

PRESS RELEASE

For immediate release

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Caption [images available upon request]

‘Ding’ Darling studying effect of Lake O nutrients on sea level rise

Mangroves may be a key component to mitigating climate change and sea level rise, an ongoing study at the J.N. “Ding” Darling National Wildlife Refuge on Sanibel Island has determined. But could nutrients coming from the Caloosahatchee River and Lake Okeechobee be comprising an age-old natural process whereby mangroves and coastal marshlands organically adapt to sea rise by gaining elevation?

That’s the answer refuge lead biologist Jeremy Conrad chases as his six-year research project connects the dots between mangroves, carbon absorption, greenhouse gas, climate change, sea level rise, and the effect of nutrients on the natural rise in coastal elevation.

The project began in 2014 when the United States Geological Survey (USGS) partnered with the U. S. Fish & Wildlife Service (FWS), which oversees “Ding” Darling.

“The refuge was contacted by our FWS national ecologists about using our mangroves as a pilot research project to assess how much carbon is absorbed,” said Conrad. “Mangrove forests were believed to be one of the most effective at taking carbon out of air and storing it in the soil. We supported that research as it would directly assist us in gathering more information as to how to best manage refuge mangrove resources. Our goal is to maximize the health of our mangrove forests so they can store more carbon and help to offset climate change and sea level rise.”

With that, the FWS partnered with the USGS National Land Carbon Team to initiate the “‘Ding’ Darling Carbon Sequestration” project. As a co-principle investigator on the project, Conrad designed a component to assess how water quality and nutrients affected the sequestration (absorbtion) process. “We

quickly identified that a healthier mangrove system and ecological functions are tied together,” said Conrad.

Healthy mangrove systems are more resilient to rising sea levels, he added. Coastal wetlands can gain elevation through a few ecological processes. Mangrove root development, the build-up of detritus from leaves, and sediment from storm surge contribute to soil elevation in mangrove forests. Decomposition is the one process that causes the ecosystem to lose elevation. As such, a healthier mangrove forest may have better ecological function and build more elevation, allowing the forest to persist longer with rising sea levels.

The Land Carbon Team received a federal Unit Award for Excellence of Service for their research in 2017, and now Conrad carries on refuge-based research building on the national study.

As he analyzes collected data, in the next year Conrad expects results to provide a better understanding of when Sanibel will be under water due to sea level rise. With a reduction of nutrients, the mangroves may slow down that inevitability, he theorizes.

Funded by the refuge with assistance from the “Ding” Darling Wildlife Society-Friends of the Refuge, which supports interns who assist with the research, Conrad studies the effects of nutrients on all of the natural processes that dictate fluxing elevation in the mangroves. Sanibel-Captiva Conservation Foundation (SCCF) has also supported the project by providing water-quality support and access to its lab equipment for processing mangrove samples.

ABOUT DDWS

As a non-profit 501(c)3 organization, DDWS works to support J.N. “Ding” Darling National Wildlife Refuge’s mission of conservation, wildlife and habitat protection, research, and public education through charitable donations and Refuge Nature Shop profits.

To support DDWS and the refuge with a tax-deductible gift, visit dingdarlingsociety.org or contact Birgie Miller at 239-472-1100 ext. 4 or director@dingdarlingsociety.org.

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