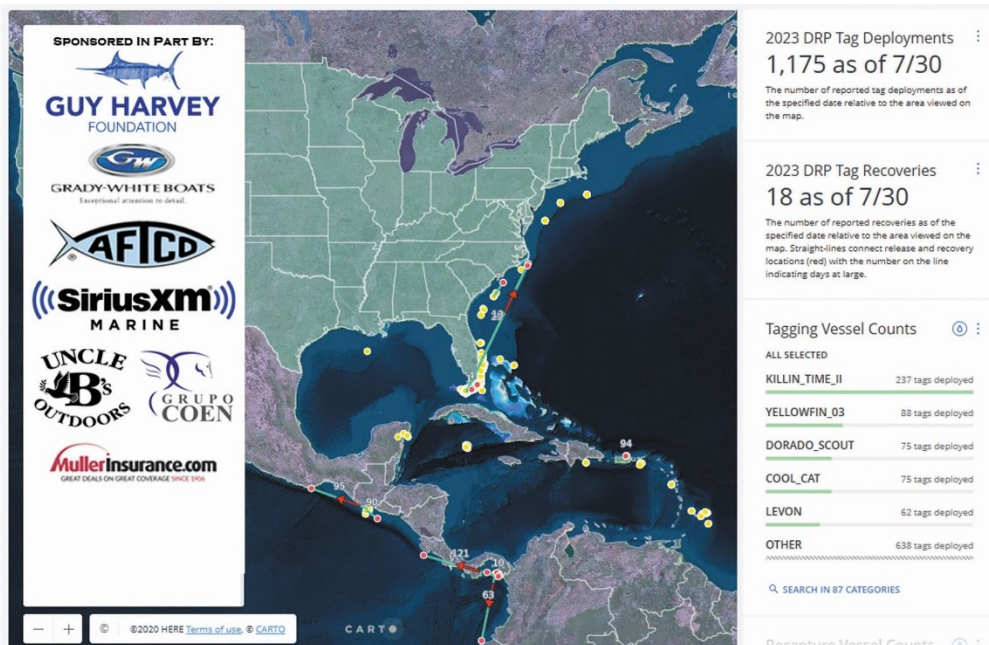


# Dolphinfish Research Program™

Made possible by a grant from the Guy Harvey Foundation

July 2023



Reported and Received Tagging Progress from 6/30/2023-7/30/2023:

Scouts Summerland Key (Scouts) 114  
Captain Ed Kattel (Cool Cat) 64  
Captain Ryan Buel (Whoa Dat) 17  
Captain Angelo Massulo (Levon) 11  
Captain Richard Lewis (Calm Chaos) 10  
Captain Tim Heiser (Irish Wake) 8  
Captain Julien Brossel (Madatet) 6  
Captain Peter Foster-Smith (No name) 5  
Captain Chris Frost (Lightning Strike) 4  
Captain Gene Drody (Day Five) 2  
Captain Tom Rice (4rs) 1  
Captain John Mulder (Sea Shark) 1

Captain Don Gates (Killin' Time II) 77  
Captain Chad Carter (Miss Caroline) 20  
Captain Dane Dellenbach (Knot Workin') 6  
Captain Dwayne Sapp (Busy Fishing) 10  
Captain Steve Berry (Reel Salty) 10  
Captain Chris Jobes (Pair of Docs) 7  
Captain Charles Brooks (Perfect Circle) 6  
Captain Willie Howard (Captain Willie's Charters) 4  
Captain Mike Peters (B Nauty) 3  
Captain Wilmer Sanchez (The Big Deal) 2  
Captain Mike Prendergast (Reel Therapy) 1  
Captain Eddie Bairez (Captain Hook) 2  
Captain Richard Lewis (Sedative) 1

**Year to 7/30/2023 for Reported Releases:**  
**1,175 tagged & released for conservation and science by 87 different vessels**

**18 Recaptures to date in 2023 17 verified**  
**7 Satellite tags deployed**  
**6 Satellite tag movements**  
**1 Acoustic tag**

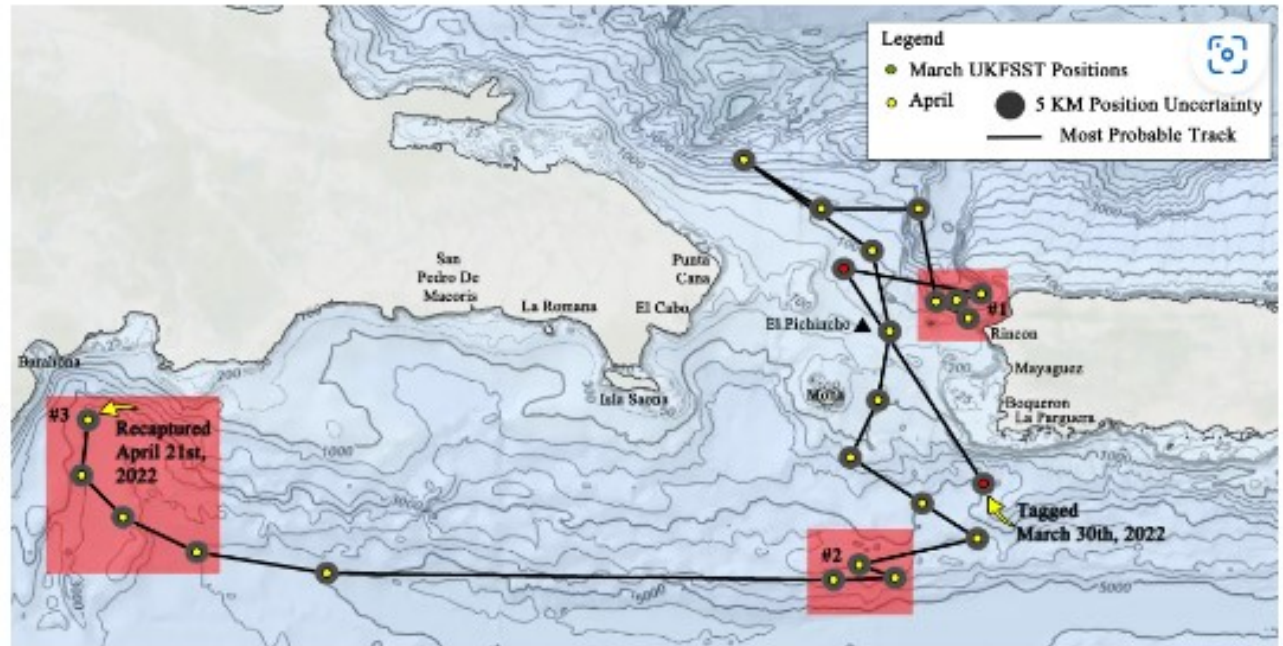
At the end of last month we had 684 tag deployments logged for the year. Since then, the dataset has nearly doubled and we stand at 1,175. The surge in participation is due in part to a nice run of small and medium size fish in the Florida Straits but also due to fish being tagged and released in the Mid-Atlantic Bight where 27 fish were tagged in July at the offshore canyons. This is the highest number of July releases for the MAB and many anglers are reporting heaps of small fish, with large ones mixed in as well. In the U.S. Caribbean, the very slow June for off of San Juan continued for the first three weeks in July followed by an uptick and more consistent daily catches of mahi. South of DR, a new small scale artisanal angler we are monitoring embarked on 8 outings since July 6th with total landings of dolphin equaling 3,478 pounds in 8 outings. This angler reports that July, and the past spring, was also slow off southern DR.

Reported Recaptures Since 6/30/2023

Douglas Robinson reported a fish tagged by Killin' Time II  
Robbie Jones reported a fish tagged by Killin' Time II

## 44" Cow Tracked in the Caribbean Sea

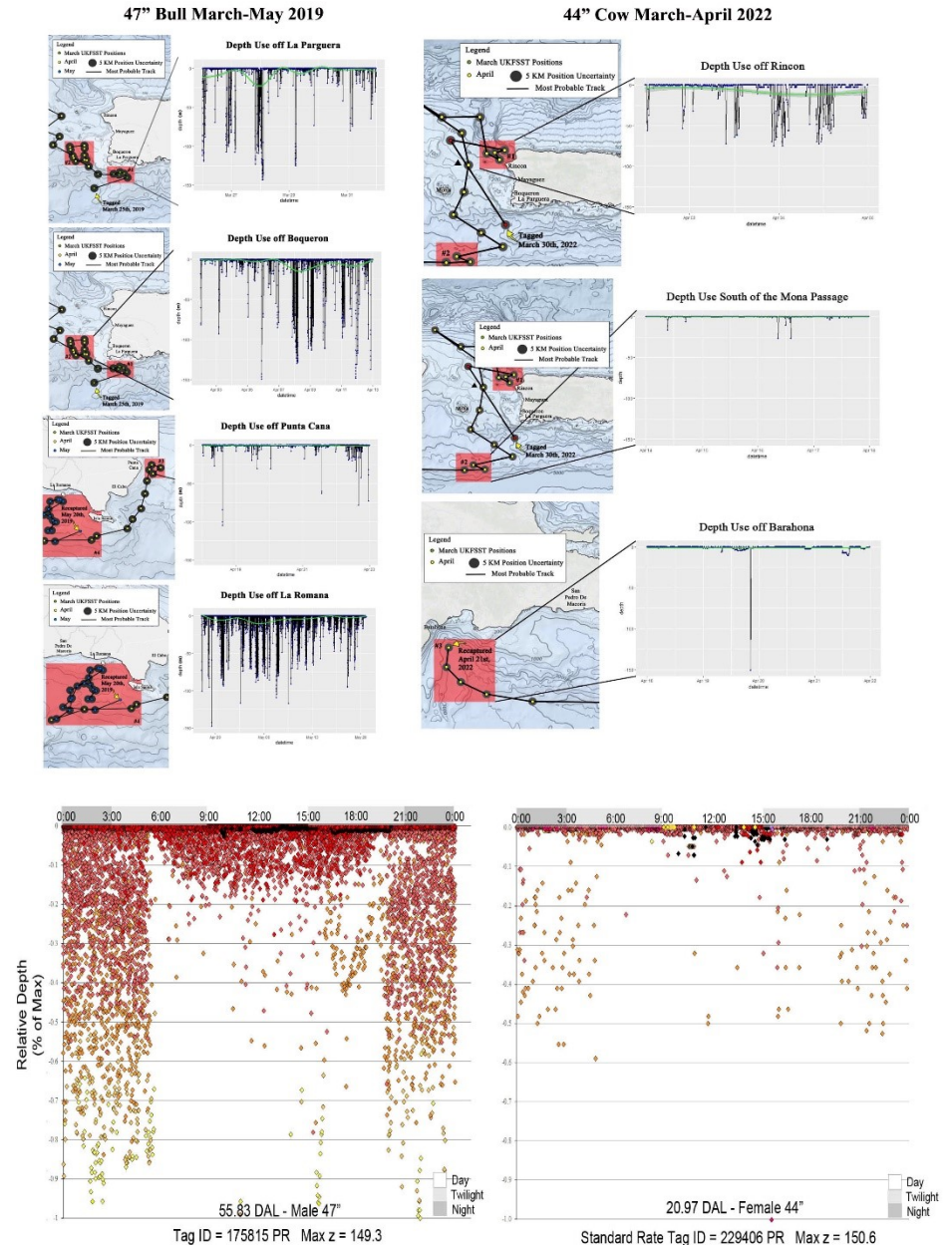
In 2019, we resumed a study to document the movements of dolphinfish in the Caribbean Sea by deploying satellite tags on adult dolphinfish during the spring run off the Southwest Coast of Puerto Rico (SW PR). This research builds on earlier tagging work we did in the same area between 2011 and 2014 in which three satellite tags were deployed. In total, 15 satellite tags have been deployed, with 12 deployed since 2019. Of those 12, two were recaptured south of the Dominican Republic, which equates to a 16% recovery rate. Even if we assess the recovery rate based on all PSATs deployed off SW PR, since 2011, two of 15 tags recovered equates to a 13% recovery rate. Both tags were recaptured by anglers fishing FADs south of DR, and in both instances, we awarded those anglers with several hundred dollars to successfully ship us the tags. Aside from the importance of documenting the recovery rate of satellite tagged fish moving west from PR waters, the information gleaned from these tags as well as our ability to refurbish and redeploy the tags enhances our ability to learn more about this important pelagic fish and the dolphinfish fishery in the region. Interestingly, the 44" female followed a similar track as the 47" male recaptured in 2019 ([click here](#) or that story). Similar to the bull's movement, while not considered a broad-scale movement, the 625-mile long track showed us that this cow used a variety of habitats throughout the region at a varied pace. Following a rapid daily movement northwest into the Mona Passage after being released, the succeeding four days were spent just offshore Rincon, Puerto Rico, and northeast of Isla Desecheo



Most probable track for a 44" adult female dolphinfish fitted by unscented Kalman filtering with satellite-derived sea surface temperature (UKFSST; solid line). The fish was released off Cabo Rojo, Puerto Rico and remained at liberty for 22 days until the fish was recaptured at a fish aggregating device (FAD) south of Barahona, Dominican Republic, on April 21st, 2022. The numbered red boxes correspond to 3 regions of interest: #1 Rincon, #2 southern Mona Passage shelf, #3 Barahona. The depth use for these areas are depicted in the section below. This fish was tagged and released aboard Lalooli.

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from April 1st until April 4th. The fish then moved northwest into the tropical Atlantic before moving back south through the Mona Passage at a steady pace of 27 miles per day. The cow moved from the tropical Atlantic in the northern part of the Mona Passage to the Caribbean Sea in the southern part of the Mona Passage in three days. From here, the cow moved westward and seemed to orient relative to deep depth contours associated with the continental shelf. Prior to the six-day westward movement to the recapture site, there were three instances when the fish moved southeast for one to two days moving against the prevailing southeasterly tradewinds. Anglers fishing south of Puerto Rico have provided accounts of outings where they seemed to follow schools, called cardumens in Puerto Rico, east. These short jaunts confirm that this cow was making short easterly movements, but it is unknown whether or not the cow was schooling. After the final short southeasterly movement, the fish moved west 150 miles in one day, which is the fastest daily movement obtained over the monitoring period. That distance traveled in one day equates to an hourly movement rate of 6.25 miles per hour. However, when the cow was south of DR, the average daily movement rate slowed down to 21 miles per day before the fish was recaptured a FAD south of Barahona, DR. Total time at liberty between deployment and recapture was 21.97 days. In terms of depth use, the female's vertical habitat use was a stark contrast to the habitat use observed for the 47" male tracked in the same area in 2019. For the female, aside from repetitive deep diving behavior off Rincon for a few days, deep dives for extended periods of time were lacking for the cow. While the deepest observed depth for the cow was 150.6 meters, similar to the 149.3 meters observed for the big bull, vertical water column use ranged from 0-50% of that depth. The female did show deeper diving behavior at night, which was similar to the 2019 bull, but the bull consistently dove to depths at or near the maximum depth during the 55-day track. This is the first time our program has acquired geolocation tracks that were similar in path in the same area between sexes for dolphinfish which makes these datasets a unique glimpse into behavioral differences between adult male and female dolphinfish. One caveat to disclose is the entire dataset was acquired for

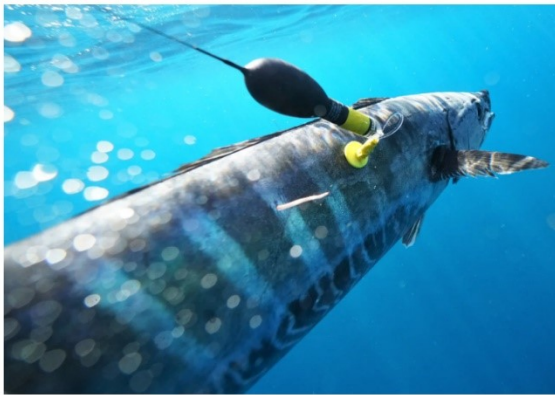


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the 47" bull. This led to a very precise depth record for where the bull was at any given time during the monitoring period. For the cow, we opted for the 15-minute standard rate dataset to allow for more timely and less costly tag refurbishment. Despite the major differences in sampling rate between datasets, depths recorded at 15-minute intervals would still show extensive depth use, which was not the case for the female's record. These records and observations obtained excite us as we forge ahead to tag and release more healthy adult dolphinfish off Southwest, Puerto Rico, in the future. The anglers involved in this work off Southwest, PR, are as follows: Captain Manuel Botello (2011); Captain Milton Carlo (2011-2014); Anibal Santiago (2011-2014); Captain Jesus Milo Duran (2019-present); Captain Dan Hack (2021-present); Captain Yunyi Gonzalez (2022-present); Anglers Dagobuerto Rodriquez, Emmanuel Markham, Jose Lebron, Irving Baez, Alexis Alfalla.

### Wahoo Tissues Samples Needed!



A 47" WAHOO (TAG ID 170108) TAGGED AND RELEASED OFF THE WEST COAST OF PUERTO RICO IN 2021. (PHOTO: W. MERTEN)

In response to the lack of knowledge and data presented in conjunction with the South Atlantic Fishery Management Council's (SAFMC) Dolphin-Wahoo Fishery Management Plan with respect to wahoo, beginning in 2021, our group made it a priority to address this challenge. Since then,

we have deployed four pop-up satellite archival transmitters on large wahoo, began a regional conventional tagging component for the species whereby 10 anglers have received wahoo tagging kits, initiated research

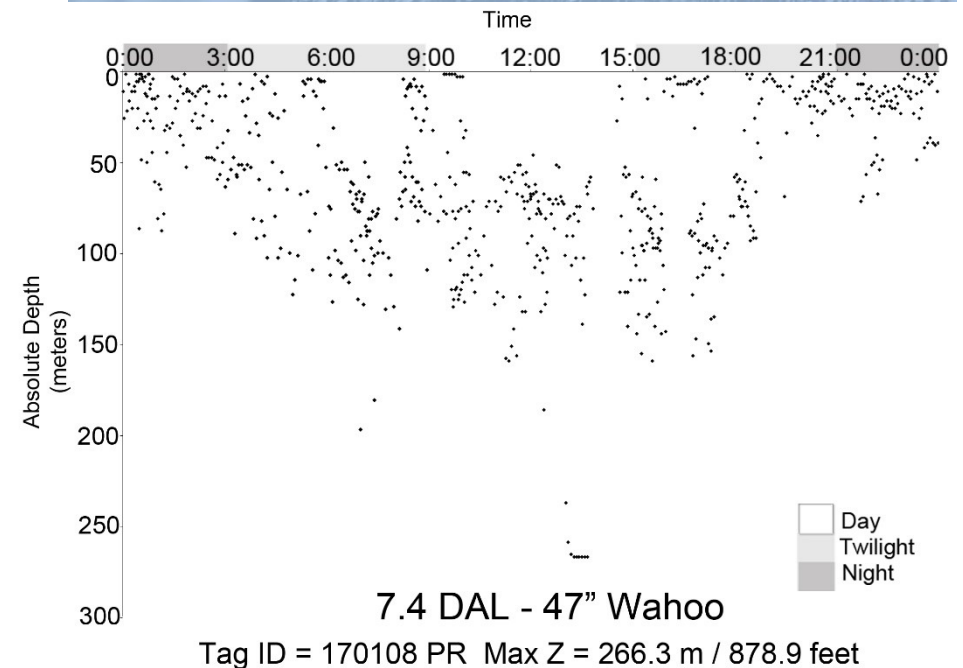
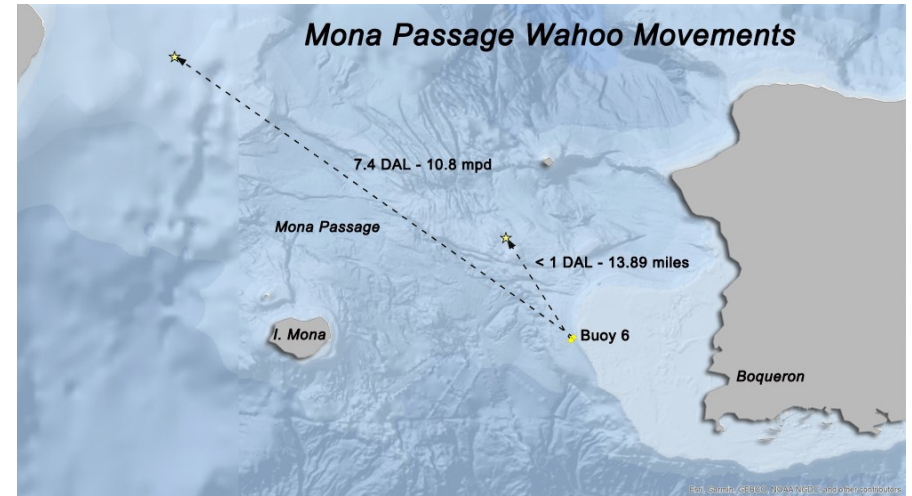


Figure 1 Point-to-point satellite tag movements for wahoo tagged and released near Buoy 6 along the west coast of Puerto Rico (top panel) and depth use for a wahoo monitored for 7.4 days in the Mona Passage (bottom panel).

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on international fishery trends, and became engaged in a population structure study with a graduate student at the University of Puerto Rico, Mayagüez (more on that below). In many ways, the step previously outline resemble the steps we used to expand the Dolphinfish Research Program around Puerto Rico in 2009, a program which continues to expand to this day on the island and throughout the region. Based on our group's past successes in engaging the public in research on dolphin and publishing scientific results from that public engagement, working with wahoo made sense. Much like our work on dolphin, we intend to build upon the scientific knowledge obtained from previous studies by Oxenford et al. (2003), which provided a summary of aspects of the species biology pertinent to management, and Sepulveda et al. (2011) and Theisen and Baldwin (2012) that conducted movement studies on wahoo in the Eastern Tropical Pacific and Western Central Atlantic Oceans, respectively. In addition, the latest effort to further refine and describe the genetic connectivity of wahoo in the Western Central Atlantic will build off of Garber et al. (2005) and Theisen et al. (2008) which were previous genetic studies conducted in the Western Central Atlantic Ocean, and around the globe, respectively. While additional genetic results are forthcoming, the tagging work we have already done with Captain Jesus Duran, anglers Dagoberto Rodriquez, Emmanuel Markham, and Dan Hack of the *Lalooli* and *Danger* Fishing teams showed a movement pattern contrary to those angler's suppositions. The anglers who helped us tag a 47" wahoo off the west coast of Puerto Rico in 2021 hypothesized that the fish would remain in the same relative area, yet the tag surfaced nearly 80 miles to the northwest a week after it was tagged. Depth data from that deployment indicated the fish remained at depth during the day and at the surface during night with a dive to nearly 900' recorded. This pattern is contrary to that observed for dolphinfish tagged in the same region, which shows niche partitioning and major differences in movement ecology between species. On top of the likely major differences in water column behavior between dolphin and wahoo, what remains to be determined is whether wahoo follow similar movement pathways described scientifically by our tagging program for dolphin

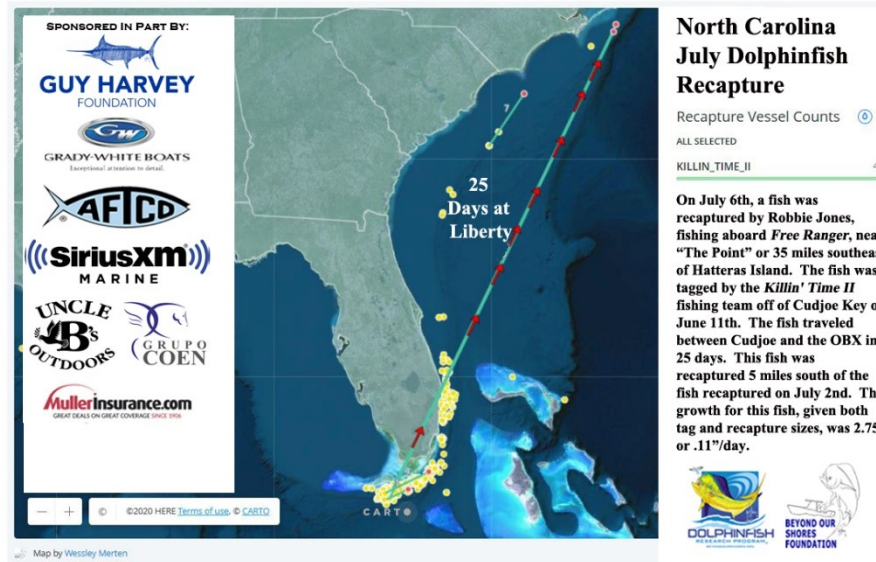
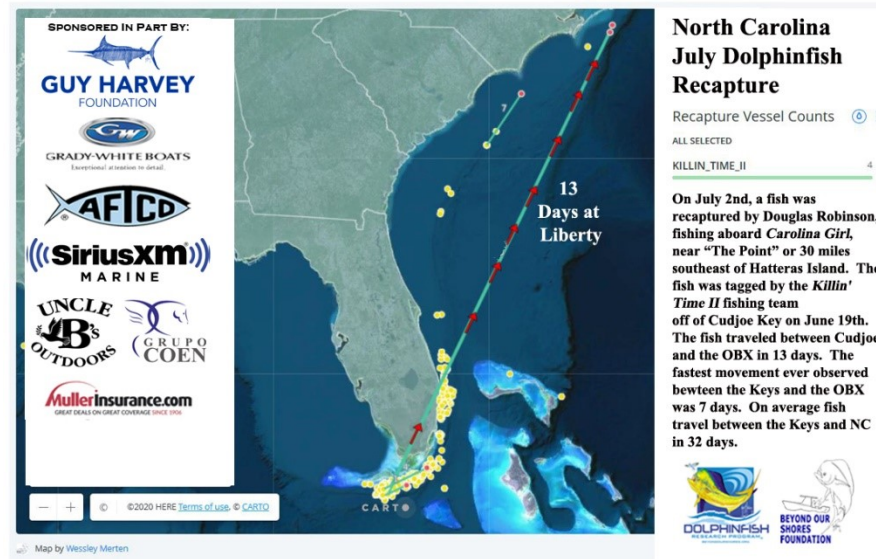
([click here](#) for that information). With support from our sponsors, Puerto Rico's Department of Natural and Environmental Resources, and engagement with [Amanda Prieto-Garcia](#), a master's student majoring in Biological Oceanography at the University of Puerto Rico, Mayagüez, we hope in the next several years to have a better understanding of wahoo movements and population dynamics in the Western Central Atlantic Ocean. The best part about this ambitious effort is you can help. You can assist Amanda with her work to estimate the genetic connectivity and diversity of wahoo around Puerto Rico and the Western Central Atlantic Ocean and Caribbean Sea. The success of her research relies on the availability of high-quality wahoo samples (fin clips and/or white tissue) from various locations around the Western Central Atlantic Ocean. If you catch wahoo over the next several months along the U.S. East Coast or in the Caribbean Sea, cut a 1" piece of the fin off and freeze the sample along with sampling date, location, and fork-length. Then, we will collect your samples and provide them to Amanda for her research. If you have any questions about this process, please email us ([Click here](#)). In addition, if interested, you can request a wahoo tagging kit to participate in our conventional tagging component for the species ([click here](#) to request a kit). By participating in this research, you can actively contribute to the knowledge of the species' genetic connectivity, stock structure, diversity, and movement ecology throughout the Western Central Atlantic Ocean and ultimately aid in the development of effective management strategies to conserve our wahoo stock for future generations. Thank you for your consideration and support of this important endeavor!



ONE BROUGHT BACK TO THE DOCK. (PHOTO: W. MERTEN)

## July Dolphinfish Recaptures

(click images to enlarge)



## About the Beyond Our Shores Foundation

Last month we released our 990 for fiscal year 2022. [Click here](#) to examine our 2022 financial information. We share this information here as well as on [Guidestar.org](#) to document our financial health as a fisheries research nonprofit. Five years ago we formed the **Beyond Our Shores Foundation** to build the **Dolphinfish Research Program**. Thanks to the generous support of our sponsors, the **DRP** is expanding and making a big impact. We also formed the **BOSF** to continue and grow our work on [fish aggregating devices](#) (FADs) in the U.S. Caribbean Sea. Our attention to both programs has led to new published studies, additional information for dolphin and FAD management, enhanced angler participation, and ongoing data collection in Pacific and Atlantic Oceans. We have also expanded our work on new species (wahoo and yellowfin tuna) and fishery topics (submerged FADs). While this work has been met with steady growth in our donor base, tagging program, and fishery research nonprofit, as well as new program sponsors, we need more support to continue to grow. As of last Friday, we have shipped out 330 tagging kits this year. Of those, ten were wahoo tagging kits. Our goal established earlier this year was to distribute 450 kits and 6,000 tags. We are on track to exceed that goal again this year. Last year, we distributed 6,763 tags in 501 kits to 399 anglers in 12 nations. With your participation and support you can help us achieve and exceed our goal by supporting our work. Help support our work by purchasing a kit, shirt, or making a tax-deductible donation via the links below. Thank you for your time and consideration!

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