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Turtle grass reproduction research continues at Cedar Key



Dr. Ashley McDonald prepares to place fruit of the turtle grass from a net into a bucket on Cedar Key on Thursday afternoon (July 26). She is among the researchers adding to the body of knowledge related to marine life.

Story and Photos By Jeff M. Hardison © July 27, 2018 at 10:48 a.m.

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CEDAR KEY -- A couple of scientists were seen scooping stuff out of the Gulf of Mexico next to the boat-launching area of Dock Street Thursday afternoon (July 26) and their answers showed, as researchers often have found, more research is needed.



Dr. Charlie Martin is seen near a boat-launch area leading directly into the Gulf of Mexico from Cedar Key. In the Gulf on the right side of this photo, seagrass is seen floating. Turtle grass fruit, which holds the seeds for that marine plant, floats.

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This unopened fruit of turtle grass is part of its ability to propagate. Seeds germinate within the fruit of this seagrass.



Dr. Ashley McDonald holds fruit of the turtle grass that has opened.

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Dr. Charlie Martin shows a blade of turtle grass next to part of the plant's essence to continue the existence of this species. Meanwhile, Dr. Ashley McDonald assists the educator's efforts as she holds an end of the blade -- resisting the wind to provide for a better photo opportunity.



This turtle grass fruit has opened in a fashion to resemble a flower. So far, the researchers do not see this as a common fashion for the fruit to send out its seeds. This is being held by Dr. Ashley McDonald in one hand as she grasps the handle of a net used to scoop samples from the Gulf in her other hand.

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Dr. Ashley McDonald holds a closed fruit of the turtle grass and the one example of an opened fruit that looks like it has petals.

Charlie Martin, Ph.D., and Ashley McDonald, Ph.D., gathered turtle grass fruit to take to the lab and look at in a controlled environment as they find information related to the sexual reproduction method of this form of seagrass.

Dr. Martin is a research assistant professor stationed full-time at the University of Florida's Institute of Food and Agricultural Science (UF/IFAS) Nature Coast Biological Station (NCBS) in Cedar Key.

Dr. Martin received his Bachelor of Science degree in Biology and his doctorate from the University of South Alabama. Working through the Dauphin Island Sea Lab, Dr. Martin's dissertation work focused on the effects of estuarine invaders in Mobile Bay, Ala.

More recently, he served as a postdoctoral researcher at Louisiana State University studying the effects of the Deepwater Horizon oil spill on coastal flora and fauna. Dr. Martin's research involves examining how biotic processes and anthropogenic activities influence the structure and function of estuarine ecosystems.

His current research experimentally assesses how factors such as climate change, invasive species, oil spills, trophic interactions, loss of biodiversity, and hydrology affect Gulf of Mexico ecosystems. Dr. Martin currently serves as Associate Editor for Aquatic Invasions and BioInvasions Records and has written numerous peer-reviewed publications and funded proposals.

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Dr. McDonald said she just arrived in the area from Mississippi. She is dealing with what is needed to obtain a Florida driver license as well as to register to vote, and to conduct marine research. Given time and other restrictions, Dr. McDonald may not complete the process to vote on Aug. 28, because the last minute to register in Levy County for that primary election is July 30 (Monday).

As for the pair of academic doctors, or pair of docs (a paradox) on the dock at Cedar Key, they are part of the mission of the NCBS is to enhance the conservation and sustainability of natural resources throughout the Nature Coast through collaborative research, enhanced public engagement, field-based courses, and hands-on training workshops.

While some people were "(Sittin' On) The Dock of the Bay" (a song co-written by soul singer Otis Redding and guitarist Steve Cropper), these researchers were among those people striving to understand living organisms more.

(One journalist did enjoy an amazing lunch at Steamer's Clam Bar and Grill that afternoon, thanks to Elder Options Savvy Caregiver Bianca Blackshear, who visited the island for her first time, and despite some initial stormy weather enjoyed some time on Cedar Key shopping after lunch).

More specifically on Thursday afternoon, Dr. Martin and Dr. McDonald were collecting turtle grass fruit.

In regard to Florida's seagrasses, as noted by the Florida Department of Environmental Protection, although approximately 52 species of seagrasses exist worldwide, only seven species are found in Florida's marine waters. Six of these are widespread in Florida and extend beyond its borders.

Turtle grass (*Thalassia testudinum*), the DEP notes, is the largest of the Florida seagrasses. It has deeper root structures than any of the other seagrasses.

Turtle grass has large ribbon-like leaves that are 4 to 12 millimeters (about a half-inch) wide and as long as 35 centimeters long (about one foot). This seagrass is temperature-limited and does not occur along the northeast Florida coast, but it forms extensive beds in Florida Bay.

Turtle grass grows in extensive meadows throughout its range, according to information from the Florida Museum of Natural History (located on the campus of the University of Florida). The common name "turtle grass" refers to green sea turtles (*Chelonia mydas*) that graze on large fields of this seagrass.

As for the two docs on the dock, they are expanding the almost non-existent research of how this seagrass propagates.

As Dr. Martin and Dr. McDonald said, they are also creating a baseline concerning the health of this form of seagrass beds.

Dr. Martin said it was his opinion that day that the relative health of turtle grass in the Cedar Key area was healthy, however this has to be seen from the perspective of not having previous measures. Hence, the start of a baseline.

Part of the researchers' review includes looking at the turtle grass fruit, which floats and carries seeds away. These seeds, Dr. McDonald mentioned, germinate while they are in the fruit of the seagrass.

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Before the April 20, 2010 explosion of the Deepwater Horizon Macondo oil well drilling platform, some number of marine plants and animals had not been studied enough in the Gulf of Mexico to know about the impact from that horrific event.

The National Oceanic and Atmospheric Administration notes that explosion tragically killed 11 workers and started the largest marine oil spill in United States history, releasing millions of barrels of oil into the Gulf of Mexico.

NOAA was on the scene from the earliest moments of the crisis, bringing more than 25 years of experience protecting and restoring the nation's coasts from oil spills, NOAA states on its website.

As the lead science agency for coastal oil spills, NOAA's Office of Response and Restoration provided mission-critical information to guide the emergency response, the natural resources damage assessment and the restoration plan, NOAA states on its website.

NOAA scientists continue their commitment to the Gulf as they report on the short- and long-term effects to the fish, wildlife and habitat injured by the spill, as well as the lost recreational use along the coasts of Louisiana, Mississippi, Texas, Alabama, and Florida, NOAA states on its website

On April 4, 2016, the court approved a settlement with BP for natural resource injuries stemming from the Deepwater Horizon oil spill. This settlement concludes the largest natural resource damage assessment ever undertaken, NOAA states on its website.

UF/IFAS NCBS scientists add to the whole body of knowledge in regard to the marine environment.

How do the male and female fruits of turtle grass reproduce? This is an initial question that doctors Martin and McDonald seek to answer, and that is why they gathered specimens on Thursday afternoon.

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FWC looks at stone crabs



Florida Fish and Wildlife Conservation Commission Marine Researchers John Harrington, biological scientist I (in front of the boat), Melody Chapplin, biological scientist I standing on the dock and Charles Crawford, marine research associate (piloting the boat) load the vessel onto a boat trailer Thursday afternoon. The FWC also conducts marine research and has a lab on Cedar Key. This set of scientists were out on the water as a part of the long-term stone crab monitoring project. The FWC has traps in Steinhatchee, Cedar Key, Homosassa, Tampa Bay, Everglades City, and three sites in the Keys. These traps are serviced every other week all year round (Stone Crab Season is from Oct. 15 to May 15). The FWC's captured stone crabs are measured and checked for sex, reproductive state, molt condition, and regeneration. The live crabs are released back into the water. Data collected during these projects provides new insight into the population biology of the stone crab and the stone crab fishery. Information such as changes in catch rates, shifts in sex ratios, and correlations between juvenile and adult abundances may help the FWC better manage these species in the future. For more information about ongoing projects, please visit <http://myfwc.com/research/saltwater/crustaceans/stone-crabs/>.