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Final Report

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Project Title: Survey of Atlantic Bluefin Tuna (ABT) and Billfish (White Marlin, Roundscale Spearfish, Blue Marlin, Swordfish and Sailfish) Recreational Landings in Maryland.

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2011 Final Report

Survey of Atlantic Bluefin Tuna (ABT) and Billfish (White Marlin, Roundscale Spearfish, Blue Marlin, Swordfish and Sailfish) Recreational Landings in Maryland.

Introduction

Globally, tunas and billfishes (White Marlin (*Kajikia albida*), Blue Marlin (*Makaira nigricans*), Roundscale Spearfish (*Tetrapturus georgii*), Swordfish (*Xiphias gladius*), and Sailfish (*Istiophorus platypterus*)), 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, 2011). 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 highly migratory species. In 1996, the Sustainable Fisheries Act modified the Magnuson Fishery Conservation and Management Act to create 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, 2011).

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. A rising concern in 2002 regarding the consideration of endangered species status for the White Marlin spurred an additional component to the ABT Catch Card and Tagging Program. Billfishes were added to the list of species required to be reported through MDNR’s Catch Card and Tagging Program in 2002. Since 2002, the ABT/Billfish Catch Card and Tagging Program has supplied NMFS with ABT and billfish landings in the state of Maryland.

Nation-wide, recreational fishing remains a popular pursuit. In 2006, 7.7 million anglers participated in saltwater fishing. Equipment and trips combined cost them \$8.9 billion (U.S. Fish and Wildlife, 2006). Accurately monitoring the recreational harvest of Bluefin Tuna and billfishes along the Atlantic coast is vitally important to the cultural, social, and economic impacts that recreational fishing has on Ocean City, MD. In 2011, anglers in search of HMS species off Maryland and Delaware, took an estimated 9178 trips (Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division February 7, 2012). Based on angler participation estimates of out-of-state anglers for other migratory species in 2006-2010, approximately 35-43% of angler’s landing in Maryland are from out of state (Personal communication from the National Marine Fisheries Service, Fisheries Statistics Division February 7, 2012). 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 a useful tool for NMFS management.

Objectives

- Continue a long-term monitoring study of all recreationally landed Atlantic Bluefin Tuna and billfishes (White Marlin, Blue Marlin, Swordfish, and sailfish) in Maryland and supply those data to NMFS for use in their coastwide assessment.
- Continue development of program awareness among recreational anglers in order to increase compliance rates.

Materials and Methods

Anglers were responsible for completing a catch card when they returned to port for each ABT or billfish on board their vessel (Figure 1). A tag (Figure 2) 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. Trailered boats could not be pulled from the water until the tag was in place.

Nine marinas signed a cooperative participation agreement (Figure 3), qualifying them as a Recreational ABT/Billfish Reporting Station (Table 1). 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 2010 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, an after hours kiosk was available at the MDNR field office in 2011 (Figure 4). Marinas were asked to inform anglers about the kiosk and it 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.

As of October 17, 2007, anglers who recreationally landed swordfish and billfish outside of tournaments could report their catches to the NMFS using the HMS non-tournament Reporting website. The fish had to be reported within one day of being landed. However, if these fish are landed in either Maryland or North Carolina, it must still be reported using a catch card.

In an attempt to improve data quality and compliance, staff attended two large fishing tournaments: the White Marlin Open (August 8-12, 2011), and the Mid-Atlantic \$500,000 (August 22-26, 2011). The second tournament was shortened by one day due to Hurricane Irene's approach. Signs informing anglers that ABT and billfishes must be tagged prior to being removed from the vessel were given to each marina. The signs reminded anglers to tag their fish or to visit the kiosk if they were returning after hours. Additionally, a sign describing the program was posted at the boat ramp in West Ocean City by the Natural Resources Police. 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

For the 2011 season, HMS private, recreational vessels were allowed one ABT measuring 27 inches to less than 59 inches per vessel/day/trip. Boats fishing under a Charter/Headboat category permit (while fishing recreationally) were allowed one large school and one school-sized fish. The

southern area “trophy” ABT fishery was closed down for the entire season. Weekly ABT landings from May through July are shown in Figure 6 as no bluefin were reported after that month. No completed catch cards were found in the Bluefin Tuna and Billfish After Hours Reporting Station (kiosk) for 2011.

For 2011, a total of 430 ABT were reported through MDNRs ABT/Billfish Catch Card and Tagging Program (Table 2). Three hundred seventy-four fish (86.98%) were classified as schools (27 to <47 in.). The large school class (47 to <59 in.) was represented by 40 fish (9.30%) followed by the small medium class (59 to < 73 in.) with two fish (0.47%). Both of the small medium class fish were reported at 59 inches. The curved fork length (CFL) for fourteen fish was unknown (3.26%). For comparison, in 2010 a total of 423 fish were reported. The school class made up the majority (69.03%) of reported landings followed by the large school class (29.08%). The small medium size class comprised 0.47% of the catch.

In 2011, the Maryland average CFL was 39.2 inches; mode was 32 inches. For 2010 and 2009, the average CFL was 42.4 and 51.1 inches, respectively. The modes for 2010 and 2009 were 42 and 63 inches, respectively. Larger modes and averages may have resulted from different seasonal catch limits. The catch limits for 2010 were the same as those for 2011, aside from the “trophy” fishery (\geq 73 in.) season which closed on June 12, 2010 and no trophy fish came in.

Total yearly reported landings for 2011, 430 fish, were evaluated and compared to data from the preceding 4 seasons (Figure 8). This season’s total was the second lowest. Charter boats landed 40.9% (176 ABT) of the recreational catch during the 2011 season. Private vessels comprised 55.6% of the landings (239 ABT). Seven bluefin were reported from headboats (1.6%); the trip type for eight excursions (1.9%) is not known (Figure 9).

Billfish (White Marlin, Blue Marlin, Swordfish, and Sailfish)

Billfish regulations are in Table 3. A total of 40 billfish were reported in 2011 through MDNRs ABT/Billfish Catch Card and Tagging Program (Table 4).

White Marlin and Roundscale Spearfish were not previously distinguished from each other, however, since 2007 there has been an effort to separate the two species at competitions. The two species are reported separately in Figure 10. The 2011 average Lower Jaw Fork Length (LJFL) for White Marlin is 70.4 inches. Roundscales returned an average of 68.9 inches. The average weight for White Marlin was 71.80 pounds in 2011 while the Roundscale Spearfish averaged 64.2 pounds. One Swordfish was reported with an LJFL of 50 inches this past season

Six Blue Marlins were reported in 2011 (Table 4). The mean LJFL of the Blue Marlin landed in 2011 was 107.3 inches and the average weight was 484.3 pounds.

Recommendations:

1. Continue monitoring the recreational ABT, billfishes, swordfish, and sailfish landings in Ocean City, MD.
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. Increase awareness about the after hours kiosk to the fishing community;
 - e. Giving cards and tags to responsible fish-cleaners.

References

- ICCAT. “International Commission for the Conservation of Atlantic Tunas.” 28 Nov. 2011. <<http://www.iccat.int/en/introduction.htm>>.
- United States. Fish and Wildlife Service. 2006 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation. National Overview. The Service, 2007.
- NMFS. 2011. “Introduction to the Highly Migratory Species” Management Division.” 28 Nov. 2011. <http://www.nmfs.noaa.gov/sfa/hms/intro_HMS.htm>.
- 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

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Table 1. List of 2011 Maryland ABT/Billfish 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

Table 2. Summary of the 2011 recreationally landed Atlantic bluefin tunas reported through the Maryland ABT/Billfish Catch Card and Tagging Program

Size class category	# Landed	Percent of Total
School (27-<47 in.)	374	86.98
Large School (47-<59 in.)	40	9.30
Small Medium (59-<73 in.)	2	0.47
Unknown	14	3.26
Total	430	100

Table 3. 2011 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

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

Table 4. 2011 summary of recreational landings, average Lower Jaw Fork Length (LJFL), and length and weight ranges, for billfishes from Ocean City, MD, n = 40. Data were reported through the Maryland ABT/Billfish Catch Card and Tagging Program.

Species	Catch Card Landings	Average LJFL	LJFL Range (Inches)	Weight Range (Pounds)
White Marlin	26	70.4	63.0-81.0	55.0-112.0
Blue Marlin	6	107.3	101.0-120.0	258.0-699.5
Roundscale Spearfish	7	68.9	67.5-71.0	58.0-69.0
Swordfish	1		50	N/A



Figure 2. Examples of the 2011 Maryland ABT/Billfish Catch Card and Tagging Program tags.

**2011 Cooperative Agreement to Act as a
Recreational Atlantic Bluefin Tuna and Billfish/Swordfish Reporting Station
Between
The Maryland Department of Natural Resources
&**

The signatory operates this facility as a place of business open to the public with regular posted operating hours and will act as a reporting station for recreationally harvested Atlantic Bluefin Tuna and billfish (White Marlin, Blue Marlin, Sailfish) and Swordfish landed in the State of Maryland in accordance with the following conditions. *

On a Daily Basis:

1. From Bluefin tuna anglers, collect COMPLETED Maryland Bluefin Tuna Landing Cards and issue a uniquely numbered Bluefin Tuna tag to the angler. Tags issued only upon receipt of the COMPLETED landing card. Bluefin Tuna cannot be removed from a vessel before the angler attaches the tag to the appropriate tuna.
2. From billfish/swordfish anglers, collect COMPLETED Maryland Billfish Landing Cards and issue a unique numbered Billfish/Swordfish tag to the angler. Tags are issued only upon receipt of the COMPLETED landing card. The Billfish/Swordfish cannot be removed from a vessel before the angler attaches the tag to the appropriate billfish/swordfish.
3. The signatory, representing the reporting station, must account for all tags.
4. The reporting station will allow personnel from the Maryland Department of Natural Resources to collect completed landing cards and inventory remaining Tuna and Billfish/Swordfish tags. All tags must be kept in a secure location.

Physical location address: _____

Business mailing address: _____

Telephone number: _____

Hours of operation: _____

Owner/Manager name: _____

Contact person: _____

Person(s) responsible for checking catch cards & issuing tags: _____

*** The Department reserves the right to terminate reporting station status for any reason including but not limited to failure to maintain inventory of Bluefin tuna or billfish/swordfish tags and collect completed catch cards and/or failure to cooperate with Department personnel in retrieval of said items.**

Authorized signature: _____ **Date:** _____

Title: _____

Figure 3. Example of the 2011 Maryland ABT/Billfish Catch Card and Tagging Program contract between MDNR and marinas to act as a recreational reporting station.



Figure 4. Photograph of the 2011 Maryland ABT/Billfish Catch Card and Tagging Program after-hours kiosk located at the MDNR field office in West Ocean City.

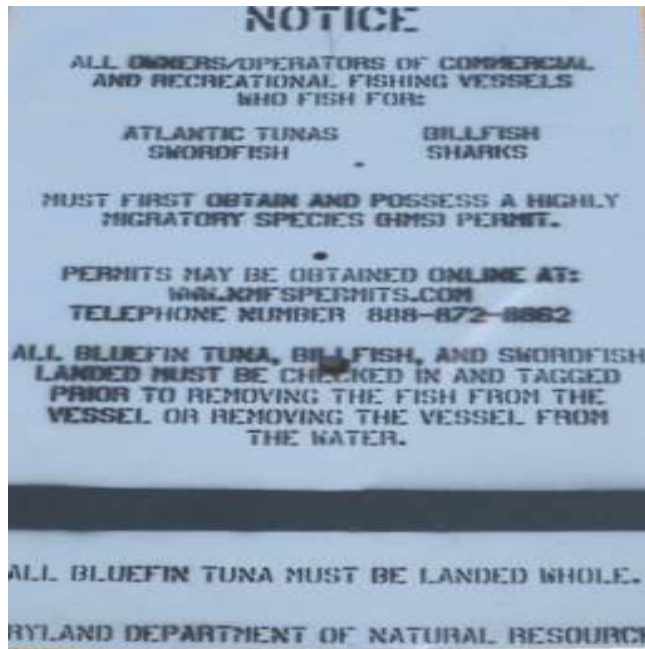


Figure 5. Photograph of the Maryland ABT/Billfish catch Card and Tagging Program Promotional Sign posted at the west Ocean City Boat Ramp by MD Natural Resources Police.

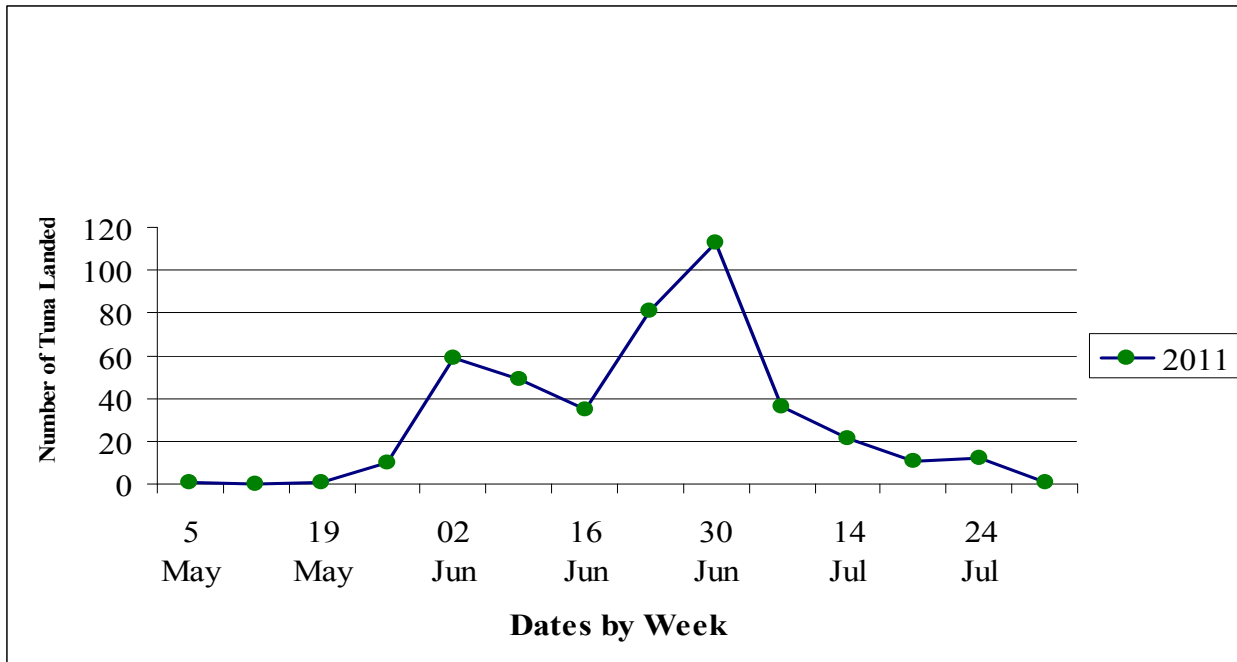


Figure 6. May through July weekly seasonal landings of recreationally landed Atlantic bluefin tuna for Maryland in 2011, n = 430. No more tuna were reported following July. Data were reported through the Maryland ABT/Billfish Catch Card and Tagging Program.

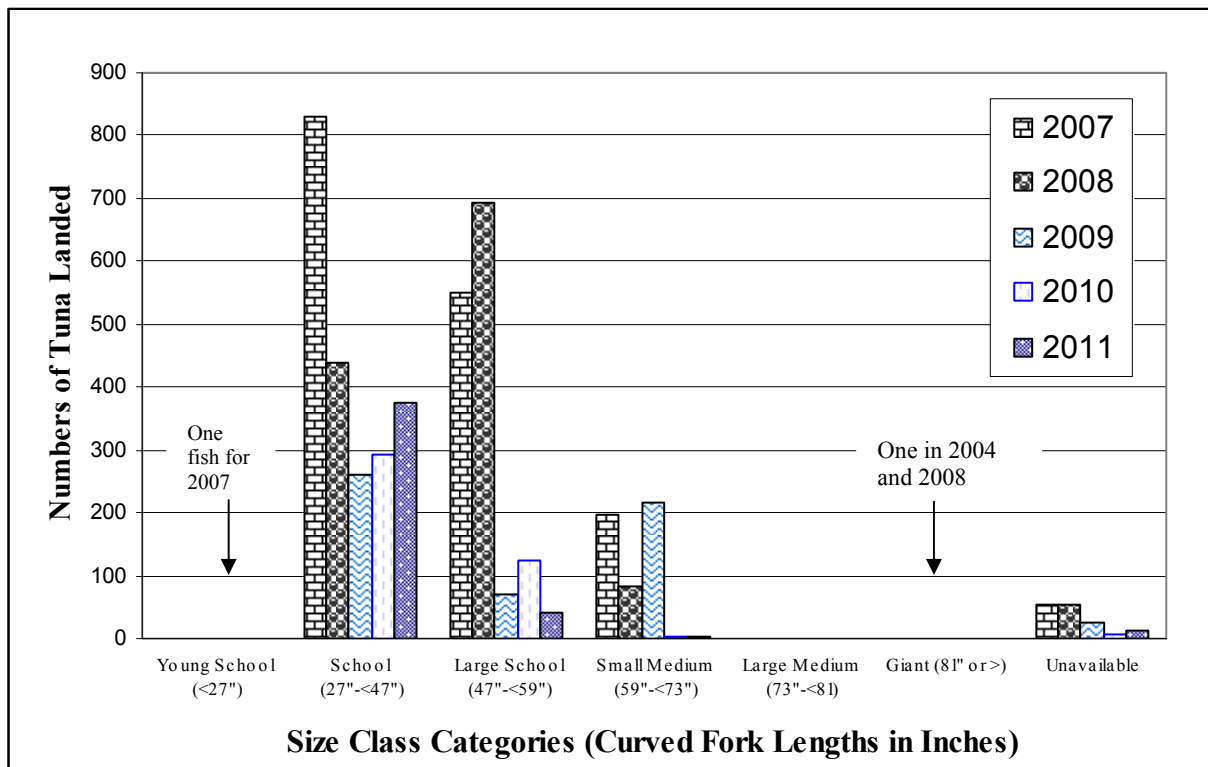


Figure 7. 2007 to 2011 size class frequency comparison of recreationally landed Atlantic bluefin tuna from Maryland. Data were reported through the Maryland ABT/Billfish Catch Card and Tagging Program (n= 4,326). One (young school <27") was landed in 2007 and one (giant >81") was landed in 2008.

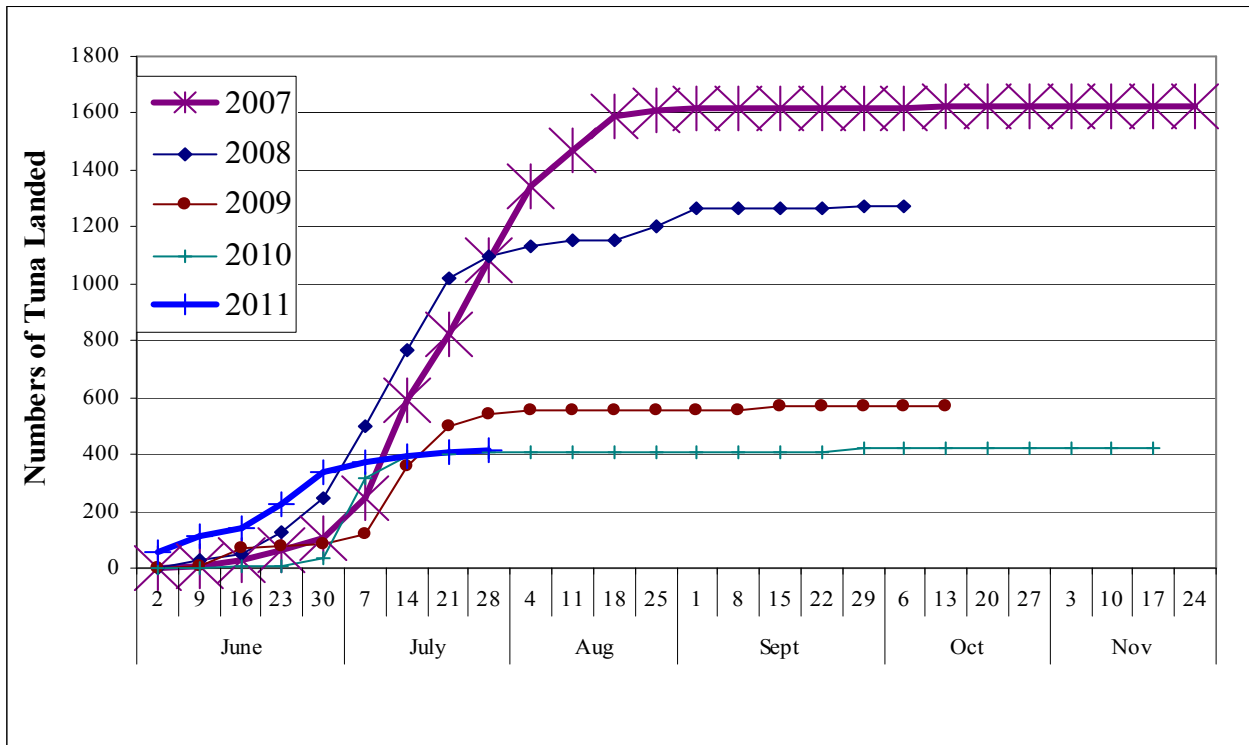


Figure 8. Cumulative recreational bluefin tuna landings by month and week from Ocean City, Maryland, from 2007 to 2011, n = 4,311. Data were reported through the Maryland ABT/Billfish Catch Card and Tagging Program.

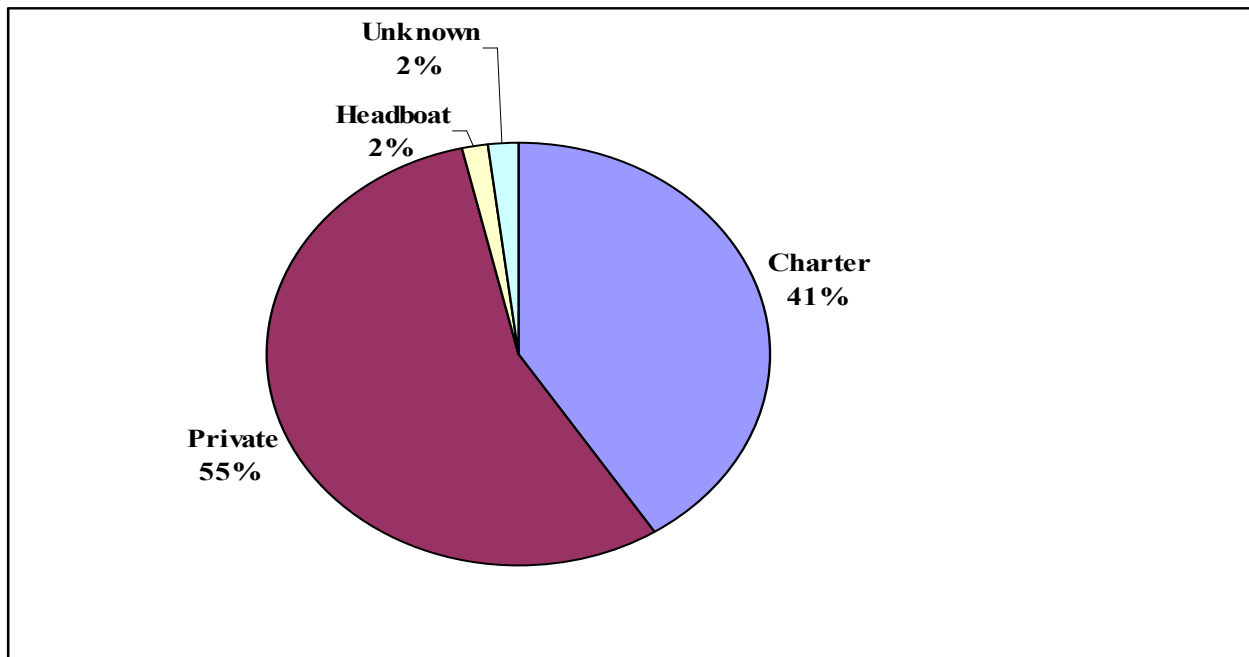


Figure 9. 2011 Maryland recreational Atlantic bluefin tuna landings by boat type (n= 430). Data were reported through the Maryland ABT/Billfish Catch Card and Tagging Program

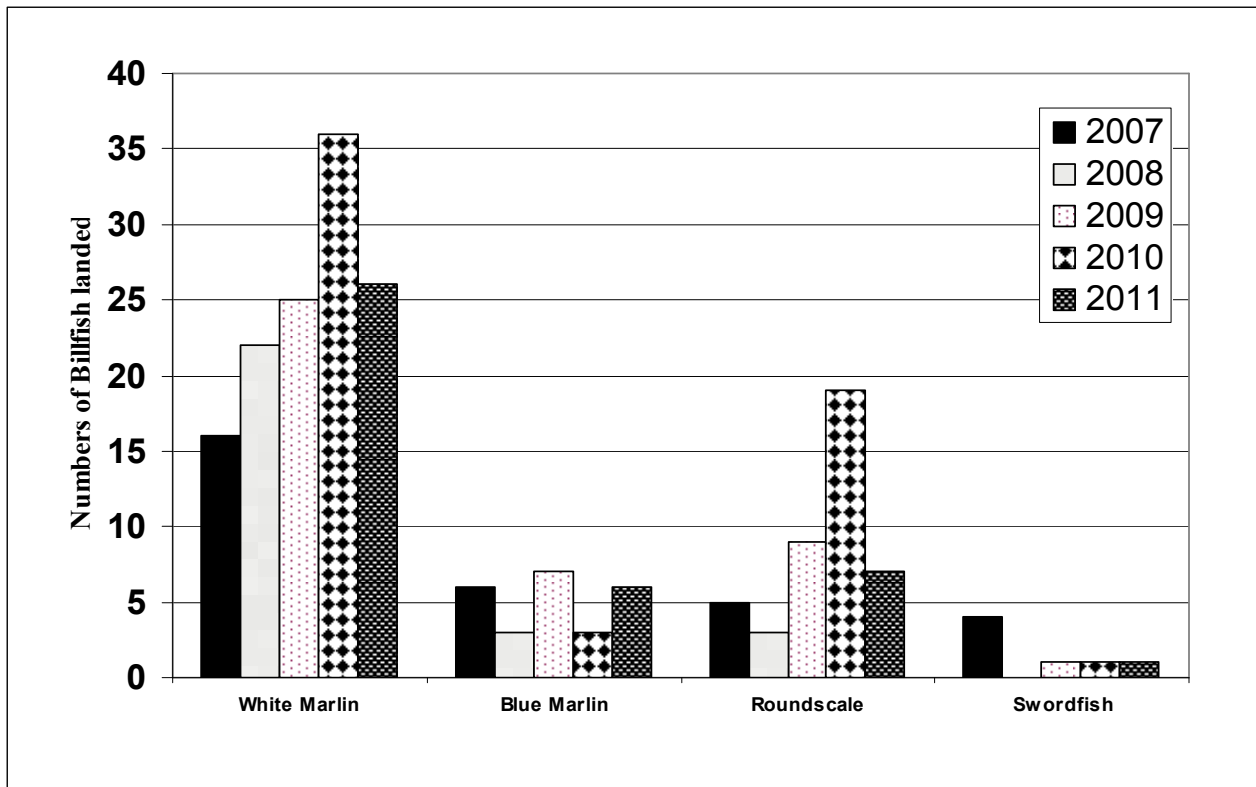


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