

Restoration Strategies Science Plan Progress

**Long Term Plan
Communications Meeting
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Science Plan Implementation

- Prepared and initiated detailed study plans (DSPs) for 8 studies outlining tasks and resource needs
- Each of the studies is being led and managed by internal staff acting as Principal Investigators
- Additional staff are being utilized on all projects; however, certain tasks or aspects of the work will require support and specialized expertise from external sources
- SOWs being developed with two private sector firms and two Florida universities selected through a competitive RFP process

Initial Suite of Proposed Studies

1. Use of Soil Amendments / Management to Control P Flux
2. Evaluate the Use of Alternative Vegetation Occurring in Low Phosphorus Environments to Achieve Low P Discharge in STAs
3. Development of Operational Guidance for FEB and STA Regional Operation Plans
4. Evaluate P Sources, Forms, Flux, and Transformation Processes in STAs
5. Investigation of STA-3/4 PSTA Performance, Design and Operational
6. Canal Conveyance Features on STA and FEB Inflow and Outflow TP Concentrations
7. Evaluation of Impacts of Deep Water Inundation Pulses on Cattail Sustainability
8. STA Water and Phosphorus Budget Improvements
9. Evaluation of Sampling Methodologies for TP

Use of Soil Amendments/Management to Control P Flux

Study Objective /Purpose

Determine if flux of P from the soil in an operating STA can be reduced with soil amendments or management techniques such as deep tilling or other management techniques such as a limerock cap



Progress:

- Draft DSP revised based on Tech Rep Input
- Continued work on Phase 1
 - Completed literature review regarding soil amendments and management techniques
 - Summarized previous findings relevant to controlling P flux in wetlands
 - Compiled list of issues to address in order to determine if the next phase should be implemented



Evaluate the Use of Alternative Vegetation that Occurs in Low Phosphorus Environments to Achieve Low P Discharge in STAs

Study Objective and Purpose

Evaluate nutrient removal efficacy of vegetation that occurs under very low P conditions and examine major processes and mechanisms underlying P assimilation functions

Progress:

- Completed report summarizing mesocosm results through 2013 (SFER)
- Compiling additional literature on alternative vegetation
- Establishing team to development Draft DSP



Operational Guidance for FEB and STA Regional Operational Plans

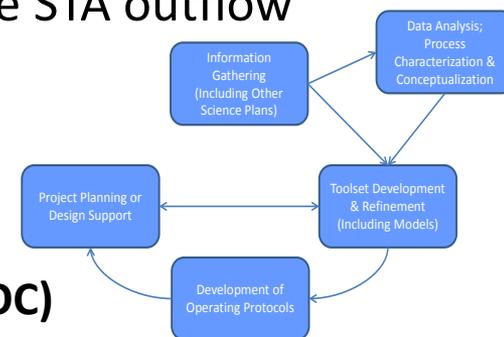
Study Objectives/Purpose

To develop modeling tools and operational protocols for FEBs/STAs to:

- Manage storage in the FEBs to minimize dry out, deep water conditions, and bypass
- Manage FEB outflow and STA inflows to minimize STA outflow phosphorus concentrations

Progress

- **Draft DSP revised based on Tech Rep Input**
- **Developed optimization operations tool (iModel-ASOC)**
- **Completed final draft report on STA-2 Wave Test for internal review**
- **Deployed RPAs in STA-3/4 for wave test**
- **System Control and Optimization contract ongoing**



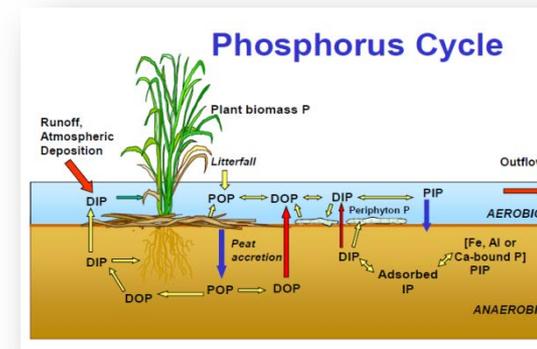
Phosphorus Sources, Forms, Flux, and Transformation Processes in the STAs

Study Objectives/Purpose

- Characterize P speciation, cycling and transport in STAs
- Compare the findings with natural areas (Water Conservation Areas)
- Develop recommendations to improve STA performance

Progress

- Draft DSP being revised based on Tech Rep Input
- Continued literature review on P processes
- Organic P characterization work underway
- Performing data analysis of low altitude imagery trial and developed SOW
- Preliminary presentation on data mining and analysis by contractor
- Developing SOWs for contractual support on soils analysis, P flux, and faunal evaluation



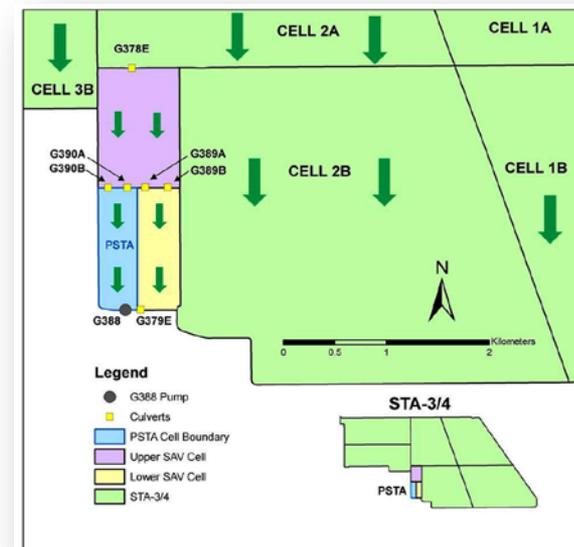
Periphyton-based Stormwater Treatment Area (PSTA): Performance, Design & Operational Factors

Study Objective/Purpose

Continue investigation of PSTA cell performance to determine design elements, operational factors, and biogeochemical characteristics that enable the PSTA cell to achieve ultra-low outflow TP levels

Progress

- Draft DSP revised based on Tech Rep Input
- Continued routine monitoring
- Implemented 3 week monitoring program for pulse test performed July 24-27
- Evaluating report provided by contractor on PSTA water quality monitoring, vegetation surveys, enzyme activity and periphyton analysis
- Developed SOW for PSTA work in FY15



Influence of Canal Conveyance Features on STA and FEB Inflow and Outflow TP Concentrations

Study Objective/Purpose

- Determine whether phosphorus concentrations change when conveyed through STA inflow and outflow canals
- Evaluate phosphorus in sediments and seepage to and from canals

Progress

- Draft DSP revised based on Tech Rep Input
- Task 1
 - Completing literature review, data query, review of canal as-built drawings, inspection of 3 canals, and development of Task 1 report
- Task 2 - Continued water quality data variability and trend analysis
- Task 4 - Continued canal sediment and TP accumulation estimate based on mass balance
- Task 6 – Initiated correlation analysis for potential influencing parameters on changes in TP and other parameters in canals



Impacts of Deep Water Inundation Pulses on Cattail Sustainability

Study Objective/Purpose

- Evaluate the influence of deep water pulsing on cattails
- Provide recommendations for STA and FEB operations

Progress

- Draft DSP revised based on Tech Rep Input
- Continued literature review
- Continued historic hydrologic data analysis
- Performed recon and plot set-up for in situ study to be implemented in STA-1W and STA-3/4 (while test cells refurbished)
- Developed contractor SOW for in situ study
- Finalizing design for test cell refurbishment



STA Water & Phosphorus Budget Improvements

Study Objective and Purpose

- Determine sources of error in Water Budgets and evaluate methods to reduce the error
- Develop improved water budgets for STA cells in a phased approach for a test case (STA-3/4 Cells 3A and 3B) and to meet Science Plan needs

Progress

- DSP revised based on Tech Rep Input
- Contractor HDM section completed work on improved flow data for POR for STA-2 structures and started working on structures in STA-3/4
- HDM section working to improve flow ratings at STA-2 and STA-3/4 structures
- Continued to improve water budget tool including ability to incorporate seepage estimates for all cells in STA-2 and STA-3/4

Residual = Outflow + Seepage + ET + Δ Storage – Inflow – Rainfall

Sampling Methods for Total Phosphorus

Study Objective /Purpose

To determine which sampling regime/ method provides most accurate representation of TP

Progress

- Revised Draft DSP based on Tech Rep Input
- Monitoring at:
 - G390B - inflow to PSTA at STA-3/4
 - G310 - discharge from STA-1W
- Evaluating preliminary results regarding modifications to sampling practices



Questions?

