

Cooperative Science Services, LLC Dolphinfish Research Program

Made possible by a grant from the Guy Harvey Ocean Foundation
May 2017



Miami to Dominican Republic, the Connection

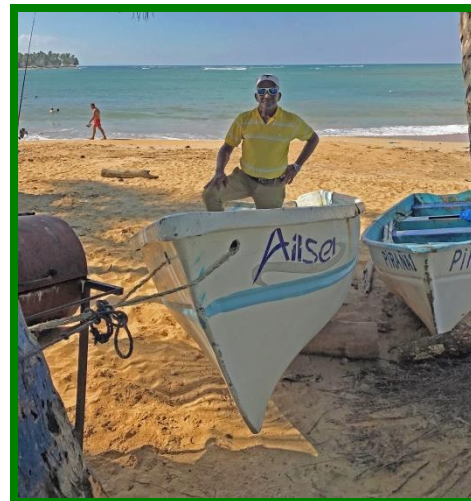
I just love the time from December through April, the period when the really exciting tag recoveries normally come in from the Caribbean and other faraway places. Some of these reports can start out confusing, largely because of a language barrier. I am quite deficient in language skills, which the international research that I am engaged in has exposed. Just such confusion was encountered in the initial contact with a fisherman in the Dominican Republic. But because of his desire to learn the story behind the tagged dolphin that he had caught, we were able to document another amazing movement.

The story begins on July 7, 2016, off the coast of Miami, Florida. Capt. Jimbo Thomas and his brother Rick had a group out for a day of fishing aboard their charter boat *Thomas Flyer*, and, as they usually did, they tagged two small fish that were estimated to be 18 inches in fork length (FL). The Thomas brothers average tagging 200 dolphin each year for this study, but in 2016 they were only able to tag 41 fish because of the scarcity of small fish.

Released during the middle of the East Coast's offshore fishing season, this young bull dolphin was able to avoid the thousands of hooks offered by fishermen baited with enticing morsels as it moved northward along the U.S. east coast. In addition to dodging fishermen's hooks, it was also successful in out-maneuvering the many predators living in the ocean that would have liked to have had it for

lunch. For a dolphinfish, it is a never-ending life of avoiding things that would eat it.

The fish's travels came to an end on February 15, 2017, 223 days after being tagged. Capt. Pedro Padilla Anderson recaptured the bull dolphin roughly 12 miles offshore of Las Terrenas, Samana, Dominican Republic. As an artisanal fisherman, Capt. Padilla fishes from a small open boat without the electronic conveniences that U.S. anglers have come to rely on as basic necessities. The fishing skills and seamanship of these fishermen are truly amazing.



Pedro Padilla Anderson is shown in the commercial fishing vessel he operates out of Las Terrenas on the northeast coast of the Dominican Republic.

So the fish started out off Miami, Florida, and wound up off northeastern Dominican Republic, but what route did it travel to get to the Caribbean Island? The documented movement of a dolphin tracked in 2014, using a satellite tag, reveals the most likely route that this fish traveled. During the six months that the fish carried the satellite tag, it was shown to circumnavigate the Sargasso Sea, traveling more than 8,400 miles during its liberty. The last known position for this fish was just 100 miles east of where the *Thomas Flyer's* dolphin was recovered.

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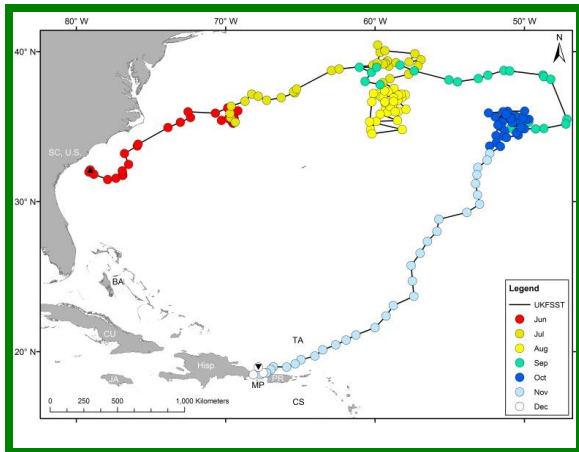
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This would suggest that the *Thomas Flyer's* fish traveled up the U.S. eastern seaboard before turning east and possible traveling as far as 45 degrees west longitude,



A dolphin was tracked for six months in 2014 using a satellite tag. It traveled from Charleston, South Carolina, to the Mona Passage off the west end of Puerto Rico, circumnavigating the Sargasso Sea. Figure by W. Merten.

before turning south toward the Caribbean. While this fish may not have traveled the 8,000 miles of the satellite tag fish, it most likely swam a route of at least 4,000 miles. You must realize, that like monarch butterflies that migrate each winter to Mexico, this fish had never traveled this route before. But looking at the position of its recapture in the Old Bahamas Chanel, it is not a far reach to say that it would have eventually returned to the U.S. east coast, had it not been recaptured. It lacked only 850 miles from making the complete loop. This is one of the three primary routes dolphin travel coming to U.S. Atlantic coast.



The quality of the photo may not be the best, but it clearly validates the impressive growth reported for this fish during its seven months of liberty. Tagged when it was roughly 2.3 pounds, it had grown to 44 pounds when it was recaptured. The tag can be seen in the red circle. Photo by P. Anderson.

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There is another very impressive fact about this particular recapture: the fish's growth. Remember that it was at liberty for 223 days, almost 32 weeks. It started out as roughly a 2.3-pound schoolie and wound up as an impressive 44-pound bruiser of a bull. That is a growth of roughly 41.5 pounds, which translates to the fish gaining an average of 1.3 pounds each week. With a growth rate like this you would think that more anglers would want to release more of their small fish so that everyone could enjoy catching more large fish.

There are four major points to note about this tag recovery. First is the amazing long distance that this fish likely traveled. In covering this distance, it demonstrates that the stock is shared with other nations. It proved that the species has a remarkable growth rate and finally, that when released as small fish, they will return for a second pass along their migration route.

The Gulf Loop Current's New Behavior

A new phenomenon has been observed in the Gulf of Mexico's primary current, the Loop Current. This current originates from the Caribbean Current in the Yucatan Strait, meandering its way up into the Gulf before dipping downward to exit through the Straits of Florida, where it becomes the Florida Current and the foundation for the Gulf Stream. This current is the primary transporter of dolphinfish from the Caribbean into the Gulf of Mexico and ultimately into the Straits of Florida, where they enter the Atlantic Ocean beginning their trek up the U.S. east coast.

The position of this current has been shown to be a major player in the quality of the fishing found in the northern Gulf. When the current pushes northward to the oil rigs off the Louisiana coast, the result is great fishing for large yellowfin tuna and blue marlin. Now with the current roughly 180 nautical miles south of its most northern position in 2013, there is serious concern about what the fishing will be like this year in the northern Gulf.

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The recent southerly shift in the position of the Loop Current (red line) could carry significant negative consequences for the fishermen in the northern Gulf. Without this current carrying bait into the northern areas, there is a good possibility the tunas, marlin and dolphin could be very scarce.

The next question would be, what does the shift mean for the U.S. east coast? If you look at the flow pattern as spending less time in the Gulf before entering the Straits of Florida, it could be a good thing. This would allow less time and distance for dolphinfish riding the current to move out of the main flow or get caught up in a spinoff current. This would allow the fish to enter the Straits of Florida more quickly.

Mitch Roffer, a well-known oceanographer, has reported that there has also been a slowdown in the flow rate of the Loop Current which could account for its southerly position. This may not bode well for the Atlantic Coast fishermen, because low flow could result in fewer fish being transported into the Straits of Florida and up the East Coast. A similar reduction in flow could occur in all the major North Atlantic currents. Dr. Roffer also reports that the waters in the Loop Current and the Gulf of Mexico are warmer than last year, which could allow earlier movement of the migratory fish.

After last year's scarcity of young-of-the-year fish and now this unusual shift in the Loop Current, the 2017 dolphin fishing season is going to be really interesting for science.

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