BRINGING TOGETHER THE EVERGLADES RESTORATION COMMUNITY: ESTABLISHING A COLLECTIVE UNDERSTANDING OF MONITORING EFFORTS OCCURRING IN SOUTH FLORIDA

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Photo credit: Frank Mazzotti (University of Florida)

BACKGROUND

COMPREHENSIVE EVERGLADES RESTORATION PLAN (CERP)

South Florida hosts diverse ecosystems ranging from the Everglades headwaters of Lake Okeechobee to the freshwater Everglades to the coastal estuaries and bays. Drastic and damaging changes to the function, composition, and spatial extent of these ecosystems began when Everglades drainage activities started in the early 1900s and continued through the 1960s when the Central and Southern Florida Flood Control Project (C&SF) was authorized.

Congressional authorization in 2000 for Everglades restoration approved the Comprehensive Everglades Restoration Plan (CERP) to restore, preserve, and protect the south Florida ecosystem while providing for other water-related needs of the region including water supply and flood protection.

RECOVER

REstoration, COordination and VERification (RECOVER), is an interagency and inter-disciplinary scientific and technical team within CERP.

RECOVER organizes and applies scientific and technical information effectively to support the objectives of the CERP. Three main missions of RECOVER are:

ASSESSMENT: Measuring system-wide performance of projects through research and monitoring.

EVALUATION: Forecasting project performance through predictive modeling and performance measures.

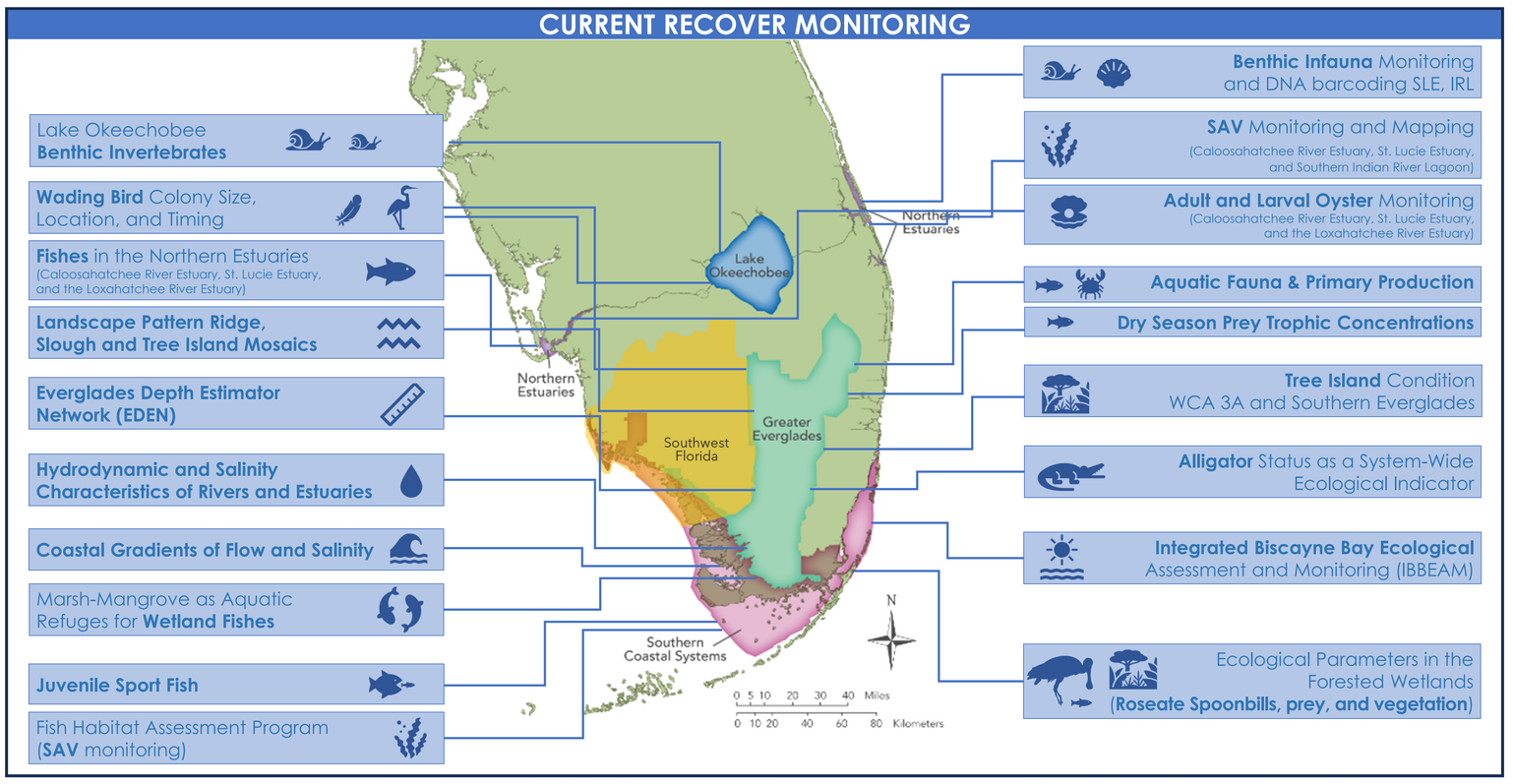
PLANNING: Integrating RECOVER with planning and operation of the system.

RECOVER MONITORING AND ASSESSMENT PLAN (MAP) USES AND VALUE TO EVERGLADES RESTORATION

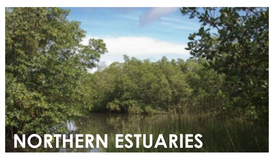
Everglades restoration requires system-wide monitoring efforts throughout the various ecosystems to assess CERP success. RECOVER developed the MAP to guide Everglades monitoring, reduce uncertainties about key ecological components and linkages within the distinct ecosystems, and to assess ecosystem responses to CERP activities. The MAP supports CERP programmatic advances and project-specific goals to inform planning, implementation, operations, and adaptive management options.

The expansive area and diverse ecosystems of the Everglades necessitated RECOVER to originally develop four individual modules to provide a regional landscape level of organization representing similar systems. A fifth module was formed in 2022 which does not currently have MAP activities in place. RECOVER science strategy, depicted in the right panel, will guide development of a suite of indicators for the Southwest Florida Module.

CURRENT RECOVER MONITORING




LAKE OKEECHOBEE


NORTHERN ESTUARIES


SAWGRASS PRAIRIE
GREATER EVERGLADES


RIDGE AND SLOUGH
FRESHWATER PEATLANDS
GREATER EVERGLADES


MANGROVE ESTUARIES
SOUTHERN
COASTAL SYSTEMS

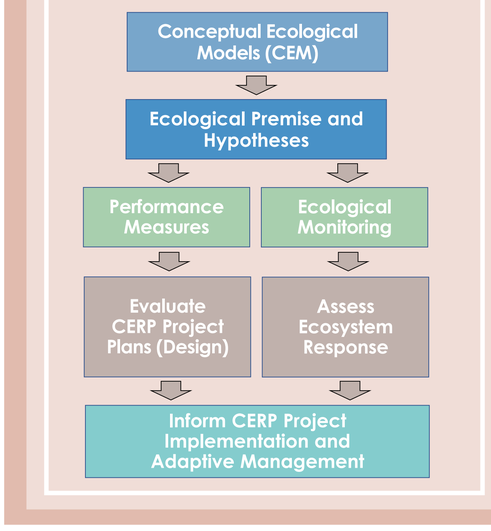

FLORIDA BAY
SOUTHERN
COASTAL SYSTEMS

RECOVER SCIENCE STRATEGY

Achieving CERP goals requires a scientific framework to understand the ecological systems, and to establish baseline (pre-CERP) conditions. It is also critical to the assessment of ecosystem response and to provide an organized structure to evaluate CERP project design, inform project implementation, and perform Adaptive Management.

RECOVER's MAP is based on ecological premises and hypotheses to determine ecological responses to CERP activities. Hypothesis clusters congregate similar ecological unknowns to serve as a method to:

- Address stressor-response relationships in the system
- Provide refinement in types and numbers of performance measures and metrics
- Identify monitoring/research needs and to plan the design of restoration programs
- Outline uncertainties in the system



HISTORY OF THE MONITORING AND ASSESSMENT PLAN (MAP)

EVERGLADES RESTORATION PARTNERS

CERP goals and objectives cannot be accomplished without the scientific and technical guidance provided by the RECOVER partners. The assumption has always been that partner entities would contribute to monitoring as it fits within their mission(s) and responsibilities.

The U.S. Army Corps of Engineers (USACE) and the South Florida Water Management District (SFWMD) share RECOVER program management responsibilities.

Everglades restoration activities and research expands beyond the RECOVER partners and relies on scientific and technical expertise from 11 additional non-governmental organizations, universities, and private entities.

RECOVER Partners

Additional Organizations Providing Technical and Science Expertise

RECOVER MAP MONITORING HISTORY AND ACTIVITIES

The RECOVER MAP, first developed in 2004, included indicators likely to show ecological responses to CERP projects. RECOVER continually reassesses the science of Everglades restoration and monitoring plans to evaluate progress towards reaching CERP goals. Since 2004, revisions and adjustments have occurred based on information learned, as well as funding available. The timeline highlights key events in the MAP ranging from expanding and reducing monitoring activities to strategies incorporated to ensure appropriate spatial and temporal monitoring occurs. Future MAP updates aim to provide assessment of the systemwide responses of CERP implementation and detect unexpected responses of the ecosystem to changes in stressors resulting from CERP activities.

MONITORING AND ASSESSMENT PLAN (MAP) TIMELINE

2000 — CERP Authorized By Congress

2004 — RECOVER Develops the MAP to Include Indicators Likely to Show Ecological Responses to CERP

2009 — MAP Revisions Based on 5-Year Assessment


CERP MONITORING AND ASSESSMENT PLAN
Restoration Coordination and VERification (RECOVER)
America's Everglades
Comprehensive Everglades Restoration Plan
Central and Southern Florida Project
Revised
December 2009

2011 — MAP Optimizations Due to Lack of Funding – Reduced Monitoring Leaves Some Hypotheses Unaddressed

MAP Monitoring Begins to Occur at a Reduced Spatial and Temporal Scale


Photo Credit: Alex Blochel (National Audubon Society)

2022 — RECOVER Initiates MAP Summary Task Team to Assess Current MAP Activities

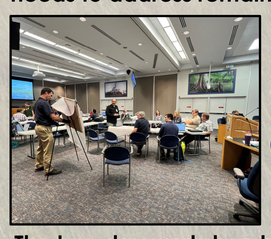
2023 — RECOVER and Task Force Science Coordination Group Host a Workshop to Assess Regional and Systemwide Monitoring Currently Underway

2026 — RECOVER to Evaluate Map Monitoring and Develop Recommendations for Improving the MAP to Ensure the Monitoring Framework is Adequately Robust

2023 WORKSHOP | STATUS OF MONITORING ACROSS THE SOUTH FLORIDA RESTORATION COMMUNITY

GOALS AND FORMAT

RECOVER partnered with the South Florida Ecosystem Restoration Task Force Science Coordination Group to host a workshop for the south Florida restoration community to collectively identify current monitoring efforts occurring within the CERP footprint and future science and monitoring needs to address remaining uncertainties and assess CERP success.



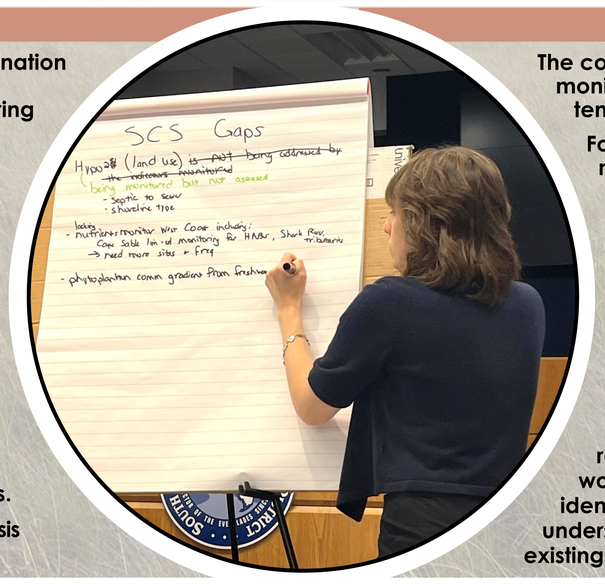
Workshop goals included:

1. Crosswalk monitoring occurring by various entities with RECOVER hypotheses and uncertainties, and
2. Identify overlaps and gaps in science and monitoring to support CERP restoration goals and objectives.

The two-day workshop brought together over 100 participants representing 17 local, state, federal, tribal, and academic entities and provided opportunities for promoting and leveraging collaboration.

Day 1: Survey of monitoring across the Southern Coastal Systems and Northern Estuaries Modules.
Day 2: Survey of monitoring across the Lake Okeechobee and Greater Everglades Modules.

Small group discussions focused on monitoring associated with uncertainties within each hypothesis cluster which provided a system-wide perspective of Everglades monitoring activities.



PRODUCTS AND BENEFITS

The collaborative efforts of the restoration community produced an ecological and hydrological monitoring inventory for south Florida which includes spatial and temporal scales and monitoring metrics.

Four products were developed for each of the RECOVER Hypothesis Clusters and the measured attributes within the hypothesis cluster:

- Monitoring inventory in south Florida related to each hypothesis cluster
- Regional maps showing all monitoring activities
- Identification of monitoring overlaps of indicators
- Identified gaps (spatial and temporal) in indicator monitoring

Benefits extended beyond the product-driven workshop goals to include reestablishing a collective sense of community and shared restoration goals, developing new connections between participants, and developing effective and efficient communication tools for future RECOVER engagements.

FUTURE USES OF WORKSHOP PRODUCTS

Post-workshop, RECOVER developed a Synthesis Report detailing the value and recommendations for uses of workshop materials: 1) the information gained at this workshop will inform the future RECOVER MAP Update; 2) the RECOVER Workshop Task Team identified 376 monitoring activities with high relevance to CERP goals and objectives; 3) shared understanding of partner activities for Everglades restoration; and 4) the ability to leverage existing monitoring activities across south Florida to detect changes in the ecosystem.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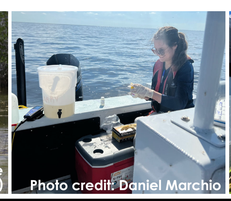
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