

WATER QUALITY IN THE GUANA TOLOMATO MATANZAS NATIONAL ESTUARINE RESEARCH RESERVE

Nikki Dix, Shannon Dunnigan, Katie Petrinec

Guana Tolomato Matanzas National Estuarine Research Reserve, Ponte Vedra Beach, FL, USA

The Guana Tolomato Matanzas National Estuarine Research Reserve (GTMNERR) is one of 30 reserves in the U.S. specializing in water quality monitoring and research to inform coastal management. The NERRS System-Wide Monitoring Program (SWMP) is designed to track short-term variability and long-term change in our nation's estuaries. Standard protocols, regular training, rigorous QAQC, and public data access contribute to the program's success. Analysis of 20 years of chlorophyll *a* data collected by the GTMNERR SWMP revealed that most of the estuary does not experience regular algal blooms and is relatively resistant to impacts from excess nutrients. However, chlorophyll *a* concentrations above state standards at some stations and increasing trends at other stations are indications that eutrophication may be stressing the system, making timely preventative measures imperative.

At a local scale, GTMNERR uses principles of the SWMP to monitor waterbodies where data gaps exist and share data with decision-makers. Water samples are collected according to Florida Department of Environmental Protection protocols and results are entered into the Watershed Information Network database so that the data are used in the statewide assessment process. These efforts have resulted in the Guana estuary being listed as impaired for nutrients in 2022, which began the regulatory process of restoration. The detection of degraded water quality in the Guana estuary has also spurred three collaborative science projects with University of Florida aimed at developing remediation strategies, illustrating a repeatable process for other estuaries in the state to go from data gaps to informed management.

PRESENTER BIO: Dr. Nikki Dix has been the Research Director at the Guana Tolomato Matanzas National Estuarine Research Reserve since 2013. Her research interests involve understanding how estuaries respond to natural and anthropogenic change with the intent of informing natural resource management.