

Restoration Strategies Science Plan Progress

Long-Term Plan
Communications Meeting
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Phosphorus Sources, Forms, Flux, & Transformation Processes in the STAs

Study Objective

Characterize P sources, speciation, cycling, & transport in STAs, and understand mechanisms and factors influencing P reduction in low P environment

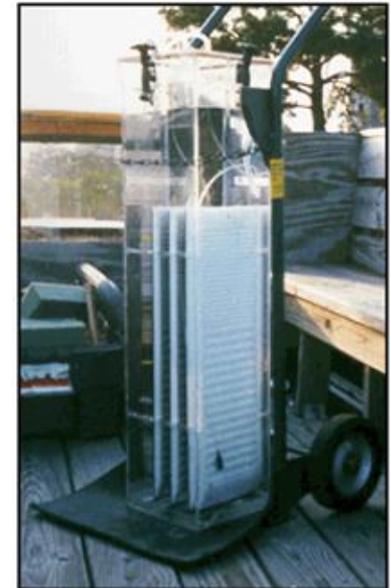
Progress

- Data mining
- Water quality- sampling & flux measurements
- Vegetation
- Soil sampling
- Fauna



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

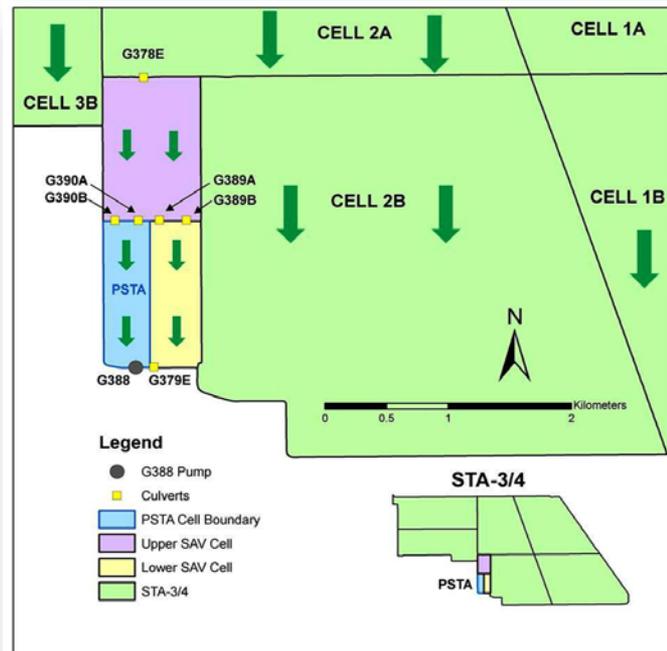
- Diffusive P flux - porewater samplers (peepers)
- Net P flux – diffusion chambers (vegetated vs. non vegetated)
 - Net P flux in the chambers indicates decreasing net P flux rates from inflow to outflow
 - Net P flux rates in inflow chambers similar to WCA-2A marshes
- Water quality transects



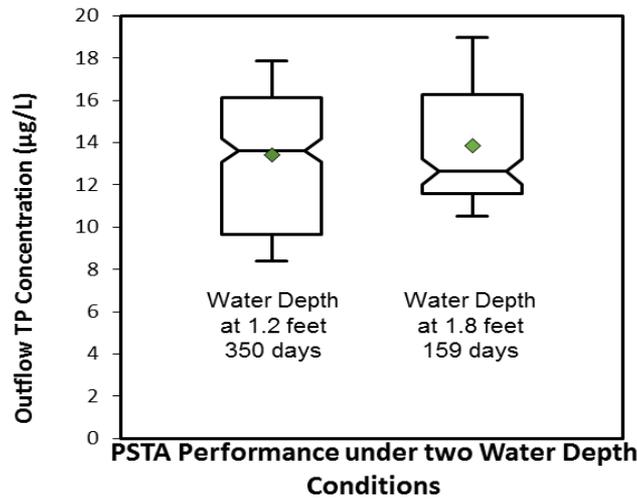
Periphyton-based Stormwater Treatment Area (PSTA): Performance, Design & Operational Factors

Study Objective

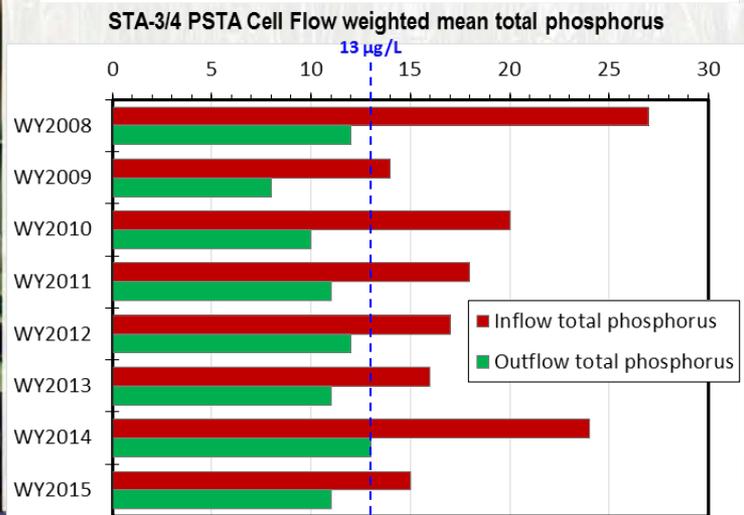
Investigation of PSTA cell performance to determine design elements, operational factors, & biogeochemical characteristics that enable the PSTA cell to achieve ultra-low outflow TP



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



The difference in operational water depth did not seem to affect treatment performance.



Average annual outflow TP concentration has been consistently \leq to 13 µg/L over its period of operation.

Additional Studies: Brief Updates

Use of Soil Amendments/Management to Control P Flux

Can STA soil P flux be reduced with soil amendments or management techniques?



Evaluate the Use of Alternative Vegetation Occurring in Low P Environments to Achieve Low P STA Discharge

Do rooted FAV reduce STA phosphorus discharge?



Impacts of Deep Water Inundation Pulses on Cattail Sustainability

Determine the depth and duration for sustainable cattail growth



Additional Studies: Brief Updates

Develop Operational Guidance for FEB/STA Regional Operational Plans

Develop tools and operational protocols for FEBs/STAs to minimize STA outflow P



Evaluation of the Influence of Canal Conveyance Features on STA & FEB Inflow & Outflow TP Concentrations

Determine whether P changes when conveyed through STA inflow & outflow canals



Sampling Methods for Total Phosphorus

Determine which sampling regime & method provides most accurate representation of TP



STA Water & Phosphorus Budget Improvements

Summary

- Restoration Strategies Science Plan Developed to optimize STA treatment performance to meet WQBEL
- Nine initial studies in various stages of implementation
- Science Plan updates and subsequent results presented in the annual SFER and technical publications

www.sfwmd.gov/restorationstrategies/