# 2012 ANNUAL REPORT OF THE UNITED STATES TO ICCAT

*U.S. Department of Commerce, NOAA, National Marine Fisheries Service (NMFS)*[1]
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Summary

Total (preliminary) reported U.S. catch of tuna and swordfish, including dead discards, in 2011 was 9,742 MT, an increase of about 14 % from 8,573 MT in 2010. Swordfish catches (including estimated dead discards) increased from 2,412 MT in 2010 to 2,887 MT in 2011, and provisional landings from the U.S. fishery for yellowfin tuna increased in 2011 to 3,015 MT from 2,482 MT in 2010. U.S. vessels fishing in the northwest Atlantic caught in 2011 an estimated 884 MT of bluefin, a decrease of 69 MT compared to 2010. Provisional skipjack tuna landings increased by about 30 MT to 84 MT from 2010 to 2011, bigeye tuna landings increased by 174 MT compared to 2010 to an estimated 746 MT in 2011, and albacore landings increased from 2010 to 2011 by 134 MT to 449 MT.

In 2011, the United States met its obligations with regard to the implementation of ICCAT's conservation and management measures. Furthermore, the United States takes an ecosystem approach to management of highly migratory species and implements a number of measures that go beyond the measures required in ICCAT recommendations. The United States implemented its western bluefin tuna 2011 and 2012 quotas as well as the two-year balancing period for limiting the harvest of bluefin tuna measuring less than 115 cm (45 inches) to 10 percent (by weight) of the U.S. quota. The United States also implemented the reduction in the amount of underharvest that may be carried forward to 2012 (i.e., not to exceed 10 percent of the initial quota allocation). The United States has prohibited all commercial retention of billfish caught in association with ICCAT fisheries since 1988 and maintains regulations that prohibit all landings of blue and white marlins caught in the Atlantic ocean by any method other than rod and reel. In 2012, the United States implemented the measures for northern swordfish adopted by ICCAT in 2011, including the U.S. catch limit of 3,907 mt ww, the provision allowing the United States to catch up to 200 mt of its North Atlantic swordfish quota between 5 degrees North latitude and 5 degrees South latitude, and the provision to transfer 150 mt to Morocco.

At present, the Atlantic pelagic longline fishery of the United States typically targeting ICCAT-managed species, such as swordfish and bigeye, albacore, skipjack and yellowfin tunas, is subject to several discrete time/area closures to reduce all bycatch (*e.g.*, undersized swordfish, billfish, *etc*). Furthermore, pelagic longline vessels may only fish for ICCAT species if they observe strict circle hook and bait restrictions and use approved sea turtle release gear in accordance with release and handling protocols. Effective in May 2011, the United States now requires the use of "weak hooks" by pelagic longline vessels fishing in the Gulf of Mexico to reduce bycatch of bluefin tuna by pelagic longline vessels targeting other species, such as swordfish and yellowfin tuna. The United States submitted its report on the history of U.S. swordfish fishing/management plan on September 14, 2012, pursuant to ICCAT Rec. 11-02.

The United States continues to fulfill the requirements of ICCAT's shark recommendations through data collection programs and domestic management measures including a requirement to keep shark fins naturally attached. The United States has catch limits in place for Atlantic porbeagle, shortfin mako, and blue sharks and will continue to submit catch and effort data for sharks to ICCAT. The United States also has measures to prohibit harvest of bigeye thresher sharks in all ICCAT fisheries and fully implements the requirements of Rec. 10-07 and 10-08, which prohibit retaining, transshipping, landing, storing, or selling hammerhead sharks in the family Sphyrnidae (except for *Sphyrna tiburo*) and oceanic whitetip sharks (*Carcharhinus longimanus*), respectively, as well as silky sharks caught in association with ICCAT fisheries, per Rec. 11-08.

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# Part I. Information on fisheries, research, and statistics

## Section 1. National Fisheries Information

Total (preliminary) reported U.S. catch of tuna and swordfish, including dead discards, in 2011 was 9,742 MT, an increase of about 14 % from 8,573 MT in 2010. Swordfish catches (including estimated dead discards) increased from 2,412 MT in 2010 to 2,887 MT in 2011, and provisional landings from the U.S. fishery for yellowfin tuna increased in 2011 to 3,015 MT from 2,482 MT in 2010. U.S. vessels fishing in the northwest Atlantic caught in 2011 an estimated 884 MT of bluefin, a decrease of 69 MT compared to 2010. Provisional skipjack tuna landings increased by about 30 MT to 84 MT from 2010 to 2011, bigeye tuna landings increased by 174 MT compared to 2010 to an estimated 746 MT in 2011, and albacore landings increased from 2010 to 2011 by 134 MT to 449 MT.

## Section 2. Research and Statistics

### ***2.1 Fisheries Statistics***

#### *2.1.1 Tropical Tuna Fishery Statistics*

*Yellowfin Tuna.* Yellowfin is the principal species of tropical tuna landed by U.S. fisheries in the western North Atlantic. Total estimated landings increased to 3,015 MT in 2011, from the 2010 landings estimate of 2,481 MT (Table 2.1-YFT). The 2011 estimate is considered provisional and may change owing to incorporation of late reports of commercial catches as they become available and to possible revisions in estimates of rod and reel catches made by recreational anglers. A high proportion of the 2011 estimated landings were due to rod and reel catches of recreational anglers in the NW Atlantic (1,498 MT). In the case of commercial landings, the highest proportion of landings in 2011 corresponded to the U.S. longline fleet operating in statistical area LLYF12 (698 MT). Total commercial and total recreational landings in 2011 were 1,469 MT and 1,498 MT, respectively. Nominal catch rate information from logbook reports (longline catch per 1,000 hooks) for yellowfin by general fishing areas is shown in Figure 2.1.

**Table 2.1-YFT.** Annual Landings (MT) of Yellowfin Tuna from 2007 to 2011

| Area | Gear | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| Northwest (NW) Atlantic | Longline | **757.8** | **460.5** | **416.4** | **673.4** | **698.3** |
| | Gillnet | **4.2** | **0.6** | **0.0** | **0.5** | **0.05** |
| | Handline | **113.2** | **30.1** | **58.7** | **43.5** | **33.1** |
| | Trawl | **2.4** | **0.0** | **0.0** | **1.4** | **1.3** |
| | Troll | **6.9** | **2.4** | **5.4** | **1.2** | **0.5** |
| | Trap | **0.0** | **0.05** | **0.1** | **0.5** | **0.0** |
| | Rod and Reel* | **2,726** | **657.1** | **742.6** | **1,209** | **1,134** |
| | Unclassified | **7.0** | **1.4** | **2.2** | **9.5** | **4.2** |
| Gulf of Mexico | Longline | **1,379.3** | **756.5** | **1,147** | **303.2** | **634.1** |
| | Handline | **26.2** | **11.2** | **21.6** | **2.9** | **8.7** |
| | Rod and Reel* | **227.6** | **366.3** | **264.7** | **18** | **362.8** |
| | Unclassified | **0.0** | **0.0** | **0.0** | **0.0** | **0.1** |
| Caribbean | Longline | **255.6** | **107.1** | **136.7** | **212.2** | **132.1** |
| | Gillnet | **0.0** | **0.04** | **0.04** | **0.0** | **0.0** |
| | Handline | **9.1** | **3.7** | **3.3** | **1.9** | **1.0** |
| | Rod and Reel* | **12.4** | **9.7** | **3.5** | **4.5** | **0.9** |
| North Central (NC) Atlantic | Longline | **1.8** | **0.4** | **0.0** | **0.0** | **4.1** |
| | **TOTAL** | **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 based on statistical surveys of the U.S. recreational harvesting sector.

*Skipjack Tuna.* Skipjack tuna are also caught by U.S. vessels in the western North Atlantic, but it is a minor component of the U.S. total tuna landings. Total reported skipjack landings (preliminary) increased from 54 MT in 2010 to 84 MT in 2011 (Table 2.2-SKJ). Estimates of recreational harvests of skipjack continue to be reviewed and could be revised again in the future. Figure 2.2 presents nominal catch rate information (longline catch per 1,000 hooks) based on logbook reports.

**Table 2.2-SKJ.** Landings (MT) of Skipjack Tuna from 2007 to 2011

| Area | Gear | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| NW Atlantic | Longline | **0.0** | **0.1** | **0.4** | **1.4** | **0.4** |
| | Gillnet | **0.07** | **0.04** | **3.3** | **0.2** | **0.04** |
| | Handline | **0.3** | **0.4** | **2.8** | **1.2** | **1.2** |
| | Trawl | **0.005** | **0.003** | **0.0** | **0.0** | **0.0** |
| | Rod and Reel* | **27.4** | **21.0** | **75.7** | **29.1** | **50.3** |
| | Unclassified | **0.6** | **0.5** | **1.2** | **0.1** | **0.8** |
| Gulf of Mexico | Longline | **0.0** | **0.05** | **0.05** | **0.0** | **0.2** |
| | Handline | **0.2** | **0.06** | **0.2** | **0.02** | **0.2** |
| | Rod and Reel* | **23.9** | **16.3** | **22.0** | **15.5** | **23.7** |
| Caribbean | Longline | **0.02** | **1.3** | **0.05** | **0.0** | **0.05** |
| | Gillnet | **0.0** | **0.01** | **0.6** | **0.0** | **0.0** |
| | Handline | **13.7** | **16.0** | **8.8** | **6.2** | **4.5** |
| | Rod and Reel* | **0.2** | **11.3** | **4.3** | **0.4** | **3.0** |
| | **TOTAL** | **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.

*Bigeye Tuna.* The other large tropical tuna reported in catches by U.S. vessels in the western North Atlantic is bigeye tuna. Total reported landings (preliminary) for 2011 increased by approximately 175 MT from 571 MT in 2010 to 746 MT (Table 2.3-BET). Note that, like yellowfin, the estimates of rod and reel catch are considered provisional and may be revised based on results of a future review of recreational harvest estimates. Figure 2.3 presents nominal catch rates (longline catch per 1,000 hooks) estimated from logbook reports.

**Table 2.3-BET.** Annual Landings (MT) of Bigeye Tuna from 2007 to 2011

| Area | Gear | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| NW and NC Atlantic | Longline | **340.3** | **384.8** | **388.4** | **431.1** | **622.1** |
| | Gillnet | **1.0** | **0.04** | **0.0** | **0.0** | **0.0** |
| | Handline | **16.8** | **6.9** | **4.6** | **1.8** | **3.4** |
| | Trawl | **0.4** | **0.0** | **0.0** | **0.7** | **1.2** |
| | Trap | **0.0** | **0.0** | **0.3** | **1.2** | **0.0** |
| | Troll | **0.9** | **0.8** | **0.6** | **0.0** | **0.1** |
| | Rod and Reel* | **126.8** | **70.9** | **77.6** | **116.8** | **72.4** |
| | Unclassified | **0.9** | **2.1** | **1.9** | **6.7** | **4.7** |
| Gulf of Mexico | Longline | **37.0** | **14.0** | **19.5** | **6.9** | **2.1** |
| | Handline | **0.01** | **0.0** | **0.07** | **0.09** | **0.0** |
| | Rod and Reel | **0.0** | **0.0** | **0.0** | **0.8** | **34.9** |
| Caribbean | Longline | **3.4** | **8.9** | **22.2** | **5.0** | **2.9** |
| | Handline | **0.0** | **0.0** | **0.0** | **0.0** | **0.05** |
| | Rod and Reel* | **0.0** | **0.0** | **0.0** | **0.0** | **2.3** |
| Southwest (SW) Atlantic | Longline | **0** | **0** | **0** | **0.2** | **0.0** |
| | **TOTAL** | **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.

### *2.1.2 Temperate Tuna Fishery Statistics*

*Albacore Tuna.* Albacore are landed by U.S. vessels; however, historically, albacore has not been a main target of the U.S. commercial tuna fisheries operating in the North Atlantic. Reported commercial catches were relatively low prior to 1986; however, these catches increased substantially and have remained at higher levels with nearly all of the production coming from the northeastern U.S. coast. The U.S. landings from the Caribbean increased in 1995 to make up over 14% of the total U.S. harvest of albacore, but have since remained below 4% of the total. Nominal catch rates from U.S. pelagic longline logbook reports are shown in Figure 2.4. Estimated total catches of albacore were 449 MT in 2011, an increase of 134 MT from 2010 (Table 2.4-ALB).

**Table 2.4-ALB.** Annual Landings (MT) of Albacore Tuna from 2007 to 2011

| Area | Gear | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| NW and NC Atlantic | Longline | **110.2** | **115.9** | **141.3** | **87.8** | **147.8** |
| | Gillnet | **1.0** | **2.1** | **5.6** | **0.5** | **0.2** |
| | Handline | **5.4** | **0.2** | **0.5** | **1.9** | **0.7** |
| | Trawl | **0.3** | **0.01** | **0.08** | **0.2** | **2.0** |
| | Trap | **0.4** | **0.005** | **0.01** | **0.01** | **0.0** |
| | Troll | **0.2** | **0.2** | **0.07** | **0.04** | **0.0** |
| | Rod and Reel* | **393.6** | **125.2** | **22.8** | **46.2** | **170.6** |
| | Unclassified | **4.2** | **1.9** | **1.3** | **2.2** | **7.8** |
| Gulf of Mexico and Caribbean | Longline | **16.6** | **10.6** | **17.0** | **72.1** | **119.8** |
| | Rod and Reel* | **0.0** | **0.0** | **0.0** | **103.4** | **0.0** |
| | Handline | **0.2** | **0.64** | **0.01** | **0.05** | **0.1** |
| | **TOTAL** | **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.

***Figure 2.1 – YFT.*** *Nominal catch rates for YFT in U.S. pelagic longline logbook reports*

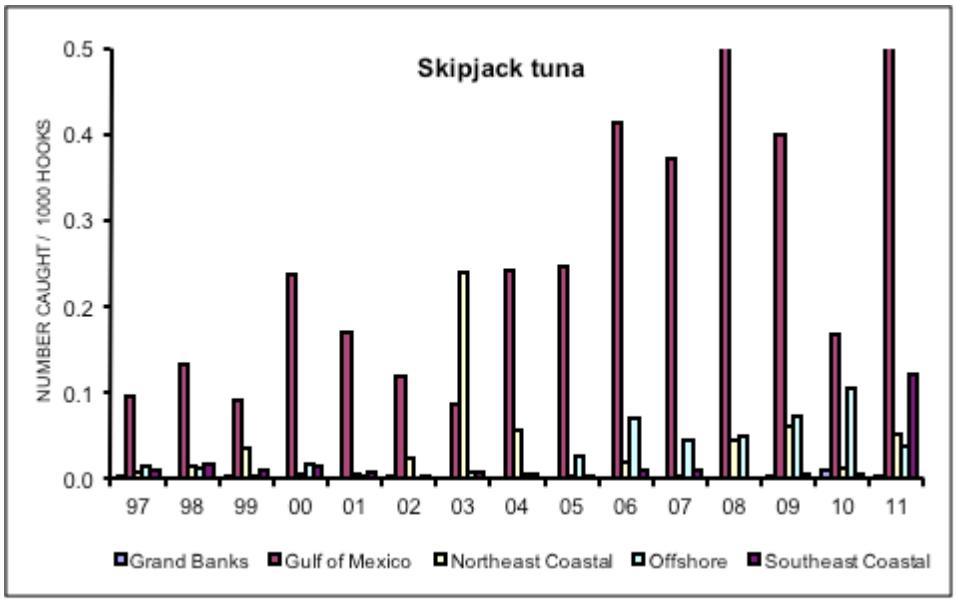


***Figure 2.2 – SKJ.*** *Nominal catch rates for SKJ in U.S. pelagic longline logbook reports.*

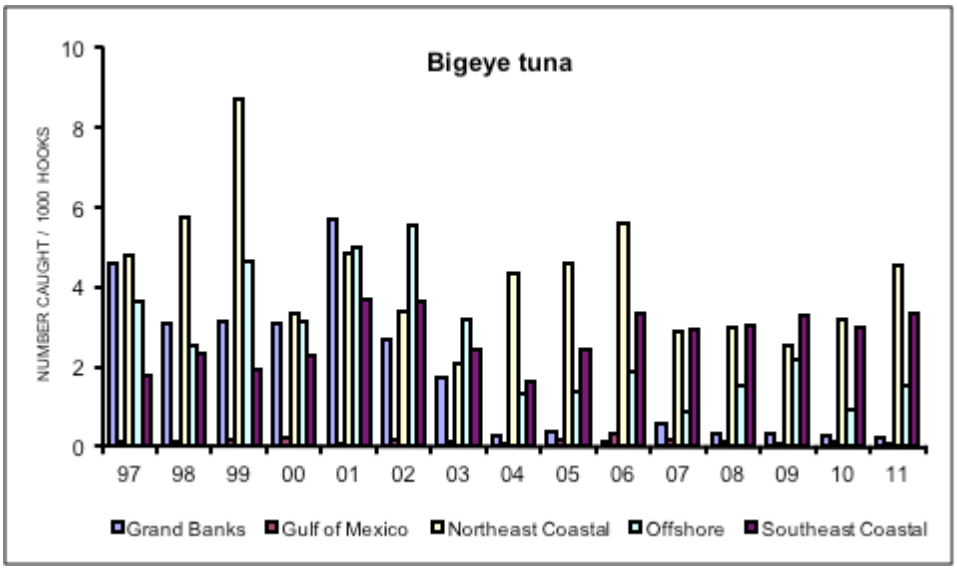


***Figure 2.3 – BET.*** *Nominal catch rates for BET in U.S. pelagic longline logbook reports.*

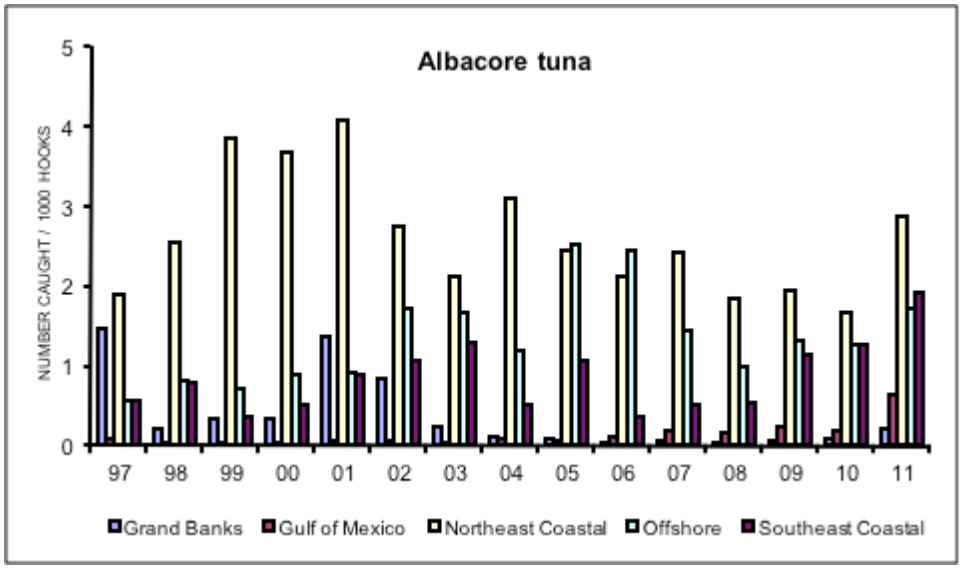


***Figure 2.4 – ALB.*** *Nominal catch rates for ALB in U.S. pelagic longline logbook reports.*

*Bluefin Tuna.* The U.S. bluefin fishery continues to be regulated by quotas, seasons, gear restrictions, limits on catches per trip, and size limits. The United States manages total U.S. landings to conform to ICCAT recommendations. U.S. 2011 provisional estimated landings and dead discards from the northwest Atlantic (including the Gulf of Mexico) were approximately 738 MT and 145 MT, respectively. Those estimated landings and dead discards represent a decrease of approximately 69 MT from the 2010 estimates. The 2011 catches by gear were: 70 MT by harpoon, 419 MT by commercial rod and reel and 173 MT by recreational rod and reel, 220 MT by longline (including discards) of which 11 MT were from the Gulf of Mexico, 0.9 MT by handline and 0.4 MT by trawl (Table 2.5-BFT).

In response to 1992 regulations limiting the allowable catch of small fish by U.S. fishermen, and in conformity with ICCAT agreements, enhanced monitoring of the recreational rod and reel fishery was implemented in 1993 for the purpose of providing near real-time advice on catch levels by this fishery. This monitoring activity has continued and has included estimation of catches by finer scale size categories than reported above. The preliminary estimates for the 2011 recreational rod and reel fishery off the northeastern United States for landings in several size categories are55.9 MT of fish 66-114 cm, 70.5 MT of fish 115-144 cm, 41.1 MT of fish 145-178 cm, and 5.8 MT of fish >178 cm SFL.

**Table 2.5-BFT.** Annual Catches (MT) of Bluefin Tuna from 2007 to 2011

| Area | Gear | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| NW Atlantic | Longline** | **70.7** | **107.4** | **166.7** | **164.7** | **202.2** |
| | Handline | **0.0** | **0.6** | **0.1** | **2.7** | **0.9** |
| | Harpoon | **22.5** | **30.2** | **65.6** | **29.0** | **70.1** |
| | Purse seine | **27.9** | **0.0** | **11.4** | **0.0** | **0.0** |
| | Rod and reel (>145 cm FL)* | **235.4** | **305.7** | **717.1** | **570.8** | **-** |
| | Rod and reel (<145 cm FL)* | **398.6** | **352.2** | **143.3** | **111.4** | **-** |
| | Unclassified | **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** | **0.4** |
| Gulf of Mexico | Longline** | **81.2** | **111.7** | **111.6** | **56.2** | **11.2** |
| NC Atlantic | Longline** | **12.4** | **13.5** | **56.7** | **17.8** | **6.4** |
| Caribbean | Longline** | **0.0** | **0.0** | **0.0** | **0.0** | **0.6** |
| | **TOTAL** | **848.7** | **919.9** | **1,272.6** | **952.6** | **883.7** |

* Recreational 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

### *2.1.3 Swordfish Fishery Statistics*

For 2011, the provisional estimate of U.S. vessel landings and dead discards of swordfish was 2,887 MT (Table 2.6-SWO). This estimate represents an increase from the 2,412 MT estimated for 2010 The provisional landings, including discard estimates, by ICCAT area for 2011 (compared to 2010) were: 338 MT (218 MT) from the Gulf of Mexico (Area BIL91); 2,095 MT (1,849 MT) from the northwest Atlantic (Area BIL92); 15 MT (41 MT) from the Caribbean Sea (Area BIL93); and 438 MT (303 MT) from the North Central Atlantic (Area BIL94A).

U.S. swordfish landings are monitored in-season from reports submitted by dealers, vessel owners and captains, NMFS port agents, and mandatory daily logbook reports submitted by U.S. commercial vessels permitted to fish for swordfish. The U.S. swordfish longline fishery is also being monitored via a scientific observer-sampling program, instituted in 1992. Approximately 8% of the longline fleet-wide fishing effort is randomly selected for observation during the fishing year. The observer sampling data, in combination with logbook reported effort levels, support estimates of approximately 8,294 fish discarded dead in 2011. For the North Atlantic (including the Gulf of Mexico and Caribbean Sea), the estimated tonnage discarded dead in 2011 was 135 MT, of which 127 was estimated due to longline gear. Overall, the estimates of dead discarded catch decreased by about 2 MT compared to the 2010 levels, and corresponded to approximately 5% of the commercially landed catch.

Total weight of swordfish sampled for sizing U.S. commercial landings by longline, trawl, and handline was 2,285 MT, 13 MT, and 189 MT in 2011. The weight of sampled swordfish landings in 2010 were 89%, 44%, and 90% of the U.S. total reported annual landings of swordfish for longline, trawl, and handline, respectively. Again, incorporation of late reports into the estimated 2011 landings figure will likely result in changes in the sampled fraction of the catch. Recent estimates of rod and reel landings of swordfish based on surveys of recreational anglers, range from about 5-76 MT per year within the period 1996-2011.

**Table 2.6-SWO.** Annual Catches (MT) of Swordfish from 2007 to 2011

| Area | Gear | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|
| NW Atlantic | Longline** | **1,649.6** | **1,622.5** | **1,696** | **1,647.7** | **1,898.8** |
| | Gillnet | **0.2** | **0.0** | **0.05** | **0.0** | **0.0** |
| | Handline | **125.2** | **83.2** | **123** | **126.9** | **124.6** |
| | Harpoon | **0.0** | **0.0** | **0.05** | **0.6** | **0.6** |
| | Trawl | **6.5** | **7.6** | **23.7** | **21.2** | **17.9** |
| | Rod and Reel* | **65.9** | **56.7** | **19.0** | **47.6** | **48.7** |
| | Unclassified | **0.2** | **0.2** | **0.0** | **2.1** | **0.1** |
| | Unclassified discards | **5.5** | **4.1** | **3.5** | **3.6** | **4.8** |
| Gulf of Mexico | Longline** | **457.7** | **361.6** | **476.2** | **212.3** | **329.8** |
| | Handline | **0.2** | **1.2** | **1.9** | **2.6** | **0.6** |
| | Rod and Reel* | **2.3** | **19.0** | **12.6** | **1.7** | **4.9** |
| | Unclassified discards | **5.5** | **4.6** | **3.1** | **1.3** | **2.9** |
| Caribbean | Longline** | **27.8** | **57.9** | **22.7** | **41.4** | **14.2** |
| | Handline | **0.0** | **0.0** | **0.003** | **0.0** | **0.0** |
| | Unclassified discards | **0.0** | **0.0** | **0.2** | **0.04** | **0.8** |
| NC Area 94A | Longline** | **338.9** | **311.6** | **496.4** | **304.8** | **438.4** |
| | Unclassified discards | **0.5** | **0.0** | **0.0** | **0.01** | **0.0** |
| SW Atlantic | Longline** | **0.0** | **0.0** | **0.0** | **0.3** | **0.0** |
| | **TOTAL** | **2,682.8** | **2,530.3** | **2,878** | **2,412.1** | **2,887.6** |

* 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

### *2.1.4 Marlins and Sailfish Fishery Statistics*

Blue marlin, white marlin, and sailfish are landed by U.S recreational rod and reel fishermen and are a bycatch of the U.S. commercial tuna and swordfish longline fisheries. The U.S. Fisheries Management Plan for Atlantic Billfishes was implemented in October 1988. The Plan allows billfish that are caught by recreational gear (rod and reel) to be landed only if the fish is larger than the minimum size specified for each species covered by the Plan. Recreational landings of each billfish species are monitored through: (a) the Southeast Fisheries Science Center (SEFSC) Recreational Billfish Survey (RBS) which provides the number of billfish caught during tournaments held along the southeastern U.S. coast (south of $35^0$ N latitude), in the Gulf of Mexico, and U.S. Caribbean regions (i.e., U.S. Virgin Islands and Puerto Rico); (b) the NMFS Large Pelagics Recreational Survey (LPS) conducted by NMFS which provides estimates of recreational harvest of highly migratory species (including billfish), from waters along the northeastern United States (north of $35^o$ N latitude); (c) Marine Recreational Information Program (MRIP); (d) a Headboat survey (large multi-party charter boats); and/or (e) a coastal sport fishing survey of the Texas recreational fishery (TPW). In addition, recreational catch statistics by self-reported catch cards also document billfish landings in some states.

The estimates of 2011 U.S. recreational rod and reel landings for these billfish species, combining the geographical areas of the Gulf of Mexico (Area BIL91), the northwestern Atlantic Ocean west of the $60^o$ W longitude (Area BIL92), and the Caribbean Sea (Area BIL93) are: 6.6 MT for blue marlin, 2.3 MT for white marlin, and 4.2 MT for sailfish. The estimates for 2010 were: 4.3 MT for blue marlin, 2.1 MT for white marlin, and 2.8 MT for sailfish.

In addition to restrictions on U.S. recreational harvest, the Management Plan also imposed regulations on commercial fisheries by prohibiting retention and sale of the three species at U.S. ports. For this reason, there are no U.S. commercial landings for any of the three Atlantic species. Estimates of dead discards in the U.S. longline fleet are obtained using data collected through the mandatory Pelagic Logbook Program and the Pelagic Observer Program. The procedure for estimating the historical bycatch of blue marlin, white marlin, and sailfish was detailed in SCRS/96/97-Revised. Revisions to historical landings of billfish previously reported to ICCAT were based on review of the estimates conducted at the 1996 ICCAT Billfish Workshop held in Miami, FL. Estimates of the billfish bycatch discarded dead in the U.S. commercial longline and other commercial fisheries in 2011 were 48.6 MT for blue marlin, 22.5 MT for white marlin, and 9.8 MT for sailfish.

### *2.1.5 Shark Fishery Statistics*

The U.S. Federal Fisheries Management Plan (FMP) implemented in 1993 (NMFS 1993) identified three management groups: large coastal sharks, small coastal sharks, and pelagic sharks. The pelagic complex included ten species: shortfin mako (*Isurus oxyrinchus*), longfin mako *(Isurus paucus*), porbeagle (*Lamna nasus*), thresher (*Alopias vulpinus*), bigeye thresher (*Alopias superciliosus*), blue (*Prionace glauca*), oceanic whitetip (*Carcharhinus longimanus*), sevengill (*Heptranchias perlo*), sixgill (*Hexanchus griseus*), and bigeye sixgill (*Hexanchus vitulus*). The 1993 FMP classified the status of pelagic sharks as unknown because no stock assessment had been conducted for this complex. The Maximum Sustainable Yield (MSY) for pelagic sharks was set at 1,560 MT dressed weight (dw), which was the 1986-1991 commercial landings average for this group. In 1997, as a result of indications that the abundance of Atlantic sharks had declined, commercial quotas for large coastal, small coastal, and pelagic sharks were reduced. The quota for pelagic sharks was set at 580 MT. In 1999, the U.S. FMP for Atlantic Tunas, Swordfish, and Sharks (NMFS 1999) proposed the following measures affecting pelagic sharks: 1) a reduction in the recreational bag limit to one Atlantic shark per vessel per trip, with a minimum size of 137 cm fork length for all sharks, 2) an increase in the annual commercial quota for pelagic sharks to 853 MT dw, apportioned between porbeagle (92 MT), blue sharks (273 MT dw), and other pelagic sharks (488 MT dw), with the pelagic shark quota being reduced by any overharvest in the blue shark quota, and 3) making the bigeye sixgill, sixgill, sevengill, bigeye thresher, and longfin mako sharks prohibited species that cannot be retained. Regulations on prohibited species went into effect in 2000, whereas those on pelagic shark quotas were enacted in 2001. Presently, the commercial quotas for pelagic sharks are 273 MT dw (blue sharks), 1.7 MT dw (porbeagles), and 488 MT dw (pelagic sharks other than porbeagle or blue).

Landings and dead discards of sharks by U.S. pelagic longline fishermen are monitored and reported to ICCAT. In 2011, the species of shark with the largest amount of landings (in weight) was shortfin mako with a total of

approximately 372 MT (of which 171 MT were landed by the U.S. recreational fishery), followed by thresher sharks (*Alopias spp.*), blue shark, and hammerhead sharks (*Sphyrna* spp.) with approximately 89, 65, and 3.8 MT, respectively.

In 2011, estimates of dead discards for blue shark by the U.S. pelagic longline fleet amounted to almost 1,115MT, the largest amount of any shark species discarded by this fleet. The second largest amount of dead discards by this fleet corresponded to tiger shark with 357 MT followed by silky shark and shortfin mako with 83, and 28 MT, respectively.

*Domestic Pelagic Longline Observer Coverage*

In accordance with ICCAT recommendations, randomized observer sampling of the U.S. pelagic longline fleet was continued into 2011 (see Figure 2.5) through the U.S. Pelagic Observer Program. Representative scientific observer sampling of this fleet has been underway since 1992. The data collected through this program have been used to quantify the composition, disposition, and quantity of the total catch (both retained and discarded at sea) by this fleet which fishes in waters of the northwest Atlantic Ocean, Gulf of Mexico, and the Caribbean Sea. Selection of the vessels is based on a random sampling of the number of sets reported by the longline fleet. The percent of fleet coverage has varied over time, for example in 1992 it reached 2.5% coverage; while in 2011 it reached 10.9%. The targeted sampling fraction of the U.S. pelagic longline fleet was increased from 5% to 8% in 2002.

NOAA fisheries observer personnel recorded a total of 15,104 longline sets (11,015,040 hooks) from May of 1992 to December of 2011. During this period, observers recorded over 505,775 fish (primarily swordfish, tunas, and sharks), in addition to marine mammals, sea turtles, and seabirds. Documents SCRS/04/168 and SCRS/08/034 provided a more detailed summary of the data resulting from observer sampling, observer coverage, and sampling strategy. Similar to 2007-2010, from approximately March 15 through June 15, 2011, the pelagic observer program increased the coverage of the longline fleet operating in the Gulf of Mexico. The goal of this increase was to collect data to better characterize the interaction between the longline fleet and bluefin tuna during the spawning season. A total of 232 longline sets were observed (117,298 hooks) from 13 vessels, which accounted for approximately 76.8 % of the longline trips during that period.

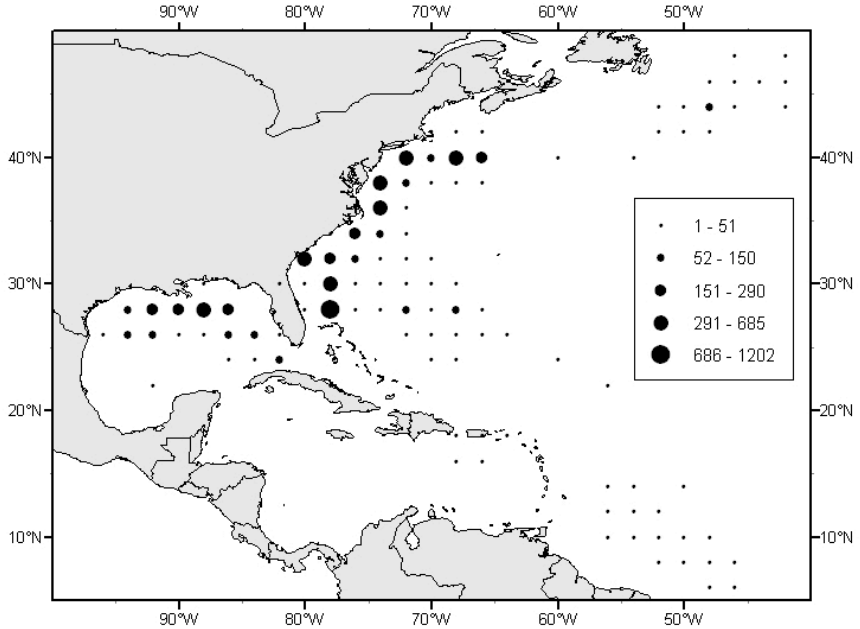


***Figure 2.5 –*** *Position of longline sets as reported in pelagic logbooks (upper panel) and observed by the U.S. pelagic observer program (lower panel) in 2011 summarized by $2^o x 2^o$ square.*

*Shark Bottom Longline Observer Coverage*

The U.S. Atlantic shark bottom longline fishery operates in the Atlantic Ocean from about the Mid-Atlantic Bight to south Florida and throughout the Gulf of Mexico. The bottom longline gear targets large coastal sharks, but small coastal sharks, pelagic sharks, and dogfish species are also caught. Currently, 214 U.S. fishermen are permitted to target sharks (excluding dogfish) in the Atlantic Ocean and Gulf of Mexico, and an additional 285 fishermen are permitted to land sharks incidentally caught. Recent amendments to the Consolidated Atlantic Highly Migratory Species Fishery Management Plan based on updated stock assessments have greatly reduced levels of shark fishing in the U.S. Atlantic and modified the authorized species in commercial shark fisheries. The amendments have also implemented a shark research fishery, which allows the U.S. National Marine Fisheries Service (NMFS) to select annually a limited number of commercial shark vessels to fish for certain species carrying observers on 100% of trips to collect life history data, and other necessary data to conduct shark stock assessments. Commercial shark fishermen not participating in the research fishery are no longer allowed to land sandbar sharks, which used to be the main target species for most fishermen. Additionally, commercial fishermen are required to land sharks with their fins naturally attached. The revised measures also affected the number of authorized species that can be landed by the recreational shark fisheries; modified time/area closures for commercial shark vessels deploying bottom longline gear; and modified regions, seasons, and shark dealer reporting frequency in the commercial shark fishery. Observations of the shark-directed bottom longline fishery in the Atlantic Ocean and Gulf of Mexico have been conducted since 1994. From January to December 2011, a total of 161 hauls on 105 trips were observed. Sharks comprised 96.4% of the catch, followed by teleosts (2.1%), invertebrates (0.7%), and batoids (0.6%). Large coastal shark species comprised 82.8% of the shark catch, small coastal shark species comprised 13.9%, and deep water sharks comprised 0.1%. Prohibited shark species were also caught including the dusky shark, the Caribbean reef shark, *Carcharhinus perezi*, the sand tiger shark, *Carcharhias taurus*, and the great white shark, *Carcharodon carcharias* (3.2% of shark catch).

## ***2.2. Research Activities***

### *2.2.1 Bluefin Tuna Research*

As part of its commitment to the Grande Bluefin Year Program (GBYP), research supported by the United States has concentrated on ichthyoplankton sampling, tagging and biological sampling from fisheries.

Ichthyoplankton surveys in the Gulf of Mexico during the bluefin spawning season were continued in 2010 and 2011. In addition to the regular survey, which occurs over a fixed spatial grid in May, adaptive sampling was carried out in spring 2010 and 2011 in collaboration with NASA and scientists from Mexico (INAPESCA). Adaptive sampling focused on the western Caribbean, with stations sampled between the Windward Passage and the Yucatan Peninsula. Station selection was guided by a larval habitat model, run on remotely sensed satellite data. Preliminary visual identifications suggest larval occurrence only along the Yucatan Peninsula, inshore of the Caribbean Current. This confirms results from less extensive sampling in 2009 and 2010. Work has continued on a collaborative project investigating the potential effects of climate change through the end of the 21$^{st}$ century on bluefin tuna spawning grounds in the Gulf of Mexico. Results suggest that in the future, spawning may be initiated earlier in the year, due to warming water temperatures, and that spawning activity may be curtailed in the warmer months of May and June. In July 2011, larval bluefin tuna scientists from the United States and Spain attended an informal workshop, to discuss parallel lines of research, and potential future collaboration efforts. Environmental constraints on larval distributions between the Gulf of Mexico and Mediterranean Sea were discussed, as were variables influencing larval feeding, growth and survival.

The NOAA Fisheries Southeast Fisheries Science Center (SEFSC) has deployed a total of 35 PSATs on bluefin tuna from contracted longline vessels fishing in the Gulf of Mexico to monitor survivorship and post release behavior of bluefin tuna in the western Atlantic (from February-June, 2010, 2011, and 2012). Monitoring times ranges from 4-93 days. Three tags are still at large. Field activities will continue for FY 2013 until the remaining 15 PSATs are deployed (though June 2013). In 2011, the Large Pelagic Research Center at the University of Massachusetts (LPRC) conducted PSAT tagging of juvenile BFT off New England with tag missions of one year, with results

pending. In addition, LPRC is now conducting an extensive review and integrative analysis of all PSAT tagging results for adult BFT tagged and released off New England and Canada from 1997-2011.

The LPRC is collaborating with the SEFSC and ICCAT GBYP program on a scientific mark recapture study focusing on juvenile BFT. Tagging commenced in 2011 and will continue through 2013. Conventional, high reward and PSAT tags are being deployed simultaneously to facilitate the estimation of key population parameters.

The SEFSC initiated the first ever comprehensive sampling program for bluefin tuna in 2010, collecting otoliths, dorsal spines, caudal vertebrae and other tissues in a manner representative of the catch. The 2010 pilot program produced only a few dozen otoliths; however an additional 300 were collected opportunistically by the LPRC from a few participating commercial fish houses. Subsequently, SEFSC scientists and contractors met with several university scientists to expand and better coordinate a collaborative approach to sampling both the recreational and commercial fisheries. As a result, otoliths and other samples were taken from over 800 bluefin tuna. Approximately 230 bluefin were sampled from the recreational fishery through the Large Pelagic Survey and over 600 bluefin were sampled from commercial fisheries (520 through the LPRC and 81 through the pelagic observer program and Northeast Regional Office of NMFS). The LPRC has completed analyses of maturity and reproduction in western Atlantic bluefin tuna ranging from young of year to adult size classes, including estimation of fecundity, age of maturity and a comparison of western and eastern spawners. Results are being submitted for publication.

Scientists from Texas A & M University and the University of Maryland assigned natal origin (Mediterranean Sea or Gulf of Mexico) to Atlantic bluefin tuna collected off North Carolina in 2011, targeting an abundant 2003 year-class. Maximum likelihood estimates of the sample's mixture were based on stable isotope composition, $\delta^{18}$O and $\delta^{13}$C, of base-line natal age-1 juveniles. Estimated contribution rate of Gulf of Mexico members to the 2003 year-class was 49.2% ± 13% SD. This estimate was robust to error in year-class assignment (i.e., ageing error) but showed moderate imprecision due to low sample size (n=39). Analysis of archived otoliths from U.S. landed fish of similar size range to the 2003 year-class indicated a slightly higher Gulf of Mexico contribution: 56.2% ± 6.5% (sample years 1996-1998; N=110). Results support the inference that the 2003 year-class, evident in U.S. fisheries during the past five years, received contributions from both natal populations.

Scientists from the University of Massachusetts and University of Maryland are developing a biologically realistic model of Atlantic bluefin tuna stocks, incorporating the best available empirically-derived data, to examine how structure and connectivity influence population and fishery dynamics. The simulation framework allows for representation of population structure (i.e., multiple spawning components) and varying rates and patterns of movement among areas.

Scientists from Stanford University and the Tag-A-Giant research team continued to deploy electronic tags on giant bluefin tuna in Canada to monitor bluefin in the Gulf of Mexico. They continued archival tagging off North Carolina to keep the time series of archival tagged bluefin moving forward. Genetic studies of bluefin using microsatellites in the western Population were continued to improve our understanding of genetic population structuring. Genomic tools for monitoring maturation and gender specific gene differences from gonad samples are completed. In collaboration with scientists from the University of British Columbia, a Bayesian, spatially explicit, quarterly time step, statistical catch-at-age model was developed that is fitted to conventional and electronic tag-track data, historic catch-at-age reconstructions and otolith microchemistry data on origin to better account for stock mixing in assessments (Multistock Age-Structured Tag-integrated stock assessment model, MAST).

From late March through mid-June 2011, the SEFSC conducted extensive observations of the pelagic longline fishery in the Gulf of Mexico. Roughly 50% of known fishing trips and a higher percentage of total effort was observed. Various biological samples were taken from the bluefin including otoliths, gonads and muscle. Contracts were awarded to conduct research on bluefin stock structure, growth, gender determination and reproduction.

At the same time as the extended coverage observer program, the SEFSC has been assessing the efficacy of a new 16/0 "weak" circle hook designed to reduce the bycatch mortality of bluefin tuna in the directed yellowfin tuna fishery in the Gulf of Mexico. The 2008-10 study was a continuation of research conducted in April 2007 to examine "weak link" concepts which would allow bluefin tuna to escape capture on pelagic longlines, while

retaining yellowfin tuna. Results of the study indicate that the new circle hook design reduces the bluefin tuna catch rate with no significant reduction in the target catch of yellowfin tuna. Consequently, the National Marine Fisheries Service published a final rule requiring the new hook design in the Gulf of Mexico pelagic longline fishery effective 5 May 2011. Research on this new bycatch reduction technology will continue through 2012 in order to improve the statistical precision and confidence of the results and assess how quickly the escapement occurs.

The SEFSC continues to be a leader in developing methodology to improve catch per unit effort standardization methods. To build upon this research, SEFSC has initiated a project to investigate the effects of incorporating gear effects and remotely sensed satellite and hydrodynamic model data as variables in fishery-dependent bluefin tuna indices. The goal of this project will be to better account for the environmental factors that may affect bluefin catch rates, resulting in more accurate CPUE indices.

### *2.2.2 Swordfish Research*

U.S. research on Atlantic swordfish in 2011 focused primarily on assessing movement and habitat use of the North and South Atlantic populations. U.S. anglers participating in the long-term cooperative tagging program marked 106 swordfish captured in recreational fisheries off the U.S. East Coast and reported recapture information on two fish. The recaptured swordfish demonstrated regional site fidelity, with one fish released and recaptured after 114 days at large in the Gulf of Mexico near the Florida panhandle, and the other released and recaptured after 81 days at large in the Atlantic Ocean near Ft. Lauderdale, Florida.

U.S. scientists synthesized movement and habitat use information of satellite archival tagged fish in the Pacific and Atlantic Oceans and reported diel variation in vertical habitat use patterns. Swordfish resided primarily below the thermocline during the day and migrated closer to the surface at night, with vertical movements between the surface and depth occurring during crepuscular hours. Temperature influenced the nighttime depth use in the Pacific where fish typically remained in the surface mixed layer, whereas observed depths were much deeper in the warmer regions of the tropical Atlantic. Temperature data indicated that swordfish are capable of tolerating extremely low temperatures (4°C) and rapid temperature change (>20°C). Researchers concluded that swordfish vertical distribution patterns, especially during daytime, were influenced largely by resource availability.

Researchers from Nova Southeastern University in Florida conducted several research studies relevant to swordfish. The habitat utilization and post-release survival rates of 16 juvenile swordfish released from the recreational rod-and-reel fishery and commercial swordfish buoy gear fishery in the Florida Straits was investigated in a Cooperative Research Program (CRP) funded study (in association with the SEFSC and UM/RSMAS) using pop-up satellite archival tags. Five of the fourteen reporting tags indicated mortality within 48 hours, for a release mortality rate of 35.7%. The researchers noted, however, the imprecision of this estimate. Scientists also conducted socio-economic analyses of swordfish and sailfish recreational tournaments in the Florida Straits, collecting information on angler characteristics, experience, fishing preferences and expenditure patterns. Additionally, an analytical description of the South Florida recreational tournament fishery for swordfish, beginning in 1977, was conducted. These studies will provide useful information for understanding the economic importance and management implications of these activities.

Researchers from the Pacific Islands Fisheries Research Center, University of Maine, and National Taiwan University developed a habitat suitability model to examine the relationships between swordfish catches in the South Atlantic Ocean and environmental variables, and to identify potential fishing grounds. Optimum swordfish habitat was determined to occur in areas with sea surface temperatures between 27 and 28°C, sea surface height anomaly between-0.05 and 0.05 m, chlorophyll-a concentration of 0.1 to 0.2 mg $m^{-3}$ and ocean bathymetry of_4000 to_4500 m. The researchers cross-validated the predicted habitat suitability index values with observed catch information, and suggested that the model can be used as a tool for reliable prediction of potential fishing grounds.

### *2.2.3 Tropical Tunas Research*

U.S. scientists participated in the ICCAT SCRS Tropical Tuna Species Group Inter-Sessional Meeting on the Ghanaian Statistics Analysis (Phase II), held in Madrid, Spain, 30 May to 3 June 2011. The work conducted included the review of available historical data, methods for revision and results, as well as a review of sampling methodologies. U.S. scientists also participated in the ICCAT SCRS Yellowfin tuna stock assessment meeting, held in Pasaia, Gipuzkoa, Spain, on 5-12 September 2011.

In 2011, SEFSC scientists presented several papers to the SCRS concerning tropical tunas. Abundance indices were developed for yellowfin tuna from U.S. pelagic longline fleet as well as U.S. recreational fleet data. U.S. scientists have continued to conduct cooperative research with scientists from Mexico, pursuing the development of indices of abundance for species of concern to ICCAT in the Gulf of Mexico as well as descriptive analyses of that fishery. An updated abundance index for yellowfin tuna, using Mexican and U.S. pelagic longline observer data, was prepared for the 2011 Atlantic Yellowfin Tuna Stock Assessment.

Scientists at NOAA's Southeast Fisheries Science Center (SEFSC) have been collaborating since 2008 with the Texas A&M University, using pop-up satellite archival tag (PSAT) technology to evaluate habitat use of yellowfin tuna in the Gulf of Mexico. Fish were captured using rod and reel gear near the edge of the continental shelf in the central Gulf (Mississippi Delta region). A total of 32 PSATs were deployed on yellowfin tuna ranging from 87 to 158 cm FL, and monitored for periods up to 95 days, with field work being completed in 2011. Net displacement from point of release to point of pop-up ranged from 5 to 609 nautical miles (nm). A preliminary analysis of the data, describing the time yellowfin tuna spent at temperature, relative to the surface temperature, was presented to the ICCAT SCRS. Further analyses are underway that will help define essential fish habit and improve CPUE standardization approaches.

In response to the Deepwater Horizon oil spill event, SEFSC scientists initiated a study in 2010 to evaluate the movements, migration patterns and site fidelity of yellowfin tuna in the Gulf of Mexico in order to assess the potential exposure of the stock to contaminants, as well as optimal fishery closure strategies for potential future events. This differed from the work conducted in collaboration with Texas A&M in that generally larger fish were targeted, and longline vessels were used as deployment platforms (in addition to recreational vessels) to achieve a broader geographic representation of deployment locations, corresponding more closely to the range of the fishery. This study is ongoing in 2012, so far tracking the movements of 36 yellowfin for durations of 10 to as many as 172 days (8 of the fish were tracked for more than 3 months). More deployments, for periods up to one year, are planned for the northern Gulf of Mexico. In addition, collaborative work with Mexican scientists is underway, with the goal of deploying at least 12 PSATs on yellowfin tuna in Mexican water within the southwestern Gulf of Mexico. These data will be analyzed in conjunction with the ongoing study. In addition to the main study objectives, the resulting data should be of great benefit to improving understanding of stock structure, movement rates, mortality, etc., all of which are important to improving the stock assessments.

NOAA's SEFSC has also increased biological sampling of tropical tunas from the commercial and recreational fisheries, including hard parts.

### *2.2.4 Albacore Research*

Research conducted by U.S. scientist on Atlantic albacore (*Thunnus alalunga*) has been limited. However, a collaborative study between European and U.S. scientists regarding the spatial variation of albacore diet in the Northeast Atlantic and Mediterranean Sea was published in 2011. This study found that spatial, seasonal, inter-annual, and size-related variability in the diet of albacore. Albacore diet varied by location in the Mediterranean Sea, with a particularly high proportion of cephalopods, and low $\delta^{15}N$ values in the Tyrrhenian Sea. In the Northeast Atlantic, albacore consumed a higher proportion of crustaceans and a lower proportion of fishes in the most offshore sampling zone than inshore.

U.S. scientists participated in the 2011 ICCAT South Atlantic and Mediterranean albacore assessment meeting held in Madrid, Spain 25-29 July 2011.

### *2.2.5 Mackerels and Small Tunas Research*

*King mackerel.* The last domestic stock assessment of U.S. Gulf of Mexico and South Atlantic king mackerel populations was carried out in 2008. During 2011, SEFSC scientists continued to make routine collections of otolith samples from the directed commercial and recreational fisheries for use in developing age length keys. These updated age length keys will be incorporated into future updated population models. The estimates of age composition from the updated age length keys will enable analysts to evaluate changes in year class strength since the 2008 stock assessment; additional samples can be acquired through cooperative efforts with state entities. In 2010, the North Carolina Division of Marine Resources worked with a Sea Grant researcher to collect king mackerel tournament (KMT) angler CPUE data using a text messaging survey. This was an effort to look at this text messaging technology and to collect and compare the King mackerel CPUE data that we collected in the 1990's.

*Spanish mackerel.* The last domestic stock assessment of U.S. Gulf of Mexico and South Atlantic Spanish mackerel populations was carried out in 2008. During 2011, SEFSC scientists continued efforts to acquire otolith samples from the directed commercial and recreational fisheries for use in developing age length keys. These updated age length keys will be incorporated into the next updated population models expected to be made in 2012. The age composition samples will be used to evaluate changes in year class size since the last stock evaluation. Independent researchers from the University of North Carolina are planning in 2012 to conduct stock demographic research and carry out otolith microchemistry examinations of the Gulf of Mexico stock.

### *2.2.6 Shark Research*

The ICCAT Shark Working Group (WG) held a "Data Preparatory Meeting to Apply an Ecological Risk Assessment" in Madrid, 20-24 June 2011. Following that meeting, the Shark WG met again in Olhão, Portugal, 11-18 June 2012, to conduct a stock assessment of shortfin mako and continued to work on an Ecological Risk Assessment (ERA) of a suite of pelagic shark species. The ERA was completed in time for the 2012 Shark WG and SCRS meetings and included a total of 20 stocks of pelagic elasmobranchs.

As part of a cooperative shark research project between Brazil (Universidade Federal Rural de Pernambuco) and the United States (NMFS SEFSC Panama City Laboratory and the University of Florida's Florida Museum of Natural History) initiated in 2007 and aimed at understanding better the factors that affect catchability and habitat use of pelagic sharks, a document on "Survivorship of pelagic species in the Southwest Atlantic Ocean's Tuna Longline Fishery" was submitted for publication to a peer-reviewed journal. Catches of pelagic shark and other species in longlines with circle and J hooks were compared with the use of hook timers to measure differences in fishing mortality associated with the time fish are hooked and on the line and hook type in the southwest Atlantic Ocean off the coast of Brazil. Mortality rate of fish increased with increasing time between capture and boarding, but some species endured long capture periods surviving until the time of boarding. Swordfish had high mortality rates, unlike blue sharks, which had low mortality rates regardless of hook type and the location where the hook was set. The species of tuna and billfish examined in this study showed a strong association between hook location and the animal's release condition, with reduced mortality in individuals hooked externally. A trend of increased survival with increased individual fish length was observed for most species. However, in sharks, increased survival with increased individual fish length was only observed for the blue shark, while other shark species showed an opposite pattern, although the difference was only statistically significant for crocodile sharks. Results suggest that knowledge of factors affecting the survival of pelagic fish caught in longline fisheries may enable the development and adoption of fishing methods to reduce mortality of longline bycatch.

A collaborative project between the SEFSC and Uruguay's fisheries agency (DINARA) entitled "Sustainable fisheries and bycatch reduction of pelagic sharks in the Atlantic Ocean", initiated in 2009, continues. The ultimate goal of this project is to advance knowledge on the productivity and susceptibility of pelagic sharks to longline fisheries in the western South Atlantic Ocean, aspects which are largely unknown for pelagic sharks in the southern hemisphere. To that end, eight archival satellite tags (five PSATs, two SPOTs, one SPLASH) obtained through grants awarded to conduct this project, have been deployed to date on blue sharks to characterize in detail the spatio-temporal habitat use of this species. The two individuals fitted with SPOT tags (a 127 cm FL female and a 245 cm FL male) were captured in the western South Atlantic Ocean in EEZ waters and headed N-NE for the first five

weeks after capture and release at a mean speed of 2 km/h. These individuals were tracked for 60 and 257 days, respectively. Of the five individuals tagged with PSAT tags, two never sent a signal, two (a 127 cm FL female and a 122 cm FL male) were deployed for 46 and 146 days, respectively, and the information for the 5th has not yet been analyzed. The immature female (which had been double-tagged with an MK10-PAT tag and a SPOT tag) spent 97% of the time at depths <100m. As part of this ongoing collaborative project, the SEFSC Panama City Laboratory hosted two Uruguayan scientists from DINARA in August 2012 to review results of satellite tagging thus far and plan deployments of additional tags in blue and porbeagle sharks. Scientists from Uruguay and the USA also worked on the ERA mentioned above and one of the Uruguayan scientists received training in preparation techniques and laboratory analysis of shark vertebral samples for age and growth studies.

Staff from DINARA and the SEFSC also worked cooperatively on the development of an identification guide for carcharhinid sharks of the Atlantic Ocean for ICCAT. Another guide for pelagic sharks had been completed in late 2010 and the guide for carcharhinid sharks (Guide for the identification of Atlantic Ocean sharks. Domingo et al. ICCAT) was completed in 2011.

Data collection and sampling of biological tissues for determining life history characteristics of several pelagic species (i.e. silky, bigeye thresher and common thresher) continues, with the number of archived samples close to 500. Reproductive tissues are processed and sectioned using histological techniques. Morphological data on organ measurements have been plotted and will be compared to the histological results. Vertebrae are also processed using histology and image analysis and are currently being read.

Controlled experiments are being conducted comparing catchability, at vessel mortality, and post release survivorship in longline sets using J style hooks and those using circle hooks. Contracted fishing vessels are deploying 500 hooks per set and with the exception of hook type, all other factors remain constant. Soak time is limited to the average rate observed for the fishery. All gangions are two m long and constructed of a snap, 363 kg test monofilament line and a swivel, to which the leader and hook are attached. The two experimental treatments are Lindgren-Pitman Inc. 0° offset 18/0 circle hooks and Mustad 12/0 J hooks.

A fin identification guide in collaboration with Stony Brook University is in the process of being completed and will allow for the identification of over 20 coastal and pelagic shark species by their fins.

### *2.2.7. Billfish Research*

U.S. scientists again played substantial roles in the ICCAT Enhanced Research Program for Billfish in 2011, with a U.S. NOAA scientist (Dr. Eric Prince) serving as western Atlantic coordinator. Major accomplishments in the western Atlantic in 2011 were documented in SCRS/11/163. Highlights include at-sea biological sampling by observers aboard Venezuelan longline vessels targeting tuna and/or swordfish. Sampling of swordfish, istiophorids, and yellowfin tuna for reproductive, age determination, and genetic studies was continued at about the same rate as the previous year. Program participants in Venezuela, Grenada, and Barbados continued to assist in obtaining information on tag-recaptured billfish, as well as numerous sharks. In the western Atlantic Ocean, during 2011, a total of seven tagged billfish were recaptured.

An international collaboration on billfish genetic research, initiated in 2008 and ongoing in 2011, included U.S. scientists from NOVA Southeastern University and SEFSC. Other collaborators include Venezuela (Instituto Oceanografico, Universidad de Oriente), Uruguay (Recursos Pelagicos, Direccion Nacional de Recursos Acuaticos), and Brazil (Universidade Federal Rural de Pernambuco). One of the primary goals is to develop accurate estimates of white marlin/round scale spearfish ratios in the Atlantic Ocean, including retrospective analyses. A paper entitled "Occurrence and broad geographic distribution of roundscale spearfish *Tetrapturus georgii* (Teleostei, Istiophoridae) in the central north and western south Atlantic revealed by DNA analysis: implications for white marlin management" is currently under review. U.S. scientists (SEFSC and Univ. of Miami's RSMAS) collaborated in 2011 with oceanographers from the Leibniz Institute of Marine Science (Kiel, Germany) on an interdisciplinary study entitled "Expansion of oxygen minimum zones may reduce available habitat of tropical pelagic fishes" published in *Nature Climate Change* in January 2012. Results of this work were also presented to the "Planet Under Pressure" Conference in London, UK during 2012.

A U.S. scientist prepared and implemented a statistically integrated model (Stock Synthesis) during the ICCAT Atlantic blue marlin (*Makaira nigricans*) stock assessment meeting held in Madrid, Spain in April 2011. This represents the first implementation of such models for Atlantic billfish, and the Working Group, considering that this approach utilized more of the available observational data that has been collected over the years (lengths, growth, fecundity, etc.), adopted it as the new base model for Atlantic blue marlin. The U.S. scientist also implemented a Stock Synthesis model for white marlin in 2012.

### *2.2.8 Seabird research*

During 2011 and continuing in 2012, U.S. scientists worked to improve techniques for estimating seabird bycatch of the U.S. Atlantic pelagic longline fleet using data collected through the Pelagic Observer Program (POP) and data from the pelagic longline logbooks. Because the observed seabird catches are rare events even on the scale of the POP sampling, and further, observed catches are not well distributed in space or time, new estimation methods and model structures are applied each year in an effort to improve the accuracy and reliability of the estimates. The entire data series since the start of the POP program is used to estimate anew each year the annual catch for each year from 1992 through the latest year of the record.

The scientists have also begun exploring the use of geospatial methods to describe the spatial distribution of the seabird bycatch. They examined the intensity of occurrence of observed seabird bycatch events by area within the U.S. pelagic longline fishery, using a maximum likelihood approach. They found that the intensity of occurrence of seabird bycatch events increased as the longitude and latitude increased in the southwest to northeast direction, indicating great spatial heterogeneity. They produced semivariograms of the seabird bycatch in the annual POP data. The semivariogram is not only a means of describing spatial distribution patterns but also a means of making predictions using relative location (as in kriging). The different semivariogram patterns produced across years suggest a temporal variation in the spatial distribution of seabird bycatch. These results encourage the development of a spatio-temporal model for seabird bycatch estimation.

### *2.2.9 Tagging*

Participants in the Southeast Fisheries Science Center's Cooperative Tagging Center (CTC) and The Billfish Foundation (TBF) Tagging Program tagged and released 1,870 billfishes (including swordfish) and 482 tunas in 2011. This represents an increase of 0.3% for billfish and an increase of 11.8% for tunas from 2010 levels. Several electronic tagging studies involving yellowfin tuna, bluefin tuna and billfish in the Atlantic Ocean and adjacent waters continued during 2011. These are discussed in the corresponding research sections above. There were 31 billfish recaptures from the CTC and TBF projects in 2011. This represents a decrease of 61.8% from 2010. These recaptures included 17 sailfish, five swordfish, two white marlin, and seven blue marlin. A total of four tunas were recorded as recaptures in 2011, all of which were bluefin tuna. This recapture level was a decrease of 84% from the 2010 values. The ICCAT Enhanced Research Program for Billfish (IERPBF) in the western Atlantic Ocean has continued to assist in reporting tag recaptures to improve the quantity and quality of tag recapture reports, particularly from Venezuela, Barbados, and Grenada.

# Part II. Management Implementation

## ***Section 3:U.S. Implementation of ICCAT conservation and management measures***

### *3.1 Catch Limits and Minimum Sizes*

#### *3.1.1 Rebuilding Program for West Atlantic Bluefin Tuna (96-14,10-03)*

Recommendation 10-03 revised the annual WBFT quota for the United States to 948.70 for 2011 and 2012, including 25 mt to account for bycatch related to directed longline fisheries in the vicinity of the management area boundary. Consistent with Rec. 10-03, the United States implemented the recommended 2011 and 2012 quotas as well as a 2011-2012 two-year balancing period for limiting the harvest of WBFT measuring less than 115 cm (45 inches) to 10 percent (by weight) of the U.S. quota and the reduction in the amount of underharvest that may be carried forward to 2011 (i.e., not to exceed 10 percent of a Contracting Party's initial quota allocation) in July 2011. In setting the 2012 adjusted quota (July 2012), the United States accounted for *half* of the estimated dead discards *up front* using the 2011 estimate (145.2 mt) as a proxy, and applied the allowed underharvest from the 2011 fishing year to the 2012 fishing year, resulting in an adjusted 2012 quota for domestic management purposes of 971 mt. Total 2012 landings and dead discards will be accounted for and reported to ICCAT in 2013. Consistent with Rec. 10-03, the United States began submitting provisional reports of monthly catches of WBFT to the Secretariat in June 2011.

Consistent with Rec. 10-03, the United States prohibits directed fishing for BFT in the Gulf of Mexico. Additionally, effective May 2011, the United States now requires the use of "weak hooks" by pelagic longline vessels fishing in the Gulf of Mexico to reduce bycatch of spawning BFT. A weak hook is a circle hook that meets current U.S. hook size and offset restrictions for the Gulf of Mexico pelagic longline fishery, but is constructed of round wire stock that is thinner-gauge than the circle hooks currently used and is no larger than 3.65 mm in diameter. Weak hooks can allow incidentally hooked BFT to escape capture because the hooks are more likely to straighten when a large fish is hooked. The purpose of the action is to reduce pelagic longline catch of BFT in the Gulf of Mexico, consistent with the 2010 SCRS advice that ICCAT may wish to protect the strong 2003 year class until it reaches maturity and can contribute to spawning.

#### *3.1.2 Multi-annual Recovery Plan for Bluefin Tuna in the Eastern Atlantic and Mediterranean (07-05; 08-05; 09-06; 10-04)*

Most of the elements of the recovery plan for eastern Atlantic and Mediterranean bluefin tuna do not apply to the United States. As discussed in Section 3.3, however, the United States has implemented the Bluefin Tuna Catch Documentation Program (Rec. 07-10), as amended in 2008 (Rec. 08-12), 2009 (Rec. 09-11), and 2011 (Rec. 11-20) to monitor all bluefin tuna imports, including those from the eastern Atlantic and Mediterranean.

#### *3.1.3 Resolution by ICCAT on Fishing Bluefin Tuna in the Atlantic Ocean (06-08)*

Resolution 06-08 requests CPCs to refrain from increasing effort by large-scale tuna longline vessels from the 1999/2000 level in the area north of 10 degrees North latitude and between 35 degrees and 45 degrees West longitude. Consistent with Res. 06-08, the United States has reduced effort by large-scale tuna longline vessels in the vicinity of the 45-degree West boundary line for eastern and western BFT since 1999/2000 through implementation of a limited access program and fishing gear restrictions.

#### *3.1.4 Recommendation to Further Strengthen the Plan to Rebuild Blue Marlin and White Marlin Populations (00-13, 02-13, 04-09, 06-09, 10-05, 11-07)*

Recommendation 11-07 for Atlantic blue and white marlin requires countries to limit harvest and retention of Atlantic blue and white marlin (including spearfish) captured in pelagic longline and purse seine fisheries to no more than 30 percent of a CPC's highest landing level from 1996 to 2004 (excluding Chinese Taipei) for blue and white marlin individually. The United States has prohibited all commercial retention of billfish caught in the Atlantic since 1988. For its part of the rebuilding program, the United States maintains regulations that prohibit all landings of Atlantic blue and white marlins by any method other than rod and reel, and provides 10% scientific observer coverage of billfish tournament landings; the United States currently meets or exceeds these observer requirements. The United States also limits annual landings by U.S. recreational fishermen to 250 Atlantic blue and white marlins, combined, as first recommended by ICCAT Rec. 00-13. Catch and release rates in the U.S. recreational fishery for Atlantic blue and white marlin are estimated to be very high (90 – 99%) based on tournament data, and minimum sizes have been established at 168 cm (66 inches) for white marlin and 251 cm (99 inches) for blue marlin.

The United States has implemented procedures to remain within the 250 marlin limit; prohibited the retention of Atlantic billfish on all commercial vessels; and established a permit condition requiring that recreational vessels possessing an HMS permit abide by Federal regulations regardless of where fishing, unless a state has more restrictive regulations. In addition, since January 2008, all anglers participating in Atlantic billfish tournaments have been required to use only non-offset circle hooks when deploying natural baits or natural bait/artificial lure combinations. These management measures are expected to further limit marlin mortality.

All registered Atlantic billfish tournaments are selected to report landings and effort information. The United States implemented a mandatory reporting program for billfish landed by recreational anglers who are not participating in registered tournaments in March 2003. The United States continues to refine estimation and data collection methodologies for rod and reel catches and landings of marlins. Preliminary 2011 calendar year data indicate landings of 43 blue marlin and 56 white marlin and seven roundscale spearfish from recreational fishing activities.

*3.1.5 Recommendation to Establish a Rebuilding Program for North Atlantic Swordfish (96-14, 06-02, 08-02, 09-02, 10-02, 11-02)*

Recommendation 11-02 established a catch limit of 3,907 mt ww for the United States for 2012 - 2013, an allowance for the United States to catch up to 200 mt of its North Atlantic swordfish quota between 5 degrees North latitude and 5 degrees South latitude, a provision to transfer up to 150 mt to Morocco to be used to support joint scientific research and Morocco's efforts to eliminate the use of driftnets, a limit on carryover of unused quota to 25 percent of the baseline quota, a one-time transfer within a fishing year of up to 15% of the TAC allocation to other CPCs with TAC allocations, and an option to use an alternative minimum size of 25" (63 cm) for swordfish that have been dressed. The United States published a final rule in July 2012 that fully implements this recommendation. The United States has a required minimum size of 47" (119 cm) lower jaw fork length (LJFL) or 25" (63 cm) cleithrum to caudal keel length, with zero tolerance. Recommendation 11-02 further specified that each CPC shall submit to the ICCAT Secretariat in 2012, a report on the CPC's history of swordfish fishing and a development/management plan of its swordfish fishery. The United States submitted its report by the September 15, 2012 deadline. Consideration of the multi-year conservation and management plans in 2013 shall be based upon those reports and development/management plans as well as the ICCAT Criteria for the Allocation of Fishing Possibilities [Rec. 01-25].

*3.1.6 Recommendation on South Atlantic Swordfish (06-03, 09-03)*

Recommendation 06-03 established catch allocations for the United States of 100 mt each year for the period 2007 – 2009, inclusive, and allowed up to 100 mt ww of underharvest to be carried forward by the United States each of these years. Recommendation 09-03 extended the provisions of Rec. 06-03 through 2012. Per Rec. 09-03, in 2010-2012, the United States transferred 100 mt of U.S. quota to other CPCs (50 mt to Namibia, 25 mt to Cote d' Ivoire, and 25 mt to Belize) from the available South Atlantic swordfish quota.

*3.1.7 Recommendation on the Southern Albacore Catch Limits (07-03; 11-05)*

The United States was subject to a catch limit of 100 mt in 2011. The United States did not prosecute a directed fishery for southern albacore in 2011.

*3.1.8 Recommendation on North Atlantic Albacore Rebuilding Program (98-08; 07-02; 09-05; 11-04 )*

Under Rec. 09-05, the annual U.S. landings quota was 527 mt for 2010 and for 2011. Recommendation 11-04 maintained the annual U.S. landings quota at 527 mt for 2012 and 2013. The recommendations provide that overages/underages of annual catch limits should be deducted from, or added to, specific future catch limits, and limit the amount of underage that may be carried over to 25 percent of a CPC's initial catch quota.

In addition, pursuant to ICCAT's recommendation concerning the limitation of fishing capacity on North Atlantic albacore (Rec. 98-08), the United States submits the required reports providing a list of U.S. vessels operating in the fishery on an annual basis and implemented limited entry in its pelagic longline fishery in 1999. The 2012 submission indicated that there were 209 vessels authorized to harvest North Atlantic albacore in the Convention area.

*3.1.9 Recommendation by ICCAT on a Multi-Annual Conservation and Management Program for Bigeye and Yellowfin Tunas (11-01)*

The United States has implemented a number of regulatory measures that ensure consistency with Rec. 11-01. These measures include authorizing vessels 20 meters or greater to fish bigeye and yellowfin tunas in the Convention area and providing a list of these authorized vessels to the Executive Secretary prior to July 1 each year. The operative capacity limiting paragraph of Rec. 11-01, paragraph 2, does not apply to the United States because the annual catch of bigeye tuna in the convention area in 1999, as provided to the SCRS in 2000, did not exceed 2,100 mt. Also, bigeye tuna catch limits do not apply to the United States under the catch limits operative paragraph, paragraph 10, since 1999 catch was less than 2,100 mt. To provide additional protection to the bigeye tuna stock, particularly juveniles, the United States has implemented a minimum size for this stock. This minimum size of 27 inches (approximately 6.8 kg) applies to all U.S. fisheries landing bigeye and yellowfin tuna, both commercial and recreational.

*3.1.10 Resolution on Atlantic Sharks (03-10)*

Resolution 03-10 requested CPCs to provide the SCRS with information on shark catches, effort by gear type, and landings and trade of shark products, and called for the full implementation of National Plans of Action (NPOAs) by CPCs, in accordance with the Food and Agriculture Organization's (FAO) International Plan of Action (IPOA) for the Conservation and Management of Sharks. The U.S. National Plan of Action for the Conservation and Management of Sharks was adopted in February 2001, consistent with the IPOA. The United States has provided Task I and Task II data in compliance with Res. 03-10 and to support stock assessments for shortfin mako, porbeagle and blue sharks.

*3.1.11 Recommendations on Atlantic Sharks (04-10; 05-05; 06-10; 07-06; 09-07; 10-06; 10-07; 10-08, 11-08)*

Recommendation 04-10 included reporting requirements for shark catches, including available historical data on catches; full utilization of shark catches; a requirement that CPCs prevent their vessels from having shark fins onboard that total more than 5% of the weight of sharks; a requirement that the ratio of fin-to-body weight of sharks be reviewed by the SCRS by 2005; and prohibitions on fishing vessels retaining, transshipping or landing any fins harvested in contravention to the Rec. 04-10. In addition, the Rec. 04-10 encourages the release of live sharks, especially juveniles in fisheries not directed at sharks, as well as additional research to improve the selectivity of fishing gears and identify shark nursery areas. Recommendation 04-10 was amended via Rec. 05-05 to include additional requirements for CPCs to implement and report on measures taken to reduce fishing mortality of North Atlantic shortfin mako sharks caught in association with fisheries managed by ICCAT. Recommendation 06-10 required submission of relevant data for shortfin mako and blue shark assessments.

The United States continues to fulfill the requirements of these recommendations through research and data collection programs and a variety of fishing restrictions. The United States was already in conformance with the finning prohibition in Rec. 04-10 through provisions of the Shark Finning Prohibition Act of 2000, which prohibited the practice of finning and the possession or landing of shark fins without the corresponding carcasses. In 2008, the United States required sharks landed in the Atlantic Ocean, including the Gulf of Mexico and Caribbean Sea, to be landed with their fins naturally attached. The United States enforces a minimum size limit and retention limits for recreationally caught sharks, commercial trip limits and commercial quotas, and prohibitions on possession of several species, and has established a time/area closure for shark bottom longline fishing in the mid-Atlantic to protect sharks in the nursery grounds.

Recommendation 07-06 requires CPCs to take action toward the conservation of porbeagle sharks and North Atlantic shortfin mako sharks and to contribute data and research to future stock assessments of the species. Consistent with Rec. 07-06, the United States significantly reduced the porbeagle shark quota in 2008 from 91 metric tons to 1.7 metric tons and implemented a rebuilding plan for this species. Shortfin mako is managed in the United States as part of a pelagic shark complex, with commercial quotas, retention limits, and other management measures. The United States is actively involved in pelagic shark research and continues to submit Task I and Task II data for sharks to ICCAT on an annual basis.

Recommendation 08-07 requires that all nations release bigeye thresher sharks unharmed and report all data on incidental catches. Recommendation 09-07 prohibits retention of bigeye thresher sharks, as well as requires CPCs to submit Task I and II data for all thresher sharks and where possible, requires implementation of research projects to determine nursery areas for these species. The United States has prohibited the retention of bigeye thresher sharks since 1999 and continues to submit Task 1 and Task II data for sharks as well as actively engaging in pelagic shark research.

Recommendation 10-06 required CPCs to include information in their 2012 Annual Reports on actions taken to implement Rec. 04-10, 05-05, and 07-06, and the steps taken to improve their Task I and Task II data collection for direct and incidental catches. As noted above, the United States has implemented regulations to fully comply with these recommendations. The United States establishes and tracks annual quotas for pelagic sharks, which include landings of shortfin mako sharks, to ensure that catches of these species are within the United States' domestically designated quota. Tracking of the pelagic shark quota in recent years indicates that pelagic sharks, including shortfin mako sharks, do not constitute a significant portion of U.S. shark landings. In accordance with domestic requirements, the United States has catch limits in place for Atlantic porbeagle, shortfin mako, and blue sharks and will continue to submit catch and effort data for sharks to ICCAT.

Recommendations 10-07 and 10-8 prohibit retaining, transshipping, landing, storing, or selling hammerhead sharks in the family Sphyrnidae (except for *Sphyrna tiburo*) and oceanic whitetip sharks (*Carcharhinus longimanus*) caught in association with ICCAT fisheries. Additionally, discard and release data for these species must be reported to ICCAT. By regulation, the United States fully implemented the requirements of these recommendations in 2011.

Recommendation 11-08 requires fishing vessels operating in ICCAT-managed fisheries to release all silky sharks whether dead or alive, and prohibits retaining on board, transshipping, or landing silky sharks (*Carcharhinus falciformis*). Additionally, discard and release data for this species must be reported to ICCAT. By regulation, the United States fully implemented the requirements of Rec. 11-08 in 2012 and took additional action to prohibit the storing, selling, or purchasing of silky sharks.

### *3.2 Closed Seasons*

#### *3.2.1 Domestic Time/Area Closures for ICCAT Fisheries*

The United States takes an ecosystem approach to management of HMS fisheries. As such, the United States implements a number of measures that go beyond the measures required in ICCAT recommendations.

*Closures Affecting ICCAT-Managed Fisheries.* At present, the U.S. Atlantic pelagic longline fishery, which typically targets ICCAT-managed species, is subject to several discrete time/area closures. These closures are

designed to reduce all bycatch (*e.g.*, undersized swordfish, billfish, *etc.*) in the pelagic longline fishery by prohibiting pelagic longline fishing for ICCAT-managed species in those areas during specified times. These closures affect offshore fishing areas up to 200 nm from shore (see Figure 3.2.1). Those closures are as follows: (1) Florida East Coast: 50,720 $nm^2$ year-round; (2) Charleston Bump: 49,090 $nm^2$ from February through April each year; (3) DeSoto Canyon: 32,860 $nm^2$ year-round; and (4) the Northeastern United States: 21,600 $nm^2$ during the month of June each year. The Northeast Distant Statistical Sampling Area (NED) (2,631,000 $nm^2$), which had been closed year-round (per regulations at 50 CFR part 223 and 635) from 2001 through mid-2004, has been reclassified as a gear restricted area.

The United States conducted research in portions of the Charleston Bump and Florida East Coast Closed Areas from 2008 to September 2010. This research, which was carried out with academic partners, should allow NMFS to determine the relative effectiveness of the pelagic longline closed areas under current fishery conditions and provide data to help make determinations about whether modifications to the existing closed areas are warranted.

To reduce sea turtle mortality, pelagic longline vessels may only fish for HMS in the NED if they observe strict circle hook and bait restrictions and use approved sea turtle release gear in accordance with release and handling protocols. Outside of the NED, in order to reduce sea turtle mortality, the U.S. HMS pelagic longline fishery is required to use circle hooks with certain bait combinations, depending on the region, as well as the required, approved sea turtle release gear and release and handling protocols. If selected, pelagic longline vessels must carry observers when fishing in or outside of the NED.

Effective June 2009, in order to conduct research to minimize marine mammal interactions, there is also a Cape Hatteras Special Research Area that is located in the mid-Atlantic Bight, which requires vessels fishing with pelagic longline gear to carry observers, when needed. Additionally, since June 2009, U.S. pelagic longline vessels must limit the length of the longline mainline to 20 nm in length to reduce serious injuries and mortalities of both pilot whales and Risso's dolphins in the Mid-Atlantic Bight. Observers may conduct additional scientific investigations while on board pelagic longline vessels fishing in the area.

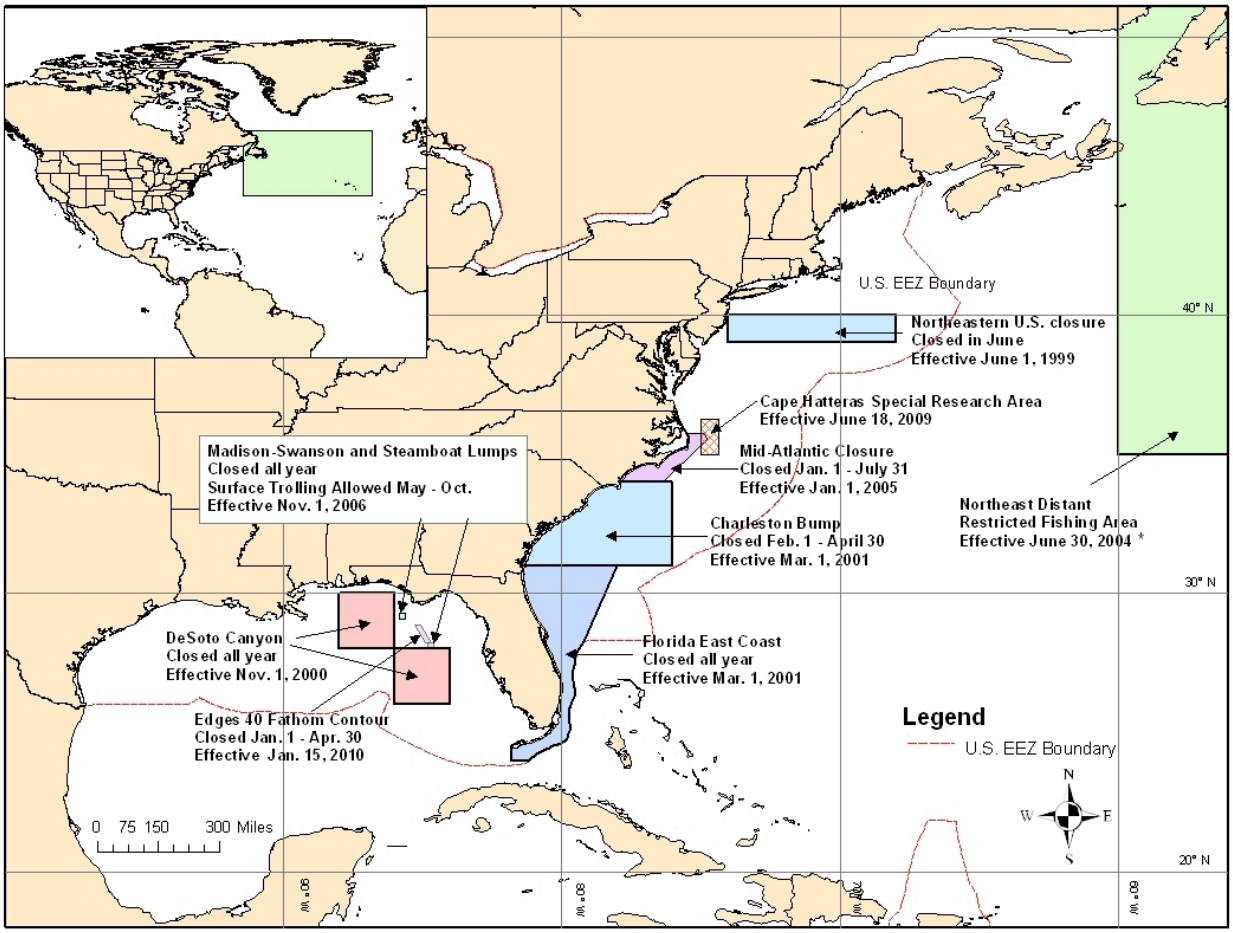


**Figure 3.2.1** Selected existing U.S. time/area closures in HMS fisheries. Inset shows extent of the Northeast Distant restricted fishing area. The Mid-Atlantic Closure is applicable to bottom longline gear only. Note: the Northeast Distant (NED) was a closed area to all vessels as of 2001. It became the NED Restricted Fishing Area on 30 June 2004, when it was opened to those participating in the NED experiment. The Cape Hatteras Special Research Area requires vessels fishing with pelagic longline gear to carry observers, when needed, and limit longline mainline to 20 nm in length. The Caribbean bottom longline closures and South Atlantic MPAs closed to bottom longline gear are not included.

### *3.3 Trade and Compliance Related Measures*

#### *3.3.1 Trade Restrictive Recommendations (02-17, 03-18, 11-19)*

No new trade restrictive measures were adopted by the Commission at the 2011 Annual Meeting, and the trade restrictive measures that were in effect to prohibit the importation of bigeye tuna from Bolivia (02-17) and Georgia (03-18) were lifted (11-19). The United States published a regulation to lift the prohibition on imports per Rec. 11-19 in 2012.

#### *3.3.2 Recommendation Concerning Trade Measures (06-13)*

Recommendation 06-13 directs CPCs that import products of tuna and tuna-like species to collect relevant import, landings, or associated data on such products in order to allow for submission of that information to the ICCAT Secretariat. The United States collects information through a combination of programs, including the bluefin tuna

catch documentation program, bigeye and swordfish statistical document programs, and through domestic Customs programs, and relevant information is provided to the Commission.

*3.3.3 Bluefin Tuna Catch Documentation Program (07-10, 08-12, 09-11, 10-11, 11-20, 11-21)*

In June 2008, the United States implemented the ICCAT bluefin tuna catch document (BCD) program per Rec. 07-10. This program repealed the earlier statistical document program and now tracks bluefin tuna landings and international trade using a bluefin tuna catch document. In June 2009, the U.S. program was updated to comply with the program changes implemented by Rec. 08-12 and the U.S. program is consistent with both Rec. 09-11 and 11-20, which amended Rec. 08-12.

Recommendation 11-20 made changes that affect how farming is documented under the BCD program. Catches made by one single operation can no longer divide that catch into different farming cages. Catches made by a CPC joint fishing operation will now be aggregated and recorded on one BCD. Also, when fish taken by different vessels flying the same flag and/or on different days, those original BCD's can now be grouped onto one master BCD which will be accompanied by the related original BCDs. Although these changes do not affect the U.S. fishery, they may make it simpler to understand documentation of farmed product that is imported into the United States.

The U.S. program continues to require that bluefin tuna be fitted with a tail tag upon sale to a domestic dealer. The tag (or tag number in the case of a cut carcass) must remain with the fish, thereby tracking bluefin tuna from domestic harvest to international markets. The 2012 annual bluefin tuna catch document report was submitted to ICCAT before the 1 October 2012 deadline, and covered the time period from 1 July 2011, through 30 June, 2012. The United States is submitted our 2012 report by the deadline. The United States continues to work towards implementation of an electronic reporting system for imports covered by RFMO consignment document programs.

Recommendation 11-21 amended Rec. 10-11, which established a plan to develop an electronic bluefin catch document (eBCD) program to eventually replace the paper-based BCD program. It will first be tested by CPCs, including the United States, in a pilot program starting in 2013. The initial electronic system will continue to offer the ability to produce paper documents as well.

*3.3.4 Swordfish and Bigeye Tuna Statistical Document Programs (00-22, 01-21, 01-22, 03-19)*

ICCAT's Statistical document programs for swordfish and frozen bigeye tuna have been implemented by the United States. As required under the statistical document programs, the United States submits reports to ICCAT twice yearly, providing information on import, export and re-export activity involving these species products. Statistical document reports for swordfish and bigeye tuna were submitted to the ICCAT Secretariat in April 2012 for the period covering July 2011 through December 2011. The United States submitted its report covering the first half of the 2012 calendar year before the 1 October 2012 deadline. The United States has recently take steps to address related issues raised by the Compliance Committee.

### *3.4 Observer Programs and Related Activities*

*3.4.1 Minimum standards for fishing vessel scientific observer programs and information collection and harmonization of data on bycatch and discards in ICCAT fisheries (10-10, 11-10).*

The U.S. observer program currently meets two main objectives: monitoring of interactions between fishing gear and protected species (marine mammals, sea turtles, and sea birds), and monitoring of fishing effort and catch (estimation of total landings of target species and/or bycatch of non-target or prohibited species). An overview of observer programs in the United States can be found online at http://www.st.nmfs.noaa.gov/st4/nop/index.html. During calendar year 2011, the United States achieved 10.9 percent observer coverage expressed as a proportion of reported sets and 9.9 percent as a proportion of reported hooks in the Atlantic pelagic longline fishery for highly migratory species. Click on the pelagic longline link on the map on the National Observer Program web page at http://www.st.nmfs.noaa.gov/st4/nop/index.html for information regarding the different observer programs.

The United States requires the collection of bycatch and discard data in our observer program, as described in the 2012 U.S. Observer Program report, which was submitted on the 31 July deadline. Given the nature of the U.S. fleet and fisheries, the United States does not need to avail itself of the special provisions of paragraph 1(b). The United States reports bycatch and discard data in the format specified by SCRS and in accordance with existing deadlines for data reporting. The United States reported on efforts made to mitigate bycatch and reduce discards and on relevant research on bycatch in Sections 3.1.1, 3.6.3, 3.7.5, 3.7.11, 2.2.1, 2.2.6, and 2.2.8. Also in compliance with Rec.11-10, the United States has provided identification guides for sharks, seabirds, turtles, and marine mammals caught in the Convention Area.

The United States is coordinating with the Chilean government and the Instituto de Fomento Pesquero (Institute for Fisheries Development) to host the 7th International Fisheries Observer and Monitoring Conference to be held in April 2013 in Vina del Mar, Chile. The previous conference was held in Portland, Maine in July 2009 and sponsored the participation of a number of attendees from developing nations. A continuation of the conference series that started in 1998, this event is an important opportunity to improve fisheries monitoring programs worldwide through sharing of practices and is a valuable forum for dialog between those responsible for monitoring fisheries and those who rely upon the data they collect. For additional information on U.S. capacity building activities, see Appendix 4: Capacity Building Assistance to ICCAT Countries.

### *3.5 Vessel Monitoring*

#### *3.5.1 Recommendation by ICCAT Concerning Minimum Standards for the Establishment of a Vessel Monitoring System in the ICCAT Convention Area (03-14, 04-11, 07-08)*

The United States implemented a fleet-wide VMS requirement in the Atlantic pelagic longline fishery in June 2003. This rule requires all vessels away from port with pelagic longline gear onboard to operate their VMS units. In addition to what is required by these recommendations, the United States also requires VMS operation for vessels with bottom longline gear onboard between 33°00' N. latitude and 36°30' N. latitude or near the mid-Atlantic shark closed area and for shark gillnet vessels operating during the right whale calving season. Recommendation 07-08 applies to vessels fishing for bluefin tuna in the eastern Atlantic Ocean and Mediterranean Sea and is not applicable to the United States.

In December 2011, the United States published a final rule modifying the requirements for vessels required to have a VMS installed. Any new or replacement Enhanced Mobile Transmitting Unit (E-MTU) VMS must be installed by a qualified marine electrician effective January 1, 2012. Also, any vessel with a Mobile Transmitting Unit (MTU) VMS must be replaced with an approved E-MTU VMS units. The final rule also established a declaration system where vessel operators would declare their target species and gear type(s) possessed on board prior to departing from port and provide advance notice of landing before a trip has been completed. Due to implementation and technical issues, the United States delayed the date for the installation of E-MTUs and declaration requirements while these issues were addressed. The United States anticipates full implementation of all requirements by January 2013. All other requirements established in the regulation remain effective.

### *3.6 Measures to Ensure Effectiveness of ICCAT Conservation and Management Measures and to Prohibit Illegal, Unreported and Unregulated Fishing*

#### *3.6.1 Management Standard for the Large-Scale Tuna Longline Fishery (01-20)*

The updated U.S. submission is attached as Appendix 1.

#### *3.6.2 Recommendation by ICCAT Concerning the Duties of Contracting Parties and Cooperating Non-Contracting Parties, Entities, Fishing Entities in relation to their vessels in the ICCAT Convention Area (03-12)*

The United States is implementing this measure through various means (e.g., licensing requirements, monitoring control, and surveillance measures, maintaining up-to-date records of U.S. vessels authorized to fish species managed by ICCAT in the Convention area, etc.) as described throughout this annual report.

*3.6.3 Recommendation Further Amending Recommendation 09-10 to Establish a List of Vessels Presumed to Have Carried Out Illegal, Unreported, and Unregulated Fishing Activities in the ICCAT Convention Area (11-18), Recommendation by ICCAT to Adopt Additional Measures Against Illegal, Unreported and Unregulated (IUU) Fishing (03-16) and Resolution by ICCAT Further Defining the Scope of IUU Fishing (01-18)*

The United States has laws and regulations that serve to prohibit the import of tuna and tuna-like species from vessels included in the IUU vessel list or which are not on ICCAT's authorized vessel list (*50 CFR Part 635.41*). The United States has developed regulations to clarify domestic implementation of other aspects of this recommendation, including restriction of entry into port and access to port services for vessels on the ICCAT IUU vessel list. Such vessels may also be prohibited from engaging in commercial transactions, if allowed entry into port. The actions taken against listed IUU vessels will be in accordance with the relevant conservation and management measure and based on consultations among relevant U.S. agencies.

IUU fishing is the focus of growing attention in the United States, due to its adverse impacts on target fish stocks, habitat, fish markets, bycatch, and competition with legal fishing. The United States has taken action to implement Resolution 01-18, which calls upon CPCs to take every possible action, consistent with relevant laws, to instruct importers, transporters, and others in the fishing industry to refrain from engaging in transaction and transshipment of tunas and tuna-like species caught by fishing vessels that have been engaged in IUU fishing activity. The U.S. fishing industry has been further advised that, in addition to potentially violating U.S. law, doing business with a vessel identified on a RFMO's IUU list may include restricted port access or unloading prohibitions imposed at the intended destination.

Recommendation 03-16 requires CPCs to take the necessary measures to prohibit landings, placement in cages for farming, and/or transshipment of tunas or tuna-like species that were caught by fishing vessels engaged in IUU fishing activity consistent with their rights and obligations under international law. U.S. vessels do not participate in Atlantic bluefin tuna farming operations, and the United States prohibits at sea transshipment of highly migratory species (HMS) products in the Convention Area.

*3.6.4 Recommendation by ICCAT to Promote Compliance By Nationals of Contracting Parties, Cooperating Non-Contacting Parties, Entities, or Fishing Entities with ICCAT Conservation and Management Measures (06-14)*

This recommendation requires CPCs to take appropriate measures in accordance with their applicable laws and regulations to investigate and respond to allegations and verifiable incidents of IUU fishing activities by their nationals, cooperate with the relevant agencies of other CPCs, and to report to ICCAT on actions and measures taken in accordance with the recommendation, effective July 2008. The United States complies with the requirements of this recommendation by pursuing reports of illegal fishing activities by its citizens. A report of enforcement related activities pertaining to ICCAT species, which includes any IUU related enforcement actions, can be found in Appendix 2, NOAA Enforcement Actions Taken on ICCAT Species.

### *3.7 Other Recommendations*

*3.7.1 Recommendation by ICCAT on Vessel Chartering (02-21)*

The United States collects all relevant information for monitoring before issuing the permits necessary to allow chartering to be undertaken and will continue to report any chartering activities to ICCAT. Since the adoption of Rec. 02-21, the United States has issued only one chartering permit (in late 2004), which authorized chartering activities to take place in the ICCAT Convention area during 2005.

*3.7.2 Recommendation by ICCAT Concerning the Recording of Catch by Fishing Vessels in the ICCAT Convention Area (03-13)*

The United States requires vessels issued commercial Atlantic tunas, shark, or swordfish permits, as well as charter and headboat vessels fishing for Atlantic HMS, to maintain and submit logbooks upon selection for reporting by the U.S. Government regardless of vessel length. This includes, for example, 100 percent of Atlantic pelagic longline vessels fishing for Atlantic tunas, shark, or swordfish, regardless of vessel length. For information on the implementation of this recommendation relative to recreational fishing vessels, see section 3.7.3 below.

*3.7.3 Resolution on Improving Recreational Fishery Statistics (99-07)*

Recreational landings are estimated through the newly implemented Marine Recreational Information Program (MRIP), and a combination of the Recreational Billfish Survey, the Large Pelagics Survey, mandatory non-tournament landings reporting requirements for Atlantic blue and white marlins, sailfish, swordfish, and bluefin tuna, and state landings data. Final regulations adopted in 1999 require selected HMS charter/headboat vessels that do not already complete a logbook to do so. Registration of all recreational fishing tournaments for Atlantic HMS has been required since 1999. All tournaments for Atlantic HMS are required to submit landing reports, if selected for reporting. Longstanding U.S. policy is to select 100 percent of billfish tournaments for reporting. All non-tournament landings of Atlantic billfish and swordfish are required to be reported within 24 hours of landing. In the fall of 2007, the United States enhanced recreational reporting by implementing a new internet-based non-tournament reporting system for Atlantic billfish, including swordfish.

The United States is in the final stages of fully implementing the MRIP, which is an improved national system of regional surveys that replaces existing marine recreational fishing data collection programs and provides better regional monitoring of recreational fishing participation, effort, catches, landings and releases of finfish species. In 2012, the United States provided revised recreational fishing information (from 2004 -2010) based upon the new MRIP catch estimates. The United States has also established a national registry of saltwater anglers, including those fishing for ICCAT-managed species, which includes names and contact information among other information. The registry is intended to improve foundational information concerning recreational fishery participation, which will support improvements in the overall monitoring recreational fisheries. Information about the registry can be found at: www.countmyfish.noaa.gov.

*3.7.4 Recommendation by ICCAT Concerning the Establishment of an ICCAT Record of Vessels 20 meters in Length Overall or Greater Authorized to Operate in the Convention Area (11-12)*

The United States submitted a list of vessels required pursuant to Rec.11-12, to ICCAT in June 2012. At that time, there were 387 U.S. vessels that met the appropriate criteria for inclusion in the list. Since our June submission, the United States has been submitting monthly updates. Additional information is available in Appendix 3 - Report on Internal Actions Taken to Ensure That Tuna Vessels on the ICCAT Record of Vessels over 20 Meters Are Fishing in Accordance with ICCAT Management and Conservation Measures.

*3.7.5 Recommendation by ICCAT on the Bycatch of Sea Turtles in ICCAT Fisheries (10-09)*

In July 2004, the United States codified regulations to reduce sea turtle bycatch in Atlantic pelagic longline fisheries for HMS. These measures pertain to the entire U.S. Atlantic pelagic longline fishery, and include: mandatory attendance at sea turtle release and disentanglement workshops, mandatory bait specifications, use of circle hooks (size of hook depending on fishing locale), and the mandatory possession and use of sea turtle handling and release gear on board all vessels with pelagic longline gear. The United States continues to modify the suite of disentanglement and release gears required to be onboard longline vessels as new gears and information on best practices are developed. Beginning in 2010, the United States reported sea turtle interactions in the U.S. pelagic longline fleet to ICCAT.

*3.7.6 Recommendation by ICCAT Establishing a Program for Transshipment by Large-Scale Longline Fishing Vessels (06-11)*

This recommendation establishes a program of transshipment affecting tuna longline and carrier vessels, including the establishment of an ICCAT record of authorized carrier vessels, documentation requirements, and extensive obligations and procedures pertaining to transshipment to assist in combating IUU fishing, ensure adequate

monitoring of transshipment activities, and collecting catch data from large-scale vessels. U.S. regulations prohibit transshipment of HMS products in the Convention area.

*3.7.7 Recommendation by ICCAT for a Revised Port Inspection Scheme (97-10)*

The United States generally prohibits foreign fishing vessels from landing in U.S. ports, fish or fish products harvested or taken onboard on the high seas, with a few exceptions, including for landings in some Pacific U.S. territories. Under U.S. domestic law, all fishing vessels, including those carrying fish species subject to regulations pursuant to a recommendation of ICCAT, and their catch, gear, fishing logbooks and manifests are subject to inspection. See Section 4 below for additional information.

*3.7.8 Recommendation by ICCAT on Compliance with Statistical Reporting Obligations (05-09)*

Recommendation 05-09 requires Contracting parties and CPCs to provide explanations regarding reporting deficiencies and data gaps along with plans for corrective action. The United States was compliant with its statistical reporting obligations in 2011 and 2012.

*3.7.9 Electronic Statistical Document Program (06-16)*

The United States continues to implement an electronic system for the collection and dissemination of international trade information. The International Trade Data System (ITDS) is a project required under U.S. domestic legislation and is aimed at improving the efficiency of import and export processes. ITDS will help U.S. government agencies monitor the origin and safety of imported products. Given the domestic requirement to collect information from the trade community (shippers, carriers, brokers, etc.) in an electronic format, the United States is taking steps to integrate ICCAT's statistical and catch document programs into the internet-based electronic data collection system. NMFS has cataloged all of the information collection requirements and the respective data elements for the several seafood trade monitoring programs established either by U.S. domestic law or by the RFMOs to which the United States is a party. These data collection requirements have been reviewed by U.S. Customs and Border Protection, and a set of data formats and coding instructions has been developed. Additionally, NMFS has worked with U.S. Customs on a document imaging system that will allow brokers to attach electronic images of the paper certificates to the entry filings. NMFS issued an Advance Notice of Proposed Rulemaking in May 2009 (www.regulations.gov <http://www.regulations.gov>) and continues to consult with U.S. importers and exporters from ICCAT parties to determine the most efficient means of collecting the required data in electronic format. More detailed information on the U.S. International Trade Data System can be found on the www.itds.gov <http://www.itds.gov> internet site.

The United States has implemented the ICCAT bluefin tuna catch document program as explained in Section 3.3.3.

*3.7.10 Recommendation by ICCAT on Reducing Incidental Bycatch of Seabirds in Longline Fisheries (07-07, 11-09)*

The United States does not have any vessels actively participating in ICCAT-managed fisheries south of 20 degrees S. longitude. However, consistent with this recommendation, in 2011, the United States reported seabird interactions in the U.S. pelagic longline fleet to ICCAT. The United States does not fish in the area south of 25 degrees South latitude or the Mediterranean where the new requirements of Rec. 11-09 apply.

*3.7.11 Recommendation by ICCAT to Clarify the Application of Compliance Recommendations and for Developing the Compliance Annex (11-11)*

The United States has submitted its Compliance Tables separately to the Secretariat in accordance with Rec. 11-11.

*3.7.12 Recommendation by ICCAT on Access Agreements (11-16)*

The United States has not entered into any fishery access agreements in the Convention Area for ICCAT species.

*3.7.13 Other resolutions and recommendations*

The following were not addressed in this report as no specific action was required of the United States due to the nature of the measure (for instance, we do not participate in the fishery covered by the recommendation) or the United States had nothing to report:

- [11-03] Recommendation by ICCAT for Management Measures for Mediterranean Swordfish
- [11-06] Recommendation by ICCAT Concerning the Atlantic-Wide Research Programme for Bluefin Tuna (GBYP)
- [11-13] Recommendation by ICCAT on the Principles of Decision Making for ICCAT Conservation and Management Measures
- [11-15] Recommendation by ICCAT on Penalties Applicable in Case of non-Fulfillment of Reporting Obligations
- [11-26] Recommendation by ICCAT on the Establishment of a Meeting Participation Fund for Developing ICCAT Contracting Parties
- [09-13] Other: ICCAT Inspection Reports
- [09-12] Resolution by ICCAT for the Pilot Application of the Kobe 2 Decision Matrix
- [09-04] Recommendation by ICCAT for a Management Framework for the Sustainable Exploitation of Mediterranean Swordfish and Replacing ICCAT Recommendation 08-03
- [07-08] Recommendation by ICCAT Concerning Data Exchange Format and Protocol in Relation to the Vessel Monitoring System for the Bluefin Tuna Fishery in the ICCAT Convention Area
- [07-01] Recommendation by ICCAT on Mediterranean Swordfish
- [05-11] Resolution by ICCAT on pelagic *Sargassum*
- [03-04] Recommendation by ICCAT Relating to Mediterranean Swordfish
- [99-03] Recommendation on the Establishment of a Closed Area/Season for the Use of Fish-Aggregation Devices

***Section 4: Inspection schemes and activities***

U.S. Atlantic enforcement for ICCAT species is undertaken by the NOAA Office of Law Enforcement (OLE), the U.S. Coast Guard, and, pursuant to cooperative enforcement agreements, by States and territories with maritime boundaries in the Atlantic Ocean, Gulf of Mexico, and/or Caribbean Sea. Enforcement activities include monitoring and inspecting offloads at landing facilities and marinas in conjunction with dealer record checks and at-sea boarding and inspection. A summary of NOAA enforcement actions taken in ICCAT fisheries is provided in Appendix 2.

The U.S. Coast Guard is the primary federal agency responsible for monitoring compliance with HMS regulations on the fishing grounds. From 1 October 2011 to mid-September 2012, the Coast Guard boarded 333 commercial, charter, and recreational vessels resulting in six significant violations. As enforcement of regulations for tuna and tuna-like species is just one of many vital component missions that the Coast Guard undertakes in the course of fisheries enforcement and of other duties, for every actionable incident documented, Coast Guard personnel log hundreds of hours monitoring the fishing grounds. From 1 October 2011 to 12 September 2012, the Coast Guard dedicated 2,354 aircraft, 8,397 small boat (<65ft), and 57,599 cutter (>65ft) patrol hours to monitoring compliance with fisheries laws and regulations in the Atlantic Ocean and Gulf of Mexico.

In addition to ICCAT's requirements, the United States supported the development of the FAO Agreement on Port State Measures to Prevent, Deter and Eliminate IUU fishing (the Agreement) and, upon its adoption in November 2009, was one of the first to sign it. In December 2011, the President submitted the Agreement to the Senate for ratification and draft implementing legislation was also transmitted to Congress. U.S. ratification of the Port State Measures Agreement will complement existing regulations that restrict port entry and access to port services to vessels included on the IUU lists of ICCAT and other RFMOs of which the United States is a party.

***Section 5: Other activities***

Recent U.S. management action for Atlantic highly migratory species can be found online at: http://www.nmfs.noaa.gov/sfa/hms.

Federal register notices containing the full text of proposed and final regulations can be found at: http://www.gpoaccess.gov/fr/index.html.