

# S333 Working Group Multiagency Recommendations – Phase 1

Technical Oversight Committee Meeting  
December 5, 2023

## **S333 Working Group Members**

**South Florida Water Management District**

**Everglades National Park**

**United States Army Corps of Engineers**

**Florida Department of Environmental Protection**

**Arthur R. Marshall Loxahatchee National Wildlife Refuge**

# S333 Working Group Background

- **The S333 Working Group was formed to:**
  1. Study the characteristics of phosphorus transport and sources passing through the S333 structure.
  2. Propose potential engineering, maintenance, and operational solutions (EMOs) aimed at resolving SRS exceedances.
- **The S333 Working Group developed an outline of initial solutions to be evaluated and studied in 2 phases. Phase I focused on:**
  1. Sediment characterization upstream of the S333 structure and nearby reaches of the L-29 and L-67A canals (NPS)
  2. Modeling flow scenarios and the potential effect on sediment entrainment (SFWMD)

# Phase I vs. Phase II Studies

- **Phase I:**

- Limited in Scope - emphasis on canal maintenance through initial localized EMOs (trap and/or remove sediments)
- Acknowledged additional studies and expanded EMOs could be needed (Phase II)

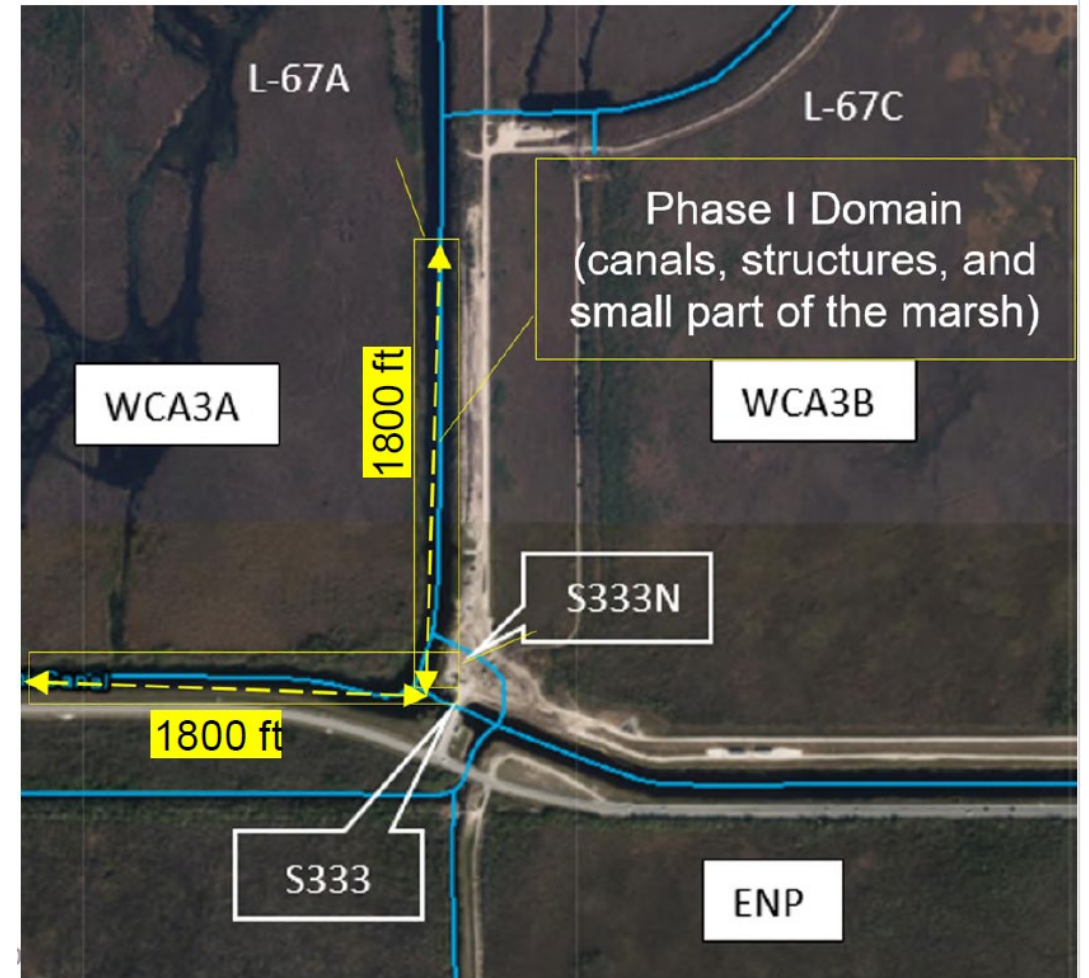
- **Phase II:**

- Comprehensive Study - upstream study area to include an expanded portion of the canals and marsh within WCA-3A, and focus on sources and mechanics of transport
  - What are the dominant sources (sediment, floc, and suspended in the water column) and what is contributing to those components from the canals and marsh within WCA-3A?
  - Expand scope through S333 Working Group.

# Phase I Studies



Local Sediment Characterization Study  
Locations of sampling events during April – June 2022

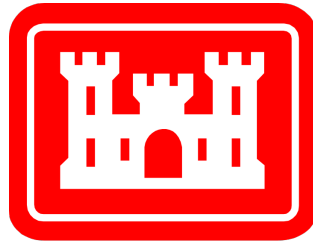


Hydrodynamic Study  
Phase I Model Domain

# Phase I Conclusions

- More than 8,000 cubic meters (10,500 cubic yards) of sediments accumulated in study area.
- Sediment TP levels were the highest in the L-29 canal followed by S333 and then the L67A canal and are indicative of enrichment if transported.
  - L-29 canal flows were predominately west during the two-year study
- Sediment samples collected in the L-67A and L-29 canals coupled with hydrodynamic modeling revealed flow velocities are high enough to entrain these sediments.
- Conceptual modeling revealed installing low-sill weirs upstream of the S-333 complex will reduce velocities therefore reducing bedload transport.

# Multiagency Consensus Recommendations



**US Army Corps  
of Engineers®**



# Multiagency Consensus Recommendations

## **Initial Actions:**

1. Engineering & Maintenance Solution
  - Removal of canal sediments
  - Low-sill weirs in the L-67A and L-29 Canals
2. Monitoring and Assessment Program

## **Future Actions (If warranted):**

3. Innovative Technologies Feasibility Study
4. Phase II Studies

# Engineering and Maintenance Solution

- **Removal of Canal Sediments**
  - 1,500 feet upstream of S333 complex in the L-67A and L-29 Canal
  - S333 Complex intake bay
- **Low-Sill Weirs**
  - Conceptualized locations shown
  - Exact locations TBD during design/permitting

## Estimated Completion: Federal Water Year 2025

- Expedited permitting
- Conducive construction conditions





# Monitoring and Assessment Program

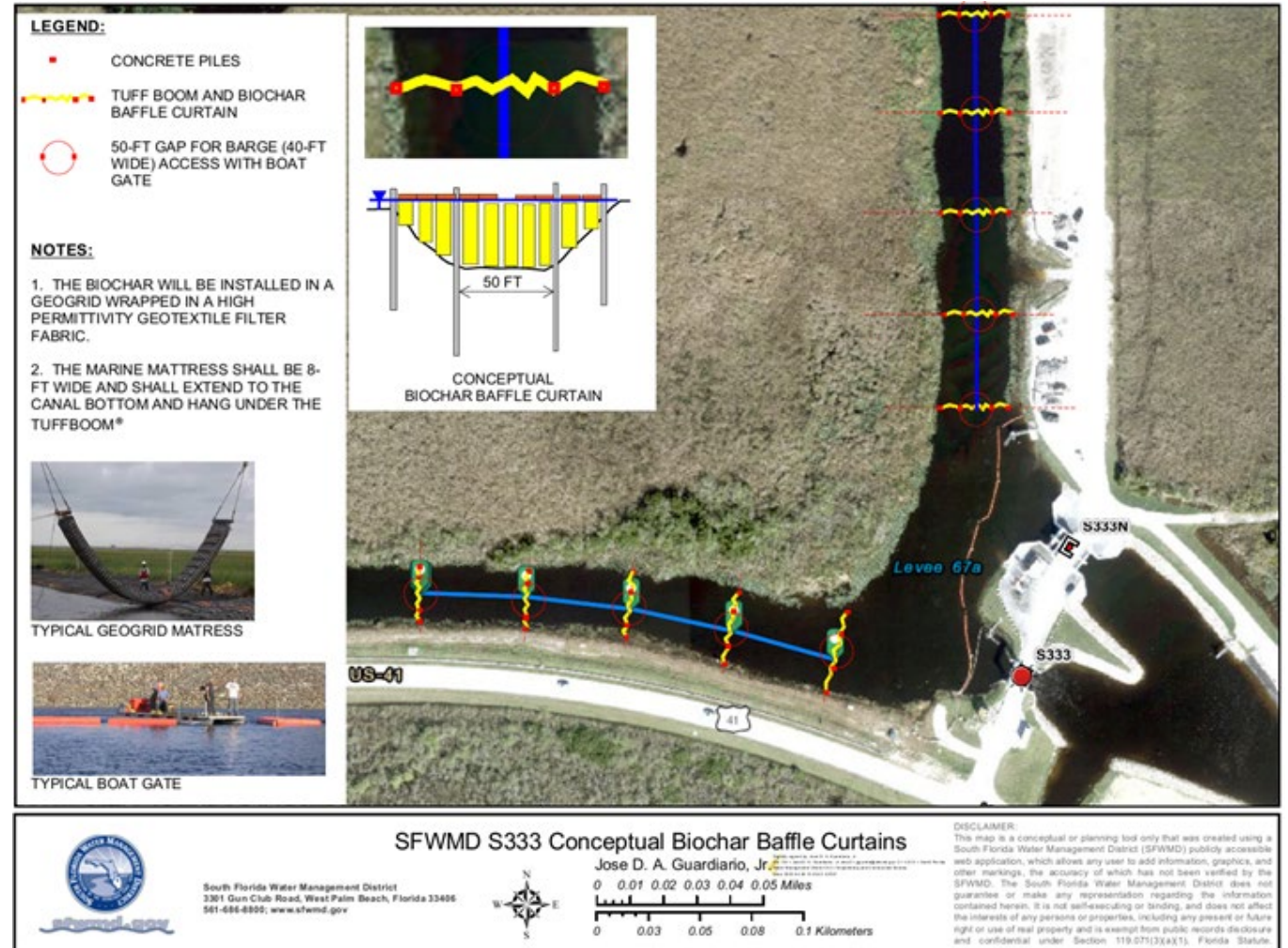
- ✓ **Monitor and evaluate the effectiveness of the initial solution**
- ✓ **Identify optimization opportunities**
- ✓ **Inform on future actions**

## **Comprehensive to include:**

- Bathymetric surveys
- Sediment sampling
- Surface water sampling
- Canal flow monitoring and directionality
- Data assessment
- Develop an updated local hydraulic model
- To begin following the implementation of the engineering and maintenance solution for up to five years.
- Analysis to occur annually for optimization of the initial solution and the monitoring plan.

# Innovative Technologies Feasibility Study

- The initial engineering and maintenance solution targets TP from consolidated sediment.
- A feasibility study on the potential use of innovative technologies to help address elevated TP levels from the flocculent material is recommended. For example, the use of Biochar Baffle Curtains.
- Once sufficient information from the monitoring and assessment plan is obtained, the S-333 Working Group will make a recommendation whether to pursue this study.



# Phase II Studies

- The S-333 Working Group acknowledged advancing the Phase I studies to Phase II is needed to further evaluate regional nutrient transport and better understand nutrient origins and dynamics in the general system.
- Once sufficient information from the monitoring and assessment plan is obtained, the S-333 Working Group will make a recommendation whether to pursue Phase II.
- At that time, the S-333 Working Group will work together to develop the scope and schedule for the Phase II studies, if determined necessary.