ECOLOGICAL DATA MANAGEMENT SYSTEMS PROJECT

Mandate:

Comprehensive Everglades Restoration Plan (CERP),
Lake Okeechobee Watershed Protection Program (LOWPP)

Background:

In the late 1980s, the District initiated the five-year Lake Okeechobee Ecosystem Study (LOES) to gain a better understanding of the Lake's ecological functions. Many researchers from a variety of disciplines participated, collecting a large volume of information. To manage this information and all of the ongoing ecological research and monitoring on the Lake, the District developed the Ecological Data Management System (EDMS). Subsequently, efforts have continued to modify the structure of this database and make its interface user-friendly.

Project Overview:

The EDMS has the following components: (1) a model for all ecological data; (2) a database based on the data model; (3) support software, which includes a conversion program that translates scientific data formats into database formats; (4) a graphical user interface (GUI) to facilitate access and data management; and (5) system maintenance. A fundamental issue is the abstraction of general characteristics of ecological data. Most ecological information is associated with locations, parameters or eco-variables, biological species, units, and collection methods. Ecological values with the same characteristics (station, eco-variable, species) and collected at different times form time series. Using this approach, a few data tables can hold a wide range of ecological parameters.

Application of Results:

Currently, the EDMS manages 42,000 time series from 347 stations with a total of more than a million records. Among the projects whose data are stored in the system: (1) Submerged Aquatic Vegetation (SAV); (2) Ecological Monitoring at Buck Island Ranch; (3) Evaluation of Periphyton Nutrient Limitation; (4) Routine Plankton Monitoring: Microzooplankton and Water Quality; (5) Weather data for Northern Okeechobee Watershed; (6) LZ40: Physical-Chemical Parameter Monitoring; (7) LOES: Zooplankton and Phytoplankton; (8) LOES: Suspended Solids; (9) LOES: Fish Inventory and Gut Contents, (10) LOES: Water Quality. For data retrievals, users can choose between "basic" and "advanced" queries and select an output report from five different formats.