

Willard Spur Nutrient Cycling Research Update July 19, 2012

Dr. Heidi Hoven
Dr. William Johnson
Dr. Ramesh Goel
Dr. Sam Rushforth
Dr. David Richards

Overview

- Research Objectives / Schedule
- Experimental Plot Design
- Water and Sediment Chemistry
- Nutrient Flux Dynamics
- Macrophyte and Algal Response
- Macroinvertebrates
- Open Discussion

Research Objectives & Schedule

- What are the seasonal patterns of wetland dynamics in Willard Spur?
- Does nutrient loading affect these dynamics?
 - Provide an understanding of the natural variability of biological processes and productivity related to nutrient cycling in Willard Spur and to identify thresholds to nutrient loading using biological indicators.

Research Objectives & Schedule

- Monthly team coordination meetings (since March)
- Prepared DQO, SOPs, Safety Plan
- Installation and Monitoring
- Monthly biological response monitoring
- Flux chamber development and installation

Experimental Plot Design ~ Water & Sediment Chemistry



Macrophyte & Algal Response

- Visual Assessment:
 - % Cover
SAV, Epiphytes, Surface Mat
- Light Penetration
 - % Surface light
- SAV Branch Density
- SAV Biomass Cores
- SAV Tissue CNP



Macrophyte & Algal Response

- Phytoplankton biomass and productivity
 - Chl_a
- Macroalgal biomass
 - Periphyton collectors
- Phytoplankton flora
 - Modified vertebrator
- Benthic diatom samples



May 2012, Sediment Treatment



June 2012, Sediment Treatment



Outside of Plots: June



Shoreward - South



Shoreward - East

Natural Disturbance



Drifting Macrophyte Debris



Pelicans? ...



- Incidental Grazing
- Algae
- Water temperature
- Water and Sediment Chemistry

Macroinvertebrates

- Methodology
 - Figure 8 sweep
 - Core plus modified minnow traps
 - Core alone
- June sample variability between plots and among samples

