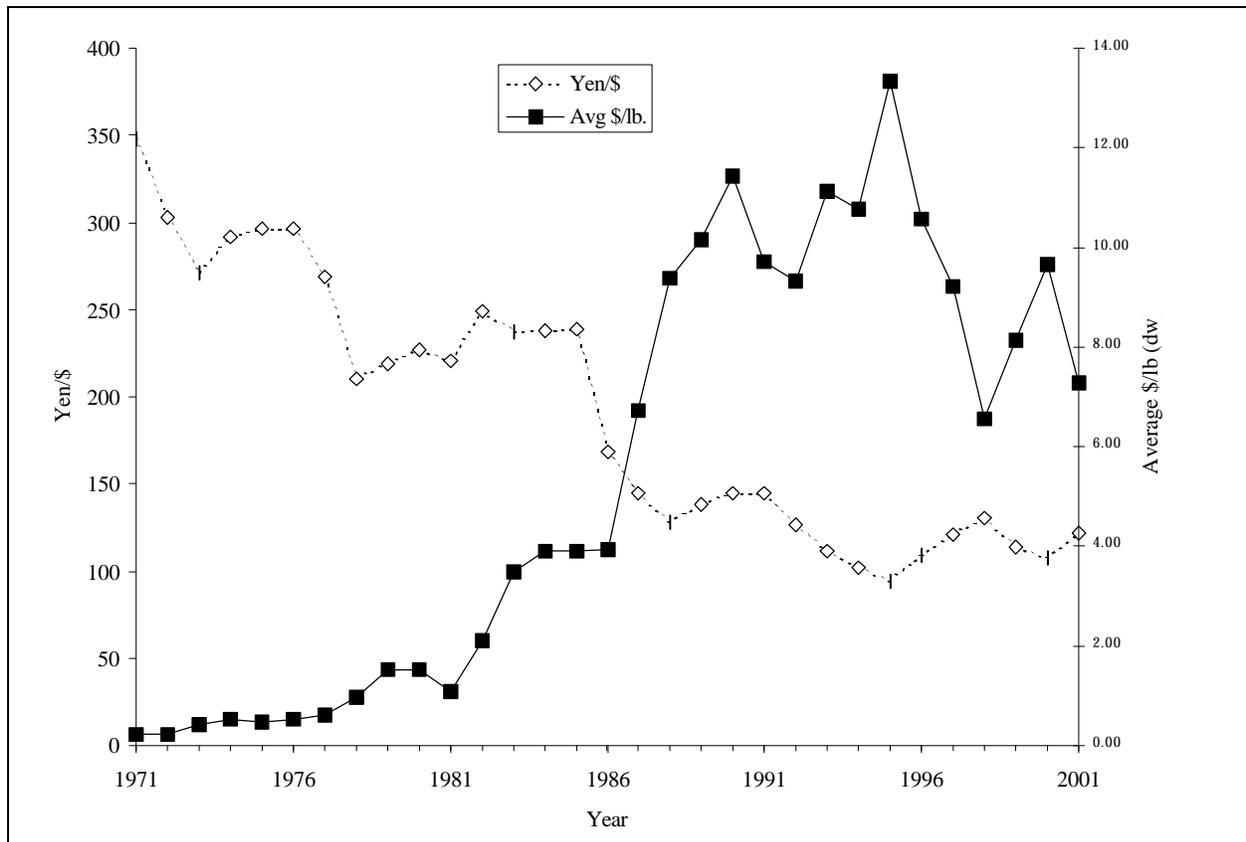


Figure 5.1 Average Annual Yen/\$ Exchange Rate and Average U.S. BFT Ex-vessel \$/lb (dw) for all gears: 1971-2001. Source: Federal Reserve Bank (www.stls.frb.org) and Northeast Regional Office.

vessel price of all shark species but this price generally increased in all regions (Table 5.5).

The average ex-vessel price for shark fins has generally increased in the South and North Atlantic (Table 5.5). In the mid-Atlantic prices decreased slightly (Table 5.5). No data was available in 1996 in the Gulf of Mexico or in 2001 in the Mid or North Atlantic regions (Table 5.5). The highest average values are generally found in the Gulf of Mexico and North Atlantic regions (Table 5.4).

Table 5.7 summarizes the average value of the fishery based on average ex-vessel prices and the weight reported landed as per the United States National Report (NOAA Fisheries 2002b), the 1997 and 2002 Shark Evaluation Reports (NOAA Fisheries, 1997b; Cortes, 2002), information given to ICCAT (Cortes, 2001), as well as prices and weights reported to the NOAA Fisheries Northeast Regional Office by Atlantic bluefin tuna dealers. These values indicate that the estimated total value of Atlantic HMS fisheries in 1996 dollars has increased 16.1 percent from approximately \$68.1 million in 1996 to approximately \$81.2 million in 2001. The bigeye tuna, yellowfin tuna, other tunas, small coastal shark, and shark fins fisheries were the only Atlantic HMS fisheries that increased in value (by 58 percent, 55 percent, 54 percent, 77 percent, and 52 percent respectively). The value of the pelagic shark fishery decreased the most (51 percent) followed by the fisheries for swordfish (31 percent), large coastal shark (17 percent), and bluefin tuna (9 percent).

Table 5.4 Average ex-vessel prices per lb. dw for Atlantic HMS by gear and area. 2001 dollars are converted to 1996 dollars using the consumer price index conversion factor of 0.886. Source: Dealer weigh out slips from the Southeast Fisheries Science Center and Northeast Fisheries Science Center, and bluefin tuna dealer reports from the Northeast Regional Office. HND=Handline, harpoon, and trolls, PLL=Pelagic longline, BLL=Bottom longline, Net=Gillnets and pound nets, TWL=Trawls, SEN=Seines. Gulf of Mexico includes: TX, LA, MS, AL, and the west coast of FL. S. Atlantic includes: east coast of FL. GA, SC, and NC dealers reporting to Southeast Fisheries Science Center. Mid-Atlantic includes: NC dealers reporting to Northeast Fisheries Science Center, VA, MD, DE, NJ, NY, and CT. N. Atlantic includes: RI, MA, NH, and ME. For bluefin tuna, all NC landings are included in the Mid-Atlantic.

Species	Gear	Gulf of Mexico		S. Atlantic		Mid-Atlantic			
		1996	2001	1996	2001	1996	2001	1996	2001
Bigeye tuna	HND	\$0.68	\$1.61	\$1.30	\$1.90	\$5.74	\$3.83	\$3.69	\$5.32
	PLL	-	\$2.34	\$1.33	\$2.46	\$3.51	\$3.38	\$3.36	\$3.03
	BLL	-	\$0.44	\$1.30	\$2.33	\$2.61	\$3.87	\$2.15	-
	NET	-	-	\$1.30	-	\$3.87	\$3.99	\$3.31	-
	TWL	-	-	-	-	\$4.68	-	\$8.00	\$3.14
Bluefin tuna	HND	-	\$1.11	-	\$3.12	\$14.70	\$4.37	\$10.73	\$7.27
	PLL	\$5.83	-	\$4.62	\$4.27	\$6.12	\$6.05	\$5.56	\$4.64
	NET	-	-	-	-	\$15.71	\$1.98	-	\$3.77
	SEN	-	-	-	-	-	-	\$11.05	\$6.58
	TWL	-	-	-	-	-	-	-	\$3.37
	BLL	-	-	-	\$3.20	-	\$6.20	-	-
Yellowfin tuna	HND	-	\$2.26	\$1.55	\$1.25	\$2.49	\$1.87	\$2.50	\$2.54
	PLL	-	\$2.88	\$1.63	\$1.90	\$2.51	\$2.04	\$2.14	\$2.67

Species	Gear	Gulf of Mexico		S. Atlantic		Mid-Atlantic			
		1996	2001	1996	2001	1996	2001	1996	
	BLL	-	\$2.93	\$1.41	\$2.17	\$3.28	\$1.87	\$2.03	\$3.34
	NET	-	-	-	\$1.07	\$1.07	\$1.32	\$2.43	-
	TWL	-	-	-	-	\$2.40	\$1.36	\$2.67	\$1.86
Other tunas	HND	\$0.28	\$0.70	\$0.75	\$0.54	\$1.34	\$0.79	\$1.90	\$2.12
	PLL	-	\$0.62	\$0.79	\$1.18	\$1.84	\$0.78	\$0.98	\$0.62
	BLL	-	\$0.66	\$0.87	\$1.65	-	\$0.69	\$1.50	\$2.66
	NET	\$0.38	\$0.29	\$0.35	\$0.20	\$0.45	\$0.43	\$0.73	\$0.32
	TWL	-	\$0.69	\$0.31	\$0.42	\$0.45	\$0.42	\$1.08	\$0.71
	SEN	-	\$0.54	-	-	-	-	-	-
	TRP	-	-	-	\$0.16	-	-	-	-
Swordfish	HND	-	\$2.52	\$2.48	\$3.76	\$3.61	\$3.28	\$5.20	\$5.04
	PLL	-	\$3.02	\$2.88	\$2.90	\$4.31	\$3.07	\$4.01	\$3.17
	BLL	-	\$2.88	\$2.46	\$2.78	\$4.88	\$3.06	\$3.07	-
	NET	-	-	-	-	\$4.63	\$3.71	\$5.62	-
	TWL	-	-	-	-	\$4.56	\$2.53	\$3.08	\$4.21
Large Coastal Sharks	HND	\$0.23	\$0.45	\$0.72	\$0.85	\$0.74	\$0.78	-	\$0.44
	PLL	-	\$0.40	\$1.54	\$1.50	\$0.58	\$2.32	\$1.03	\$1.07
	BLL	\$0.60	\$0.39	\$0.73	\$0.79	\$0.54	\$0.49	\$0.99	\$1.27
	NET	\$0.38	\$0.44	\$1.30	\$1.32	\$0.45	\$0.79	\$0.83	\$0.88
	TWL	\$0.15	\$0.22	\$0.86	\$0.45	\$0.47	\$0.49	\$0.80	\$0.82
Pelagic sharks	HND	-	\$1.31	\$0.82	\$0.63	\$1.47	\$1.12	\$1.60	\$1.22
	PLL	-	\$1.17	\$0.68	\$0.84	\$1.25	\$1.38	\$1.26	\$1.21
	BLL	-	\$1.26	\$0.59	\$0.69	\$1.47	\$0.86	\$1.85	-
	NET	-	-	\$0.33	\$0.32	\$0.99	\$0.90	\$1.12	\$0.87
	TWL	-	-	-	\$0.23	\$1.00	\$0.61	\$0.96	\$1.05
Small Coastal sharks	HND	-	\$0.33	\$0.25	\$0.41	-	\$0.35	-	-
	PLL	-	\$0.66	-	\$0.56	\$0.25	\$0.43	-	-
	BLL	-	\$0.54	-	\$0.47	-	\$0.45	-	-
	NET	-	\$0.40	\$0.25	\$0.48	-	\$0.39	-	\$1.34
	TWL	-	-	-	\$0.20	-	\$0.84	-	-
	TRP	-	\$0.66	-	-	-	-	-	-

Species	Gear	Gulf of Mexico		S. Atlantic		Mid-Atlantic			
		1996	2001	1996	2001	1996	2001	1996	
Shark fins	HND	-	\$14.09	\$14.00	\$17.50	\$2.74	-	-	-
	PLL	-	\$18.68	-	\$10.14	\$7.79	-	\$4.25	-
	BLL	-	\$19.05	\$14.00	\$19.68	\$8.00	-	\$3.00	-
	NET	-	\$9.76	-	\$9.39	\$4.77	-	\$1.96	-
	TWL	-	-	\$9.11	\$10.78	\$1.99	-	\$2.32	-

Table 5.5 Average ex-vessel prices per lb. for Atlantic HMS by area. 2001 dollars are converted to 1996 dollars using the consumer price index conversion factor of 0.886.

Species	Gulf of Mexico		S. Atlantic		Mid-Atlantic			
	1996	2001	1996	2001	1996	2001	1996	
Bigeeye tuna	\$0.68	\$1.72	\$1.32	\$2.28	\$3.99	\$3.77	\$3.59	\$3.83
Bluefin tuna	\$5.83	\$1.11	\$4.62	\$3.54	\$9.48	\$4.65	\$10.78	\$5.13
Yellowfin tuna	-	\$2.64	\$1.56	\$1.51	\$2.43	\$1.69	\$2.35	\$2.60
Other tunas	\$0.29	\$0.67	\$0.62	\$0.51	\$1.10	\$0.62	\$1.31	\$1.29
Swordfish	-	\$2.93	\$2.79	\$3.04	\$4.43	\$3.13	\$4.09	\$4.14
Large coastal sharks	\$0.21	\$0.39	\$1.02	\$0.99	\$0.55	\$0.97	\$0.88	\$0.90
Pelagic sharks	-	\$1.26	\$0.62	\$0.60	\$1.21	\$0.97	\$1.31	\$1.09
Small coastal sharks	-	\$0.51	\$0.25	\$0.46	\$0.25	\$0.49	-	\$1.34
Shark fins	-	\$18.52	\$10.74	\$16.33	\$4.60	-	\$2.69	-

Table 5.6 Indices of ex-vessel prices for HMS, except sharks, by years 1993-2001. 1982 is the base year and has a value of 100. 1996 and 2001 are in bold for easier referencing. Note: Indices based on Atlantic and Pacific ex-vessel prices. Source: NOAA Fisheries, 2002a.

Year	Swordfish	Albacore	Bluefin	Skipjack	Yellowfin	
1993	92	132	766	85	112	117
1994	107	125	666	127	205	181
1995	104	120	954	83	283	212
1996	103	130	229	82	113	105
1997	91	124	353	93	126	118
1998	70	99	295	79	100	96

Year	Swordfish	Albacore	Bluefin	Skipjack	Yellowfin	
1999	76	125	736	63	88	94
2000	78	134	760	52	122	109
2001	77	132	706	74	120	116

Table 5.7 Estimates of the total ex-vessel value of Atlantic HMS fisheries. Note: Average ex-vessel prices are the average of the values noted in Table 5.5 and may have some weighting errors, except for bluefin tuna which is based on a fleet-wide average. 2001 prices are converted to 1996 dollars using a conversion factor of .886. Sources: NOAA Fisheries, 1997b; NOAA Fisheries, 2002; Cortes, 2000; Cortes, 2001; Cortes, 2002; and bluefin tuna dealer reports from the Northeast Regional Office.

Species	1996			2001		
	Ex-vessel price (\$/lb dw)	Weight (lb dw)	Fishery Value	Ex-vessel price (\$/lb dw)	Weight (lb dw)	Fishery Value
Bigeye tuna	\$2.40	1,212,706	\$2,904,432	\$2.90	2,391,350	\$6,934,915
Bluefin tuna	\$10.58	1,652,989	\$17,488,624	\$7.29	2,176,016	\$15,863,157
Yellowfin tuna	\$2.11	6,679,938	\$14,116,936	\$2.11	14,777,800	\$31,181,158
Other tunas*	\$0.83	368,433	\$305,799	\$0.77	867,960	\$668,329
Total tuna	--	--	\$34,815,791	--	--	\$54,647,559
Swordfish	\$3.77	7,170,619	\$27,033,234	\$3.31	5,662,350	\$18,742,379
Large coastal sharks	\$0.67	5,262,314	\$3,499,439	\$0.81	3,562,546	\$2,885,662
Pelagic sharks	\$1.05	695,531	\$727,989	\$0.98	362,925	\$355,667
Small coastal sharks	\$0.25	460,667	\$115,167	\$0.70	719,484	\$503,639
Shark fins (weight = 5% of all sharks landed)	\$6.01	320,926	\$1,928,763	\$17.43	232,248	\$4,048,078
Total sharks	--	--	\$6,271,358	--	--	\$7,793,046
Total HMS	--	--	\$68,120,382	--	--	\$81,182,984

* Other tunas includes skipjack and albacore.

5.1.3 Wholesale Prices of Atlantic HMS

Currently, NOAA Fisheries does not collect wholesale price information from dealers. However, the wholesale price of some fish species is available off the web (www.st.nmfs.gov/st1/market_news/index.html). The wholesale prices presented in Tables 5.8 through 5.11 are from the annual reports of the Fulton Fish Market. As with ex-vessel prices, wholesale prices depend on a number of factors including the quality of the fish, the weight of the fish, the supply of fish, and consumer demand.

As reported by the Fulton Fish Market, tables 5.8 through 5.11 indicate that the average wholesale price of HMS sold in Atlantic and Gulf of Mexico states decreased by approximately 19.6 percent from 1996 to 2001. The wholesale price of swordfish weighing between 26 and 49 lbs decreased the most (34.7 percent), followed by the wholesale price of yellowfin tuna #1 by the fish (30.4 percent) and the wholesale price of yellowfin tuna #2 by the fish (29.6 percent). The wholesale price of thresher sharks was the only increase (11.0 percent). The wholesale price of mako sharks decreased the least (4.0 percent). Additionally, swordfish and tunas that are cut into pieces are generally worth more than a whole fish, although the larger fish are generally worth more than smaller fish.

Table 5.8 Average fresh wholesale price per lb of sharks sold in Atlantic and Gulf of Mexico states as reported by the Fulton Fish Market. Note: 2001 dollars are converted to 1996 dollars using the conversion factor 0.886. "0.00" means that some information was provided for that year and species. " - " means that no information was provided for that year and species.

State	Species	Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
FL	Blacktip	96	0.00	1.00	0.00	1.25	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		01	1.01	0.89	0.00	0.00	0.00	0.00	0.61	0.82	0.00	0.00	0.00	0.00
	Mako	96	0.00	2.50	0.00	0.00	3.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		01	-	-	-	-	-	-	-	-	-	-	-	-
	Thresher	96	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		01	-	-	-	-	-	-	-	-	-	-	-	-
NC	Blacktip	96	1.13	1.07	1.01	1.25	1.14	0.89	0.72	1.06	0.00	0.00	1.05	0.00
		01	1.05	0.00	1.04	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Mako	96	0.00	0.00	0.00	0.00	3.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		01	0.00	0.00	0.00	2.44	2.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Thresher	96	-	-	-	-	-	-	-	-	-	-	-	-
		01	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NY	Blacktip	96	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

State	Species	Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		01	-	-	-	-	-	-	-	-	-	-	-	-
VA	Blacktip	96	0.00	1.01	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		01	-	-	-	-	-	-	-	-	-	-	-	-
	Mako	96	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		01	-	-	-	-	-	-	-	-	-	-	-	-
	Thresher	96	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		01	-	-	-	-	-	-	-	-	-	-	-	-

Table 5.9 Average fresh wholesale price per lb of swordfish sold in Atlantic and Gulf of Mexico states as reported by the Fulton Fish Market. Note: 2001 dollars are converted to 1996 dollars using the conversion factor 0.886. "0.00" means that some information was provided for that year and species. "- "- means that no information was provided for that year and species.

State	Size	Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
FL	100# Up	96	0.00	6.58	6.25	6.80	6.38	6.58	7.13	6.17	6.00	0.00	6.50	0.00	
		01	4.65	5.10	5.05	5.47	5.32	4.87	4.21	0.00	0.00	3.54	3.32	0.00	
	50-99#	96	0.00	0.00	6.25	7.00	5.63	6.38	6.75	0.00	5.50	0.00	6.00	0.00	
		01	4.78	4.00	4.38	4.17	3.80	4.61	4.10	0.00	5.01	0.00	3.19	3.19	
	26-49#	96	0.00	0.00	5.75	6.00	6.00	6.00	6.00	0.00	0.00	0.00	5.50	0.00	
		01	3.64	3.64	3.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Cuts	96	0.00	7.38	7.50	8.17	7.88	8.00	8.50	8.50	7.50	0.00	8.75	0.00	
		01	6.28	5.37	6.27	6.08	5.99	6.38	5.47	6.38	0.00	0.00	5.01	5.24	
	LA	100# Up	96	-	-	-	-	-	-	-	-	-	-	-	-
			01	0.00	0.00	5.32	0.00	4.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		50-99#	96	-	-	-	-	-	-	-	-	-	-	-	-
			01	0.00	0.00	4.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cuts		96	-	-	-	-	-	-	-	-	-	-	-	-	
		01	0.00	0.00	6.65	0.00	5.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
MA	100# Up	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.25	0.00	0.00	5.50	0.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	4.87	0.00	0.00	0.00	0.00	0.00	
	50-99#	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.75	0.00	0.00	0.00	0.00	
		01	-	-	-	-	-	-	-	-	-	-	-	-	
	Cuts	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.50	0.00	0.00	7.00	0.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.20	0.00	0.00	0.00	0.00	

State	Size	Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
NC	100# Up	96	0.00	5.75	0.00	6.63	6.25	0.00	0.00	0.00	0.00	6.13	5.25	5.65	
		01	4.87	5.09	0.00	0.00	5.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	50-99#	96	0.00	5.13	0.00	7.50	6.38	0.00	0.00	0.00	0.00	0.00	5.63	4.75	5.30
		01	0.00	4.55	0.00	0.00	4.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	26-49#	96	0.00	5.25	0.00	7.25	5.75	0.00	0.00	0.00	0.00	0.00	5.13	4.00	4.75
		01	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cuts	96	0.00	6.88	0.00	8.13	7.50	0.00	0.00	0.00	0.00	0.00	7.13	7.13	6.50
		01	6.20	6.32	0.00	0.00	6.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NY	100# Up	96	0.00	0.00	0.00	0.00	0.00	0.00	7.38	6.50	6.00	6.38	6.00	0.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	5.21	4.43	0.00	4.80	0.00	0.00	
	50-99#	96	0.00	0.00	0.00	0.00	0.00	0.00	7.50	0.00	5.63	5.63	5.75	0.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	4.65	4.32	0.00	4.06	0.00	0.00	
	26-49#	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.75	5.13	5.25	0.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.54	0.00	0.00	
	Cuts	96	0.00	0.00	0.00	0.00	0.00	0.00	10.00	0.00	7.50	7.50	7.50	0.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	5.76	0.00	5.91	0.00	

Table 5.10 Average fresh wholesale price per lb of yellowfin tuna (Y) sold in Atlantic and Gulf of Mexico states as reported by the Fulton Fish Market. Note: 2001 dollars are converted to 1996 dollars using the conversion factor 0.886. #'s indicate quality (1 is highest, 3 is lowest). "BTF" means "by the fish".

State	Species and Size	Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
FL	Y#2BTF	96	0.00	5.50	4.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		01	0.00	0.00	0.00	0.00	0.00	0.00	2.66	3.96	0.00	0.00	0.00	0.00
	Y#2cut	96	0.00	7.50	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		01	0.00	0.00	0.00	0.00	0.00	0.00	4.43	5.76	0.00	0.00	0.00	0.00
LA	Y#1BTF	96	-	-	-	-	-	-	-	-	-	-	-	-
		01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.87	0.00	0.00	0.00	0.00
	Y#1cut	96	-	-	-	-	-	-	-	-	-	-	-	-
		01	0.00	0.00	0.00	0.00	7.52	0.00	7.06	0.00	0.00	0.00	0.00	0.00
	Y#2BTF	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.75	0.00	0.00	5.00
		01	0.00	0.00	0.00	0.00	0.00	0.00	3.54	3.99	0.00	3.10	0.00	0.00

State	Species and Size	Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov		
	Y#2cut	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	7.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	4.87	5.98	0.00	4.87	0.00	0.00	
NC	Y#2BT F	96	0.00	4.75	0.00	6.00	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		01	-	-	-	-	-	-	-	-	-	-	-	-	
	Y#2cut	96	0.00	6.50	0.00	8.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		01	-	-	-	-	-	-	-	-	-	-	-	-	
	Y20- 30# BTF	96	2.08	2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00	
		01	-	-	-	-	-	-	-	-	-	-	-	-	
	Y30- 40# BTF	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	
		01	-	-	-	-	-	-	-	-	-	-	-	-	
	Y40- 50# BTF	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00	
		01	-	-	-	-	-	-	-	-	-	-	-	-	
	NJ	Y#1BT F	96	0.00	0.00	0.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			01	-	-	-	-	-	-	-	-	-	-	-	-
Y#1cut		96	0.00	0.00	0.00	9.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		01	-	-	-	-	-	-	-	-	-	-	-	-	
Y#2BT F		96	0.00	0.00	0.00	5.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.99	3.10	0.00	0.00	0.00	
Y#2cut		96	0.00	0.00	0.00	7.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.05	5.32	0.00	0.00	0.00	
NY		Y#1BT F	96	0.00	0.00	0.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			01	-	-	-	-	-	-	-	-	-	-	-	-
	Y#1cut	96	0.00	0.00	0.00	9.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
		01	-	-	-	-	-	-	-	-	-	-	-	-	
	Y#2BT F	96	4.75	4.75	0.00	5.50	0.00	4.13	4.63	3.83	3.63	3.58	3.38	0.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	3.77	3.99	3.10	0.00	0.00	0.00	
	Y#2cut	96	0.00	7.00	0.00	7.50	0.00	5.88	6.38	5.60	5.56	5.25	5.13	0.00	
		01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.76	4.87	0.00	0.00	
	Y40- 60# BTF	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50	0.00	2.50	0.00	0.00	
		01	-	-	-	-	-	-	-	-	-	-	-	-	
TX	Y#2BT F	96	0.00	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00		

State	Species and Size	Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		01	-	-	-	-	-	-	-	-	-	-	-	-
	Y#2cut	96	0.00	0.00	0.00	0.00	0.00	7.00	0.00	0.00	0.00	0.00	0.00	0.00
		01	-	-	-	-	-	-	-	-	-	-	-	-
	Y40-60#BTF	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.25	0.00	0.00	0.00	0.00
		01	-	-	-	-	-	-	-	-	-	-	-	-
	Y60-80#BTF	96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.75	0.00	0.00	0.00	0.00
		01	-	-	-	-	-	-	-	-	-	-	-	-

Table 5.11 The overall average wholesale price per lb of fresh HMS sold in Atlantic and Gulf of Mexico states as reported by the Fulton Fish Market. Note: 1999 dollars are converted to 1996 dollars using the conversion factor 0.94. 2000 dollars are converted to 1996 dollars using the conversion factor 0.911. 2001 dollars are converted to 1996 dollars using the conversion factor 0.886. #'s indicate quality (1 is highest, 3 is lowest); BTF is by the fish. No data reported in 1996 or 2001 for bigeye tuna or #3 yellowfin tuna.

Species	Description	1996 Price/lb	1999 Price/lb	2000 Price/lb	2001 Price/lb	
Blacktip	--	\$1.05	\$0.98	\$0.95	\$0.93	-11.4%
Mako	--	\$2.77	\$2.58	\$2.90	\$2.66	-4.0%
Thresher	--	\$1.00	\$0.86	\$0.75	\$1.11	11.0%
Swordfish	100# and up	\$6.28	\$4.94	\$4.79	\$4.80	-23.6%
	50-99#	\$6.02	\$4.27	\$4.30	\$4.26	-29.2%
	26-49#	\$5.50	\$3.16	\$3.26	\$3.59	-34.7%
	Cuts	\$7.74	\$6.16	\$5.96	\$5.96	-23.0%
Yellowfin tuna	#1: BTF	\$7.00	\$5.61	\$5.18	\$4.87	-30.4%
	#1: Cuts	\$9.38	\$7.74	\$7.29	\$7.29	-22.3%
	#2: BTF	\$5.00	\$3.99	\$3.97	\$3.52	-29.6%
	#2: Cuts	\$6.52	\$5.85	\$5.65	\$5.32	-18.4%
	#3: BTF	--	\$2.82	--	--	--
	#3: Cuts	--	\$4.23	--	--	--

Species	Description	1996 Price/lb	1999 Price/lb	2000 Price/lb	2001 Price/lb	Percent Change 1996 to 2001
Bigeye tuna	#1: BTF	--	\$3.76	--	--	--
	#1: Cuts	--	\$5.17	--	--	--
	#2: BTF	--	\$4.00	--	--	--
	#2: Cuts	--	\$5.64	--	--	--

5.1.4 Fishing Costs and Revenues for Atlantic Commercial Fishermen

Except for pelagic longline gear, there are little additional data or new reports regarding fishing costs and revenues. Unless otherwise stated, the information included here is a summary of the information included in previous SAFE reports and the HMS FMP.

In general, a vessel owner will need to pay for supplies and provisions for each fishing trip (e.g. hooks, bait, light sticks, ice, fuel, groceries, etc.), vessel and gear repairs as needed, crew members (the number of crew members may change depending on the type of fishing trip and the gear used), and for the proper permits (the information here does not include the price of the permit which is small for an annual renewal but may be large for someone trying to enter a limited access fishery). Fishing trips themselves can be expensive and there is no guarantee that the revenues from the harvest will be enough to cover the owner's expenses for that trip.

Pelagic longline

The amount of data available for this gear type is increasing although current information is needed. Since 1996, NOAA Fisheries has been collecting economic information on a per trip basis through submission of voluntary forms in the pelagic logbook maintained in the Southeast Fisheries Science Center. Compared to the number of logbook reports, few economic data have been collected (Table 5.12). Beginning in 2003, NOAA Fisheries will initiate mandatory cost earnings reporting for selected vessels in order to improve the economic data available for all HMS fisheries. This mandatory program could be applied to other gear-types as well. Mandatory submission of this economic data is needed for NOAA Fisheries to accurately assess the economic impacts of proposed fishery management regulations on fishermen and their communities as required by NEPA, Executive Order 12866, the Regulatory Flexibility Act (RFA), and National Standards 7 and 8 of the Magnuson-Stevens Act. Specifically, this information will be used to conduct cost-benefit analyses and develop regulatory impact analyses of proposed regulations in an effort to help NOAA Fisheries develop and improve fishery management strategies.

Currently, there are a few studies that have examined voluntary data (Larkin *et al.*, 1998;

Ward and Hanson, 1999; Larkin *et al.*, 2000; and Larkin *et al.*, in press). Additionally, in 1998, Porter *et al.*, 2001, conducted a survey of pelagic longline vessel fishing operations in 1997. Because Porter *et al.* (2001), Larkin *et al.* (1998; 2000), and Ward and Hanson (1999) were discussed in the 2002 SAFE report, those studies will not be discussed in this SAFE report.

Bottom Longline

This gear is mainly used to target sharks. The fishing costs for this gear type should be similar to the fishing costs for pelagic longline. McHugh and Murray (1997) found that a seven day trip had an average profit (owner's share of catch minus all expenses) of \$1,589. Vessels between 40 and 49 feet had an average profit of \$1,975 for a seven day trip. Additional data are needed for this fishery. NOAA Fisheries will also begin collection of cost-earnings information for this fishery in 2003.

Purse Seine

In 2000, NOAA Fisheries distributed a voluntary survey to the owners of the five Atlantic tuna purse seine vessels in a continuing effort to collect economic data on the Atlantic tuna purse seine vessels. Unfortunately, very little information was provided on which to assess seasonal and/or yearly costs incurred by the purse seine fishing fleet. Accurate cost information is particularly useful when addressing the impact of regulations on Atlantic tuna fishery participants, including purse seiners, to ensure that the agency conducts adequate analyses as required under various legal mandates.

Handgear

The commercial handgear fishery targets mainly tunas, particularly bluefin tuna. For this reason, most of the economic information regarding this fishery is related to bluefin tuna. In 1999, researchers at the University of Rhode Island finalized a project that: 1) evaluated the influence of factors such as quantity supplied, time of harvest, and quality characteristics on the price of U.S. Atlantic bluefin tuna sold on the Japanese wholesale market; 2) determined the relationship between prices in Japan and ex-vessel prices received by U.S. fishermen, and 3) determined how different fishery management options influence gross revenues received by U.S. fishermen. The final report concluded that regulations should be developed and implemented that would help the fishery avoid capture seasons that are condensed into sporadic intervals. The report also recommended that consumer preferences should be considered for the efficient exploitation and trade of bluefin tuna in order to help increase revenues for the industry and to eliminate economic inefficiencies generated by public management. Specifically, the report suggests a more dispersed allocation of harvest planned in conjunction with periods of the year when fish seem to possess consumer-favored characteristics, such as high fat content. The researchers at the University of Rhode Island have continued their work, concentrating on the following research objectives: 1) to formally evaluate, using a hedonic model, the degree to which price of U.S. fresh bluefin tuna is determined by those quality attributes of each fish, rather than

by just the quantity supplied; 2) to attempt to show how the quality of U.S. bluefin tuna depends on harvest practices; and 3) to combine the results from the hedonic model and production model estimates to find quota allocations that could result in the highest payoffs to the industry.

Gillnets

In 1999, the use of pelagic driftnets was prohibited in both the swordfish and Atlantic tunas fisheries. Currently, the only fishermen allowed to use this gear are fishermen targeting sharks. NOAA Fisheries knows of six vessels that actively participated in this fishery in recent years. NOAA Fisheries has very little economic information on the fishing costs related to this gear type. However, it is expected that the cost per trip would be less than those of a pelagic or bottom longline fishing trip because the trips are usually shorter in duration (an average of 18 hours per trip), vessels do not fish far offshore (within 30 nautical miles from port), and the gear does not need hooks, bait, or light sticks. Other costs may be incurred as the holes in the gear need to be repaired regularly. NOAA Fisheries estimates based on recent landings and average ex-vessel prices that most drift gillnet vessel has a gross revenues per trip of \$380 to \$9,000 with an average of \$3,700.

Additionally, some shark drift gillnet vessels fish in a strike-net method. This method requires the use of a small vessel (used to run the net around the school of sharks) and a spotter plane. While the cost per trip is higher than the traditional drift gillnet method, bycatch in this method is extremely low, catch rates of the target species is high, and vessels can complete a set in less time. NOAA Fisheries estimates that the smaller vessel could cost between \$2,000 and \$14,000 to buy. Because these second vessels need to be sturdy enough to hold the gillnet and move quickly around the school of sharks, it is likely that vessel owners would need to re-fit any vessel bought for this purpose. Additionally, a second vessel requires additional fuel and maintenance costs. Spotter planes in other fisheries are paid based on the percentage of the proceeds from the trip, generally 10 to 25 percent of gross revenues. Thus, given the average gross revenues per trip, converting a drift gillnet vessel to a strikenet vessel could be prohibitive.

5.1.5 Costs and Revenues for Atlantic Dealers

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

Although NOAA Fisheries 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 the HMS FMP (Section 2.2.4). Table 5.15 provides a summary of available

information. Recent trends indicate that while the number of fish processing facilities have decreased, the number of employees have increased. Florida and New York appear to have the largest number of processing facilities and employees on the Atlantic coast.

NOAA Fisheries also 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 5.16. In both 1996 and 2001, the mark up was over 90 percent.

Table 5.15 The number of plants and employees for Atlantic processors and wholesalers , by State, in 1996 and 2000. Source: NOAA Fisheries, 1998; NOAA Fisheries, 2002a. 2001 data is not yet available.

State	1996			
	Number of plants	Number of employees	Number of plants	Number of employees
Maine	267	3,353	270	2,953
New Hampshire	37	455	37	425
Massachusetts	374	4,964	345	5,025
Rhode Island	82	793	69	790
Connecticut	44	339	44	429
New York	339	2,622	362	2,779
New Jersey	150	2,090	131	2,072
Pennsylvania	68	2,017	71	2,400
Delaware	-	-	(2)	(2)
District of Columbia	7	73	(2)	(2)
Maryland	126	1,889	99	1,626
Virginia	129	2,115	113	2,087
N. Carolina	145	2,064	140	1,952
S. Carolina	37	337	30	177
Georgia	66	1,649	61	1,788
Florida	504	5,794	464	6,111
Alabama	144	2,425	125	2,194
Mississippi	64	1,142	70	2,887
Louisiana	311	4,280	268	3,344
Texas	136	2,384	142	3,061
Total	3,030	40,785	2,845	42,104

Table 5.16 Summary of the mark-up and consumer expenditure for the primary wholesale and processing of domestic commercial marine fishery products on a nationwide basis: 1996 and 2001. Source: NOAA Fisheries, 1997a and NOAA Fisheries, 2002a.

	1996	2001
Purchase of Fishery inputs	\$5,377,442	\$6,281,066
Percent mark-up of fishery inputs	96.6%	99.9%
Total mark-up	\$5,192,619	\$6,271,680
Total value of fishery inputs	\$10,570,061	\$12,555,745

5.2 Recreational Fisheries

5.2.1 Economics of Recreational Fisheries across the United States in General²

Although NOAA Fisheries believes that recreational fisheries have a large influence on the economies of coastal communities, NOAA Fisheries has little current information on the costs and expenditures of anglers or the businesses that rely on them. An economic survey done by the U.S. Fish and Wildlife Service³ in 2001 found that 9.1 million saltwater anglers went on approximately 72 million fishing trips and spent approximately \$8.4 billion (USFWS, 2001). Expenditures included lodging, transportation to and from the coastal community, vessel fees, equipment rental, bait, auxiliary purchases (e.g. binoculars, cameras, film, foul weather clothing, etc.), and fishing licenses (USFWS, 2001). Saltwater anglers spent \$4.5 billion on trip related costs and \$3.9 billion on equipment (USFWS, 2001). Approximately 76 percent of the saltwater anglers surveyed fished in their home state (USFWS, 2001). The next USFWS survey is expected in 2006.

The American Sportfishing Association (ASA) also has a report listing the 2001 economic impact of sportfishing on specific states. This report states that all sportfishing has an overall economic importance of \$116 billion dollars (ASA, 2001). Florida, Texas, North Carolina, New York, and Alabama are among the top ten states in terms of overall economic impact for both saltwater and freshwater fishing (ASA, 2001). Florida is also one of the top states in terms of economic impact of saltwater fishing with \$2.9 billion in angler expenditures, \$5.4 billion in

² Unless stated otherwise, all the information and data presented in this section is from NOAA Fisheries 1997a and NOAA Fisheries 2002.

³ This survey interviewed over 77,000 households during phase 1 and approximately 25,070 sports persons during phase 2. The response rate during phase two of the survey was 75 percent.

overall economic impact, \$1.5 billion in salaries and wages related to fishing, and 59,418 fishing related jobs (ASA, 2001). California followed Florida with \$0.8 billion in angler expenditures, \$1.7 billion in overall economic impact, \$0.4 billion in salaries and wages, and 15,652 jobs (ASA, 2001). Texas and New Jersey were the next highest states in terms of economic impact (ASA, 2001).

In general, most anglers did not target HMS in 1996 or 2001. In 1996, over 8 million people made 64 million recreational fishing trips in the United States and caught over 313 million fish (over 50 percent were released alive). In the Atlantic and Gulf of Mexico alone, 8.8 marine recreational fishing participants took 56 million trips and caught a total of 280 million fish. The most commonly caught species by number overall were spotted seatrout, summer flounder, Atlantic croaker, black sea bass, bluefish, and striped bass. Thirteen percent of the total recreational harvest came from the Atlantic and Gulf of Mexico Exclusive Economic Zone (EEZ). The species most commonly caught in federally managed waters were black sea bass, Atlantic mackerel, dolphin, red snapper, and bluefish.

In 2001, over 12 million people made 84 million marine recreational fishing trips in the United States and caught over 442 million fish (over 57 percent were released alive). Along the Atlantic and Gulf of Mexico, over 9.4 million participants took over 75.8 million trips and caught a total of more than 407 million fish. Of the trips that occurred in the Atlantic, 24 percent were made in east Florida, 14 percent in New Jersey, and 13 percent in North Carolina. The most commonly caught species by number in the Atlantic were summer flounder, Atlantic croaker, bluefish, black sea bass, and striped bass. The top five most commonly caught fish by weight included yellowfin tuna, the only HMS in that list. The most commonly caught species in federally managed waters were black sea bass, dolphin, Atlantic cod, summer flounder, Atlantic mackerel, and bluefish. Of the trips that occurred in the Gulf of Mexico, 72 percent originated in Florida, 16 percent in Louisiana, and 12 percent in both Alabama and Mississippi. The most commonly caught species by number were spotted and sand seatrouts, red drum, white grunt, blue runner, Spanish mackerel, and Atlantic croaker. No HMS made the top five list for most commonly caught species by weight in the Gulf of Mexico. The most commonly caught species by number in federally managed waters were white grunt, red snapper, black sea bass, dolphin, and greater amberjack.

5.2.2 Willingness to Pay to Fish for Atlantic HMS

There are little additional data or new reports regarding willingness to pay to fish for Atlantic HMS. Unless otherwise stated, the information included here is a summary of the information included in previous SAFE reports and the HMS FMP.

The most recent data NOAA Fisheries has comes from a 1994 survey of anglers in New England and the Mid-Atlantic (Hicks *et al.*, 1999). The data collected were used to estimate expenditures and economic value of the various groups of recreational fisheries in this area. One category of fishing, called “Big Game” consisted primarily of HMS, including sharks, billfish, and

tunas. Although this study is not an exhaustive picture of the entire HMS recreational fishery, the results provide considerable insight into the absolute and relative values of the recreational fisheries for HMS. Overall average willingness to pay (WTP) for a one-day fishing trip ranged from a low of less than a dollar in New Hampshire to a high of \$42 in Virginia. Aggregate WTP (average WTP times the number of trips) ranged from \$18,000 in New Hampshire to nearly \$1 million in Virginia. Using model results, it was possible to estimate the WTP for a one fish increase in the expected catch rate across all sites in the choice set. The highest average value was attributed to big game fish, ranging from \$5 to \$7 per trip (about \$5.40 on average), in addition to the value of the trip. The marginal value of an increase in catch per trip was highest for big game fish, and lowest for bottom fish.

The 1994 survey results also indicated that boat fees were responsible for the greatest percentage of expenditures. Roughly 70% and 53% of total expenditures went for private/rental boats and charter/party boats, respectively. Travel expenses were the smallest portion of expenditures, although travel costs for those fishing on party/charter vessels were about twice as high as for those fishing on private/rental boats (\$28 vs. \$16).

Angler WTP depends, in part, on the species sought and on the location. Ditton *et al.* (1998) found that the WTP for bluefin tuna in North Carolina ranged from \$344 to \$388 per person. Fisher and Ditton (1992a) found that anglers were willing to pay an additional \$105 per trip rather than stop fishing for sharks.

While these results are useful in considering the economic value of HMS recreational fisheries, specific surveys focusing on HMS are preferable in order to consider the particular nature of these fisheries. NOAA Fisheries will continue to pursue options for funding economic surveys of the recreational HMS fisheries.

5.2.3 Atlantic HMS Tournaments

There are little additional data or new reports regarding Atlantic HMS tournaments. Unless otherwise stated, the information included here is a summary of the information included in previous SAFE reports and the HMS FMP.

The most recent economic information associated with HMS tournaments can be found in the HMS FMP and the Billfish Amendment. A recent search for HMS tournaments on the web found a number of tournaments targeting HMS. This search found that HMS tournaments charge large fees for a team (\$395 to \$5000). This entry fee would pay for a maximum of two to six anglers per team during the course of the tournament. Additional anglers could join the team at a reduced rate of between \$50-\$450. The team entry fee did not appear to be directly proportional to the number of anglers per team, but rather with the amount of money available for prizes and, possibly, the species being targeted. For example, in 2001 and 2002, Bisbee's Black and Blue Marlin Jackpot Tournament had a \$5,000 entry fee for teams consisting of a maximum of four anglers. This tournament awarded a total of \$1.7 million in both 2001 and 2002. Conversely, the

\$15,000 New Jersey Shark tournament has an entry fee of \$395 for a team with a maximum of five anglers. This tournament awarded a total of \$15,000 in prizes with a possibility of a \$50,000 bonus if a state record is landed. The number of vessels and participants at each tournament is also diverse. The smallest tournament found on the web had 18 vessels and 58 anglers participating. Some of the larger tournaments had between 250 and 400 vessels and over 1,300 anglers participating.

In general, it appears that billfish and tuna tournaments charge higher entry fees and award more prize money than shark tournaments although all species have a wide range. The web search found that while some tournaments award between \$500 and \$50,000 in prizes (third through first place) others award much larger prizes ranging from \$81,000 to \$840,000 in prizes. Some tournaments hand out equipments such as new cars, boats, fishing tackle with, or instead of, monetary prizes. The total amount of prize money distributed at any one tournament ranged from \$9,500 to \$2,385,900.

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

Tournaments can bring in a lot of money for the surrounding communities and local businesses. Besides the entry fee to the tournament and possibly the calcutta, anglers also pay for marina space and gas (if they have their own vessel), vessel rental (if they do not have their own vessel), meals and awards dinners (if not covered by the entry fee), hotel, fishing equipment, travel costs to and from the tournament, camera equipment, and other miscellaneous expenses. Fisher and Ditton (1992b) found that the average angler who attended a billfish tournament spent \$2,147 per trip and that billfish tournament anglers spent an estimated \$180 million in 1989. Ditton and Clark (1994) estimated that the total annual net economic benefits of billfish tournaments in Puerto Rico was \$18 million. These impacts have likely increased.

5.2.4 Atlantic HMS Charter and Party Boat Operations

There are little additional data or new reports regarding Atlantic HMS charter and party boat operations. Unless otherwise stated, the information included here is a summary of the information included in previous SAFE reports and the HMS FMP.

Currently, specific information on the economic impact of HMS charter/headboat operations is sparse. NOAA Fisheries will begin collecting cost-earnings information from the charter and party operations during 2003 to supplement data currently available. Most of the data, as reported in the HMS FMP, are related to the bluefin tuna fishery and other tunas. There are, however, limited data on charter/headboats in general. The information below was also reported in the 2001 SAFE report. In 2001, HMS required all charter/headboat vessels fishing for Atlantic HMS to have a permit. This information indicates that a few thousand vessels either target, or feel they could catch, Atlantic HMS.

In 1998, a survey was completed of a number of charterboats (96 of an estimated 430) and party boats (21 out of 23) throughout Alabama, Mississippi, Louisiana, and Texas (Sutton *et al.*, 1999). This study provides some economic information related to HMS. They defined charter boats as for-hire vessels that carry six or fewer passengers in addition to the crew while party boats are for-hire vessels that carry more than six passengers (up to 150 passengers). They found that the average charter boat base fees were \$417 for a half day trip, \$762 for a full day trip, and \$1,993 for an overnight trip and 60 percent of all trips were taken May through August. The average party boat base fees were \$41 for a half day trip, \$64 for a full day trip, and \$200 for an overnight trip and 48 percent were taken May through August. They found that 55 percent of charter boat operators reported targeting tuna at least once, 38 percent targeted sharks at least once, 41 percent reported targeting billfish at least once. Percentages by state are summarized in Table 5.17. Snapper (49 percent), king mackerel (10 percent) red drum (6 percent), cobia (6 percent), tuna (5 percent) and speckled trout (5 percent) were the species that received the largest percentage of effort by charter boat operators.

In the Sutton *et al.* study, party boat operators did not frequently target sharks, tunas or billfish. A total of 65 percent of party boat operators reported targeting sharks at least once; 55 percent indicated they had targeted tunas at least one time. Ninety percent reported that they did not target billfish. Snapper (70 percent), king mackerel (12 percent), amberjack (5 percent) and sharks (5 percent) were the species that received the largest percentage of effort by party boat operators. The economic information estimated in this study can be found in Table 5.18.

Holland *et al.* (1999) conducted a similar study on charter (boats that carry six or less passengers and charge for the entire boat) and headboats (boats that carry 10 or more passengers and charge by the person) in Florida, Georgia, South Carolina, and North Carolina. The survey interviewed 403 charter operators (24 percent of the estimated number of charter boats) and 52 head boat operators (35 percent of the estimated number of headboats). The average fees for charter and headboats are listed in Table 5.19. Charterboat and headboat operators did not target HMS as frequently as they did other species such as mackerel, grouper, snapper, dolphin, red drum. The percentage of charter and headboat operators who report targeting HMS can be found in Table 5.20. Table 5.21 shows the economic information regarding these businesses. Unlike similar businesses in the Gulf of Mexico, the Holland study indicates that these businesses appear to be profitable except for charter boats in Florida which are, on average, unprofitable.

Overall, charter/headboats appear to provide a substantial amount of employment and are economically important to coastal communities. Although HMS are targeted, they do not appear to be the primary objective for the majority of operations, and as such, HMS charter/headboat fisheries probably do not contribute as substantially to the economies of these communities compared to other fisheries such as mackerel and snapper.

Table 5.17 The percent of charter boat operators in Alabama, Louisiana, Mississippi, and Texas who reported targeting HMS at least once. Source: Sutton *et al.*, 1999.

Target		Alabama	Louisiana	Mississippi	
Tuna	Yes	61.9	66.7	6.3	65.2
	No	38.1	33.3	93.8	32.6
	Incidental	0.0	0.0	0.0	2.2
Sharks	Yes	4.5	16.7	75.0	67.4
	No	95.5	66.7	18.8	42.7
	Incidental	0.0	16.7	6.3	32.6
Billfish	Yes	61.9	41.7	6.3	43.5
	No	38.1	58.3	93.8	56.5
	Incidental	0.0	0.0	0.0	0.0

Table 5.18. The financial operations and economic impact of charter and party boat operators in Alabama, Louisiana, Mississippi, and Texas. Source: Sutton *et al.*, 1999.

		Charter boats	
Average capital investment	Hull and superstructure	\$97,713	\$214,922
	Engine	\$9,058	\$2,571
	Electronics	\$5,231	\$7,429
	Other equipment and tackle	\$7,298	\$6,686
Annual costs	Wages and Salaries	\$19,725	\$64,064
	New hull or superstructure	\$18,300	\$23,076
	Maintenance and repair	\$8,584	\$26,919
	Engine	\$4,890	\$15,153
	Insurance	\$3,799	\$11,491
	Other costs	\$6,020	\$28,404
Average annual gross revenues		\$68,934	\$137,308
Average annual net revenues (includes capital expenses - e.g. purchase of new hull)		-\$12,099	-\$128,703
Average annual operating profit (does not include capital expenses - e.g. purchase of new hull)		\$14,650	-\$73,064
Economic output	Alabama	\$13.8 M	\$0.8 M
	Mississippi	\$6.6 M	-
	Louisiana	\$4.4 M	-
	Texas	\$17.6 M	\$3.5 M
Employment generated	Alabama	\$5.6 M (282 jobs)	\$0.3 M (16 jobs)
	Mississippi	\$2.1 M (211 jobs)	-
	Louisiana	\$1.8 M (118 jobs)	-
	Texas	\$6.1 M (385 jobs)	\$1.7 M (77 jobs)

Table 5.19 The average fees for charter and headboats in Florida, Georgia, South Carolina, and North Carolina. Source: Holland *et al.*, 1999.

State	Length of trip	Charter boat	Headboat
Florida	Half-day	\$348	\$29
	Full day	\$554	\$45
	Overnight	\$1,349	--
Georgia	Half-day	\$320	--
	Full day	\$562	--
	Overnight	\$1000-\$2000	--
South Carolina	Half-day	\$296	\$34
	Full day	\$661	\$61
	Overnight	\$1000-\$2000	--
North Carolina	Half-day	\$292	\$34
	Full day	\$701	\$61
	Overnight	\$1000-\$2000	--

Table 5.20 The percent of charter and headboat operators in Florida, Georgia, South Carolina, and North Carolina who reported targeting HMS at least once. Source: Holland *et al.*, 1999.

Target species	Florida		Georgia		S. Carolina			
	Charter	Head	Charter	Head	Charter	Head	Charter	
Tuna	8.5	0.0	8.3	-	0.0	-	60.0	-
Sharks	22.6	9.7	33.3	-	35.0	-	23.3	-
Billfish	9.9	0.0	8.3	-	20.0	-	40.0	-

Table 5.21. The financial operations and economic impact of charter and party boat operators in Florida, Georgia, South Carolina, and North Carolina. Source: Holland *et al.*, 1999.

		Charter boats		Party boats	
		Florida	Other states	Florida	Other states
Average capital investment	Hull and superstructure	\$90,989	\$39,445	\$214,158	\$178,833
	Engine	\$40,518	\$5,900	\$40,000	\$38,181
	Electronics	\$5,568	\$5,900	\$5,560	\$6,277
	Other equipment and tackle	\$5,878	\$4,463	\$9,183	\$3,600
Annual costs	Wages and Salaries	\$25,810	\$17,928	\$52,000	\$33,077
	New hull or superstructure	\$3,020	\$793-1,340	\$3,333	\$0.00
	Maintenance and repair	\$5,720	\$4,991-6,910	\$13,385	\$16,577
	Engine	\$6,334	\$172-2,738	\$9,450	\$14,545
	Insurance	\$2,970	--	\$8,570	--
	Other costs	\$24,723	\$971-18,883	\$48,999	\$40,846
Average annual gross revenues		\$56,264	\$26,304-\$60,135	\$140,714	\$123,000
Average annual net revenues (Gross revenues - Annual costs)		-\$12,313	\$3,069-13,237	\$4,977	\$17,955
Economic output		\$128 M	\$34.4 M	\$23.4 M	\$5.8 M
Employment generated		\$31 M (3,074 jobs)	\$15.6 M (1,066 jobs)	\$5.8 M (450 jobs)	\$2.2 (81 jobs)

5.2.5 Other Recreational Fishing Costs Information

In addition to charterboat fees, recreational anglers can incur other costs associated with fishing. These may include the costs of owning, outfitting, and operating personal vessels used for fishing. NOAA Fisheries has no current data on the cost of recreational boat ownership and operating costs.

5.3 Periodic Review Under Section 610 of the Regulatory Flexibility Act

5.3.1 Introduction

In 1996, the Small Business Regulatory Enforcement Fairness Act amended the Regulatory Flexibility Act (RFA). This amendment added section 610 to the RFA. Section 610 requires NOAA Fisheries to periodically review rules that had or will have a significant economic impact on a substantial number of small entities. The purpose of this review is to determine whether significant rules should be continued without change or if they should be amended or rescinded in order to minimize the impact on small entities. The review should examine the impact of these rules consistent with the stated objectives of applicable statutes. NOAA Fisheries has 10 years after the adoption of each rule in which to review the impact of the rule. Section 610 states that NOAA Fisheries must consider the following factors in its review:

- the continued need for the rule;
- the nature of complaints or comments received concerning the rule from the public;
- the complexity of the rule;
- the extent to which the rule overlaps, duplicates or conflicts with other federal rules, and to the extent feasible, with state and local governmental rules; and,
- 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.

5.3.2 Description of Rules Implemented Since 1996 that have been Classified as Economically Significant

A list of final regulations that were found significant under RFA or E.O. 12866⁴ and were implemented by NOAA Fisheries regarding HMS since 1996 can be found in Table 5.22. No regulations that were significant under RFA or E.O. 12866 were published during 2001, and one significant rule was published in 2002.

⁴ NOAA Fisheries is required to conduct economic analyses under E.O. 12866 as well as RFA. Unlike RFA, E.O. 12866 is concerned with economic impacts to the nation as a whole along with economic impacts on individual businesses.

Table 5.22. HMS regulations that were implemented after 1996 and were classified as significant under either RFA or E. O. 12866.

Rule	Date published	FR cite	Action	
1.	4/7/97	62 FR 16648	Atlantic shark fisheries; Quotas, bag limits, prohibitions, and requirements and large coastal shark species: Final rule that reduced large coastal shark quota and the recreational bag limits and prohibited 5 shark species	Not significant under RFA or E. O. 12866. On 05/20/98, NOAA Fisheries announced availability of a document examining the economic impacts as requested by Judge Merryday. This document states that 1997 quotas may have a significant economic impact on a substantial number of small entities.
2.	1/27/99	64 FR 4055	Atlantic swordfish fishery; Management of driftnet gear: Final rule that prohibited the use of driftnet gear in the N. Atlantic swordfish fishery.	Will have a significant economic impact on a substantial number of small entities. Not significant under E. O. 12866.
3.	5/28/99	64 FR 29090	Atlantic highly migratory species fisheries; Fishery management plan, plan amendment, and consolidation of regulations: Final rule implementing the HMS FMP and Billfish Amendment 1.	Will have a significant economic impact on a substantial number of small entities. Significant under E. O. 12866.
4.	8/1/00	65 FR 47214	Atlantic highly migratory species; Pelagic longline management: Final rule that closed certain times and area to fishermen using pelagic longline gear and prohibited the use of live bait by fishermen using pelagic longline gear in the Gulf of Mexico.	Will have a significant economic impact on a substantial number of small entities. Not significant under E. O. 12866.
5.	10/13/00	65 FR 60889	Atlantic highly migratory species; Pelagic longline fishery; Sea turtle protection measures: Emergency rule that implemented a time/area closure in the Northeast Distant Sampling area and required fishermen using pelagic longline gear to carry and use dipnets and line clippers.	Exempt from RFA requirements. Significant under E. O. 12866.

Rule	Date published	FR cite	Action	Classification
6.	12/12/00	65 FR 77523	Atlantic highly migratory species fisheries; Implementation of ICCAT recommendations: Final rule that implemented swordfish quotas through 2002, established a dead discard allowance for the swordfish fishery through 2002, and took several actions regarding import restrictions.	Could have a significant economic impact on a substantial number of small entities. Not significant under E. O. 12866
7.	07/09/02	67 FR 45393	Atlantic highly migratory species fisheries; Pelagic longline fishery; shark gillnet fishery; sea turtle and whale protection measures; Final rule that closed the northeast distant statistical reporting area, revised gangions length requirements, and prohibited vessels from having hooks on board other than corrodible, non-stainless steel hooks.	Could have a significant economic impact on a substantial number of small entities. Not significant under E.O. 12866.

Rule 1 in Table 5.22 reduced the LCS commercial quota by 50 percent, reduced the recreational bag limit for all shark species by 50 percent, established a commercial quota for SCS, prohibited the retention of five species of sharks, and prohibited the filleting of sharks at sea. The intent of the rule was to reduce effective fishing mortality, stabilize the LCS population, facilitate enforcement, and improve management of the Atlantic sharks. The economic analyses conducted for this rule concluded that because the shark fisheries are so diversified and because there were alternative fisheries for fishermen to enter, that the reduction in the commercial quota and recreational bag limit would not have a significant economic impact. Similarly, the analyses found that the prohibited species regulations were similar to status quo and the prohibition of filleting at sea would have minimal impacts on fishing costs. In May 1997, a number of commercial fishermen and dealers sued NOAA Fisheries regarding the commercial quota in this regulation. In February 1998, the Court remanded the economic analyses to the agency. In May 1998, NOAA Fisheries announced the availability of the new economic analyses for the commercial quota reduction implemented with this regulation. The new analyses found that nearly all shark fishery operators are active in other fisheries. Despite this, NOAA Fisheries concluded that the quota cuts may have had a significant economic impact on a substantial number of small entities and that these impacts may put a number of fishermen out of business. This case was resolved through a settlement agreement.

Rule 2 in Table 5.22 prohibited the use of driftnet gear in the North Atlantic swordfish fishery. The intent of this regulation was to reduce the bycatch of protected resources in a manner that maximizes the benefit to the Nation. The economic analyses for this rule found that

the 17 fishermen who used this gear type could: 1) transfer fishing effort into the longline/harpoon category and continue fishing for swordfish; 2) fish for other species with other gears; 3) use driftnet for other HMS including Pacific species; and 4) exit the fishery. In general, the analyses found that the rule would have a significant economic impact on a substantial number of small entities.

Rule 3 in Table 5.22 changed a number of regulations and fishing operations in the Atlantic HMS fisheries including tunas, swordfish, sharks, and billfish. These changes included, but are not limited to, limited access for shark, swordfish, and tuna longline fishermen, a time/area closure for pelagic longline fishermen in the month of June, reduction in the bluefin tuna quota, establishing a recreational bag limit for yellowfin tuna, changing the shark commercial quota and recreational bag limit, and requiring VMS for all vessels with pelagic longline onboard. The intent of the regulations were to meet the new requirements of the Magnuson-Stevens Act, implement the recommendations of ICCAT, consolidate the HMS regulations into one part of the Code of Federal Regulations, and re-implement all previous regulations that were still necessary. The specific regulations were intended to meet a number of objectives, including but not limited to: prevent or end overfishing of Atlantic tuna, swordfish, sharks, and billfish and adopt the precautionary approach to fishery management; rebuild overfished fisheries in as short a time as possible and control all components of fishing mortality to ensure the long-term sustainability of the stocks; minimize economic displacement during the transition from overfished fisheries to healthy ones; and, minimize bycatch of living marine resources and the mortality of such bycatch.

The economic analyses conducted for these regulations found that even though HMS fishermen fish for other species in addition to HMS, including mackerel, snapper-grouper, reef fish, dolphin, and oilfish, overall the final actions will have a significant economic impact on fishermen and related industries such as processors and suppliers. Soon after the regulations were published in the Federal Register, a number of different groups sued NOAA Fisheries on different aspects of the regulations, claiming among other things that the regulations were not consistent with the RFA. After a remand in one case, the courts upheld the agency's RFA analyses. Generally, the most recent economic data available only includes data for 2000. With approximately 1.5 years of data, a few economic impacts can be examined and are discussed in this document.

Rule 4 in Table 5.22 prohibited fishing with pelagic longline in a number of different times and areas within the Atlantic EEZ and prohibited the use of live bait in the Gulf of Mexico. The intent of the regulation was to reduce bycatch and incidental catch of overfished and protected species by pelagic longline fishermen who target HMS. The economic analyses found there were 450 commercial fishermen, 125 dealers, and a number of recreational businesses that might be affected by these regulations; that the average annual gross revenues for commercial fishermen might decrease by about 5 percent; that 14 percent of the vessels could experience a 50 percent decrease in gross revenues; and, that a number of dealers may also experience a decrease in the average weight of fish handled of at least 5 percent. Overall, the regulation was found to have a significant economic impact on a substantial number of small entities. NOAA Fisheries was sued

on this regulation by three different organizations. In October 2002, a court upheld the regulation, finding, that NOAA Fisheries supported its economic ecological and social analyses in the record.

Rule 5 in Table 5.22 implemented a time/area closure for pelagic longline gear in the Northeast Distant Statistical Area (NED) from October 10, 2000, through April 9, 2001 and requires all pelagic longline vessels to carry and use line clippers and dipnets. The intent of this regulation was to reduce bycatch and bycatch mortality of loggerhead and leatherback sea turtles by the Atlantic pelagic longline fishery. The economic analyses for this regulation found that the requirement of line clippers and dipnets would have minimal economic impacts; that closing the area could reduce gross revenues by 25 to 40 percent for the vessels fishing in the NED area assuming those vessels decide not to fish; and that while individual fishermen and processors are likely to be impacted, the fishery as a whole would not be because of the limited duration and scope of this rule. Because this rule was an emergency rule it was exempt from the economic analyses under RFA; however, it was found significant under E.O. 12866.

Rule 6 in Table 5.22 implemented, consistent with ICCAT recommendations, the swordfish annual landings quota for the fishing years 2000, 2001, and 2002, established dead discard allowances for 2000, 2001, and 2002 for the swordfish fishery, and implemented several import restrictions for bluefin tuna and swordfish from several countries. The intent of this rule was to improve the conservation and management of Atlantic swordfish and bluefin tuna while allowing harvests consistent with the recommendations of ICCAT. The economic analyses found that in the short-term, the quota reductions and dead discard allowance would reduce ex-vessel swordfish revenues for a substantial portion of the fleet. However, the estimated impacts could be lower if rule 5, above, is effective at reducing swordfish dead discards. The analyses also found that in the long-term, any negative short-term impacts would turn into positive impacts as the stock is rebuilt. The restrictions on importation of bluefin tuna and swordfish are unlikely to have an economic impacts because the relevant countries do not currently export to the United States.

Rule 7 in Table 5.22 closed the northeast distant statistical reporting area, revised gangions length requirements, and prohibited vessels from having hooks on board other than corrodible, non-stainless steel hooks. The intent of this rule was to reduce the incidental take rate of sea turtles by the U. S. Atlantic pelagic longline fleet consistent with the Biological Opinion finalized on June 14, 2001. The economic analyses found that closure of the northeast distant waters would impact approximately 15 vessels, which land twenty percent of all domestically caught Atlantic swordfish. Rule 7 effectively replaced Rule 5 as described above.

5.3.3 Economic Impact of the Regulations

The actual economic impact of any specific regulation is difficult to quantify because of changing factors that are not a result of the regulation such as changing consumer demand, weather patterns, and additional regulations in either that specific fishery or in related fisheries.

For that reason, the actual impacts are not quantified but discussed qualitatively.

Rule 1 in Table 5.22 reduced the LCS commercial quota by 50 percent and reduced the recreational bag limit by 50 percent. The LSC fishery continued to operate under the 1997 commercial quota through 2002 via a series of emergency rules. Tables 5.5 and 5.7 indicate that in general from 1996 to 2001, the ex-vessel price of LCS, SCS, and fins increased whereas, the pelagic shark prices decreased. This indicates that the commercial quota reduction may have positively impacted the price of LCS and SCS meat and shark fins. Except for thresher sharks, wholesale prices of shark meat have declined since 1996 (Table 5.11). This reduction could be due to the reduction in availability of LCS and SCS meat. While the reduction in the recreational bag limit may have had some impact on the recreational fishery, the exact degree is hard to quantify given the paucity of economic data directly related to HMS and the fact that the recreational bag limit was further reduced in July 1999. However, given the fact that most anglers do not target HMS in general, or sharks specifically, relative to the total salt water angler population, NOAA Fisheries does not feel that the 1997 bag limit reduction had a significant impact on the recreational fishery.

Rule 2 in Table 5.22 prohibited the use of driftnet in the Atlantic swordfish fishery. The ex-vessel and wholesale prices of swordfish have declined since 1996. However, it is unlikely that the prohibition on driftnet gear caused this decline because few swordfish were landed using this gear type and only a few vessels were active in this fishery (10-12 vessels).

Rule 3 in Table 5.22 implemented the HMS FMP and the Billfish Amendment in order to prevent overfishing and rebuild HMS stocks. These two documents and Rule 3 replaced the existing regulations for all HMS. Preparation and scoping for these documents began in 1997 with the formation of the Advisory Panels for HMS. It is likely that anticipation of these documents and its implementing regulations impacted all HMS fisheries economically. Generally, the value of HMS fisheries as a whole as increased, particularly the value of small coastal sharks, yellowfin tuna and other tunas (Table 5.7). However, the value of some of the major HMS fisheries, particularly swordfish, have continued to decline (Table 5.5, 5.6, and 5.7). Wholesale prices of HMS have also declined since 1996 (Table 5.11). Increases in some fisheries, such as bigeye tuna, could be due to substitution of bigeye tuna for other HMS. These declines could be due to reduced availability of HMS due to management measures in this rule such as reduced quotas, limited access, closed areas, and gear restrictions rather than environmental concerns or general economic concerns. This impression is strengthened if you look at the status of U.S. commercial fisheries in aggregate versus Atlantic HMS commercial fisheries. Since 1996, commercial landings have increased, the value of U.S. fisheries has increased, and per capita consumer consumption has increased. Contrary to Atlantic HMS commercial fisheries, Atlantic HMS recreational fisheries appear to be relatively healthy, from an economic perspective, compared to 1996. For instance the number of charter/headboat permits have increased in recent years and HMS tournaments are still popular with many anglers and bring in a lot of money to local economies. Additional consideration of this rule on HMS fisheries will be easier as more data related specifically to HMS fisheries are collected over a longer period of time.

Rules 4, 5, 6, and 7 of Table 5.22 all focus on time area closures to reduce the incidental take of sea turtles and marine mammals. Economic impacts that may result from time and area closures include reduction in annual gross revenues, increased trip expenses, relocation expenses, and other indirect economic impacts on fishing communities. As additional data become available, NOAA Fisheries will examine the economic impact.

5.3.4 Continued Need for the Regulations

Rule 1 in Table 5.22 was promulgated on the basis of the 1996 stock assessment and shark evaluation workshop discussions. NOAA Fisheries recently announced the availability of the 2002 SCS and LCS stock assessments (CFR 67 FR 30879 and 67 FR 64098). The SCS assessment indicates that overfishing is occurring on finetooth sharks. The three other species in the SCS complex (Atlantic sharpnose, bonnethead, and blacknose) are not overfished and overfishing is not occurring. The results of the LCS stock assessment indicates that the LCS complex is still overfished and overfishing is occurring, that sandbar sharks are no longer overfished and that overfishing is still occurring, and that blacktip sharks are rebuild and overfishing is not occurring. As such, NOAA Fisheries has replaced Rule 1 with an emergency rule and intends to further adjust management measures via amendment in 2003.

Rule 2 was effective in 1999 and emergency regulations prohibited this gear type for most of 1998. NOAA Fisheries implemented these regulations because of concerns over the number of interactions with protected species. These concerns are still relevant today. As such, NOAA Fisheries believes that these regulations are still needed.

Rules 3 through 7 in Table 5.22 are all regulations implemented within the last three years. Rules 4 through 7 focus on minimizing bycatch to the extent practicable in HMS fisheries. NOAA Fisheries is currently examining Rules 4, 6, and 7 (refer to Chapter 8 of this report) and should have additional information for inclusion in next year's periodic review section of the SAFE report.

5.3.5 Comments Received on Each Rule

NOAA Fisheries always invites comments on current and proposed regulations through public hearings, formal requests for comments, the HMS and Billfish Advisory Panels and other means. Despite a transparent public input process, however, comments on existing regulations are periodically followed by litigation from impacted constituents. For instance, a number of different commercial shark fishermen and dealers sued NOAA Fisheries regarding Rule 1, a commercial driftnet fisherman sued NOAA Fisheries on a takings claim for Rule 2, seven different groups of plaintiffs composed of recreational, commercial, and environmental interest groups sued

NOAA Fisheries on different aspects of Rule 3 in Table 5.22⁵, three different groups sued NOAA Fisheries on Rule 4, and one group sued NOAA Fisheries on Rule 5. Almost all of these lawsuits include claims that NOAA Fisheries did not comply with RFA and various National Standards. NOAA Fisheries is working with lawyers, plaintiffs, and constituents to ensure that all concerns are considered.

In 2000 and 2001, NOAA Fisheries also received comments when commercial and recreational fishing groups took their concerns to Congress. Some of the bills that were introduced include: time/area closures similar to those in Rule 4 in Table 5.22 and a buy-back program for a number of vessels and permits; a bill to prohibit shark finning and monitor the trade of shark fins; and a bill to prohibit the use of spotter planes in the bluefin tuna fishery. Many of these bills originated because certain parties felt that NOAA Fisheries had not done enough for the fishery, or that NOAA Fisheries had done too much and did not consider all aspects of the fishery. In all cases, NOAA Fisheries gave Congress comments on the proposed bills and continues to work with constituents to ensure all concerns are considered. In some cases Congress has passed and the President has signed bills that require NOAA Fisheries to promulgate regulations (e.g. the Shark Finning Prohibition Act of 2000).

Outside of litigation and legislation, NOAA Fisheries continues to receive comments during public comment periods on certain regulations and restrictions, at AP meetings, and during public comment periods of advanced notice of proposed rulemakings. NOAA Fisheries is currently considering many of the comments received, some of which are outlined in chapter 10 of this document.

5.3.6 Complexity of Each Rule

Neither Rule 1 nor Rule 2 on Table 5.22 were particularly complex. In the case of Rule 1, the regulations related to the recreational bag limits were simplified. The regulations in Rule 3 are complex and complicated because they involve all the regulations for all HMS: sharks, swordfish, tunas, and billfish. However, because this rule consolidated the regulations and removed duplicative text, this rule actually simplified the process of finding the regulations for Atlantic HMS. In general, many of the regulations in Rule 3 remained unchanged or similar to earlier regulations so individual fisherman should be able to understand the regulations relatively easily. The parts of the regulations that were new and also complex generated many phone calls. These parts included the qualifications and application process for limited access permits and the VMS requirement for pelagic longline fishermen (also complicated by repeated delays and finally a court remand). Other regulations that are not new but that still generate a substantial number of

⁵ These claims included, but are not limited to, the pelagic longline VMS requirement, shark commercial quotas, shark recreational bag limits, time/area closures, bycatch measures, bluefin tuna rebuilding plan, bluefin tuna purse seine cap, yellowfin tuna bag limit, and a limited access permit claim.

comments include the BFT catch limits for pelagic longline fishermen and effort controls in the BFT fishery. Rules 4, 5, and 7 on Table 5.22 are not particularly complex in that they close areas and times to pelagic longline fishing, prohibit the use of live bait in the Gulf of Mexico, and requiring the use of line clippers and dipnets. These regulations do not include any additional reporting requirements. Rule 6 was not particularly complex in that it established a set landings quota for three years and determined the dead discard allowance for each year. Fishermen did not have to change their activities in order to comply with this regulation.

Overall, the complexity of the regulations have increased over time as loopholes in the regulations are fixed and new restrictions are added. NOAA Fisheries is aware of this situation and has tried to make it easy for fishermen and other constituents to obtain the information they need to make informed decisions. Besides publishing the regulations in the Federal Register (see Table 1.1), NOAA Fisheries efforts include faxing notices of rulemakings, season closures, brochures and other information to dealers and marinas over our fax network, updating the HMS telephone information hotline, publishing compliance guides in an easy to read question/answer format, placing documents on the HMS website, and answering phone calls. Additionally, in 2001 NOAA Fisheries implemented Fishnews, an electronic summary of current events and changes to regulations across the country. Any fisherman or interested constituent with access to email can sign up for this free service. The HMS Management Division often has major events announced on Fishnews. Also in 2002, NOAA Fisheries revised the overall compliance guide for all Atlantic HMS regulations.

5.3.7 Extent to Which the Rule(s) Overlaps, Duplicates or Conflicts with Other Federal Rules, and, to the Extent Feasible, with State and Local Governmental Rules

NOAA Fisheries believes that all its regulations are consistent with and do not overlap with other Federal rules, except where necessary. In some cases, NOAA Fisheries' regulations may overlap or be inconsistent with State regulations. In all cases, NOAA Fisheries continues to work with the States to ensure consistent regulations where possible.

5.3.8 Length of Time Since the Rule Has Been Evaluated, and the Degree to Which Technology, Economic Conditions, or Other Factors Have Changed in the Area Affected by the Rule

All of the regulations listed in Table 5.22 were evaluated in 1999 HMS FMP or after and again in the 2002 SAFE report. Because it has been so short of a time period, there has not been a great deal of change in technology, economic conditions, or other factors that would have affected fishing communities on the Atlantic. NOAA Fisheries continues to evaluate all regulations as new information becomes available.

5.3.9 Conclusion

If ex-vessel and wholesale prices are a good indicator, the economic health of Atlantic

HMS commercial fisheries has declined slightly since 1996 (Tables 5.7 and 5.11). At this point, it is unknown to what degree the economic health of the recreational fisheries has changed since 1996 although these fisheries appear to be relatively healthy from an economics perspective. Given the status of HMS stocks, NOAA Fisheries feels that all its current regulations are necessary and will benefit the fisheries economically in the long-term. NOAA Fisheries continues to work for sustainable HMS fisheries and welcomes comments on any of its regulations and on improving its methods of public outreach.

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