

## PALEOLIMNOLOGICAL METHODS FOR LAKE MANAGEMENT

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Modern development has led to changes in water quality throughout the state of Florida. For lakes that lack monitoring data, it can be difficult to determine optimal site-specific restoration projects. Even with long-term monitoring data, it can also be difficult to assess lake water quality prior to anthropogenic disturbance. However, paleolimnological studies can be used as a tool to bridge water quality data gaps and extend the available data record, which can aid in the restoration, conservation, and management of these systems. Using multiple sedimentary indicators such as diatoms, sedimented algal pigments, and <sup>210</sup>Pb dating, paleolimnological studies can infer the timing and intensity of historical water quality and land-use changes. Paleolimnology studies can also identify the onset of eutrophication by observing shifts in algal communities from diatoms to cyanobacteria.

In this study, Wood demonstrated how modern water quality data paired with paleo-derived historical inferences can aid in the development of a site-specific alternative criteria (SACC) for the nutrients total phosphorus (TP), total nitrogen (TN), and chlorophyll a (Chl-a) in an urban Florida lake. Analysis of diatom assemblages, algal pigments, and other paleolimnological data to establish water quality conditions before anthropogenic disturbance showed that the lake is not impaired and has always been eutrophic.

**PRESENTER BIO:** Francesca Lauterman is an ecologist specializing in paleolimnology. In her Masters research at University of South Florida and at Wood, she investigates the historical ecology of Florida lakes with diatom assemblages and other sedimentary evidence to interpret environmental changes and long-term climatic and human influence on lakes and watersheds.