

EVALUATION OF FULL SCALE STORMWATER TREATMENT AREA ENHANCEMENTS: HYDRAULIC TRACER STUDY FOR STA-1W, CELL 5B

Client Name: *South Florida Water Management District /DB Environmental, Inc. (Prime)*

Type of Service: *Water Resources Evaluation, Water Quality Monitoring & Assessment, Biological/ Ecological Monitoring & Assessment*

This project was in support of the District's continuing efforts to optimize the performance of the STAs through implementation of enhancements presented in the Conceptual Plan for Achieving Long-term Water Quality Goals. Compartmentalization of some of the STAs may enhance the hydraulic efficiency and phosphorus removal capabilities. During 2003, a limerock berm was constructed across the entire length of STA-1W, Cell 5B for the purposes of compartmentalizing the Cell. It was expected that this effort would improve the hydraulic and phosphorus removal performance of the 2,293 ac. constructed wetland.



This project employed the use of a biologically inert lithium chloride tracer to assess the effects of the limerock berm on the hydraulic characteristics of Cell 5B. Approximately 3,630 gallons of tracer were introduced distributed on a flow-weighted basis into all 22 Cell 5B inflow culverts. The 10 outflow and 22 inflow culverts were monitored for lithium concentrations. Milian, Swain & Associates, Inc. (MSA) took the lead role in the outflow tracer monitoring for the project and conducted internal sampling in order to collect GIS data of Lithium concentration. In addition, the internal monitoring network was employed to characterize the wetland's hydraulic features and the effect of the limerock berm on its hydraulic efficiency and treatment efficacy. MSA conducted training sessions on the proper sampling procedures for all technical staff. Measurements of culvert flow were measured using Rhodamine WT™ dye to calibrate load estimates. MSA also participated in the technical review and preparation of the project work plan, final report and final presentation to the District.