

Cooperative Science Services, LLC Dolphinfish Research Program

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Examining the 2007 Tag Recoveries

Reported tag recoveries were at an all time high in 2007 with 72 such reports. As reported in last month's newsletter, tag recoveries are the testimony to dedicated tagging. Anglers off Florida tagged 74% of the fish that were recovered, but it was Florida anglers who recovered 59% of the tagged dolphin reported. South Carolina anglers tagged 17% of the fish recovered (zones 5 and 6) while recovering only 3% of the recovered tags (zone 6). North Carolina anglers reported recovering 27% of the tags recovered, but none of the 24 dolphin tagged (0.9% of total fish tagged) off their coast were recovered. Table 1 on page 2 shows the dispersal pattern of dolphinfish from each zone via the recoveries of tagged fish.

Reference guide to Dolphin Tagging Study zones.

Zone	Area	Southern Limit	Northern Limit
1	Bahamas	21° N	28° N
2	Florida Straits/Keys	23° N	25° N
3	South Florida	25° N	27° N
4	Central Florida	27° N	30° N
5	Northern FL - Southern SC	30° N	32° N
6	South Carolina	32° N	33° N
7	Northern SC - Southern NC	33° N	35° N
8	Northern North Carolina	35° N	36.5° N
9	Virginia	36.5° N	38° N
10	Northern Mid-Atlantic	38° N	42° N
11	Gulf of Mexico	21° N	30° N
12	Western Central Atlantic	0°	22° N
13	Caribbean Sea	10° N	21° N

Not all of the recoveries were fish marked in 2007 nor were all recoveries functional. Two reports involved fish tagged in previous years, 2005 and 2006, while four recoveries did not have their tagging report card turned in. This left 66 tagged dolphin recoveries for use in the 2007 recovery analysis that follows.

Fast-paced travel remained a landmark of the dolphin movements in 2007. Nine tagged fish recaptures (14% of the recoveries) exhibited average daily travel rates of 50 miles or more. The fastest travel was a fish that moved from Marathon, Florida, to Ft. Pierce, Florida, in 4 days for a rate of 84 miles per day, which is well below the record of 130 miles per day. At the rate of 50 miles per day a dolphin could transit the entire length of Federal waters in the South and Mid-Atlantic Bight (normal East Coast Range), roughly 1,600 miles, in just 32 days. Even at the rate of 20 miles per day, the fish would be under U.S. jurisdiction for less than 3 months.

Traveling 500 miles is a long distance even with today's conveniences, but it is more daunting when it is traveled by a fish. Twelve of the tagged dolphin recovered in 2007 had traveled 500 miles or more. This represents 18% of the 2007 tag recoveries. Most of these movements involved fish tagged off south Florida and the Florida Keys, but two recoveries involved fish released in the Bahamas and off South Carolina. The longest distance between the release site and the recovery point was for a fish tagged off Marathon, Florida, and recovered 855 miles north off Oregon Inlet, North Carolina.

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Recoveries of fish in the same zone where originally tagged, in-zone recaptures, accounted for 33% of all recaptures in 2007. The highest in-zone recovery rate occurred in the Bahamas where 4 of the 6 recaptures were in-zone. Zone 2, the Florida Keys, had the largest number of in-zone recoveries where 11 tagged fish (31%) of the dolphin tagged in the zone that were recovered. In-zone recoveries off south Florida, zone 3, while fewer (7 recoveries) than off the Keys, accounted for a higher percentage, 41%, of the zone's recovered fish. Zone 6 was the only other zone having an in-zone recovery: 1 fish, which represented 10% of the zone's tag recoveries.

In-zone recoveries of tagged fish had an overall average liberty of 5.4 days during which they moved 31 miles. These local recoveries in the Bahamas and south Florida had the longest average liberties, 9 and 9.7 days respectively. South Florida in-zone recoveries averaged moving the most before recapture, traveling 49 miles. Fish tagged and recovered off the Florida Keys exhibited the fastest rate of travel, moving 24 miles during their average 1.5 days of liberty.

Tagged fish recoveries are typically evaluated by time (freedom period) and space (distance moved away from release site). Table 2 examines the 2007 recaptures, grouping recaptures into four categories based on the length of the time at liberty. Examining the table, you quickly realize there are wide variations among fish from the different zones within any period of freedom, but the overall average for the periods shows a general trend of increasing distance traveled and length of liberty.

Table 1. Distribution of tag recoveries by area where fished was tagged. Number of fish tagged by zone shown in parentheses.

Zone Tagged	Zone Recaptured													
	1	2	3	4	5	6	7	8	9	10	GOM	WCA	Carib	Total
1 (352)	4	0	0	0	1	0	1	0	0	0	0	0	0	6
2 (807)	1	11	13	5	0	1	3	1	0	0	0	0	0	35
3 (572)	0	1	7	4	1	0	4	0	0	0	0	0	0	17
4 (60)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5 (83)	0	0	0	0	0	0	1	1	0	0	0	0	0	2
6 (416)	0	0	0	0	0	1	7	1	0	1	0	0	0	10
7 (18)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8 (6)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9 (15)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10 (0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GOM (6)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WC Atlantic (0)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Caribbean (139)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	12	20	9	2	2	16	3	0	1	0	0	0	70

Table 2. Average times at liberty and distances moved for selected periods of freedom by zones. Percent of total recoveries falling into the liberty period shown in parentheses.

Zone Tagged	2007 Recapture Statistics for Various Liberty periods (Liberty = ave.days, Distance=ave.miles)														
	0 Days (4.5%)			1 to 7 Days (48.5%)			8 to 14 Days (12.1%)			15 to 30 Days (13.6%)			31 Plus Days (21.2%)		
	No.	Librty	Dist.	No.	Librty	Dist.	No.	Librty	Dist.	No.	Librty	Dist.	NO.	Librty	Dist.
1	2	0	0.3	0			1	14	49.9	1	22	56.8	2	54.5	699
2	1	0	10.6	25	3.2	112	1	9	77.8	1	23	855	6	48.3	551
3	0			4	1.3	45	4	9.8	48	2	19.5	662	6	73.2	262
4	0			0			0			0			0		
5	0			1	6	309	0			1	29	297	0		
6	0			2	3	50	2	11.5	282	4	19.25	332	0		
Average	3	0	3.6	32	3	106	8	10.6	111	9	21.1	429	14	59.9	454

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Being the aggressive feeders that dolphinfish are, it is surprising that less than 5% of the recoveries occurred the same day the fish were originally released. Almost half of the recaptures occurred between 1 and 7 days following release. The quick recovery of tagged fish was most prominent for fish tagged off the Florida Keys where 71% of the zone's fish that were recovered took place within one week. This high level is likely the result of the extraordinarily heavy fishing pressure that takes place off south Florida.

Roughly 12% of all recoveries were made during the fish's second week of liberty. Fish originally tagged in zone 3, south Florida, accounted for half these recaptures and composed 24% of the zone's recovered fish. Two fish tagged in zone 6 and at liberty for an average of 11.5 days exhibited the longest average movements of 282 miles.

Tag recoveries with liberties from 15 to 30 days made up 14% of the total recoveries, with fish tagged off South Carolina contributing 44% of the recoveries. This category of recoveries had an average liberty of 21 days during which they moved an average of 429 miles, giving them a movement rate of more than 20 miles per day. All but one of these recoveries occurred off North Carolina or in the Mid-Atlantic Bight.

Tagged fish recovered after being at liberty a month or more was the second largest group, involving 21% of the total tag recoveries. This group did not show such clear northward movements as the 15 to 30 day recoveries, with 38% of these recaptures occurring off Florida. The recovery site of the fish recaptured off Florida average 89 miles from the fish's release site, with the fish being at liberty an average of 78.5 days. The fish recovered off other states had moved an average of 728 miles during an average liberty of 45.9 days.

The stark difference in the movements of the six long-term recoveries off Florida suggests a difference in their movements over those fish moving up the East Coast. Three recoveries of dolphin tagged off the Keys and south Florida in June and July exemplified this different behavior. These fish were at liberty for 98 to 139 days but were recovered only 5 to 115 miles away from their release site. It is very doubtful these fish could have avoided a baited hook for this length of time had they remained in the Florida Straits/south Florida basin. These recoveries suggest that these fish could well have been making a second pass up the Florida coast for the year. Such a rapid return would indicate that they had made an abbreviated movement around or through the Bahamas before returning to the Florida Straits. Such behavior could offer anglers more incentive to let small fish go if there is a chance that they could see the same fish again later in the year.

An additional piece of the dolphin movement puzzle was added this year involving that famous Bahamas'

fishing area, the Tongue of the Ocean, on the east side of Andros Island, Bahamas. Two fish tagged in this area were recovered 51 and 58 days after release. The first was found off Brunswick, Georgia, and the second from Cape Hatteras, North Carolina. These are the first links between dolphin found in the Tongue of the Ocean and those present off the U.S. East Coast.

Finally, the first link between dolphin off South Carolina and those found off Florida was realized in 2007. However, you might say that it was not a clean tie between the areas. A tag placed in a school dolphin off Marathon, Florida, was removed from the stomach of a dolphin caught off Georgetown, South Carolina. It is surprising that a dolphin tagged in Florida has not yet been recovered off South Carolina.

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Donations Support Dolphinfish Research

I wish to thank all of the individuals, clubs, organizations and businesses that provided financial support last year to keep this private research endeavor moving forward. The numerous outstanding achievements of the 2007 program clearly speak to the quality of the project and the high level of public support that it receives. I ask that you again consider making a financial contribution to this research program in 2008.

Donations are fully tax deductible. Checks should be made out to HH Reef Foundation/Dolphin Study and sent to the address below.

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