

2013 Final Report

Survey of Recreationally Highly Migratory Species Landings in Maryland for Atlantic Bluefin Tuna (ABT), Billfishes and Coastal Sharks

Introduction

Globally, tunas, billfishes (White Marlin (*Kajikia albida*), Blue Marlin (*Makaira nigricans*), Roundscale Spearfish (*Tetrapturus georgii*), Swordfish (*Xiphias gladius*), and Sailfish (*Istiophorus platypterus*)), and some sharks are governed by the International Commission for the Conservation of Atlantic Tunas (ICCAT). It is the mission of ICCAT to ensure “the conservation of tunas and tuna-like species in the Atlantic Ocean and adjacent seas.” (ICCAT, 2013). To manage these species, ICCAT assigns catch quotas to each member country. In the United States (US), tuna and billfish recommendations from ICCAT are implemented by the National Marine Fisheries Service (NMFS) division of Highly Migratory Species (HMS) under the Atlantic Tunas Convention Act and Magnuson Stevens Act. The Fishery Conservation Amendments of 1990 classified tunas and billfishes to be HMS. In 1996, the Sustainable Fisheries Act modified the Magnuson Fishery Conservation and Management Act to form advisory panels that aid in creating fishery management plans to manage billfishes and HMS. Responsibilities of the panels include lowering bycatch and mortality related to bycatch, and stopping overfishing (NMFS, 2013).

In the late 1990’s, NMFS required all recreational anglers to report Atlantic Bluefin Tuna (ABT; *Thunnus thynnus*) landings via a toll free phone number. In Maryland, that system was determined to be ineffective for accurately documenting recreational ABT landings. As a result, NMFS worked with the Maryland Department of Natural Resources (MDNR) to implement an ABT Catch Card and Tagging Program as an alternative method in 1999. Billfishes were added to the list of species required to be reported through MDNR’s Catch Card and Tagging Program in 2002 because of concerns for White Marlin. The Roundscale Spearfish was listed as a separate species in 2011. As of May 27, 2013 recreational anglers in Maryland were required to report 19 species of sharks using the catch card program because recreational landings data for most shark species are highly imprecise and generally lacking. Additionally, the cards provide an opportunity to collect biological data that could be used in stock assessments including: lengths, weights, and the sex ratios of encountered shark populations.

Information was collected by the National Marine Fisheries Service in 2011 concerning expenses incurred from the pursuit of marine recreational fishing. This effort, the National Marine Recreational Fishery Expenditures Survey, estimates that marine anglers spent \$19 billion dollars on items such as boats and tackle (equipment and durable goods). In addition to this, \$4.4 billion is thought to have been spent on commodities associated with trips like bait and fuel. An estimate places the number of jobs supported by these expenditures at 364,000, with the total impacts on the U.S. economy believed to be \$56 million (Lovell et al., 2013). Accurately monitoring the recreational harvest of Bluefin Tuna, billfishes and sharks along the Atlantic coast is vitally important to the cultural, social, and economic impacts that recreational fishing has on Ocean City, MD. In 2013, anglers in search of HMS species off Maryland and Delaware took an estimated 7,174 trips (Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division January 29, 2014). For all species in 2013, out-of-state anglers accounted for 38% of saltwater fishing (Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division January 15, 2014). One study credited the 2009 White Marlin Open with pumping \$16 million dollars into the regional economy and the creation of 130 jobs. An estimated 5,000 people came from other states during the tournament week (Maryland Department of Business and Economic Development, Division of Marketing and Communications-Office of Research, 2010). Monitoring of this important fishery is a priority for Maryland and is a useful tool for NMFS management.

Objectives

- Continue a long-term monitoring study of all recreationally landed ABT, billfishes (White Marlin, Blue Marlin, Swordfish, Roundscale Spearfish and Sailfish) and sharks in Maryland and supply those data to NMFS for use in assessment and management of HMS.
- Continue development of program awareness among recreational anglers in order to increase compliance rates.

Materials and Methods

Nine marinas signed a cooperative participation agreement, qualifying them as a Recreational ABT/Billfish/Shark Reporting Station (Table 1 and Figure 1). This season, two tackle shops were also added as reporting stations just for sharks. They signed a slightly modified version of the agreement as they would not see any billfishes or ABT at their establishments (Figure 2). The contract required marinas to distribute and collect catch cards, issue tags, and return leftover supplies to MDNR at the conclusion of the fishing season. Based on the 2012 reporting rate of each marina, an appropriate amount of catch cards and tags were delivered to each reporting station. MDNR biologists visited marina participants twice a week, from June 6 through September 30, to maintain adequate supplies and collect completed catch cards. Leftover tags were inventoried at the end of the season by MDNR.

In addition to the marinas, a Bluefin Tuna, Billfish, and Shark After Hours Kiosk was available at the MDNR field office in 2013 (Figure 3). Marinas were asked to inform anglers about the kiosk and were provided signs to post. This information was also included in the letter sent to HMS permit holders in the spring. Anglers were expected to complete the catch card and the attached receipt, which would replace the tag. The catch card was to be deposited into a locked box that was fastened directly to the kiosk. Anglers retained the receipt, which recorded the same data as the card. A sign was placed at the boat ramp in west Ocean City advertising the kiosk and explaining that sharks were included in the tagging program (Figure 4). The Natural Resources Police (NRP) also placed an informative sign at the ramp (Figure 5).

Anglers were responsible for completing a catch card when they returned to port for each ABT, billfish, or shark on board their vessel (Figures 6 and 7). A tag was awarded for each completed catch card and the angler was required to place this tag around the tail of the fish before removing it from the vessel (Figure 8), or before removing a shark from the point of landing if fishing from shore. Trailered boats could not be pulled from the water until the tag was in place.

In an attempt to improve data quality and compliance, staff attended two large fishing tournaments: the White Marlin Open (August 6-9, 2013) and the Mid-Atlantic \$500,000 (August 19-23, 2013). Recreational catch card landings were entered into a Microsoft Access database for management. Status reports based on data collected from catch cards were periodically sent to NMFS. Microsoft Excel was utilized for generating graphs, averages, modes and data cleaning.

Results

Bluefin Tuna

ABT regulations for the 2013 season are listed in Table 2. No completed catch cards were found in the kiosk for either 2012 or 2013. Landings peaked during the first week of July which is similar to previous years except 2011 (Figure 9). Weeks two through four of the July landings were higher in 2013 than previous years.

For 2013, a total of 416 ABT were reported through MDNRs ABT/Billfish/Shark Catch Card and Tagging Program and for comparison, in 2012 a total of 190 fish were reported (Table 3). One hundred and twenty-one fish (29.1%) were classified as schools (27 to <47 in.). The average Curved Fork Length (CFL) for schools was 44.2 inches and the mode was 46 inches. The large school class (47 to <59 in.) was represented by 237 fish (57.0%) with an average CFL of 50.9 and mode of 50.0

inches. The small medium class (59 to < 73 in.) had 49 fish (11.8%) with 62.3 inches for the average CFL and a mode of 60 inches. The CFL for nine fish was unknown (2.2%). In 2013, the average CFL was similar to 2012 (46 inches and 46.9 inches, respectively) and the mode for all classes combined was essentially the same (50.3 inches) as in 2012 (50.0 inches). An ABT size class frequency comparison for the years 2010 to 2013 is presented in Figure 10.

Cumulative yearly reported landings for 2013 were evaluated and compared to data from the preceding three seasons (Figure 11). In 2012, 83 ABT were landed from late April (4/30) to late June and for 2013, only six ABT were landed for the same time period showing this species arrived in greater numbers much later for the past season (Figures 9 and 11). This season's recreational harvest was slightly lower compared to 2010 and 2011, but well above 2012's recreational landings. Since the project began in 1999, 2013's harvest was the second lowest in the history of the survey.

Based on the catch card reports, charter trips landed 70.7% (294 ABT) of the recreational catch during the 2013 season (Table 4 and Figure 12). Private trips comprised 28.6% of the landings (119 ABT) and a headboat accounted for one (0.2%) ABT. The trip type for two landings (0.5%) was unknown.

From 2010 through 2013 season, the number of non-tournament ABT landings has always comprised over 90% of all ABT boated off of Ocean City (Table 4).

Billfishes (Roundscale Spearfish, White Marlin, Blue Marlin, Swordfish, and Sailfish)

Billfish regulations are in Table 5. A total of 40 billfishes were reported in 2013 through MDNRs ABT/Billfish/Shark Catch Card and Tagging Program (Table 6). No Swordfish or Sailfish were reported in 2013. No Sailfish have ever been brought in since billfish tagging was begun.

The number of Roundscale Spearfish being reported has declined since 2010 even though more anglers know how to differentiate them from White Marlin (Table 7). One Roundscale Spearfish was landed in 2013. The number of White Marlin landed in 2013 (34) is second only to the number boated in 2010 (36; Table 7 and Figure 13). In 2013 the average Lower Jaw Fork Length (LJFL) for White Marlin was higher (69.6 inches) than 2012 (68.2 inches; Table 7). The average weight for White Marlin was 68.3 pounds for 2013 and 67.4 pounds in 2012. At least one undersized White Marlin was reported in each of the past three years (Tables 8). These three fish make up 2.7% of the 113 White Marlin landed since 2010. One was at 65.5 inches which is extremely close to the minimum size limit. There are two billfish cards where nothing was recorded for length (Table 6). A length was missing for a swordfish in 2010. All billfish cards had length data in 2011 and 2012. Both situations will be monitored to see if these trends continue and if so, what actions may be necessary to address them.

Five Blue Marlin were reported in 2013 (Table 7 and Figure 13). The mean LJFL of the Blue Marlin landed in 2013 was 107.1 and the average weight was 514.2 pounds (Table 7). Last season the average LJFL and weight was 104.5 inches and 422.0 pounds. Anglers complied with the 99 in. LJFL minimum size for the past four years (Tables 5, 6, and 8). Unlike ABT, the majority of billfishes were landed during tournaments (Table 9). Most landings were reported as private trips (54%; Figure 14).

Sharks

State shark regulations are presented in Table 10. Forty-seven of the 69 sharks landed were Shortfin Makos (68 %); Table 11 and Figure 15). Sex was reported for 33 Makos of which 11 were males and 12 were females. The next most numerous reported shark was the Atlantic Sharpnose (19%; 13 sharks). Eight males and one female were reported for this species. Common Thresher Sharks represented 12% (8 fish) of the catch. Three of these were females and the sex is unknown for the rest. One female Spinner Shark (1%) was reported. The majority (55) of sharks were landed outside of tournaments. Charter trips brought in only slightly more sharks than private trips (Table 12 and Figure 16). Zero sharks were reported landed on the beach.

Compliance

The 2013 landings estimated from the catch card program for ABT and sharks are lower than estimates produced through the NMFS Large Pelagic Survey. For example, the 47 shortfin mako catch cards were lower than the 2013 LPS estimate of 139 shortfin makos landed (PSE 26.3) between Maryland and Delaware combined (Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division March 19, 2014). While the LPS estimate is for Maryland and Delaware combined, this is still an indication that we need to improve compliance over this pilot year in the shark catch card program.

Catch card percent of landings by mode were also somewhat different than the LPS survey. About one-half of the shortfin mako and 71% of the ABT catch cards were reported by charter boats. By comparison, 90% of the LPS shortfin mako estimate and 62% of the LPS ABT estimate is due to private boat effort. These results suggest that private boat compliance rate with the mandatory catch card program is less than charter boat compliance, and that overall compliance should be improved for both modes.

Recommendations:

1. Continue monitoring the recreational ABT, billfishes, swordfish, sailfish and shark landings in Ocean City, Maryland.
2. Continue working to improve compliance by:
 - a. Attending major tournaments;
 - b. Posting species identification signs;
 - c. Reminding captains of trailered vessels that they are required to obtain catch cards and tag any HMS species before removing their boats from the water;
 - d. Increasing awareness about the after hours kiosk to the fishing community;
 - e. Meeting with fishing organizations such as the Assateague Mobile Sportfishing Association to increase awareness of the shark catch card program for surf-fishing anglers;
 - f. Working with Natural Resource Police officers to educate anglers of the shark catch card requirement.

References

ICCAT. "International Commission for the Conservation of Atlantic Tunas." 19 Nov. 2013.

<http://www.iccat.int/en/introduction.htm>.

Lovell, Sabrina, Scott Steinback, and James Hilger. The Economic Contribution of Marine Angler Expenditures in the United States, 2011. U.S. Dep. Commerce, NOAA Tech. Memo. NMFS-F/SPO-134, 188 p. 2013.

NMFS. "Introduction to the Highly Migratory Species Management Division." 19 Nov. 2013.

http://www.nmfs.noaa.gov/sfa/hms/intro_HMS.htm.

NMFS Statistics Division. Personal Communication. 29 Jan. 2014.

State of Maryland. Department of Business and Economic Development. Division of Marketing and Communications-Office of Research. The Economic Impact of the White Marlin Open. 2010.

List of Tables

- Table 1. List of 2013 Maryland ABT/Billfish/Shark Catch Card and Tagging Program reporting stations.
- Table 2. 2013 summary of federal management measures for Atlantic Bluefin Tunas.
- Table 3. Summary of the 2010 to 2013 recreationally landed Atlantic Bluefin Tunas reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program combined with averages and modes per class.
- Table 4. Comparison of Maryland recreational Bluefin Tuna landings by trip type and tournament participation from 2010 to 2013.
- Table 5. 2013 summary of federal management measures for billfishes.
- Table 6. Confidential list of the 2013 billfish landings reported through MDNRs ABT/Billfish/Shark Catch Card and Tagging Program.
- Table 7. Summary of the 2010 to 2013 recreationally landed billfish reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program combined with lower jaw fork length averages, modes and weight averages by species.
- Table 8. Summary of 2010 to 2013 length and weight ranges recreationally landed billfish reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.
- Table 9. Comparison of Maryland recreational billfish landings by trip type and tournament participation from 2010 to 2013.
- Table 10. 2013 Maryland recreational shark regulations.
- Table 11. 2013 summary of recreational landings, sex, average length, mode, length and weight ranges, for sharks from Ocean City, Maryland, n=69. Data were reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.
- Table 12. Comparison of Maryland recreational shark landings by trip type and tournament participation in 2013.

List of Figures

- Figure 1. Example of the 2013 Maryland ABT/Billfish/Shark Catch Card and Tagging Program contract between MDNR and marinas to act as a recreational reporting station.
- Figure 2. Example of the 2013 Maryland ABT/Billfish/Shark Catch Card and Tagging Program contract between MDNR and marinas to act as a recreational reporting station for sharks.
- Figure 3. Photograph of the 2013 Maryland ABT/Billfish/Shark Catch Card and Tagging Program After Hours Kiosk located at the MDNR field office in west Ocean City.
- Figure 4. 2013 Maryland ABT/Billfish/Shark Catch Card and Tagging Program After Hours Kiosk sign and the addition of sharks to the Catch Card Program sign placed at the west Ocean City boat ramp.
- Figure 5. Photograph of the Maryland ABT/Billfish/Shark catch Card and Tagging Program promotional sign posted at the west Ocean City boat ramp by MD Natural Resources Police.
- Figure 6. Examples of the 2013 Maryland Atlantic Bluefin Tuna and Billfish Catch Cards. Cards measured 5x7 inches.
- Figure 7. Example of the 2013 Maryland Shark Catch Card front and back. Card measured 5x7 inches.
- Figure 8. Examples of the 2013 Maryland ABT/Billfish/Shark Catch Card and Tagging Program tags.
- Figure 9. Weekly seasonal landings of recreationally landed Atlantic Bluefin Tuna for Maryland from 2010 to 2013, n = 1,460. Data were reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.
- Figure 10. 2010 to 2013 size class frequency comparison of recreationally landed Atlantic Bluefin Tuna from Maryland. Data were reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program (n= 1,460).
- Figure 11. Cumulative recreational Atlantic Bluefin Tuna landings by month and week from Ocean City, Maryland, from 2010 to 2013, n = 1,460. Data were reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.
- Figure 12. 2013 Maryland recreational Atlantic Bluefin Tuna landings by trip type (n= 416). Data were reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.
- Figure 13. Comparison of the frequency of recreationally caught billfishes in Maryland from 2010 to 2013, n = 167. Data were reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.
- Figure 14. 2013 Maryland recreational billfish landings by trip type (n= 40). Data were reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.
- Figure 15. Recreationally landed sharks from Ocean City, Maryland caught in 2013. Data were reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.
- Figure 16. 2013 Maryland recreational shark landings by trip type (n= 69). Data were reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.

Table 1. List of 2013 Maryland ABT/Billfish/Shark Catch Card and Tagging Program reporting stations.

Station ID	Reporting Station	City /State	Phone Number
1	Ake Marine	Ocean City, MD	(410) 213-0421
2	Bahia Marina	Ocean City, MD	(410) 289-7438
3	Fisherman's Marina	Ocean City, MD	(410) 213-2478
4	Ocean Pines Marina	Ocean Pines, MD	(410) 641-7447
5	O.C. Fishing Center	Ocean City, MD	(410) 213-1121
6	Talbot Street Pier & Marina	Ocean City, MD	(410) 289-9125
7	White Marlin Marina	Ocean City, MD	(410) 289-6470
8	Sunset Marina	Ocean City, MD	(410) 213-9600
9	Pines Point Provisions and Seafood	Ocean Pines, MD	(410) 641-2248
10	Buck's Place*	Berlin, MD	(443) 513-4661
11	Alltackle*	Ocean City, MD	(410) 213-2840

*Shark-only reporting stations.

Table 2. 2013 summary of federal management measures for Atlantic Bluefin Tunas.

Dates	Category	Creel/trip	Min Size CFL (in.)
June 1-Dec.31	Recreational	1/Vessel/Day/Trip	47 to <73
	Charter/Headboat	1/Vessel/Day/Trip	27 to <47
	Charter/Headboat	1/Vessel/Day/Trip	47 to <73

The southern area "trophy" ABT fishery was closed down for the entire season.

Table 3. Summary of the 2010 to 2013 recreationally landed Atlantic Bluefin Tunas reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program combined with averages and modes per class.

Size Class Category (in.)	2010				2011				2012				2013			
	Cnt.	Avg.	Mode	% of Total	Cnt.	Avg.	Mode	% of Total	Cnt.	Avg.	Mode	% of Total	Cnt.	Avg.	Mode	% of Total
School (27-<47)	292	38.9	42.0	69.0	375	37.4	32.0	87.0	81	41.5	42.0	42.6	121	44.2	46.0	29.1
Large School (47-<59)	123	50.4	51.0	29.1	40	54.7	58.0	9.3	97	50.9	50.0	51.1	237	50.9	50.0	57.0
Small Medium (59-<73)	2	59.0	59.0	0.5	2	59.0	59.0	0.5	1	60.0	60.0	0.5	49	62.3	60.0	11.8
Unknown	6			1.4	14			3.2	11			5.8	9			2.2
Total	423				431				190				416			

Table 4. Comparison of Maryland recreational Bluefin Tuna landings by trip type and tournament participation from 2010 to 2013.

Trip Type	Private		Charter		Headboat		Unknown		# of Landings based on Tournament Participation	
	Cnt.	% of Total Landings	Cnt.	% of Total Landings	Cnt.	% of Total Landings	Cnt.	% of Total Landings	Tournament	Non-Tournament
2010	191	45.9	221	53.0	3	0.7	5	1.2	27	396
2011	239	55.6	176	40.9	7	1.6	8	1.7	24	404
2012	71	37.0	117	62.0	---	---	8	1.0	8	182
2013	119	28.6	294	70.7	1	0.2	2	0.5	24	392

Table 5. 2013 Summary of federal management measures for billfishes.

Dates	Species	Category	Creel/trip	Min Size LJFL (in.)
Jan.1 – Dec. 31	Blue Marlin	A / C / H	No Limits	99
	White Marlin	A / C / H		66
	Sailfish	A / C / H		63
Jan.1 – Dec. 31	Swordfish	A	1 / Person; 4 / Vessel	47
	Swordfish	C	1 / Paying Person; 6 / Vessel	47
	Swordfish	H	1 / Paying Person; 15 / Vessel	47

Angler (A), Charter (C), and Headboat (H).

Table 6. List of the 2013 billfish landings reported through MDNRs ABT/Billfish/Shark Catch Card and Tagging Program.

Date	Common Name	Length (in.)	Weight (lbs.)	Trip Type	Tournament Name
7/14/2013	Blue Marlin	99	368	Charter	N/A
8/5/2013	Blue Marlin	103.5		Private	White Marlin Open
8/8/2013	Blue Marlin	108	449.5	Private	White Marlin Open
8/8/2013	Blue Marlin	101		Charter	White Marlin Open
8/16/2013	Blue Marlin	124	725	Private	N/A
8/8/2013	Roundscale Spearfish	68	60.5	Charter	White Marlin Open
8/5/2013	White Marlin	71	69.5	Private	White Marlin Open
8/5/2013	White Marlin	68	63	Private	White Marlin Open
8/5/2013	White Marlin	68.75	67	Private	White Marlin Open
8/5/2013	White Marlin	67.25	62	Private	White Marlin Open
8/7/2013	White Marlin	71.5	72.5	Private	White Marlin Open
8/7/2013	White Marlin	74	83	Charter	White Marlin Open
8/7/2013	White Marlin	75	77	Charter	White Marlin Open
8/7/2013	White Marlin	74.25	77	Charter	White Marlin Open
8/7/2013	White Marlin	70.75	67.5	Charter	White Marlin Open
8/6/2013	White Marlin	68	69	Private	White Marlin Open
8/6/2013	White Marlin	64.25		Private	White Marlin Open
8/6/2013	White Marlin	71.5	76.5	Private	White Marlin Open
8/6/2013	White Marlin	71	72.5	Charter	White Marlin Open
8/6/2013	White Marlin	66.75		Private	White Marlin Open
8/6/2013	White Marlin	75.5	72.5	Private	White Marlin Open
8/6/2013	White Marlin	68.5	63	Private	White Marlin Open
8/6/2013	White Marlin	72	77	Private	White Marlin Open
8/8/2013	White Marlin	71.25	70	Charter	White Marlin Open
8/8/2013	White Marlin	69	77	Private	White Marlin Open
8/19/2013	White Marlin	66.25	61	Private	Mid-Atlantic \$500,000
8/20/2013	White Marlin	73	84		Mid-Atlantic \$500,000
8/20/2013	White Marlin	70.5		Charter	Mid-Atlantic \$500,000
8/20/2013	White Marlin	67	62	Private	Mid-Atlantic \$500,000
8/20/2013	White Marlin	66.5	59	Private	Mid-Atlantic \$500,000
8/21/2013	White Marlin	67.25	62	Charter	Mid-Atlantic \$500,000
8/21/2013	White Marlin	72	62	Private	Mid-Atlantic \$500,000
8/23/2013	White Marlin	66.5	59	Private	Mid-Atlantic \$500,000
8/23/2013	White Marlin	71	69	Private	Mid-Atlantic \$500,000
8/22/2013	White Marlin	66.5		Charter	N/A
9/6/2013	White Marlin	67	55	Charter	N/A
9/8/2013	White Marlin			Private	N/A
9/2/2013	White Marlin	67.5	58	Charter	N/A
9/7/2013	White Marlin	66.5	51	Charter	N/A
10/2/2013	White Marlin		84	Charter	N/A

Table 7. Summary of the 2010 to 2013 recreationally landed billfish reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program combined with lower jaw fork length averages, modes and weight averages by species.

Species	2010					2011					2012					2013				
	Cnt.	Avg. (in.)	Mode (in.)	% of Total	Avg. Wt. (lbs.)	Cnt.	Avg. (in.)	Mode (in.)	% of Total	Avg. Wt. (lbs.)	Cnt.	Avg. (in.)	Mode (in.)	% of Total	Avg. Wt. (lbs.)	Cnt.	Avg. (in.)	Mode (in.)	% of Total	Avg. Wt. (lbs.)
White Marlin	36	69.7	67	61	69.1	26	70.4	67	65	71.8	17	68.2	67	60.7	67.4	34	69.6	66.5	85	68.3
Blue Marlin	3	118		5.1	725.2	6	107.3	101	15	484.3	5	104.2		17.9	422.0	5	107.1		12.5	514.2
Roundscale Spearfish	19	70.3	69.5	32.2	70.6	7	68.9	68.3	17.5	64.2	4	69.3	68	14.3	63.5	1			2.5	
Swordfish	1			1.7		1			2.5		2			7.1						
Total	59					40					28					40				

Table 8. Summary of 2010 to 2013 length and weight ranges recreationally landed billfish reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.

Species	2010		2011		2012		2013	
	LJFL Range (Inches)	Weight Range (Pounds)	LJFL Range (Inches)	Weight Range (Pounds)	LJFL Range (Inches)	Weight Range (Pounds)	LJFL Range (Inches)	Weight Range (Pounds)
White Marlin	66.5-80.5	55.0-92.0	63.0-81.0	55.0-112.0	65.5-70.5	59.5-79.0	64.25-75.5	51.0-84.0
Blue Marlin	104.0-130.0	375.0-1010.5	101.0-120.0	258.0-699.5	100.0-110.0	390.5-456.5	99.0-124.0	368.0-725.0
Roundscale Spearfish	66.5-74.0	55.5-97.5	67.5-71.0	58.0-69.0	68.0-72.0	52.5-72.0	68.0	60.5
Swordfish	Est. at 69.0	140.0	50.0	N/A	55.0-58.0	N/A-93.0		

Table 9. Comparison of Maryland recreational billfish landings by trip type and tournament participation from 2010 to 2013.

Year	Charter	Private	Unknown	Tournament	Non-Tournament
2010	24	34	1	56	3
2011	14	24	2	31	9
2012	5	23		23	5
2013	17	22	1	32	8

Table 10. 2013 Maryland recreational shark regulations.

Species	Closed Season	
	No Harvest or Transport from Maryland or Federal Waters	Minimum Fork Length
Atlantic Sharpnose Shark (<i>Rhizoprionodon terraenovae</i>)	None	None
Blacknose Shark (<i>Carcharhinus acronotus</i>)	None	None 1/1/13-7/31/13 54 inches 8/1/13-Present
Blacktip Shark (<i>Carcharhinus limbatus</i>)	May 15 through July 15	54 inches
Blue Shark (<i>Prionace glauca</i>)	None	54 inches
Bonnethead Shark (<i>Sphyrna tiburo</i>)	None	None
Bull Shark (<i>Carcharhinus leucas</i>)	May 15 through July 15	54 inches
Common Thresher Shark (<i>Alopias vulpinus</i>)	None	54 inches
Finetooth Shark (<i>Carcharhinus isodon</i>)	None	None 1/1/13-7/31/13 54 inches 8/1/13-Present
Hammerhead Shark, Great (<i>Sphyrna mokarran</i>)	May 15 through July 15	54 inches 1/1/13-7/31/13 78 inches 8/1/13-Present
Hammerhead Shark, Scalloped (<i>Sphyrna lewini</i>)	May 15 through July 15	54 inches 1/1/13-7/31/13 78 inches 8/1/13-Present
Hammerhead Shark, Smooth (<i>Sphyrna zygaena</i>)	May 15 through July 15	54 inches 1/1/13-7/31/13 78 inches 8/1/13-Present
Lemon Shark (<i>Negaprion brevirostris</i>)	May 15 through July 15	54 inches
Nurse Shark (<i>Ginglymostoma cirratum</i>)	May 15 through July 15	54 inches
Oceanic Whitetip Shark (<i>Carcharhinus longimanus</i>)	None	54 inches
Porbeagle Shark (<i>Lamna nasus</i>)	None	54 inches
Shortfin Mako Shark (<i>Isurus oxyrinchus</i>)	None	54 inches
Smooth Dogfish (<i>Mustelus canis</i>)	None	None
Spinner Shark (<i>Carcharhinus brevipinna</i>)	May 15 through July 15	54 inches
Tiger Shark (<i>Galeocerdo cuvier</i>)	May 15 through July 15	54 inches

**It is illegal for a highly migratory species (HMS) general, angling, and charter/headboat category permit holders (when fishing in a registered Atlantic HMS tournament) to possess Oceanic Whitetip Sharks or Hammerhead Sharks at the same time as tunas, billfish or swordfish.

Table 11. 2013 Summary of recreational landings, sex, average length, mode, length and weight ranges, for sharks from Ocean City, MD, n = 69. Data were reported through the Maryland ABT/Billfish/Shark Catch Card and Tagging Program.

Species	Cnt.	Sex			Average Length (Inches)	Mode (Inches)	Length Range (Inches)	Weight Range (Pounds)
		M	F	U				
Atlantic Sharpnose	13	8	1	4	31.2	31.0	30.0-33.0	8.0-12.0
Spinner Shark	1		1					125.0
Common Thresher	8		3	5	76.5	* Lengths for six sharks	54.0-102.0	180.0-485.0
Shortfin Mako	47	11	12	24	65.9	58.0	56.0 -85.0	70.0-209.5
Total		69						

* No mode as all lengths are different.

Table 12. Comparison of Maryland recreational shark landings by trip type and tournament participation in 2013.

Boat Type	Charter	Private	Unknown	Tournament	
				Tournament	Non-Tournament
2013	36	31	2	14	55