

4. FISHERY DATA UPDATE

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

The list of authorized fisheries and fishing gear used in those fisheries became effective December 1, 1999 (64 FR 67511) and has been modified several times in subsequent final rules. The list applies to all U.S. marine fisheries, including Atlantic HMS. As stated in the rule, “no person or vessel may employ fishing gear or participate in a fishery in the exclusive economic zone (EEZ) not included in this List of Fisheries (LOF) without giving 90 days’ advance notice to the appropriate Fishery Management Council (Council) or, with respect to Atlantic HMS, the Secretary of Commerce (Secretary).”

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

The U.S. percentage of regional and total catch of HMS species is presented to provide a basis for comparison of the U.S. catch relative to other nations/entities (Table 4.1). International catch levels and U.S. reported catches for HMS (other than sharks) are taken from the 2012 Standing Report of the SCRS (SCRS, 2012). The SCRS data collection is reported by species; therefore, Table 4.1 depicts a summary of U.S. and international HMS catches by species rather than gear type. Catch of billfish includes both recreational landings and dead discards from commercial fisheries; bluefin tuna includes commercial landings and dead discards and recreational landings; and swordfish includes recreational landings and commercial landings and dead discards. International catch and landings data for the pelagic longline and purse seine fisheries are in Sections 4.1 and 4.2. Data necessary to compare the U.S. regional and total percentage of international catch levels for most Atlantic shark species are currently limited;

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

Table 4.1 U.S. vs. International Catch of HMS Reported to ICCAT (Calendar Year 2011)

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

Source: SCRS, 2012.

4.1 Pelagic Longline

4.1.1 Current Management

The pelagic longline (PLL) fishery for Atlantic HMS primarily targets swordfish, yellowfin tuna, and bigeye tuna in various areas and seasons. Secondary target species include dolphin, albacore tuna, and, to a lesser degree, sharks. Although this gear can be modified (e.g.,

depth of set, hook type, hook size, bait, etc.) to target swordfish, tunas, or sharks, it is generally a multi-species fishery. PLL vessel operators are opportunistic, switching gear style and making subtle changes to target the best available economic opportunity on each individual trip. PLL gear sometimes attracts and hooks non-target finfish with little or no commercial value as well as species that cannot be retained by commercial fishermen due to regulations, such as billfish. PLL gear may also interact with protected species such as marine mammals, sea turtles, and seabirds. Thus, this gear has been classified as a Category I fishery with respect to the Marine Mammal Protection Act (MMPA). Any species that cannot be landed due to fishery regulations (or undersized catch of permitted species) is required to be released, regardless of whether the catch is dead or alive.

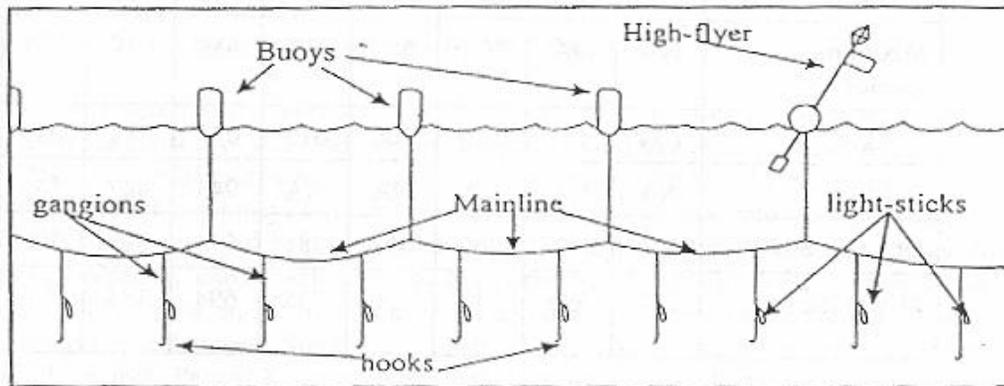


Figure 4.1 Typical U.S. Pelagic Longline Gear

Source: Arocha, 1996.

PLL gear is composed of several parts (Figure 4.1). The primary fishing line, or mainline of the longline system, can vary from five to 40 miles in length, with approximately 20 to 30 hooks per mile. The depth of the mainline is determined by ocean currents and the length of the floatline, which connects the mainline to several buoys, and periodic markers which can have radar reflectors or radio beacons attached. Each individual hook is connected by a leader, or gangion, to the mainline. Lightsticks, which contain light emitting chemicals, are often used, particularly when targeting swordfish. When attached to the hook and suspended at a certain depth, lightsticks attract baitfish, which may, in turn, attract pelagic predators (NMFS, 1999).

When targeting swordfish, PLL gear is generally deployed at sunset and hauled at sunrise to take advantage of swordfish nocturnal near-surface feeding habits (NMFS, 1999). In general, longlines targeting tunas are set in the morning, fished deeper in the water column, and hauled back in the evening. Except for vessels of the distant water fleet, which undertake extended trips, fishing vessels preferentially target swordfish during periods when the moon is full to take advantage of increased densities of pelagic species near the surface. The number of hooks per set varies with line configuration and target species (Table 4.2).

Table 4.2 Average Number of Hooks per Pelagic Longline Set (2002-2011)

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

Source: PLL logbook data.

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

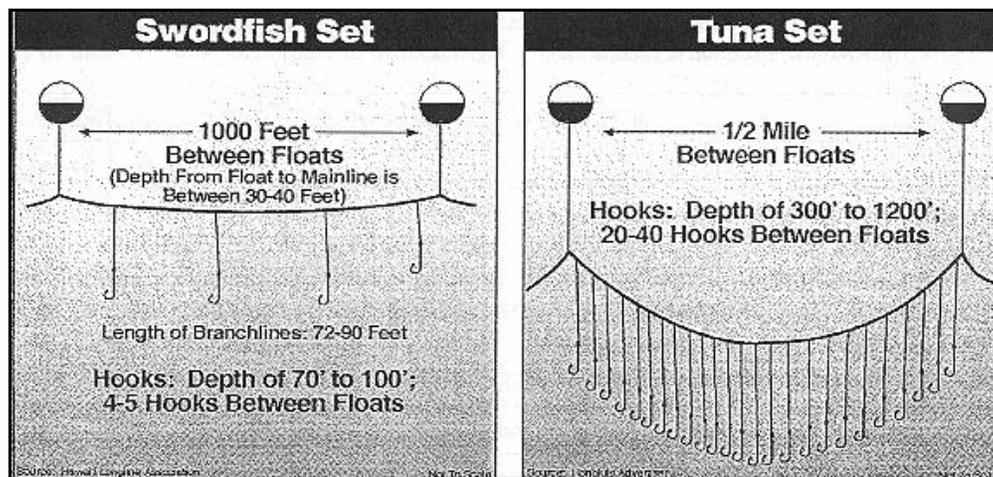


Figure 4.2 Different Pelagic Longline Gear Deployment Techniques

Note: This figure is only included to show basic differences in pelagic longline gear configuration and to illustrate that this gear may be altered to target different species.

Source: Hawaii Longline Association and Honolulu Advertiser.

The 1999 FMP established six different limited access permit (LAP) types: (1) directed swordfish, (2) incidental swordfish, (3) swordfish handgear, (4) directed shark, (5) incidental

shark, and (6) Atlantic tunas longline. To reduce bycatch in the PLL fishery, these permits were designed so that the swordfish directed and incidental permits are valid only if the permit holder also holds both a tuna longline and a shark permit. Similarly, the tuna longline permit is valid only if the permit holder also holds both a swordfish (directed or incidental, not handgear) and a shark permit. This allows limited retention of species that might otherwise have been discarded.

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

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

PLL Observer Program

During 2011, NMFS observers recorded 864 PLL sets for overall non-experimental fishery coverage of 10.1 percent (Garrison and Stokes, 2012). Table 4.3 details the amount of observer coverage in past years for this fleet.

The Pelagic Longline Take Reduction Plan (PLTRP) (74 FR 23349, May 19, 2009) recommended that NMFS increase observer coverage to 12 to 15 percent throughout all Atlantic PLL fisheries that interact with pilot whales and Risso's dolphins to ensure representative sampling of fishing effort. If resources are not available to provide such observer coverage for all fisheries, regions, and seasons, the Pelagic Longline Take Reduction Team (PLTRT) recommended NMFS allocate observer coverage to fisheries, regions, and seasons with the highest observed or reported bycatch rates of pilot whales. The PLTRT recommended that additional coverage be achieved either by increasing the number of NMFS observers who have been specially trained to collect additional information supporting marine mammal research, or by designating and training special "marine mammal observers" to supplement traditional observer coverage. In 2011, total observer coverage, including experimental sets, was 10.9 percent (Table 4.3).

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

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

NED – Northeast Distant Area; EXP – experimental. ¹In 2001, 2002, and 2003, 100 percent observer coverage was required in the NED research experiment. ²In 2004 and 2005, there was 100 percent observer coverage in EXP. ³In 2008- 2011, 100 percent observer coverage was required in experimental fishing in the FEC, Charleston Bump, and GOM, but these sets are not included in extrapolated bycatch estimates because they are not representative of normal fishing.

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

4.1.2 Recent Catch, Landings, and Bycatch

U.S. Atlantic PLL catch (including bycatch, incidental catch, and target catch) is largely related to vessel characteristics and gear configuration. The reported catch is summarized for the whole fishery in Table 4.4. Table 4.5 provides a summary of U.S. Atlantic PLL landings, as reported to the International Commission for the Conservation of Atlantic Tunas (ICCAT). Additional information regarding U.S. Atlantic landings and discards is available in the 2012 U.S. National Report to ICCAT.

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

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

Source: PLL Logbook Data.

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

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

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

Source: NMFS ICCAT National Report 2011.

Bycatch mortality of marlins, sailfish, swordfish, and bluefin tuna from all fishing nations may significantly affect the ability of these populations to rebuild, and it remains an important management issue. In order to minimize bycatch and bycatch mortality in the domestic PLL fishery, NMFS implemented regulations to close certain areas to this gear type (Figure 4.3) and has banned the use of live bait and required the use of weak hooks by PLL vessels in the Gulf of Mexico.

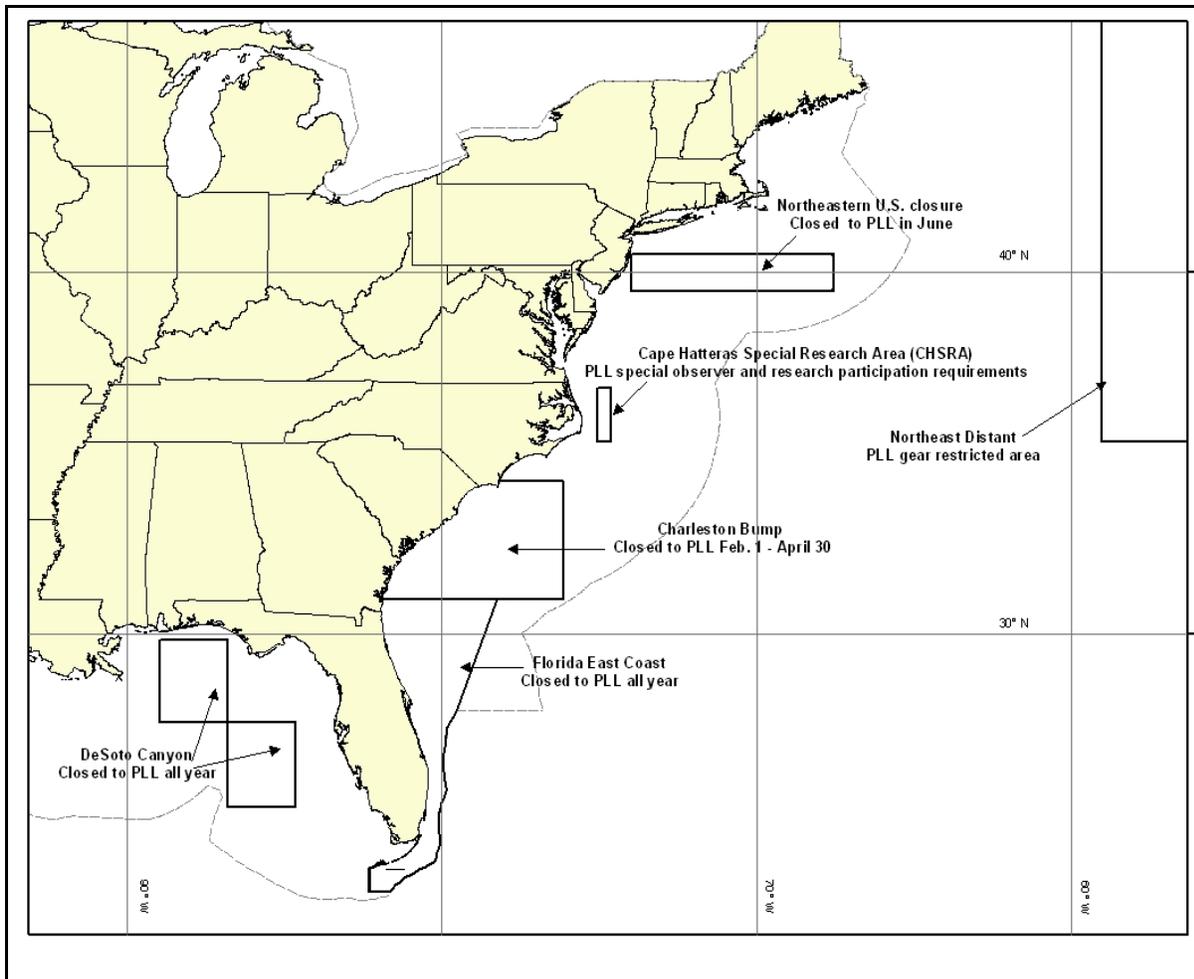


Figure 4.3 Areas Closed to Pelagic Longline Fishing by U.S. Flagged Vessels

Protected Species - Marine Mammals

Many of the marine mammals that are hooked by U.S. PLL fishermen are released alive, although some animals suffer serious injuries and may die after being released. The observed and estimated marine mammal interactions for 2002 – 2011 are summarized in Table 4.6. Marine mammals are caught primarily during the third and fourth quarters in the Mid Atlantic Bight (MAB) and Northeast Coastal (NEC) areas (Table 4.6). In 2011, the majority of observed interactions were with pilot whales, short-finned pilot whales, bottlenose dolphins, and Risso’s dolphins (Garrison and Stokes, 2012). NMFS monitors observed interactions with sea turtles and marine mammals on a quarterly basis and reviews data for appropriate action, if any, as necessary.

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

Year	Species	Total		Mortality		Serious Injury		Alive	
		Obs	Est	Obs	Est	Obs	Est	Obs	Est
2002	Risso's dolphin	10	87.2	-	-	4	11.0	6	59.6
	Pilot whale	10	113.5	-	-	4	49.9	6	67.8
	Common dolphin	1	1.0	-	-	-	-	1	1.0
	Unidentified dolphin	2	2.0	-	-	1	1.0	1	1.0
	Unidentified marine mammal	1	1.0	-	-	1	1.0	-	-
2003	Beaked whale	2	48.8	-	-	1	5.3	1	43.5
	Dolphin	1	16.2	-	-	1	16.2	-	-
	Atlantic spotted dolphin	1	29.8	-	-	1	29.8	-	-
	Bottlenose dolphin	1	2.0	-	-	-	-	1	2.0
	Common dolphin	2	45.6	-	-	-	-	2	45.6
	Risso's dolphin	14	109.5	1	1.0	3	40.1	10	68.4
	Striped dolphin	1	1.0	-	-	-	-	1	1.0
	Pilot whale	4	32.1	-	-	2	21.4	1	11.3
	Baleen whale	1	1.0	-	-	-	-	1	1.0
	Minke whale	1	22.3	-	-	-	-	1	22.3
2004	Pilot whale	8	107.5	-	-	6	74.1	2	33.8
	Common dolphin	1	6.8	-	-	-	-	1	6.8
	Risso's dolphin	3	49.4	-	-	2	27.5	1	21.9
2005	Pilot whale	18	294.4	-	-	9	211.5	9	79.5
	Risso's dolphin	2	42.1	-	-	-	2.9	2	39.2
	Common dolphin		5.7	-	-	-	-	-	5.7
	Bottlenose dolphin	1	5.2	-	-	-	-	1	5.2
	Beaked whale		1.0	-	-	-	1.0	-	-
	Atlantic spotted dolphin	1	4.3	-	-	-	-	1	4.3
	Unidentified marine mammal	1	13.2	-	-	1	13.2	-	-
	Unidentified whale		3.4	-	-	-	3.4	-	-
	Unidentified dolphin	1	2.6	-	-	-	-	1	2.6
2006	Atlantic spotted dolphin		1.9	-	-	-	-	-	1.9
	Beaked whale		2.2	-	-	-	-	-	2.2
	Bottlenose dolphin		0.6	-	-	-	-	-	0.6
	Pilot whale	20	274.5	1	15.5	12	168.6	7	90.4
	Unidentified dolphin	2	26.5	-	-	2	26.5	-	-
	Unidentified marine mammal	1	12.6	1	12.6	-	-	-	-
2007	Atlantic spotted dolphin		1.4	-	-	-	-	-	1.4
	Bottlenose dolphin	2	12.6	-	-	1	-	1	12.6
	Beaked whale	1	1.5	-	-	-	-	1	1.5
	Pilot whale	8	86.6	-	-	5	56.7	3	30.7
	Risso's dolphin	2	20.3	-	-	1	9.3	1	11.0
	Unidentified dolphin	2	3.8	1	1.5	-	-	1	2.3

Year	Species	Total		Mortality		Serious Injury		Alive	
		Obs	Est	Obs	Est	Obs	Est	Obs	Est
	Unidentified marine mammal	2	22.1	-	-	2	22.1	-	-
2008	Atlantic spotted dolphin		3.1	-	-	-	-	-	3.1
	Bottlenose dolphin	1	6.6	-	-	-	-	1	6.6
	Beaked whale	1	6.1	-	-	-	-	1	6.1
	Killer whale	1	3.4	-	-	-	-	1	3.4
	Pilot whale	8	141.5	-	-	5	98.2	3	43.3
	Risso's dolphin	9	64.4	1	4.4	4	20.4	4	39.6
	Sperm whale	1	1.6	-	-	-	-	1	1.6
	Unidentified dolphin		3.2	-	-	-	-	-	3.2
	Unidentified marine mammal	2	34.7	-	-	1	20.4	1	14.3
2009	Bottlenose dolphin	3	23.0	-	-	2	11.3	1	11.6
	Common dolphin	1	8.5	1	8.5	-	-	-	-
	False Killer whale		2.5	-	-	-	-	-	2.5
	Pantropical spotted dolphin	5	26.6	-	-	4	14.1	1	12.5
	Pilot whale	4	35.7	-	-	2	16.5	2	19.2
	Risso's dolphin	5	38.5	-	-	2	11.4	3	27.1
	Unidentified dolphin	1	1.6	-	-	-	-	1	1.6
	Unidentified marine mammal	1	8.0	-	-	1	8.0	-	-
2010	Bottlenose dolphin	2	16.9	-	-	1	1.0	1	15.9
	Minke whale	1	24.4	-	-	-	-	2	24.4
	Pantropical spotted dolphin	3	6.1	-	-	-	-	2	5.1
	Pilot whale	10	149.9	-	-	8	126.5	2	20.5
	Pygmy sperm whale	1	1.2	1	1.2	-	-	-	-
	Risso's dolphin	1	9.9	-	-	-	-	1	9.9
	Unidentified dolphin	1	1.5	-	-	-	-	1	1.5
	Unidentified marine mammal	4	27.5	1	5.5	3	21.9	-	-
2011	Bottlenose dolphin	3	40.5	-	-	1	12.2	2	28.3
	False killer whale	1	11.0	-	-	-	-	1	11.0
	Atlantic spotted dolphin	1	0.8	-	-	-	-	1	0.8
	Pilot whale	16	291.7	1	18.7	12	233.8	3	39.5
	Short-finned pilot whale	4	58.3	-	-	3	46.5	1	11.8
	Pygmy/Dwarf sperm whale	1	17.0	-	-	1	17.0	-	-
	Risso's dolphin	7	31.3	-	-	3	13.3	4	18.0
	Unidentified dolphin	1	1.1	-	-	1	1.1	-	-

Obs – observed; Est – estimated.

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

Protected Species - Sea Turtles

As a result of increased sea turtle interactions in 2001 and 2002, NMFS reinitiated consultation for the PLL fishery and completed a new Biological Opinion on June 1, 2004. The June 2004 Biological Opinion concluded that long-term continued operation of the Atlantic PLL fishery as proposed was not likely to jeopardize the continued existence of loggerhead, green, hawksbill, Kemp's ridley, or olive ridley sea turtles, but was likely to jeopardize the continued existence of leatherback sea turtles. The Biological Opinion included a Reasonable and Prudent Alternative (RPA) which was adopted and implemented within the PLL fishery, and an Incidental Take Statement (ITS) for 2004 – 2006 combined, and for each subsequent three-year period (NMFS, 2004). The estimated sea turtle takes for regular fishing and experimental fishing effort for 2002- 2009 are summarized in Table 4.7, Table 4.8, and Table 4.9. Loggerhead interactions are more widely distributed; however, the NED and the NEC appear to be areas with high interaction levels each year.

Sea turtle bycatch in the U.S. Atlantic PLL fishery has decreased significantly in the last decade. From 1999 to 2003, the PLL fleet targeting HMS interacted with an average of 772 loggerhead and 1,013 leatherback sea turtles per year, based on observed takes and total reported effort. In 2004, the fleet was estimated to have interacted with 734 loggerhead and 1,362 leatherback sea turtles (Garrison, 2005). The numbers have been reduced recently and in 2011, the U.S Atlantic PLL fishery was estimated to have interacted with 438 loggerhead sea turtles and 239 leatherback sea turtles outside of experimental fishing operations (Garrison and Stokes, 2011) (Table 4.8 and Table 4.9). The majority of loggerhead sea turtle interactions occurred in the NED, NEC, and FEC areas (Table 4.7). The interactions with leatherback sea turtles were highest in the MAB and GOM areas (Table 4.8). NMFS monitors observed interactions with sea turtles and marine mammals on a quarterly basis and reviews data for additional appropriate action, if any, as necessary.

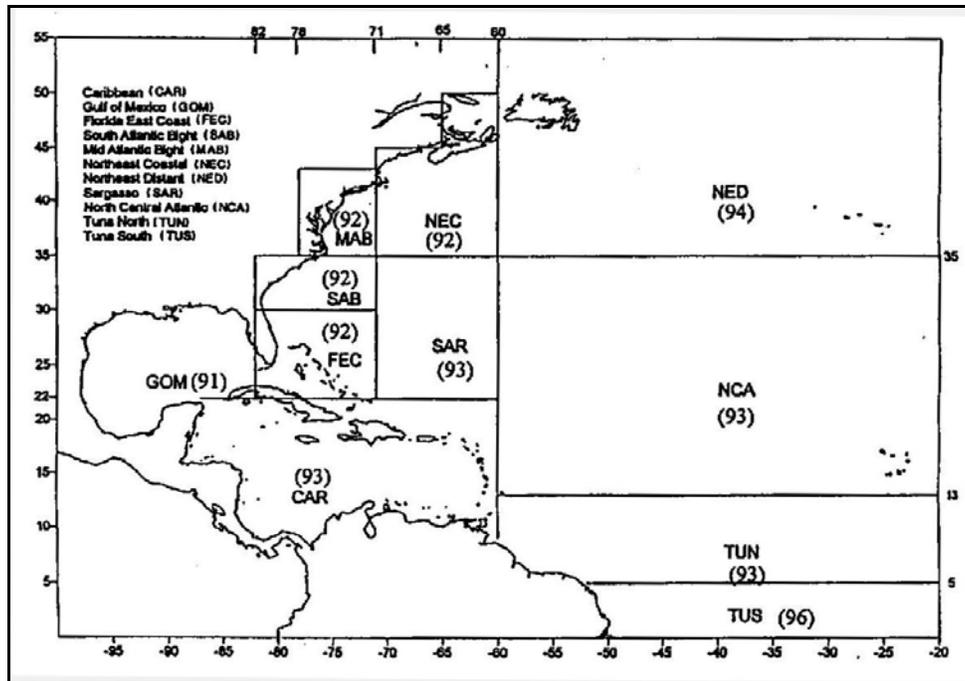


Figure 4.4 Geographic Areas Used in Summaries of Pelagic Logbook Data.

Source: Cramer and Adams, 2000.

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

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

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

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

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

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

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

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

* Applies to all subsequent 3-year ITS periods

Protected Species - Sea Birds

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

herring gull, a greater shearwater, and two unidentified seabirds. All of these seabirds were released dead. Extrapolated estimates of seabird bycatch from 2000 – 2007 are available in the 2011 SAFE Report. The estimates varied widely. Bycatch estimates ranged from 27 to 284 seabirds per year, averaging 62 per year. The rate of total seabird catch ranged from 0.005 to 0.036 birds per 1,000 hooks.

Table 4.10 Observed Seabird Bycatch in the U.S. Atlantic Pelagic Longline Fishery (2004-2011)

Year	Quarter	Area	Type of Bird	Number observed	Status
2004	1	MAB	Gull	5	dead
	3	MAB	Shearwater greater	1	alive
	3	MAB	Shearwater greater	4	dead
	4	NED	Seabird	1	dead
2005	1	SAB	Gull herring	1	dead
	1	SAB	Shearwater spp	1	dead
	3*	NEC	Shearwater greater	1	alive
	3*	NEC	Shearwater greater	1	dead
2006	4	MAB	Shearwater greater	1	dead
	4	NEC	Shearwater spp	1	alive
	4	NED	Shearwater greater	1	dead
2007	1	MAB	Gull blackbacked	6	dead
2008	2	GOM	Pelican brown	1	alive
2009	1	MAB	Northern gannet	2	alive
	1	MAB	Northern gannet	1	dead
	2	GOM	Brown pelican	1	dead
	3	MAB	Shearwater greater	3	dead
	3	MAB	Unid	1	dead
2010	4	MAB	Gull herring	1	dead
2011	3	NED	Northern gannet	1	dead
	3	NED	Unid	1	dead
	4	MAB	Herring gull	3	dead
	4	MAB	Unid gull	1	dead
	4	MAB	Greater shearwater	1	dead

* Experimental fishery takes.

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

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

Species	Release Status		Total	Percent Dead
	Dead	Alive		
Greater shearwater	29	3	32	90.6
Cory's shearwater	1	-	1	100.0
Unidentified shearwater	2	1	3	66.7
Herring gull	12	-	12	100.0
Great black-backed gull	9	1	10	90.0
Laughing gull	1	1	2	50.0
Unidentified gull	15	8	23	65.2
Northern gannet	3	9	12	25.0
Storm petrel	1	-	1	100.0
Unidentified seabird	41	19	60	68.3
Brown pelican	2	0	2	100.0
Total	116	42	158	73.4

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

4.1.3 International Issues and Catch

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

Highly Migratory Species

The U.S. PLL fleet represents a small fraction of the international PLL fleet that competes on the high seas for catches of tunas and swordfish. In recent years, the proportion of U.S. PLL landings of HMS, for the fisheries in which the United States participates, has remained relatively stable in proportion to international landings. Historically, the U.S. fleet has accounted for less than 0.5 percent of the landings of swordfish and tuna from the Atlantic Ocean south of 5° N. Lat. and does not operate at all in the Mediterranean Sea. Tuna and swordfish landings by foreign fleets operating in the tropical Atlantic and Mediterranean are greater than the catches from the north Atlantic area where the U.S. fleet operates. Within the area where the U.S. longline fleet operates, U.S. longline landings still represent a limited fraction of total landings. In recent years (2002 - 2011), U.S. longline landings have averaged 5.0 percent of total Atlantic longline landings, ranging from a high of 5.8 percent in 2011 to a low of 4.5 percent in 2010. Table 4.12 contains aggregate longline landings of HMS, other than sharks, for all countries in the Atlantic for the period 2002 - 2011.

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

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

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

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

Atlantic Sharks

Stock assessments and data collection for international shark fisheries have improved in recent years due to increased reporting requirements adopted by ICCAT. Since 2004, there have been several shark-related Recommendations and Resolutions (e.g., 04-10, 06-10, 07-06, 08-07, 08-08, 09-07, 10-06, 10-07, and 11-08, 12-05). Additionally, SCRS has assessed several species of sharks including blue, shortfin mako, and porbeagle sharks. For more information on ICCAT shark actions, see previous SAFE reports and the ICCAT webpage (<http://www.iccat.int/en/>). Table 4.13 provides the most recent catch totals for blue, shortfin mako, and porbeagle sharks.

Sea Turtles

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

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

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

¹Includes catches and discards.

Source: SCRS, 2012.

4.2 Purse Seine

4.2.1 Current Management

Purse seine gear consists of a floated and weighted encircling net that is closed by means of a drawstring, known as a purseline, threaded through rings attached to the bottom of the net. The efficiency of this gear can be enhanced by the assistance of spotter planes used to locate schools of tuna. Once a school is spotted, the vessel, with the aid of a smaller skiff, intercepts and uses the large net to encircle it. Once encircled, the purseline is pulled, closing the bottom of the net and preventing escape. The net is hauled back onboard using a powerblock, and the tunas are removed and placed onboard the larger vessel. Economic and social aspects of the fisheries are described in Chapter 5 of this report. A brief history of the Atlantic purse seine fishery and regulations is available in prior years' HMS SAFE Reports.

The bluefin tuna baseline percentage quota share for the Purse Seine category is 18.6 percent of the U.S. quota. The purse seine fishery is managed under a limited entry system with non-transferable individual vessel quotas (IVQs), excluding any new entrants into this category. Equal baseline quotas of bluefin tuna are assigned to individual vessels by regulation; the IVQ system is possible given the small pool of ownership in this sector of the fishery (i.e., five qualified participants). The quotas are transferable among the five entities provided they notify NMFS in writing.

Vessels participating in the Atlantic tunas purse seine fishery are required to target the larger size class bluefin tuna, more specifically the giant size class (≥ 81 inches) and are granted a tolerance limit for large medium size class bluefin tuna (73 to < 81 inches) (i.e., large medium catch may not exceed 15 percent by weight of the total amount of giant bluefin tuna landed during a season). These vessels may commence fishing starting on July 15 of each year and may continue through December 31, provided the vessel has not fully attained its IVQ. Over the last few years, the Purse Seine category has not fully harvested its allocated bluefin tuna quota. In 2008, 2010, and 2011, the Purse Seine category did not harvest any Atlantic tunas (Table 4.14).

4.2.2 Recent Catch and Landings

Table 4.14 shows purse seine landings of Atlantic tunas from 2003 through 2011. Purse seine landings historically have made up approximately 20 percent of the total annual U.S. landings of bluefin tuna (about 25 percent of total commercial landings), but recently only account for a small percentage. In the 1980s and early 1990s, purse seine landings of yellowfin tuna were often over several hundred metric tons. Over 4,000 mt ww of yellowfin were recorded landed in 1985. Over the past 15 years, via informal agreements with other sectors of the tuna industry, the purse seine fleet has opted not to direct any effort on HMS other than bluefin tuna; therefore, Table 4.14 only includes bluefin tuna.

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

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

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

4.2.3 International Issues and Catch

The U.S. purse seine fleet has historically accounted for a small percentage of the total international Atlantic tuna landings. Table 4.15 shows that since 2004, the U.S. purse seine fishery has contributed to less than 0.10 percent of the total purse seine landings reported to ICCAT. In Recommendation 10-10, ICCAT established a minimum standard for scientific fishing vessel observer programs and adopted a minimum of 5% observer coverage of fishing effort in the purse seine fishery, as measured in number of sets or trips.

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

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

Source: SCRS, 2012.

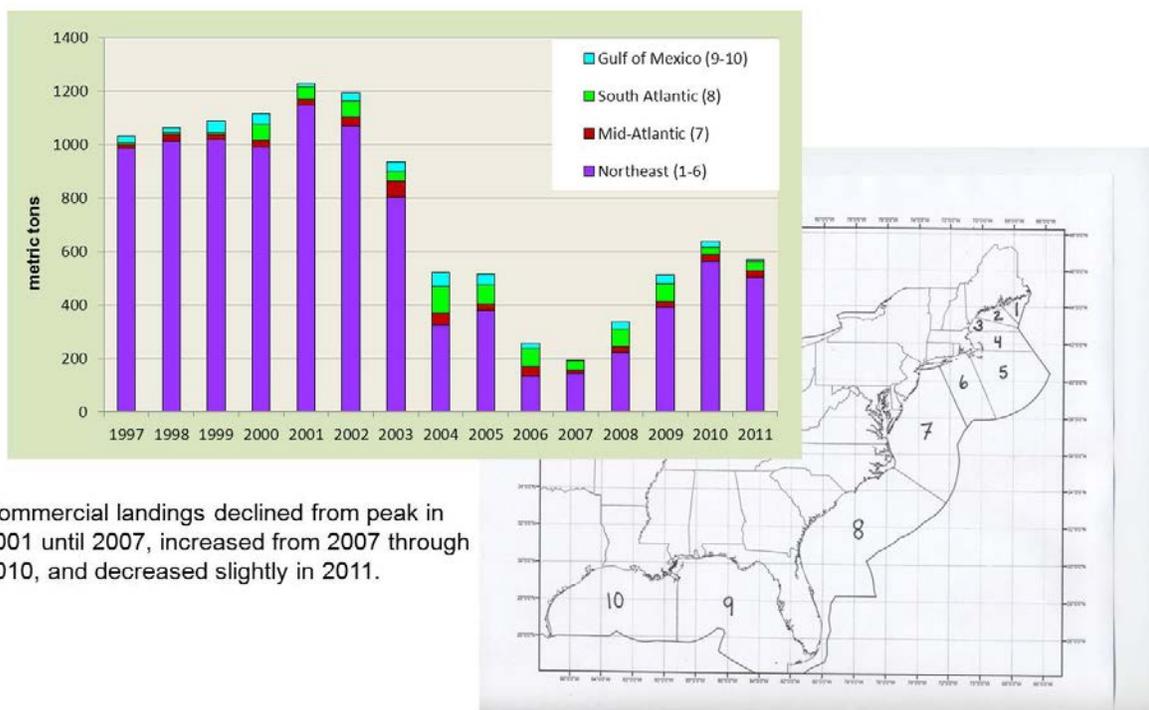
4.3 Commercial Handgear

4.3.1 Current Management

Commercial handgears, including handline, harpoon, rod and reel, buoy gear and bandit gear, are used to fish for Atlantic HMS on private vessels, charter vessels, and headboat vessels. Rod and reel gear may be deployed from a vessel that is anchored, drifting, or underway (trolling). In general, trolling consists of dragging baits or lures through, on top of, or even above the water's surface. While trolling, vessels often use outriggers to assist in spreading out or elevating baits or lures and to prevent fishing lines from tangling. Buoy gear is discussed in detail in Section 4.7.

The handgear fisheries for all HMS are typically most active during the summer and fall, although in the South Atlantic and Gulf of Mexico, fishing occurs during the winter months.

Fishing usually takes place between eight and two hundred km from shore and for those vessels using bait, the baitfish typically includes herring, mackerel, whiting, mullet, menhaden, ballyhoo, butterfish, and squid. The commercial handgear fishery for bluefin tuna occurs mainly in New England, and more recently off the coast of southern Atlantic states, such as Virginia, North Carolina, and South Carolina, with vessels targeting large medium and giant bluefin tuna. Figure 4.5 shows bluefin tuna commercial landings, which are predominately handgear landings, in metric tons by geographic region. Targeting bluefin tuna in the Gulf of Mexico is prohibited. The majority of U.S. commercial handgear fishing activities for bigeye, albacore, yellowfin, and skipjack tunas take place in the northwest Atlantic. Beyond these general patterns, the availability of Atlantic tunas at a specific location and time is highly dependent on environmental variables that fluctuate from year to year.



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

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

Source: NMFS Commercial BFT Landings Database.

The U.S. Atlantic tuna commercial handgear fisheries are currently managed through an open access vessel permit program. Vessels that wish to sell their Atlantic tunas must obtain a permit in one of the following categories: General (handgear including rod and reel, harpoon, handline, bandit gear, and green-stick), Harpoon (harpoon only), or Charter/Headboat (rod and reel, handline, bandit gear, and green-stick). These federally-permitted vessels may also need permits from the states they operate from in order to land and sell their catch, and are encouraged to check with their local state fish/natural resource management agency regarding these requirements. Federally-permitted vessels are required to sell Atlantic tunas only to federally-permitted Atlantic tunas dealers. Because the Atlantic tunas dealer permits are issued by the

Northeast Region Permit Office, vessel owner/operators are encouraged to contact the permitting office directly, either by phone at (978) 281-9438 or online at <http://www.nero.noaa.gov/ro/doc/vesdata1.htm>, to obtain a list of permitted dealers in their area.

Vessels that are permitted in the General and Charter/Headboat categories fish commercially under the General category rules and regulations. For instance, vessels that possess either of the two permits mentioned above have the ability to retain an Agency-specified daily bag limit of one to five bluefin tuna (measuring 73 inches or greater curved fork length per vessel per day while the General category bluefin tuna fishery is open). The General category bluefin tuna fishery opens on January 1 of each year and remains open until either the General category quota allocation has been caught, or until March 31, whichever comes first. The fishery then reopens on June 1 and remains open until December 31 or until the quota is filled. Vessel owners/operators should check with the agency online (<http://www.hmspermits.com>) or via telephone information lines (888-872-8862) to verify the bluefin tuna retention limit on any given day. In accordance with the fishery management plan, the General category receives approximately 47 percent of the U.S. bluefin tuna quota.

Vessels that are permitted in the Harpoon category fish under the Harpoon category rules and regulations. For instance, regarding bluefin tuna, vessels have the ability to keep four bluefin tuna measuring 73 inches to less than 81 inches curved fork length (“large medium”) per vessel trip per day while the fishery is open. There is no limit on the number of bluefin tuna that can be retained measuring longer than 81 inches curved fork length (“giant”), as long as the Harpoon category season is open. The Harpoon category season also opens on June 1 of each year and remains open until November 15, or until the quota is filled. The Harpoon category bluefin tuna quota is approximately 3.9 percent of the U.S. quota. For a brief history of the harpoon fishery in the United States, see previous years’ HMS SAFE Reports. In recent years, a new commercial swordfish fishery utilizing handgear (especially buoy-gear) has developed off the east coast of Florida. For information regarding the commercial buoy gear fishery, refer to Section 0.

The shark commercial handgear fishery plays a very minor role in contributing to the overall shark landing statistics. For information regarding the shark fishery, refer to Sections 4.5 and 4.6. Economic and social aspects of all the domestic handgear fisheries are described in Chapter 5.

4.3.2 Recent Catch and Landings

The proportion of domestic HMS landings harvested with handgear varies by species, with Atlantic tunas comprising the majority of commercial landings. Commercial handgear landings of all Atlantic HMS (other than sharks) in the United States are shown in Table 4.16. In 2011, bluefin tuna commercial handgear landings accounted for approximately 66 percent of the total U.S. bluefin tuna landings, and 87 percent of commercial bluefin tuna landings. Figure 4.6 shows the U.S. Atlantic bluefin tuna landings in metric tons by category since 1996. Note that the commercial handgear landings are comprised of bluefin tuna landed by both the general and harpoon categories.

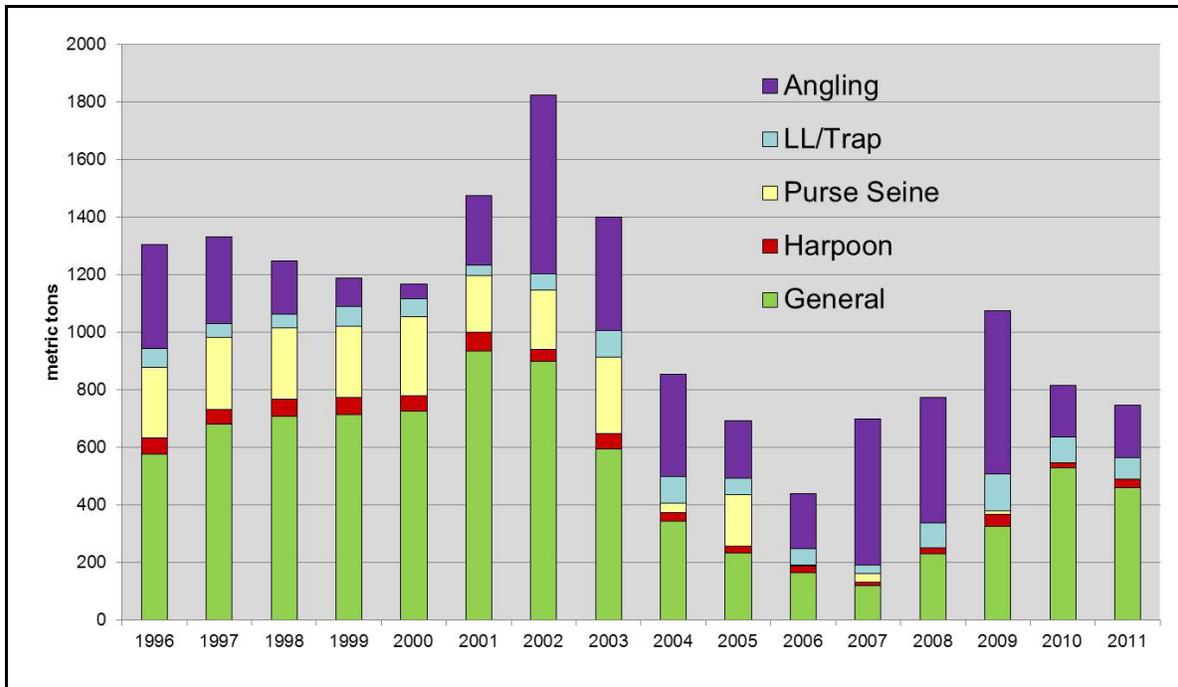


Figure 4.6 Landings of Bluefin Tuna by Category (1996 – 2011)

Source: NMFS Commercial BFT Landings Database.

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

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

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

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

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

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

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

Handgear Trip Estimates

Table 4.18 displays the estimated number of rod and reel and handline trips targeting large pelagic species (e.g., tunas, billfishes, swordfish, sharks, wahoo, dolphin, and amberjack) from Maine through Virginia, in 2002 through 2011. The trips include commercial and recreational trips, and are not specific to any particular species. It should be noted that the 2011 estimates are preliminary and subject to change.

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

Year	AREA							Total
	NH/ME	MA	CT/RI	NY	NJ (North)	NJ (South) and MD/DE	VA	
Private Vessels								
2002	5,090	15,180	2,558	7,692	2,762	22,757	6,524	62,563
2003	4,501	13,411	2,869	12,466	3,214	21,619	5,067	63,147
2004	2,025	10,033	3,491	11,525	3,632	22,433	4,406	57,545
2005	4,607	12,052	7,603	8,051	2,446	19,759	4,631	59,148
2006	3,303	24,951	5,430	11,114	3,043	19,187	5,274	72,302
2007	5,929	25,139	6,020	6,809	5,875	17,712	5,012	72,496
2008	3,873	19,157	3,546	7,587	3,099	15,807	3,081	56,150
2009	4,724	27,066	2,670	8,274	3,633	15,458	4,299	66,122
2010	6,102	19,679	2,276	6,737	3,898	12,493	2,591	53,776
2011	6,931	20,227	2,175	5,480	4,549	12,109	2,630	54,101
Charter Vessels								
2002	1,132	3,357	937	1,686	1,331	6,300	1,510	16,253
2003	221	2,561	1,246	2,035	1,331	5,201	546	13,141
2004	312	2,021	1,564	2,285	1,094	5,080	1,579	13,935
2005	329	2,397	551	2,033	1,024	3,476	763	10,573
2006	96	1,294	677	1,057	891	3,452	828	8,296
2007	789	4,073	1,141	1,445	1,420	4,579	610	14,057
2008	892	3,295	751	1,525	1,026	4,340	370	12,199
2009	568	4,930	726	1,677	1,142	3,348	534	12,923
2010	917	3,581	549	1,432	1,111	2,679	511	10,780
2011	1,318	4,339	322	2,019	1,279	3,685	774	13,736

Source: Large Pelagics Survey database.

4.4 Recreational Handgear

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

4.4.1 Current Management

Most Atlantic HMS are targeted by domestic recreational fishermen using a variety of handgear including rod and reel gear. Since 2003, recreational fishing for any HMS-managed species requires an HMS Angling permit (67 FR 77434, December 18, 2002), and all non-tournament recreational landings of Atlantic marlins, roundscale spearfish, sailfish, and swordfish must be reported. Additionally, all HMS fishing tournaments are required to register with NMFS at least four weeks prior to the commencement of tournament fishing activities. If selected, tournament operators are required to report the results of their tournament to the NMFS Southeast Fisheries Science Center. For more information on recreational HMS handgear fisheries, please see the 2006 Consolidated HMS FMP and the 2011 HMS SAFE Report.

4.4.2 Recent Catch, Landings, and Bycatch

The recreational landings database for Atlantic HMS consists of information obtained through surveys including the Marine Recreational Information Program (MRIP), Large Pelagic Survey (LPS), Southeast Headboat Survey (HBS), Texas Headboat Survey, Recreational Billfish Survey (RBS) tournament data, and the recreational non-tournament swordfish and billfish landings database. Descriptions of these surveys, the geographic areas they include, and their limitations are discussed in the 2006 Consolidated HMS FMP and previous HMS SAFE Reports.

Updated landings for HMS recreational rod and reel fisheries are presented below in Table 4.19 from 2002 through 2011.

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

Species	Region	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Bluefin tuna*	NW Atlantic	519.3	314.6	370.2	254.4	158.2	398.6	352.2	143.3	111.4	173.3
	GOM	1.5	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
	Total	520.8	314.6	370.2	254.4	158.8	398.6	352.2	143.3	111.4	173.3
Bigeye tuna**	NW Atlantic	49.6	188.5	94.6	165.0	422.3	126.8	70.9	77.6	116.8	72.4
	GOM	0.0	0.0	6.0	0.0	24.3	0.0	0.0	0.0	0.8	34.9
	Caribbean	0.0	4.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	2.3
	Total	49.6	192.5	100.6	165.0	446.6	126.8	70.9	77.6	117.6	109.6
Albacore**	NW Atlantic	323.0	333.8	500.5	356.0	284.2	393.6	125.2	22.8	46.2	170.6
	Caribbean	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	103.4	0.0
	Total	323.0	333.8	500.5	356.0	284.2	393.6	125.2	22.8	149.6	170.6
Yellowfin tuna**	NW Atlantic	2,624.0	4,672.1	3,433.7	3,504.8	4,649.2	2,726.0	657.1	742.6	1,209.0	1,134
	GOM	200.0	640.0	247.1	146.9	258.4	227.6	366.3	264.7	18.0	362.8
	Caribbean	7.2	16.0	0.0	0.0	0.0	12.4	0.0	3.5	4.5	0.9
	Total	2,831.2	5,328.0	3,684.8	3,651.7	4,907.6	2,966.0	1,023.4	1,010.8	1,231.5	1,497.7
Skipjack tuna**	NW Atlantic	23.3	34.1	27.3	8.1	34.6	27.4	21.0	75.7	29.1	50.3
	GOM	13.2	11.1	6.3	3.1	6.4	23.9	16.3	22.0	15.5	23.7
	Caribbean	13.2	15.7	40.4	3.9	7.7	0.2	11.3	4.3	0.4	3.0
	Total	49.7	60.9	74.0	15.1	48.7	51.5	48.6	102.0	45.0	77.0
Swordfish	Total	21.5	6.1	25.2	61.2	52.7	68.2	75.7	31.6	49.3	53.6

* Rod and reel catch and landings estimates of bluefin tuna < 73 in curved fork length (CFL) based on statistical surveys of the U.S. recreational harvesting sector. Rod and reel catch of bluefin tuna > 73 in CFL are commercial and may also include a few metric tons of "trophy" bluefin (recreational bluefin ≥ 73 in). ** Rod and reel catches and landings for Atlantic tunas represent estimates of landings and dead discards based on statistical surveys of the U.S. recreational harvesting sector.

Sources: NMFS, 2005; NMFS, 2006; NMFS, 2007; NMFS, 2009; NMFS, 2010; and NMFS, 2011.

Atlantic Billfish Recreational Fishery

Due to the rare nature of billfish encounters and the difficulty of monitoring landings outside of tournament events, reports of recreational billfish landings are sparse; however, the Recreational Billfish Survey (RBS) provides a preliminary source for analyzing recreational billfish tournament landings. Table 4.20 documents the number of billfish and swordfish reported to the RBS that were landed in tournaments from 2002 – 2012.

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

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

* Incomplete landings.

Source: NMFS Recreational Billfish Survey (RBS).

All recreational, non-tournament landings of billfish, including swordfish, are required to be reported to NMFS within 24 hours of landing by the permitted owner of the vessel landing the fish. This requirement is applicable to all permit holders, both private and charter/headboat vessels, not fishing in a tournament. In Maryland and North Carolina, vessel owners are required to report their billfish landings at state-operated landings stations. Table 4.21 provides a summary of non-tournament billfish and swordfish landings since 2004.

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

Species	2004	2005	2006	2007	2008	2009	2010	2011	2012*
Blue marlin	2	4	2	5	7	5	3	3	7
White marlin	0	1	1	4	4	6	5	6	1
Roundscale spearfish	-	-	-	-	-	-	-	0	0
Sailfish	35	61	58	101	143	140	185	166	122
Swordfish	290	388	549	716	369	389	285	318	360

* Incomplete landings.

Source: HMS Online Recreational Reporting System.

Under ICCAT Recommendation 06-09 and as specified in § 635.27(d)(1), the recreational billfish fishery is limited to maximum of 250 Atlantic blue and white marlin landings, combined, per year. Table 4.22 provides landings estimates in numbers of fish for Atlantic blue and white marlin and roundscale spearfish. NMFS added roundscale spearfish to the Atlantic HMS management unit (75 FR 57698; September 22, 2010) due to a relatively recent taxonomic change and identification of the species as distinct from white marlin, and effective January 2011, annual landings of roundscale spearfish are included in the 250 marlin count.

Table 4.22 Atlantic Blue and White Marlin and Roundscale Spearfish Landings (in Numbers of Fish) vs. Domestic Landings Limit of 250 Fish

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

* Roundscale spearfish were added to the HMS management unit (September 22, 2010; 75 FR 57698) and are included in the 250 fish domestic landings limit for Atlantic blue and white marlin. Roundscale spearfish landings are reported to ICCAT.

Sources: Recreational Billfish Survey, HMS non-tournament landings, the HMS Catch Card Programs in NC and MD, the Large Pelagic Survey, and the Marine Recreational Information Program

Shark Recreational Fishery

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Bycatch Issues

Bycatch in the recreational rod and reel fishery is difficult to quantify because many fishermen simply value the experience of fishing and may not be targeting a particular species. The 1999 Billfish Amendment established a catch-and-release fishery management program for the recreational Atlantic billfish fishery. As a result of this program, all Atlantic billfish that are released alive, regardless of size, are not considered bycatch. The recreational white shark fishery is by regulation a catch-and-release fishery only, and white sharks are not considered bycatch.

Bycatch can result in death or injury to discarded fish; therefore, bycatch mortality is incorporated into fish stock assessments, and into the evaluation of management measures. The number of kept and released fish reported or observed through the LPS dockside intercepts for 2002 – 2011 is presented in Table 4.27 and Table 4.28.

An outreach program to address bycatch and to educate anglers on the benefits of circle hooks has been implemented by NMFS. In January 2011, NMFS developed and released a brochure that provides guidelines on how to increase the survival of hook-and-line caught large pelagic species. This brochure is available at:

http://www.nmfs.noaa.gov/sfa/hms/Compliance_Guide/Careful_release_brochure.pdf

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

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

¹NMFS typically expands these “raw” data to report discards of bluefin tuna by the rod and reel fishery to ICCAT. If sample sizes are large enough to make reasonable estimates for other species, NMFS may produce estimates for other species in future SAFE reports. ²Amendment 1 to the Atlantic Billfish FMP established billfish released in the recreational fishery as a “catch-and-release” program, thereby exempting these fish from bycatch considerations. ³Includes some commercial handgear landings.

Source: Large Pelagic Survey (LPS) Data.

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

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

¹NMFS typically expands these “raw” data to report discards of bluefin tuna by the rod and reel fishery to ICCAT. If sample sizes are large enough to make reasonable estimates for other species, NMFS may produce estimates for other species in future HMS SAFE Reports. ²Amendment 1 to the Atlantic Billfish FMP established billfish released in the recreational fishery as a “catch-and-release” program, thereby exempting these fish from bycatch considerations. ³Includes some commercial handgear landings. ⁴Includes dead releases in 2010. ⁵Includes dead releases in 2011.

Source: Large Pelagic Survey (LPS) Data.

4.5 Bottom Longline

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

4.5.1 Current Management

For a description of the history of bottom longline fishery management, please see the 2011 HMS SAFE Report. Current commercial regulations include limited access vessel permits requirements, commercial quotas, vessel retention limits, a prohibition on landing 20 species of sharks (one of these species can be landed in the shark research fishery), numerous closed areas, gear restrictions, landing restrictions (including requiring all sharks be landed with fins naturally attached), fishing regions, vessel monitoring system requirements, dealer permits, and vessel and dealer reporting requirements.

NMFS is currently working on proposals to amend the 2006 Consolidated HMS fishery management plan, including one amendment (Amendment 5) that could change certain shark regulations based on recent stock assessments for sandbar sharks, dusky sharks, scalloped hammerhead sharks, Atlantic and Gulf of Mexico blacknose sharks, and Gulf of Mexico blacktip sharks. NMFS is also working on rulemakings to implement the 2011 Shark Conservation Act and Amendment 6 to the 2006 Consolidated HMS FMP, which looks at the shark fishery and its management as a whole.

4.5.2 Recent Catch, Landings, and Discards

This section provides information on shark landings, species composition, bycatch, and discards as reported in the shark BLL observer program. Since 2002, shark BLL vessels have been required to take an observer if selected. Participants in the shark research fishery are required to take an observer when targeting sandbar sharks. Outside the research fishery and depending on the time of year and fishing season, vessels that target sharks, possessed current valid directed shark permit, and reported fishing with longline gear in the previous year were randomly selected for coverage with a target coverage level of 4-6% for shark directed (Hale et al., 2012).

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

observed in a total of 139 trips (defined as from the time a vessel leaves the port until the vessel returns to port and lands catch, including multiple hauls therein). Gear characteristics of trips varied by area (Gulf of Mexico or the U.S. Atlantic Ocean) and target species (grouper/snapper (reef fish), non-sandbar LCS, or sandbar shark) (Hale et al., 2012). The data were grouped by targets into three groups: a) hauls targeting reef fish, b) hauls targeting sandbar shark (part of the shark research fishery), and c) hauls targeting non-sandbar LCS species (part of the normal commercial shark fishery). No trips were observed in the northern U.S. Atlantic Ocean; therefore subsequent references to the “U.S. Atlantic Ocean” refer to the coastal waters off the southern U.S. Atlantic states from North Carolina to Florida (Richards, 1999). Vessels targeting sandbar sharks participating in the shark research fishery are subject to unique retention limits (33 sandbar sharks and 33 non-LCS sandbar sharks/vessel/trip). These vessels averaged 2.6 trips per month in 2011. Table 4.29, Table 4.30, and Table 4.31 summarize the shark catch composition and disposition for observed BLL trips in 2011.

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

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

Source: Hale et al., 2012.

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

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

Source: Hale et al., 2012.

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

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

Source: Hale et al., 2012.

4.5.3 Bottom Longline Bycatch

For more detailed information on the fishery classification and requirements under the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1361 *et seq.*) and the Endangered Species Act (ESA), please see the 2011 HMS SAFE Report. NMFS is currently engaged in a formal Section 7 consultation in accordance with the ESA on the proposed measures in Amendment 3 related to smoothhound sharks. Once a Biological Opinion is received from the NMFS Office of Protected Resources, NMFS will work to identify and implement measures to reduce impacts (if any) to listed species as it carries out the federal smoothhound fishery.

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

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

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

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

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

4.6 Gillnet Fishery

Gillnet gear is the primary gear for vessels directing on SCS, although vessels directing on other species can also catch shark species. Vessels participating in the shark gillnet fishery typically possess permits for other Council and/or state managed fisheries and will deploy nets in several configurations based on target species including drift, strike, and sink gillnets.

4.6.1 Current Management

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

4.6.2 Recent Catch, Landings, and Discards

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

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

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

Source: Gulak et al., 2012.

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

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

Source: Gulak et al., 2012.

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

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

Source: Gulak et al., 2012.

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

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

Source: Gulak et al., 2012.

4.6.3 Gillnet Bycatch

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

There was a wider range of fish species caught in the sink gillnet fisheries due to the number of sets observed, gear deployment methods, and targeted species. Predominant species caught in sink gillnets included Atlantic croaker, Spanish mackerel, spot, and Atlantic menhaden. All of the observed interactions with protected species between 2000 and 2011 in the observed gillnet fisheries are on Table 4.38.

Sea Turtles

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

Sea Birds

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

Marine Mammals

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

Smalltooth Sawfish

In 2011, there were no observed interactions with smalltooth sawfish in gillnet gear. The last observed interaction occurred in 2003 and the sawfish was released with no visible injuries. Given the high rate of observer coverage in for these gillnet fisheries consistent with Atlantic

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

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

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

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

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

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

Source: Gulak et al., 2012.

4.7 Buoy Gear

4.7.1 Domestic History and Current Management

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

4.7.2 Recent Catch, Landings, and Discards

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

Table 4.40 Buoy Gear Effort (2007-2011)

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

Source: NMFS Pelagic Logbook Program.

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

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

Source: NMFS Pelagic Logbook Program.

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

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

Source: NMFS Pelagic Logbook Program.

enable the number of vessels using green-stick gear to be quantified, although limited data allow the catch to be characterized and were presented in the 2008 HMS SAFE Report (NMFS 2008). Data on landings specific to green-stick gear are expected to improve because a green-stick gear code was designated for use in dealer reporting systems such as trip tickets in the southeast and electronic reporting programs in the northeast. NMFS has also, with some success, encouraged states to utilize the green-stick gear code in their trip ticket programs. In 2009, the states of South Carolina, Louisiana, and Texas indicated that they would add a green-stick gear code to their trip ticket programs and Florida confirmed that the code has been added to their program. The HMS electronic dealer reporting system (eDealer) is anticipated to improve the available green-stick landings data also.

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

4.9 Safety Issues

The following section highlights safety issues in fisheries. Specific information regarding safety issues and statistics may be obtained from the following two U.S. Coast Guard (USCG) web pages: (1) “Analysis of Fishing Vessel Casualties – A Review of Lost Fishing Vessels and Crew Fatalities 1992-2010”: http://www.fishsafe.info/FVStudy_92_10.pdf and (2) USCG Safety Program website: <http://www.uscgboating.org/default.aspx>. A summary of previous findings can be found in the 2011 HMS SAFE Report.

4.10 Fishery Data: Landings by Species

The following tables (Table 4.43 - Table 4.48) of Atlantic HMS landings are taken from the 2012 National Report of the United States to ICCAT (NMFS, 2012). The purpose of this section is to provide a summary of recent domestic landings of HMS by gear and species allowing for interannual comparisons. Landings for sharks (Table 4.49 - Table 4.51) were compiled from the most recent stock assessment documents and updates provided from the NMFS Southeast Fisheries Science Center.

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

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

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

Source: NMFS, 2012.

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

Area	Gear	2004	2005	2006	2007	2008	2009	2010	2011
NW Atlantic	Longline	658.9	394.2	701.7	757.8	460.5	416.4	673.4	698.3
	Rod and reel*	3,433.7	3,504.8	4,649.2	2,726.0	657.1	742.6	1,209.0	1,134.0
	Troll	0.0	0.0	0.0	6.9	2.4	5.4	1.2	0.5
	Gillnet	3.2	0.1	4.7	4.2	0.6	0.0	0.5	0.05
	Trawl	1.6	0.2	0.7	2.4	0.0	0.0	1.4	1.3
	Handline	213.2	105.1	105.1	113.2	30.1	58.7	43.5	33.1
	Trap	0.0	0.01	0.0	0.0	0.05	0.1	0.5	0.0
	Unclassified	10.6	3.8	3.9	7.0	1.4	2.2	9.5	4.2
Gulf of Mexico	Longline	1,811.9	1,210.9	1,128.5	1,379.5	756.5	1,147.0	303.2	634.1
	Rod and reel*	247.1	146.9	258.4	227.6	366.3	264.7	18.0	362.8
	Handline	28.3	45.5	49.9	26.2	11.2	21.6	2.9	0.7
	Gillnet	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
	Unclassified	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1
Caribbean	Longline	4.5	140.6	179.7	255.6	107.1	136.7	212.2	132.1
	Handline	7.0	9.7	7.8	9.1	3.7	3.3	1.9	1.0
	Gillnet	0.06	**	0.0	0.0	0.04	0.04	0.0	0.0
	Trap	0.1	**	0.4	0.0	0.0	0.0	0.0	-
	Rod and reel*	-	5.5	0.0	12.4	9.7	3.5	4.5	0.9
NC Area 94a	Longline	0.08	0.5	0.0	1.8	0.4	0.0	0.0	4.1
SW Atlantic	Longline	16.8	0.0	0.0	0.0	0.0	0.0	28.7	-
All areas	All gears	6,515.7	5,568.1	7,090.0	5,529.5	2,407.2	2,802.3	2,481.7	3,015.2

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

Source: NMFS, 2012.

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

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

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

Source: NMFS, 2012.

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

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

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

Source: NMFS, 2012.

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

Area	Gear	2004	2005	2006	2007	2008	2009	2010	2011
NW Atlantic	Longline	106.6	88.9	84.8	109.9	115.9	141.3	87.8	147.8
	Gillnet	4.9	6.0	2.1	1.0	2.1	5.6	0.5	0.2
	Handline	6.1	3.0	2.6	5.4	0.2	0.5	1.9	0.7
	Trawl	2.7	1.7	1.1	0.3	0.01	0.08	0.2	2.0
	Trap	-	-	0.5	0.4	0.005	0.01	0.01	0.0
	Troll	0.0	0.0	0.0	0.2	0.2	0.07	0.04	0.0
	Rod and reel*	500.5	356.0	284.2	393.6	125.2	22.8	46.2	170.6
	Unclassified	3.6	9.9	5.6	4.2	1.9	1.3	2.2	7.8
Gulf of Mexico	Longline	9.9	6.9	7.6	15.4	10.2	16.7	7.1	119.8
	Rod and reel*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Handline	0.0	0.1	0.07	0.0	0.0	0.01	0.01	0.1
Caribbean	Longline	3.2	12.1	10.5	1.2	0.4	0.3	0.7	**
	Gillnet	0.005	0.002	0.0	0.0	0.0	0.0	0.0	-
	Rod and reel*	-	-	0.0	0.0	0.0	0.0	103.6	**
	Trap	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
	Handline	2.1	1.1	0.4	0.2	0.4	0.003	0.05	**
NC Area 94a	Longline	0.2	0.6	0.03	0.3	0.8	0.3	0.6	-
SW Atlantic	Longline	0.5	0.0	0.0	0.0	0.0	0.0	0.0	-
All areas	All gears	646.6	488.0	399.5	532.1	256.7	188.8	314.5	449.0

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

Source: NMFS, 2012.

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

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

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

Source: NMFS, 2012.

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

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

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

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

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

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

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

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

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

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

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

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

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

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