

Modified Water Deliveries to Everglades National Park (MWD) Project: Increment 1 Field Test

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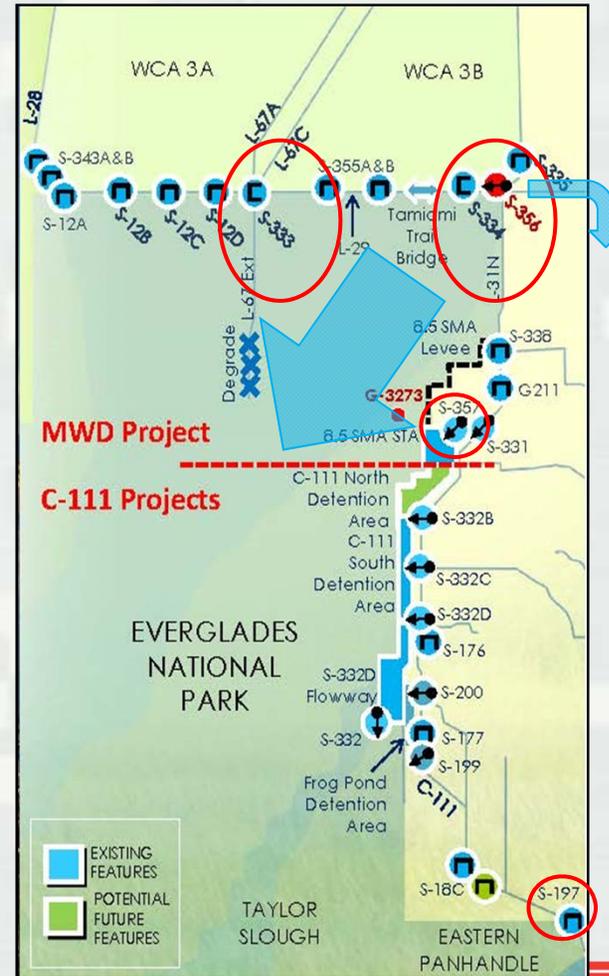
U.S. Army Corps of Engineers

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MWD Project

- Increment 1
 - ▶ Relaxation of G-3273 Gauge
 - ▶ Test S-356
 - ▶ Operations for S-357N
- Increment 2
 - ▶ Relaxation of L-29 Borrow Canal Constraint (maximum 8.5 feet NGVD)
- Increment 3
 - ▶ Combined Operational Plan
 - ▶ MWD and Canal 111 South Dade Project Features



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MWD Project: Increment 1 Field Test



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Purpose and Need

- Need for G-3273 Relaxation and S-356 Test
 - ▶ Gather information regarding increased water deliveries from WCA-3A to ENP through NESRS
 - ▶ Understand capability of S-356 to mitigate for additional seepage as a result of initial implementation of increased MWD flows to NESRS with G-3273 relaxation
 - ▶ Demonstrate that the S-356 can be operated without adverse impacts to WQ or flood mitigation/protection
 - ▶ Aid in the development of the final water management operating criteria needed to complete MWD
 - ▶ Support the operating permit needed for S-356 (test authorization for field test)
- Benefits from the G-3273 Relaxation and S-356 Test
 - ▶ Provides gradual increase to NESRS - transitions the environment for CEPP flows
 - ▶ Ability to move more water from WCA-3A will benefit multiple species
 - ▶ Potential for reducing frequency of adverse high stages in southern WCA-3A
 - ▶ Takes advantage of the \$120 Million Tamiami Trail Construction
 - Field test results will be used to provide the next update to the 2012 ERTWP WCP
 - Additional flows will be delivered through the MWD 1-mile eastern bridge, while additional real estate interests are acquired to enable raising L-29 Canal stage above 7.5 feet NGVD



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Objectives of Increment 1 Field Test

- A. Improve hydrological conditions in NESRS through the relaxation of the G-3273 stage criteria to increase water deliveries from WCA 3A to NESRS, while maintaining other C&SF Project authorized purposes.
- B. Use the S-356 pump station to manage seepage from NESRS to the L-31N Canal resulting from the relaxation of the G-3273 stage constraint on S-333, in conjunction with increased flows through the S-333 spillway to NESRS via the L-29 Canal.
- C. Improve hydrological conditions in NESRS by maximizing the flexibility and efficiency of the existing infrastructure, including use of seepage management (e.g., S-356) to complement inflows to NESRS from WCA 3A.
- D. Gather and analyze infrastructure performance, ecologic, hydrologic and water quality data sufficient to support Increment 2, resulting in the following:
 - i. Data gathering sufficient to support water quality certification
 - ii. Refined operational criteria for the MWD and C-111 South Dade Projects
 - iii. Updates to the 2012 Water Control Plan



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Constraints of Increment 1 Field Test

- A. L-29 Canal maximum operating limit of 7.5 ft NGVD, pending future acquisition of real estate interests along Tamiami Trail and additional NEPA documentation
- B. Maintain the authorized purposes of the C&SF Project and subsequent modifications to include:
 - I. MWD Project
 - II. C-111 South Dade Project
 - III. CERP
- C. No reduction in current flood protection
- D. Maintain the current multi-species objectives of the 2012 Water Control Plan and comply with the requirements of the applicable biological opinion from the USFWS, to include ERTP and CERP C-111 Spreader Canal Western Project



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Operational Plan

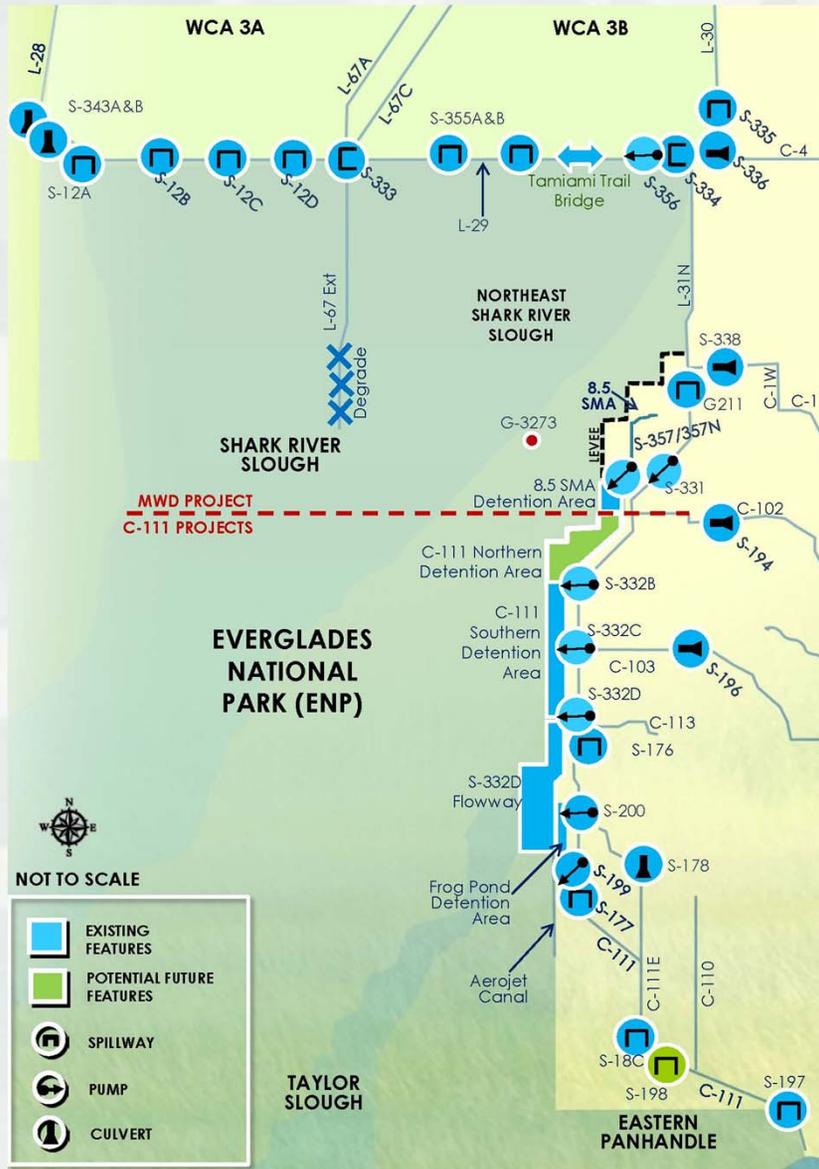
- The field test will maintain the current operating limit constraint of 7.5 feet NGVD in L-29 Canal and includes no changes to water supply operations.
- During the field test, the combined flows to NESRS through S-333 and S-356 will be more than what would have otherwise been discharged through S-333 under current ERTTP operations.
- It is expected that under typical conditions, the combined flows through S-173 and S-331 to the C-111 Basin will be less than what would have been discharged through these features currently (reduced S-333/S-334 flows to SDCS).
- Increased seepage to the L-31N Canal, prior to completion of C-111SD Contract 8 North Detention Area.
- Additional low-volume releases through S-197 (based on S-178 TW stage levels) if WCA 3A stages rise above the Increment 1 Action Line (IOP Zone A: 10.0-10.75 feet NGVD), which triggers no pumping at S-356 to aid WCA 3A.
- S-355A and S-355B may be utilized to discharge to the L-29 as indicated under current operations and other future associated permit requirements, if available for use.



Operational Plan

- The 2012 Water Conservation Areas, Everglades National Park, ENP-South Dade Conveyance System (WCAs, ENP, ENP-SDCS) Water Control Plan does not contain water management operating criteria for the planned spillway S-357N. The field test includes a testing protocol for S-357N.
- Field test duration is planned for approximately two years (minimum 1 year). The Increment 1 field test will initiate when hydrologic conditions allow for relaxation of G-3273 above 6.8 feet NGVD consistent with the objectives of this field test. The field test may be implemented as early as June 2015.
- The Corps does not plan to impose operational constraints for water quality that could restrict or otherwise limit inflows to NESRS.
- Approval of operational strategy and completion of NEPA documentation anticipated in June 2015. Initiation of operational testing will be dependent on weather conditions.





PROJECT LOCATION & RELEVANT C&SF PROJECT FEATURES OF THE MWD PROJECT & C-111 PROJECTS

Operational Plan



Monitoring Plan

- Hydrometeorological
- Water Quality
- Ecological
 - ▶ Cape Sable Seaside Sparrow
 - ▶ Wood Stork
 - ▶ Coastal Salinity
- Cultural Resources

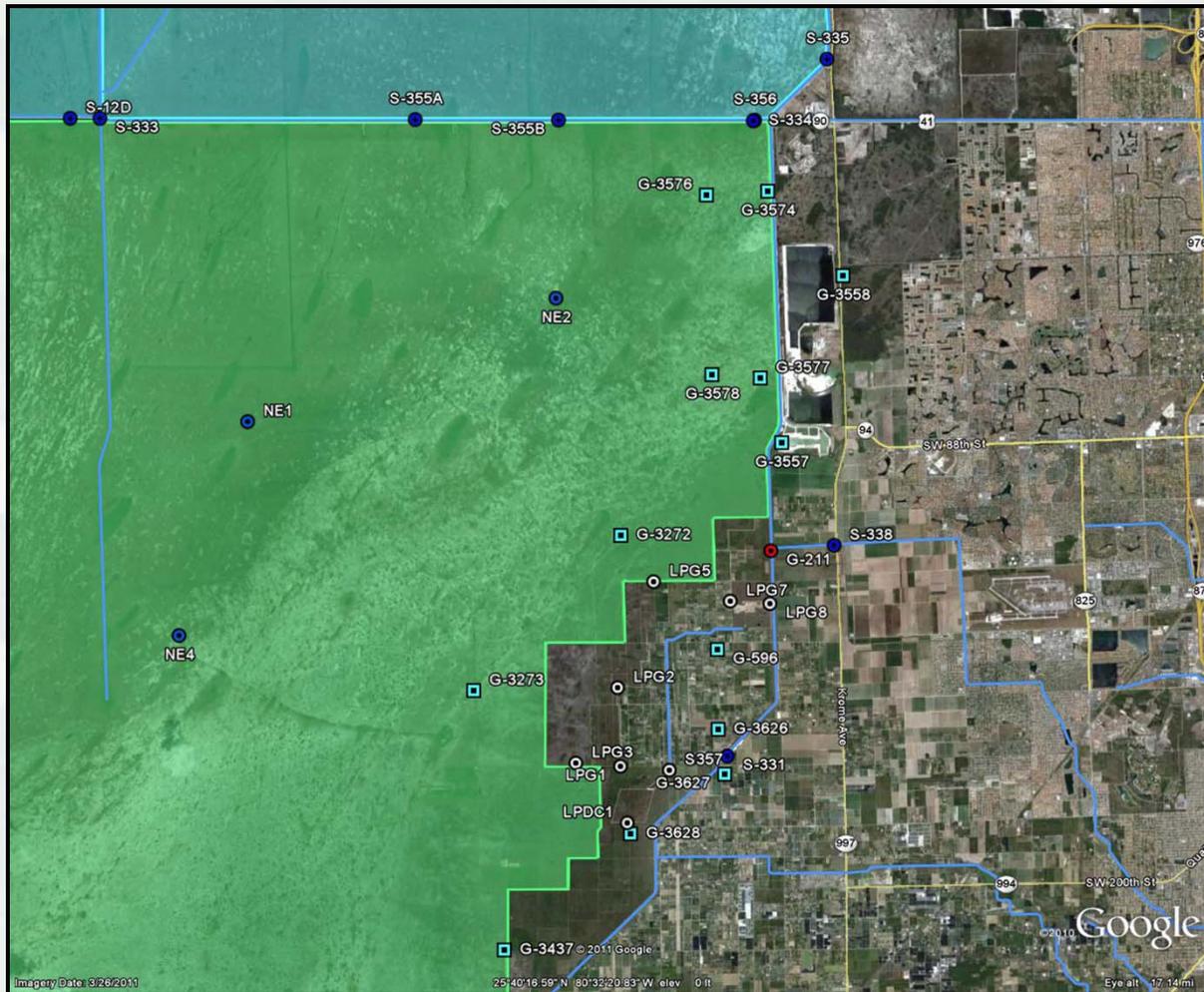


Monitoring Plan

- Will use existing groundwater and surface water monitoring instrumentation and locations or wells. Some new stations added.
- Multi-agency effort – Resources provided by SFWMD, USACE, ENP, USGS
- Leverage on-going SFWMD monitoring of CERP C-111 Spreader Canal project to assess effects in South Dade, with additional analysis by USACE
- Real-time data are available – SFWMD DBHydro database, USACE seepage management portal, USACE field test website (to include pre-project baseline data)
- Purpose is to evaluate effects of testing regime to GW flow, surface water flow and water quality
- Interagency workshops to facilitate discussion of field test performance relative to the achievement of field test goals and objectives are planned to be conducted approximately four times per year



Surface Water Level and Flow

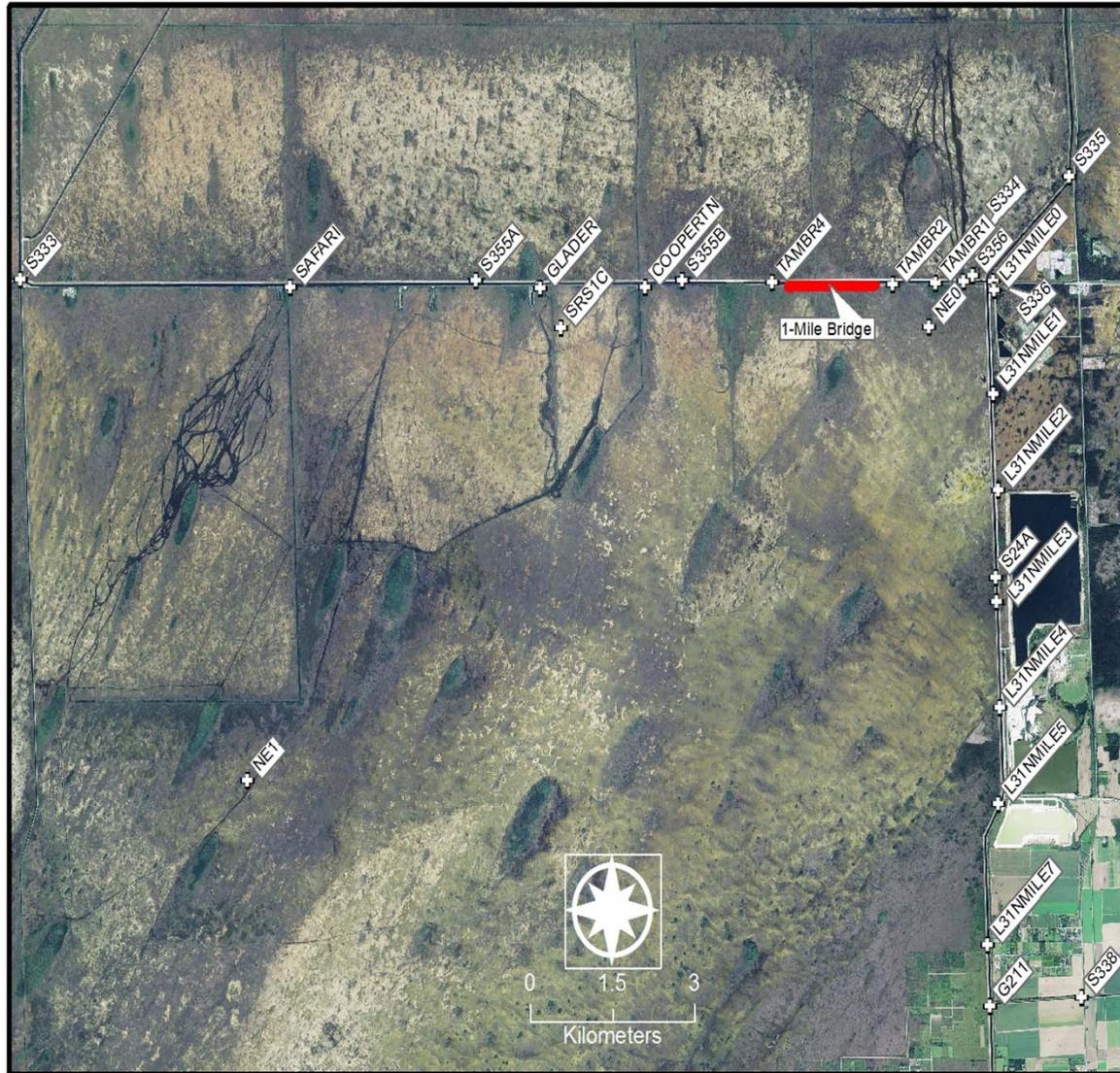


30 monitoring points at structures and gages

Measure stage and discharge



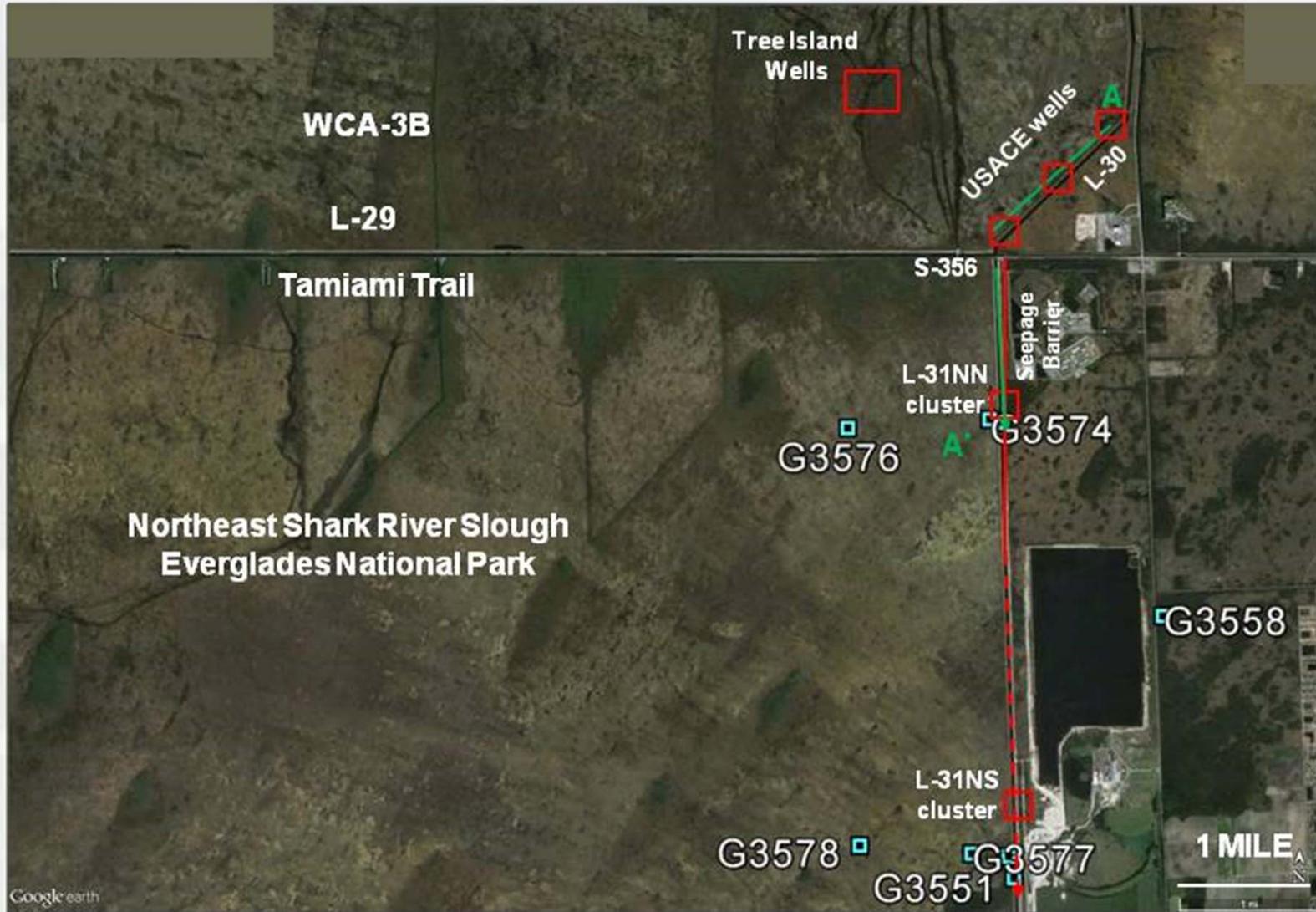
S356 Pump Test Surface Water Quality Monitoring



SRS1B is west of L67-Extension



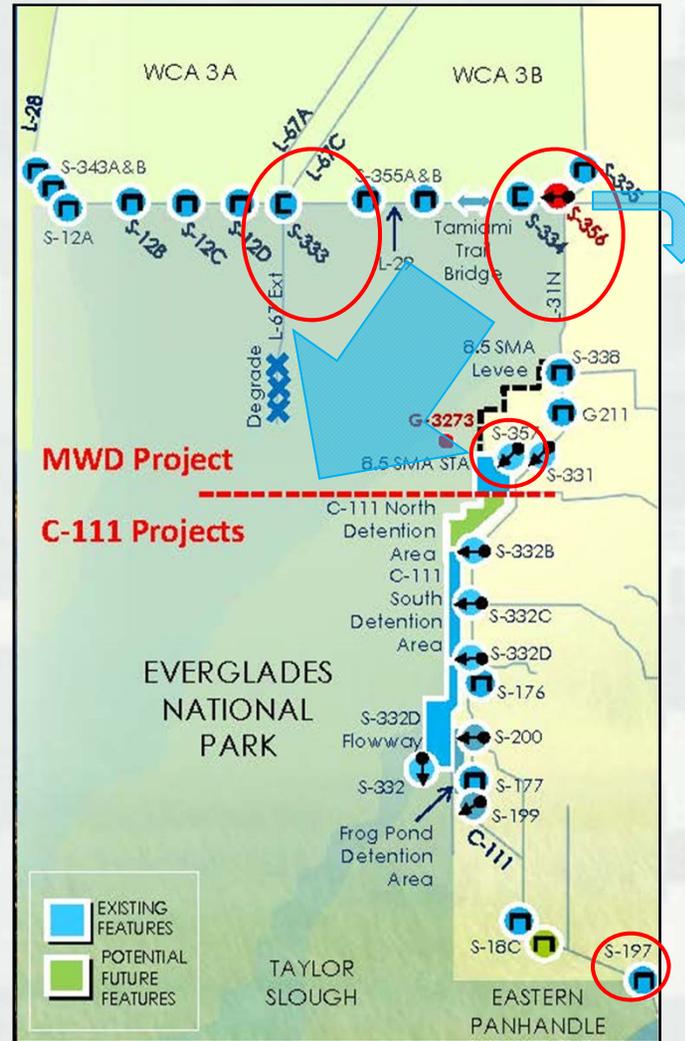
Groundwater Level and Flow



Ground water monitoring



Questions?

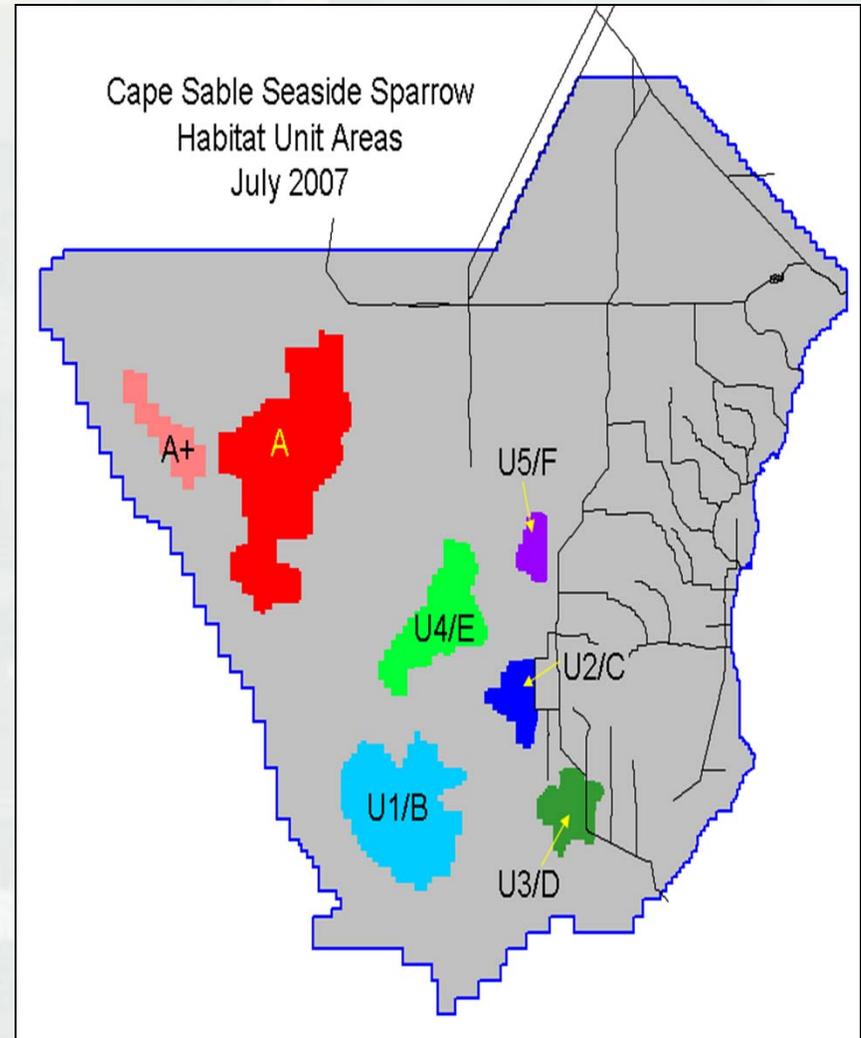


Cape Sable Seaside Sparrow

Monitor existing hydrological gages to measure potential hydrologic impacts within CSSS-subpopulations:

1. **Dry nesting days at related gages within CSSS-E, CSSS-F, and CSSS-C between March 1 and July 15.**
2. **Annual hydroperiod or number of days water is above ground surface during the water year.**

Sub-Population	Gages
E	NP-206, , CR3, A13, NP62, NP44
F	RG1, RG2, RG3
C	E112, R3110, NTS10, NTS1, NTS18, NTS14



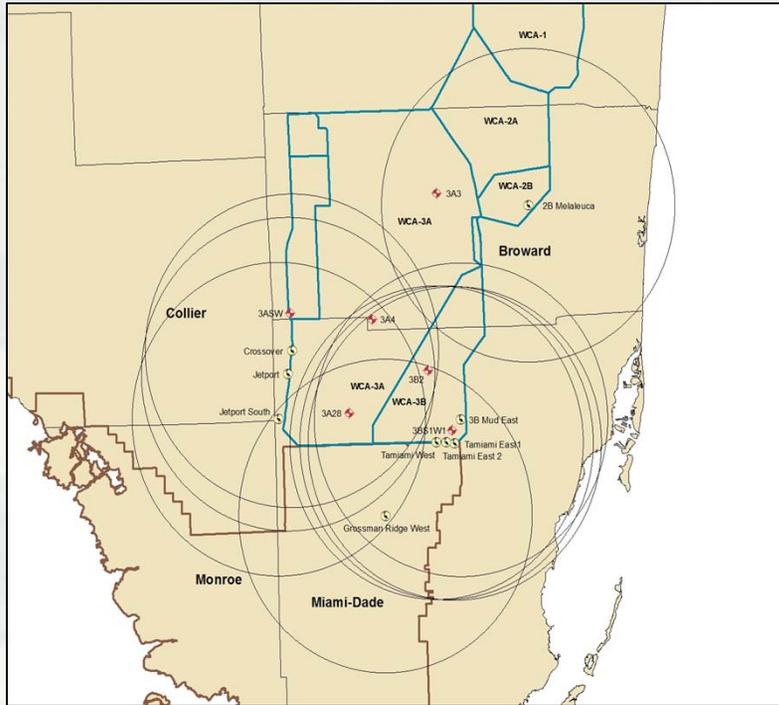
CSSS sub-populations (A-F) and designated Critical Habitat Units



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Wood Stork

Monitor existing hydrological gages to measure foraging depths and recession rates within TT-West, TT-East, TT-East 2, and Grossman Ridge West



- 1. Water depths (5-25 cm) within the Core Foraging Area (18.6 mile radius, CFA) of any active wood stork colony**
- 2. Recession rates (optimal range of 0.06 to 0.07 feet per week), from January 1 to June 1.**

Water Depth (centimeters)
< -9 cm
-9 to 4 cm
5 to 25 cm
26 to 40 cm
> 40 cm

Recession Rate (feet per week)
< 0.17
> 0.07 but \leq 0.17
Preferred 0.06-0.07
\geq -0.05 but < 0.06
< -0.05



COASTAL SALINITY MONITORING

- Corps will monitor existing salinity gages to measure potential hydrologic impacts associated with operational criteria included within the field test for S-197 (S-18C HW).
- Salinity gages
 - ▶ Joe Bay, Long Sound, Manatee Bay and Barnes Sound (ENP Marine Monitoring Network)
 - ▶ Manatee Bay and Barnes Sound (Biscayne National Park)
- SFWMD proposes installation of additional gages



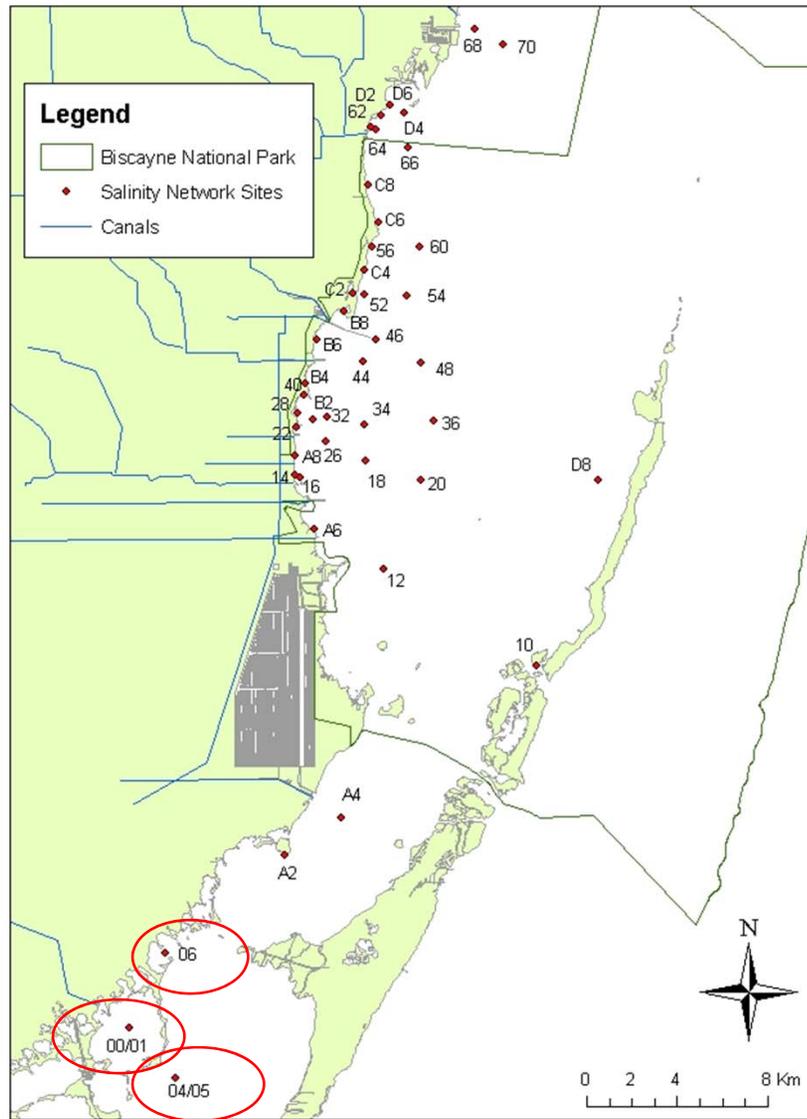
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Field Test Salinity Monitoring Stations
 ENP Marine Monitoring Network
 ENP JB, ENPLS, MBTS and TPTS



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Field Test Salinity Monitoring Stations – Biscayne National Park

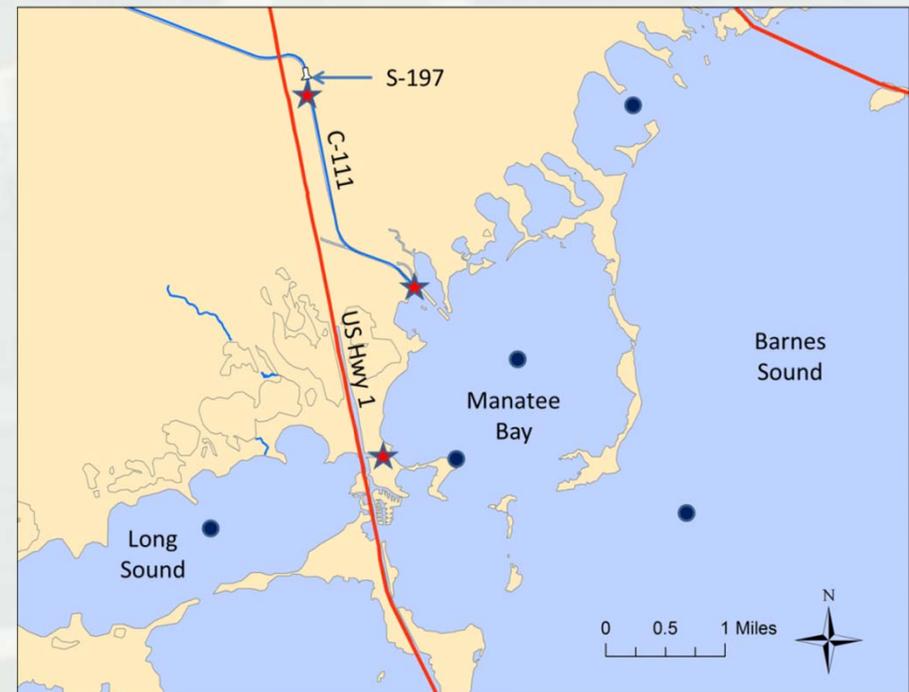
Pertinent Salinity Monitoring Stations
BISC 00; BISC 01; BISC 04; BISC 05;
BISC 06



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COASTAL SALINITY MONITORING

- SFWMD proposes addition of salinity monitoring stations.
- Event-driven, flow-through spatial salinity mapping unit called the Dataflow, built and maintained by the SFWMD, would be used to track the resulting freshwater plume during releases from S-197.



Existing Stations - Dark Blue Circles
New Stations – Red Stars



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