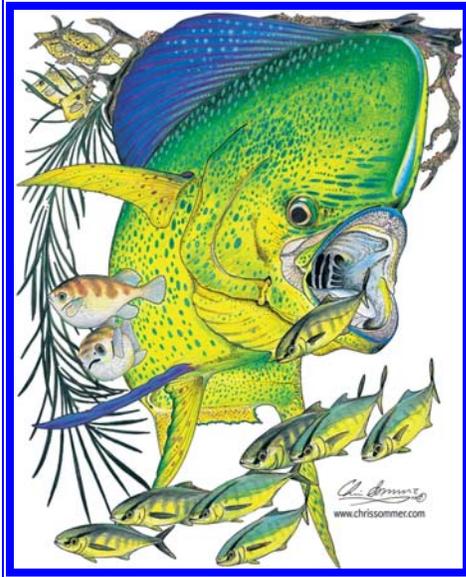


Cooperative Science Services, LLC Dolphinfish Research Program

Made possible by a grant from Costa Del Mar

February 2011



Dolphin and the Deep Blue

One of the first facets of dolphin life revealed by the use of pop-off satellite tags was their use of the water column. The depths to which dolphin dive and the time spent at these depths came as a surprise to most fishermen and researchers alike.

Earlier applications of satellite tags to dolphin have shown the fish will dive as deep as 400 feet and use deeper parts of the water column more during the night. However, depth readings showed dolphin to occupy the top 10 meters of the water column (surface layer) in 53 to 86 percent of the observations, indicating they still spent the majority of their time at the surface.

Thanks to the efforts and financial support of the **Central Florida Offshore Anglers** of Orlando, Florida, the **Florida Sport Fishing Association** out of Cocoa Beach, Florida, and the **Sebastian Inlet Sportfishing Association** of Melbourne, Florida, a new behavior pattern has been revealed. Terry Winn of Osteen, Florida, spearheaded the effort to get the clubs to provide funds to purchase two satellite tags and coordinated a joint event where members from the three clubs worked together to help catch the study animals in April 2010 off Ft. Pierce, Florida.

Two satellite tags were ultimately deployed in 2010, one about 15 miles off Ft. Pierce in 100 feet of water during April and the other off Melbourne, Florida in May on the eastern wall of the Gulf Stream in more than 2,000 feet of water. The Ft. Pierce fish (tag 72880) was monitored for two and one-half days before the instrument separated from the fish. It is unknown whether a sharp-tooth predator cut the monofilament attachment as it consumed the fish or if the attachment

was pulled out of the fish by a curious/hungry animal. The fish off Melbourne (tag 36307) was monitored for five days before the tag along with at least part of the fish settled to the bottom in 2,500 feet of water. The fish either died or was partially eaten by a predator, with the portion of the animal possessing the tag, allowed to settle to the bottom.



Miniaturized X model pop-off satellite archival tags were used to track two dolphinfish off Florida in 2010.

Data collected from tracking these fish, although short, revealed another side of the species never documented. The number of records showing the fish at a specific depth was used as a relative index for time spent at that specific depth. These fish exhibited a far more extensive use of waters well below the surface than fish previously tracked, setting new depth records as they swam to levels of more than 800 feet beneath the surface.

The fish tagged off Ft. Pierce cared little for the water's surface, utilizing the surface layer, waters down

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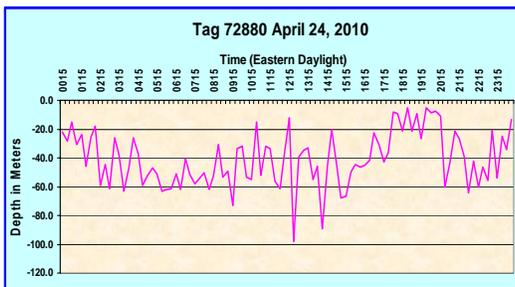
Dolphinfish Research Newsletter

February 2011

Page 2.

to 10 meters (33 feet), less than 22 percent of the overall time. This fish was never observed at the actual surface, preferring to swim at an average depth of 16 feet while in the surface layer. The closest it ever ventured to the surface was a depth of four feet, which it did on only ten occasions. It did use the surface layer more frequently during the day, 28 percent of the daylight recordings, than during the night, when only 11 percent of the records indicated shallow water.

This is the first dolphin monitored with a PSAT that was never observed at the water's surface. This may simply be because so few fish have been monitored and may actually show a normal/common behavior among dolphinfish. However, I cannot help but wonder if this behavior was somehow influenced by the presence of the PSAT the fish was carrying.

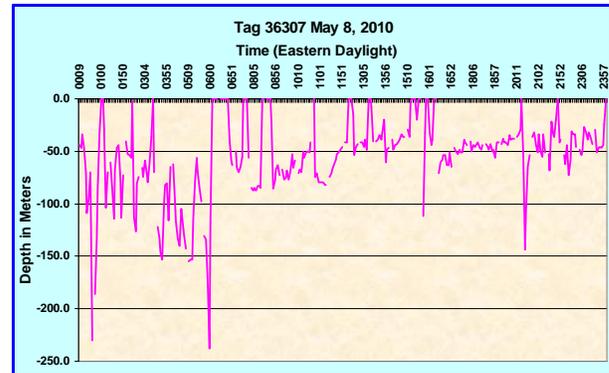


Vertical movements recorded for a dolphin released off Ft. Pierce, Florida. Note that the fish was never documented at the actual surface and only briefly came within 30 feet of the surface during the evening hours.

The dolphin tagged in May off Melbourne visit the surface every day during monitoring. It was observed to spend 43 percent of the total time in the surface layer with frequent visits to the surface. This is more typical of behavior of other dolphin that have been similarly tracked but is still on the low side for surface-water usage observed for the species. This fish utilized the surface layer more frequently during the daylight period, 63 percent of the readings, than at night, 13 percent of the time. While in the surface layer, this fish remained closer to the surface than the Ft. Pierce fish, swimming at an average depth of less than two feet.

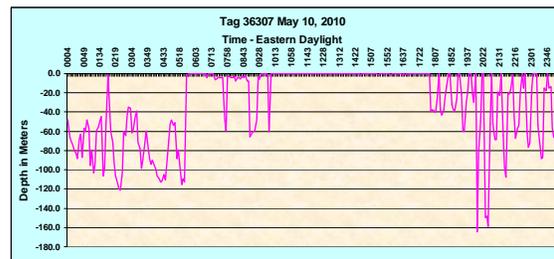
Depth readings indicated that both fish spent far more time at depths below 164 feet (50 meters) than any dolphin previously monitored for more than 24 hours. (Two fish tracked off Canaveral, Florida, in 2008 and monitored for less than 24 hours before being eaten by a predators were observed to occupy depths at or below 164 feet [30 meters] on 20 and 28 percent of their depth readings.) The fish released off Ft. Pierce spent 14 percent of the daylight period and 20 percent of the night at these depths. The fish tracked on the eastern side of the Gulf Stream off Melbourne spent 17 percent of the

day and an amazing 39 percent of the night at these depths.



The dolphin tagged off Melbourne, Florida, in more than 2,000 feet of water utilized more of the vertical water column than any other dolphinfish tracked so far. This track shows the dolphin spent more time below 50 meters (164 feet) than in the surface layer and on two occasions reached depths below 750 feet.

Deep diving behavior was not uniform from day to day. While the fish off Melbourne made the most and deepest dives, it also spent the longest periods at the surface. On May 10, 2010 this fish that seemed to love the depths remained at the surface for more than seven hours, which is an exceptionally long period without dives to at least moderate depths. At the end of this surface-lounging period, the fish immediately returned to a pattern of repeated dives that progressively became deeper as if it were searching for something, maybe baitfish.



The dolphin off Melbourne used the deep layers more during the night than in the daylight.

While these two fish have revealed a new behavior pattern through satellite tag monitoring, the species' use of deep ocean levels should not come as a surprise. Dolphin, like tuna, do not possess an air bladder, which allows them to move rapidly from great depths to the surface without the problems that grouper and snapper suffer. When you recognize that these fish spend their whole life in waters of 100 to several thousand feet deep, it would be naive to think that they would limit their movements to just the waters closest the surface.

The Dolphinfish Research Program needs your financial support. No federal funds support this important research. This program exists because of private donations.

Dolphinfish Research Newsletter

February 2011

Page 3.

Costa Del Mar Joins Dolphinfish Research



I am pleased to announce that the world famous sunglass manufacturer, *Costa Del Mar* of Daytona Beach, Florida, has joined in supporting the Dolphinfish Research Program. Costa has a long history of supporting fisheries research and conservation, having sponsored tarpon and bonefish research for many years.

In addition to the primary financial grant that they are providing to the Dolphinfish Research Program, they are also offering participating anglers the opportunity to earn a pair of their popular sunglasses. In 2011 the angler and boats tagging the second-highest number of fish in the four annual award categories (private boat, charter boat, angler and boat in areas other than off Florida's east coast) will receive a pair of *Costa Del Mar* glasses.

Presentation on Dolphin in Puerto Rico

On March 3, 2011 Don Hammond will be presenting a talk on the life and behavior of dolphinfish at Club Nautico de San Juan in San Juan, Puerto Rico. The local fishing community has been invited to attend the talk to learn the amazing facts about the life of dolphinfish and facts about their movements and behavior that have been revealed in recent years.

Dolphinfish are an important part of the recreational fisheries of Puerto Rico. Gonzalo Ferrer, a past director of the San Juan Billfish Tournament who believes anglers should be informed about the fish they pursue, suggested having a presentation on dolphinfish by the Dolphinfish Research Program. Working with Ralph "Agie" Vicente, commodore of Club Nautico de San Juan, Ryan Christiansen, host of the Friday radio show "Live from Club Nautico", and Manuel Botello, owner of the boat *Missing Angel* which is the lead boat tagging dolphin in Puerto Rico, arrangements were made for the talk. Don will also be Ryan's guest on his radio show Friday March 4, 2011, starting at 6:15 p. m. local time.

While in Puerto Rico, several days will be dedicated to tagging dolphin with Manuel Botello. During these trips, a pop-off satellite archival tag will be deployed if a suitable dolphinfish can be captured. This would be the first satellite tag to be deployed on a dolphinfish off Puerto Rico.

New 2011 Financial Contributors

Leon Tomczyk, Boca Raton, FL

Capt. Bill Parker, Hilton Head, SC

Jim Rose, Shelby, NC

Tim & Michelle Heiser, Plantation, FL

Costa Del Mar, Daytona Beach, FL

Marine Ventures Foundation, Jackson Hole, WY

DRP Featured in Guy Harvey Magazine

The work of the Dolphinfish Research Program is featured in the current issue (Winter 2011) of the newly introduced **Guy Harvey Magazine**. The article prepared by Jeff Dennis, a freelance writer from Charleston, South Carolina, focuses on many of the major discoveries from the research program and its growing popularity in other areas of the world. This well-written article provides the reader a better understanding of the program and its accomplishments.

Web Site Updated

Just as the Dolphinfish Research Program is a dynamic study, so is the program's Web site:

www.Dolphintagging.com. Each year the program uncovers new pieces of information. This results in the program's Web site being in a constant state of updating.

The page on dolphin identification has been completely reworked to provide easier access to fresh color photos showing the two species of dolphin side-by-side.

Important body characteristics used to separate the two species are presented in tabular form with clear depiction in color photos where each trait is highlighted. Now you can see the important body characteristics that separate the two fish in real images. Visit the Dolphin Identification page to learn about the mysterious pompano dolphin and how it can easily be recognized.

The maps depicting movements for 36 reported tag recoveries in 2010 along with the associated table detailing the information for each recapture have been updated. These maps provide a good visual depiction of the wide dispersal East Coast fish exhibited in 2010.

The Study Results page now reflects the efforts of the anglers who participated in 2010 with the annual list of the top taggers who earned a rod and reel outfit. Also available on the Study Results page is a complete list of the 118 boats from 10 states, one territory and three foreign countries that tagged dolphin in the western North Atlantic and the number each tagged in 2010. A similar list is available for the 200 plus anglers who provided fish for tagging and the number each of them tagged. You can use these lists to see how your tagging effort compares to those of other fishermen in your area and in other areas.

Your donations to the Dolphin Study are Fully Tax-Deductible

Make checks out to:

HH Reef Foundation/Dolphin Study

Mail checks to the address below.

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