

MID-ATLANTIC
\$500,000

Tournament Data and Billfish Management

Summer 2013

Starting with the first Mid-Atlantic \$500,000 in 1992, my colleagues and I have been taking advantage of the fish brought to the weigh stations in Cape May, NJ and Ocean City, MD to collect billfish and tuna samples for a variety of research projects on these incredible fish. With very few billfish being landed along the east coast of the United States, there are not many opportunities to get samples, and having a 20+ year time series of samples from the same area during the same week each year is a real asset. Through the Mid-Atlantic \$500,000 we also have had the pleasure of meeting many of you and the opportunity to discuss fishing as well as our research. In several cases those casual conversations have developed into opportunities for me and my students to get offshore to deploy satellite tags and to collect small tissue samples from marlin that are released alive. Many thanks for all of your support!

As in years past, I'd like to take this opportunity to provide you with a very brief overview of some of our billfish and tuna research projects, as well as a summary of the Mid-Atlantic \$500,000 tournament statistics.

Back in the lab at the Virginia Institute of Marine Science we are working on several projects including a genetic investigation of the population structure of roundscale spearfish, comparing robust samples collections from the U.S. mid-Atlantic and equatorial waters off Brazil. We are also using genetic techniques, as well as the analysis of organochlorine pollutants, to investigate the population structure and movements of Atlantic bluefin tuna. Student projects include tracking seasonal movements of white marlin as they leave the mid-Atlantic region in early fall (see "Exit Strategies" on the back page), physiological stress and post-release mortality of white marlin, the use of pop-up satellite archival tags to estimate post-release survival of school size bluefin tuna caught in the recreational troll fishery, and a comparative study of the efficiency of a new fish bycatch reduction device in the Gulf of Mexico shrimp trawl fishery.

If you would like to know more about any of our research projects, domestic or international management of billfish, or graduate education in marine science, please drop by to talk. I'll be down at the Canyon Club weigh station in the early evenings and under the tent after that and my colleague Dr. Jan McDowell will be at the Ocean City weigh station. We'd love to meet you.

Tight lines,



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Drs. Jan McDowell and John Graves

Mid-Atlantic \$500,000



Winning Fish

		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
White Marlin	1st	86	69	69	69	77	89	74	78	68	
	2nd	83	68	65	68	69	76	71	67	61	
	3rd	76	61	65	64	66	72	68	63	---	
Blue Marlin	1st	466	615	586	746	455	748	534	522	566	
	2nd	384	488	542	660	410	493	468	480	476	
	3rd	359	435	522	519	407	448	412	464	---	
Tuna	1st	109	254	242	205	153	120	221	204	172	
	2nd	102	218	213	166	142	103	181	185	153	
	3rd	95	200	139	108	126	99	105	185	141	
Dolphin	1st	36	42	53	33	34	33	33	43	39	
Wahoo	1st	44	67	73	47	79	69	38	72	86	

Billfish

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
White Marlin										
Boated	15	20	23	16	18	13	10	14	3	
Released	84	136	174	177	153	124	231	432	58	
% Released	85%	87%	88%	92%	89%	91%	96%	97%	95%	
Blue Marlin										
Boated	9	7	11	14	7	15	8	10	2	
Released	3	8	13	16	11	26	17	29	32	
% Released	25%	53%	54%	53%	61%	63%	68%	74%	94%	

Catch Per Unit

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
White Marlin										
# Fish Caught	99	156	197	193	171	137	241	446	62	
# Boats x # Days	393	408	426	417	435	381	393	411	399	
CPUE (fish/boat-day)	0.25	0.38	0.46	0.46	0.39	0.34	0.61	1.09	0.15	
Blue Marlin										
# Fish Caught	12	15	24	30	18	41	25	39	34	
# Boats x # Days	393	408	426	417	435	381	393	411	399	
CPUE (fish/boat-day)	0.03	0.04	0.06	0.07	0.04	0.11	0.06	0.09	0.09	
Marlin/Boat-Day	0.28	0.42	0.52	0.53	0.43	0.45	0.67	1.18	0.24	

00 — Facts & Figures

(weight in lbs.)

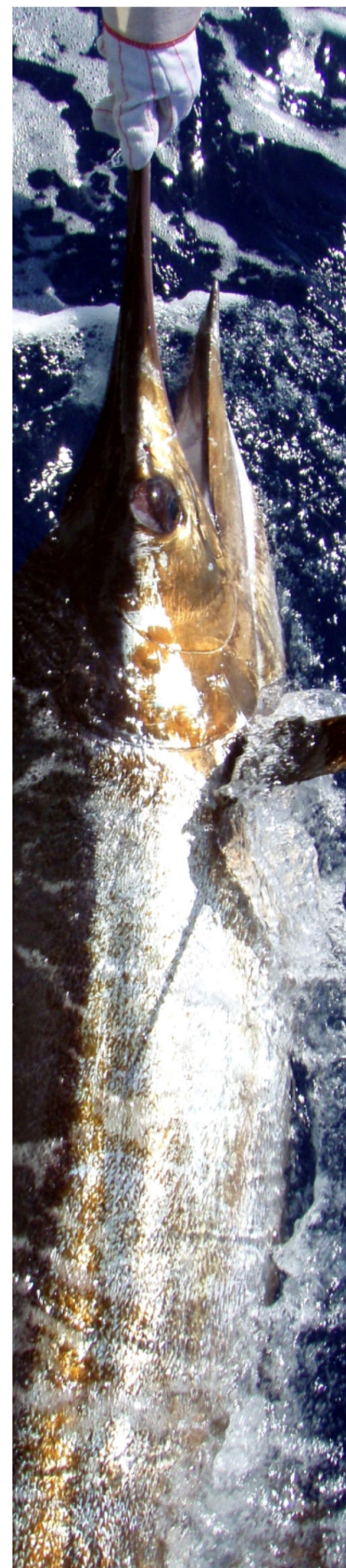
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
69	75	91	75	75	88	92	92	95	88	82	79
63	61	79	74	68	79	77	88	78	88	76	78
63	60	79	71	67	77	69	79	78	82	75	75
578	558	433	518	699	722	536	719	453	---	565	416
421	---	---	---	525	641	524	625	---	---	498	---
---	---	---	---	418	469	414	501	---	---	494	---
114	147	82	182	193	184	212	80	69	177	148	233
114	136	72	150	78	123	172	78	69	105	71	224
112	81	61	132	60	118	168	77	67	84	63	217
29	34	43	44	47	44	39	43	37	56	53	43
76	75	95	58.5	74	93	77	74	97	49	50	42

Releases

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
10	10	13	14	14	18	23	31	28	31	21	16
220	182	144	313	244	444	274	423	322	526	442	444
96%	95%	92%	96%	95%	96%	92%	93%	92%	94%	95%	97%
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
3	3	4	3	5	6	3	3	2	2	5	3
10	18	15	22	25	19	23	11	14	11	17	37
77%	86%	79%	88%	84%	76%	88%	79%	88%	85%	77%	93%

Effort (CPUE)

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
203	192	157	327	258	462	297	454	350	557	463	460
378	393	384	429	507	528	462	423	408	402	287	354
0.61	0.49	0.41	0.76	0.51	0.87	0.64	1.07	0.86	1.39	1.61	1.30
2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
13	21	19	25	31	25	26	14	16	13	22	40
378	393	384	429	507	528	462	423	408	402	287	354
0.03	0.05	0.05	0.06	0.06	0.05	0.06	0.03	0.04	0.03	0.08	0.11
0.64	0.54	0.46	0.82	0.57	0.92	0.70	1.10	0.90	1.42	1.69	1.41



Exit Strategies

Each fall literally thousands of white marlin are released in the mid-Atlantic region. Starting in mid-August and continuing well into September, catch rates increase dramatically. Double digit releases are not uncommon, and in some years a few boats have released more than 40 white marlin in a day. Then, in a matter of days, the white marlin are gone. Where do they go?

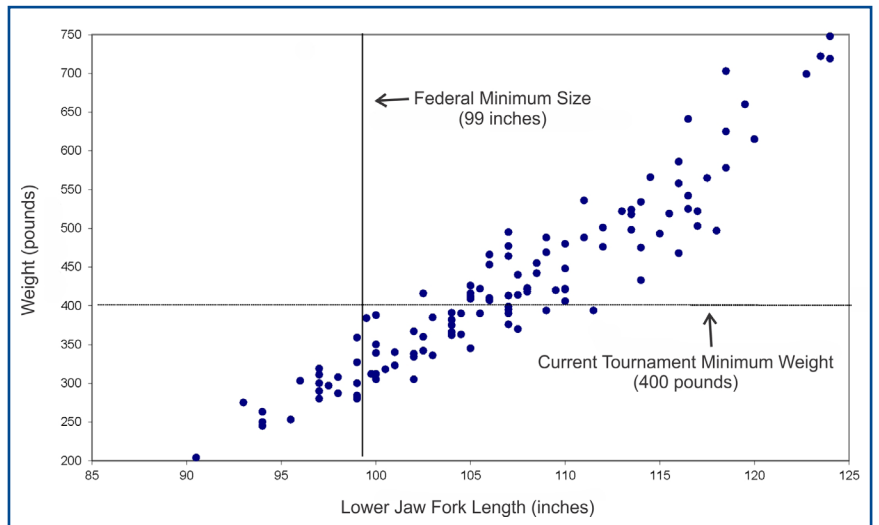
VIMS graduate students Emily Loose and Lela Schlenker are studying different aspects of white marlin biology, but both studies involve the use of satellite tags. The data from those tags have provided some interesting insights into the movement of mid-Atlantic white marlin.

Emily's project has used relatively long term satellite tags, with pop-ups scheduled for six months or one year. What Emily has found is that no two fish are alike. Some overwinter going due east, others move into the Caribbean, and some go even further south. One white marlin tagged off Cape May, NJ in 2011 traveled all the way to northern Brazil to overwinter and then came all the way back up to the mid-Atlantic by the summer of 2012— A minimum straight line distance of 5,000 miles!

Lela's satellite tags are programmed to release after 30 days as she is studying physiological stress and post-release survival. She didn't receive her tags from the manufacturer until late August last year, but she did manage to get blood and tissue samples as well as satellite tag nine white marlin during the month of September before the bite shut down. Apparently the fish were not terribly impacted by the fight and subsequent physiological sampling on deck. Many of the tags popped up in the Caribbean after 30 days -- that's a bit of a swim from waters off Virginia!

Together, Emily's and Lela's data sets show that there is a lot of individual variation among white marlin in terms of where they go. However, what is clear is that regardless of destination, they all leave local waters within a very short time frame. And the distances that many travel really reinforce the concept that they are highly migratory species.

Blue Marlin Length-Weight Relationships (1992-2012)



There is a good relationship between length and weight for blue marlin. Fish need to be about 5 inches over the federal minimum size of 99 inches lower jaw fork length (LJFL) in order to meet the tournament minimum weight of 400 pounds. It's a different story for white marlin. The federal minimum size is 66 inches LJFL, but white marlin landed at the Mid-Atlantic \$500,000 with a LJFL of 67 inches have weighed anywhere from 51 to 74 pounds! The best way to tell if a legal white marlin will make the tournament minimum weight is to see if it "carries the weight" all the way to the tail. *Long, thin fish won't make weight!*

White Marlin Length-Weight Relationships (1992-2012)

