

# EXO2 Water Quality Sonde

PIs: van Hengstum, P; Kaiser, K; Quigg, A.

Using TCRF resources in 2019, our team acquired an YSI EXO2 multi-parameter water quality sonde. The YSI EXO2 water Quality Sonde is equipped with 7-sensor ports for logging depth, temperature, conductivity (i.e., salinity), dissolved oxygen, pH, total algae (in both fresh and salt water), and can estimate dissolved organic matter in the water column (though fluorescent DOM measurement). This water quality sonde is a one-of-a-kind instrument that is very useful for remote operations because it is powered by standard D-Cell batteries, it can be operated completely untethered from the surface, can be deployed by SCUBA or from a boat, and can be mounted for in situ for longer-term water quality monitoring, or vertical profiling. The 7-port functionality of the bulkhead allows multiple instruments to be mounted at once, and interchanged in the event a 1 sensor develops a malfunction in the future. There is no other similar tool on the market that completes all these water quality measurements in a small-sized instrument that can also be confidently and safely used while SCUBA diving.



**Figure 1:** Tyler Winkler (PhD Candidate, Oceanography) preparing the YSI EXO2 for a deployment on the side of a sinkhole in Long Island, The Bahamas in June 2019.

Scientifically, understanding modern water column variability in blue holes is critical to using their sediment records to reconstruct millennial-scale patterns of hurricane and rainfall in response to ocean and atmospheric forcing. Bahamian blue holes are geographically proximal to large-scale atmospheric processes that also impact rainfall and hurricane strikes in Texas, thus, support for this equipment is within the Coastal Resiliency and Viability innovation engine of the TAMUG Strategic Plan 2016-2020. In June 2019, the new YSI EXO2 was used to measure the water quality in several in land sinkhole lakes as part of ongoing paleoclimate research in the tropical North Atlantic Ocean.