

Restoration Strategies Science Plan

**Long Term Plan
Communications Meeting
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Initial Suite of Proposed Studies

1. Use of Soil Amendments / Management to Control P Flux
2. Evaluation of P Removal Efficacy of Water Lily and Sawgrass in Low Nutrient Environments of the 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 Factors
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 or a limerock cap

Progress:

- **Completed Draft DSP**
- **Initiated work on Phase 1**
 - Expanding literature review
 - Summarizing previous District findings



Phosphorus Removal Efficacy of Water Lily and Sawgrass in a Low Nutrient Environment in STAs

Study Objective and Purpose

Evaluate nutrient removal efficacy of water lily and sawgrass under very low P conditions (downstream end of STAs) and examine major processes and mechanisms underlying P assimilation functions



Progress:

- **Development of Draft DSP on hold**
- **Finalized mesocosm study**
- **Summarizing mesocosm results**

Operational Guidance for FEB and STA Regional Operational Plans

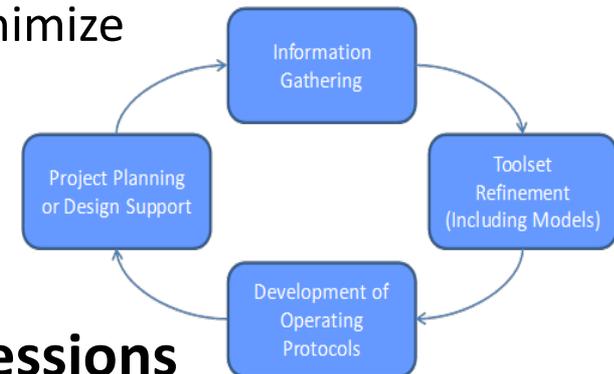
Study Objectives/Purpose

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

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

Progress

- **Completed Draft DSP**
- **Conducted information gathering sessions**
- **Completed STA-2 Wave Test**
- **Began deploying two new RPAs**



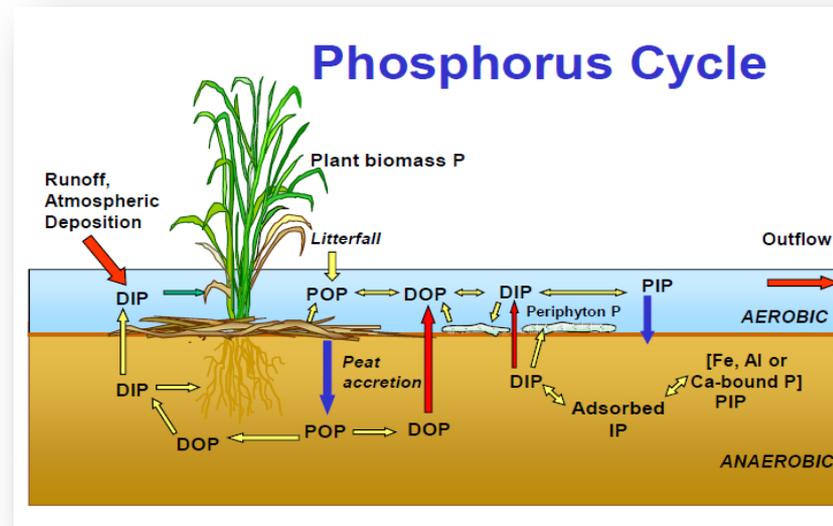
Phosphorus Sources, Forms, Flux, and Transformation Processes in the STAs

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

- **Completing literature review**
- **Finalizing Draft DSP**
- **Contracted data mining, and determination of organic P methods**



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

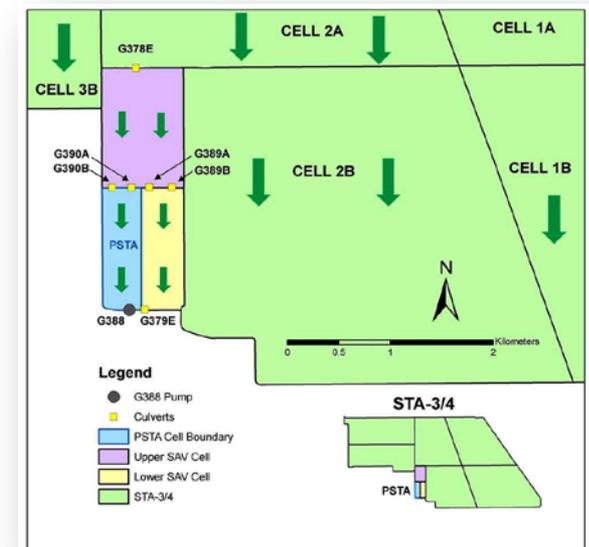
Study Objective/Purpose

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

- Completed Draft DSP
- Continued ongoing monitoring
- Installing temporary pump for PSTA pulse testing
- Began deploying two new RPAs



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 sediments and seepage to and from canals

Progress

- **Completed Draft DSP**
- **Completing literature review**
- **Review canal as-built drawings**
- **Evaluation P loads in 6 canals**
- **Beginning seepage flow modeling**



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

- **Completed Draft DSP**
- **Completed one phase of historic hydrologic data analysis**
- **Developed in situ study**
- **Developed plan for test cell refurbishment**



STA Water & Phosphorus Budget Improvements

Study Objective and Purpose

- Determine sources of error in WB and how they can be reduced
- Develop improved water budgets for STA cells in a phased approach for a test case (STA-3/4 Cells 3A and 3B) and for Science Plan needs

Progress

- **Completed Draft DSP**
- **Began improved flow data task for STA-2 and STA-3/4**
- **Initiated work to improve water budget tool**

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

- Completed Draft DSP
- All equipment installed at 390B & G310
- In monitoring phase



Questions?