A COMPREHENSIVE ENVIRONMENTAL AND DIATOM DATABASE FOR ASSESSING EVERGLADES RESTORATION

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The Everglades is comprised of a diversity of aquatic ecosystem types, each with distinct biogeochemical conditions, plant and animal communities, and benthic algal assemblages. These attributes are naturally highly spatiotemporally dynamic, but are also subject to changes in freshwater and nutrient delivery and saltwater intrusion driven by global to local anthropogenic factors, including regional hydrologic restoration. A significant body of research has detailed the composition and function of benthic algal assemblages including a diverse and unusual karstic wetland diatom flora that is highly sensitive to environmental change. For this reason, diatom assemblage assessments are incorporated into Adaptive Monitoring and Assessment for the Comprehensive Everglades Restoration Plan. This project began in 2004 with quarterly assessments at over 150 locations selected to represent the greater Everglades ecosystem in a generalized random tessellation stratified design. After 2010, sampling was reduced to annual visits, resulting in 15 years of spatially-explicit biogeochemical and plant, animal, diatom and soft algae community data. We are assembling these data into a centralized relational database that includes 107 variables, 3,691 samples, and 388 diatom taxa. Morphological measurements, high-resolution images, environmental optima and range data, and relative abundance maps are available for 121 of the most common diatom taxa. The goal is a publically-available, pictorially-guided database of Everglades diatoms linked to morphological, biogeochemical and habitat descriptors. This poster presents our study design, workflow, database structure and example taxon description to promote exchange of ideas on the utility of this platform for advancing diatom science and for evaluating its compatibility with other diatom databases.