



How RECOVER Adaptive Assessment and Monitoring Informs CERP Planning, Implementation, & More!

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WQ/SCG



PURPOSE OF THIS PRESENTATION

- Provide an overview and foster an understanding of:
 - RECOVER Adaptive Assessment and Monitoring (AA&M) and Monitoring and Assessment Plan (MAP)
 - History, current state, and future
 - MAP data applications



WHAT IS ADAPTIVE ASSESSMENT AND MONITORING (AA&M)?

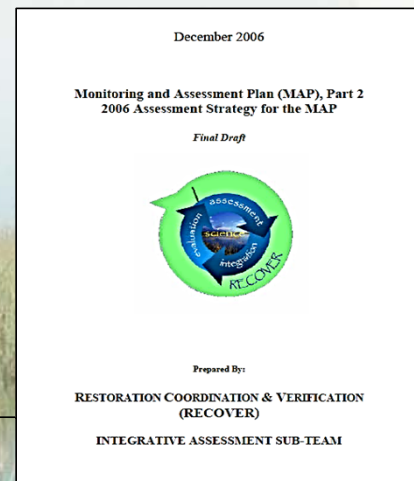
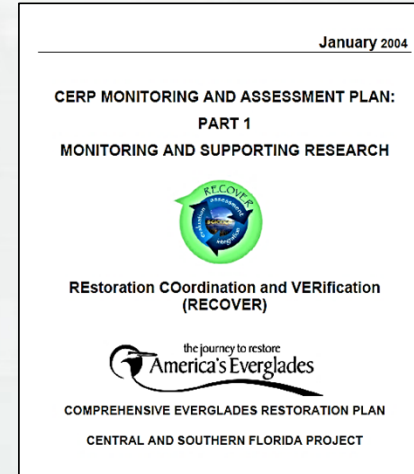
- Authorized in Water Resources Development Act of 2000
- CERP Programmatic Regulations instruct that RECOVER:
 - 1) Develop an adaptive assessment program to **assess system responses to CERP implementation**
 - 2) Design and implement a monitoring program to **measure status and trends towards achieving CERP goals and purposes**
 - 3) Use monitoring information as a basis for **conducting assessment tasks**



ADAPTIVE ASSESSMENT AND MONITORING PROGRAM HISTORY

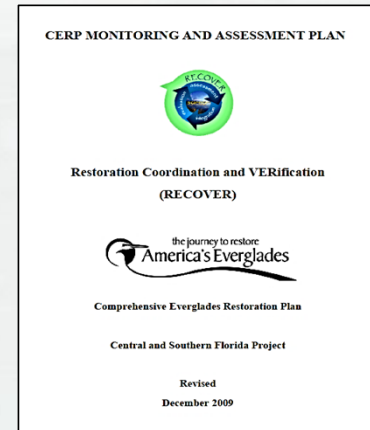
RECOVER developed the Monitoring and Assessment Plan (MAP) to address the primary AA&M tasks

- Overarching goal for MAP implementation is to have **single, integrated, system-wide monitoring and assessment plan**
- RECOVER Monitoring and Assessment Plan 2001
- MAP 2004 & 2006
 - Monitoring and Supporting Research (Part 1)
 - and Assessment Strategy (Part 2)
- MAP 2009:
 - Conducted update & applied 2009-2011



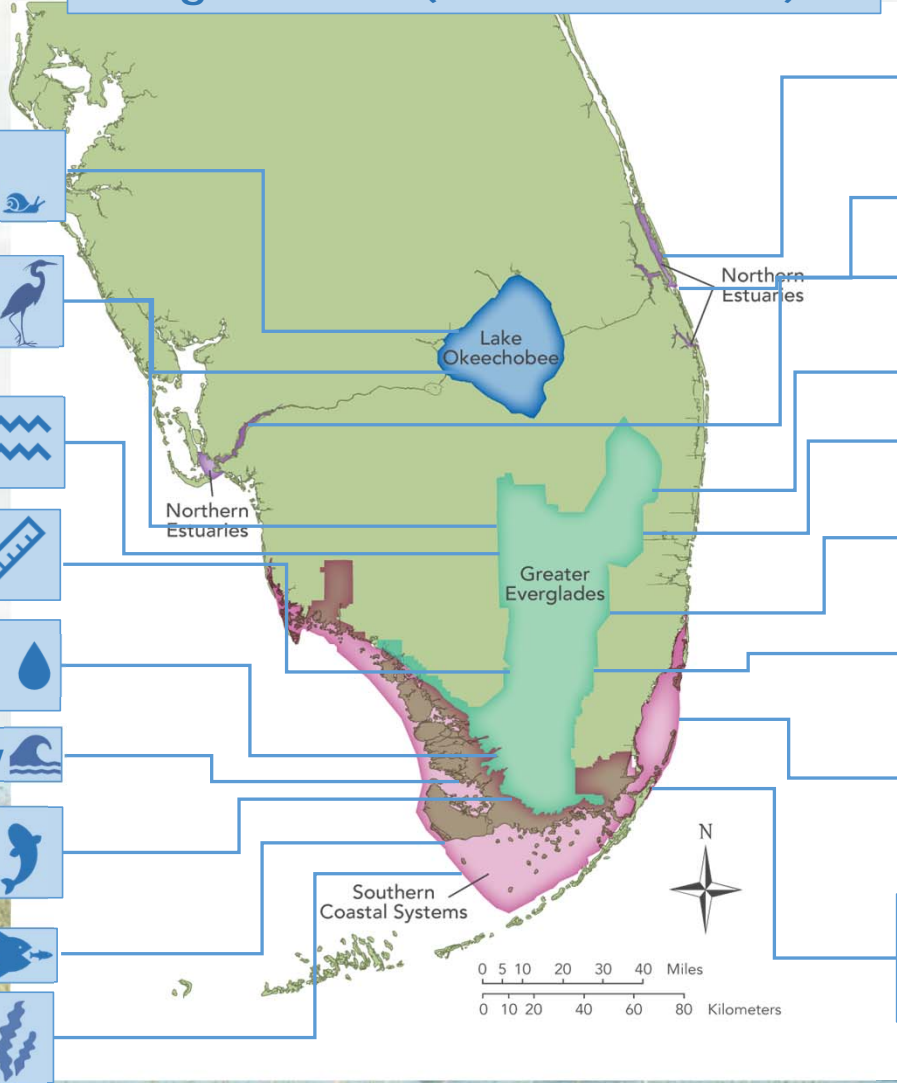
ADAPTIVE ASSESSMENT AND MONITORING PROGRAM HISTORY

- MAP from 2012-2022:
 - Due to budget constraints, an overall reduction in 2009 MAP monitoring efforts for succeeding years, including elimination of entire monitoring projects.
 - As priorities or needs have been identified, existing resources shifted to different monitoring components identified within the 2009 MAP.
 - Some efforts/projects have been restored over recent years due to slight increases in annual budget, though overall budget and level of effort has remained reduced compared to pre 2012 years.



CURRENT MAP SCOPE

Agreements (USACE & SFWMD)



Lake Okeechobee **benthic invertebrates**



Wading Bird Colony Size, Location, & Timing



Landscape Pattern Ridge, Slough & Tree Island Mosaics



Everglades Depth Estimator Network (EDEN)



Hydrodynamic & Salinity Characteristics of Rivers & Estuaries



Coastal Gradients of Flow & Salinity



Marsh-Mangrove as Aquatic Refuges for **Wetland Fishes**



Juvenile Sport Fish



Fish Habitat Assessment Program (**SAV** monitoring)



Benthic Infauna Monitoring & DNA barcoding SLE, IRL



SAV monitoring & mapping CRE & SLE & Southern IRL



Adult and Larval Oyster Monitoring CRE, SLE, LRE



Aquatic Fauna & Primary Production



Dry Season Prey Trophic Concentrations



Tree Island Condition WCA 3A & Southern Everglades



Alligator Status as a System-Wide Ecological Indicator



Integrated Biscayne Bay Ecological Assessment & Monitoring (IBBEAM)



Ecological Parameters in the Forested Wetlands (**Roseate Spoonbills, prey, and vegetation**)



MAP PRODUCTS SUPPORT:

CERP Programmatic Support

- **Predictive Evaluation Tools** (RECOVER Performance Measures, Habitat Suitability Index Models, USGS Joint Ecological Modeling efforts, Everglades Vulnerability Analyses, - **Interim Goals and Interim Targets**
- **Evaluation and Assessment & Reports** (IG/IT, Periodic CERP Update, System Status Report, Report to Congress)

Project-Specific Support

- **RECOVER Recommendations for Improving Project PMs and Evaluating Alternatives, Monitoring Plans** (Consistency Review & Evaluation), **and during PED**
- **Informing Project Justification during Planning Phase** (Habitat Unit Calculation)
 - **Regulatory Support** (ESA Section 7, NHPA Section 106)
 - **Leveraged by & Supplement Project-Level Monitoring**
 - **Adaptive Management Guidance**

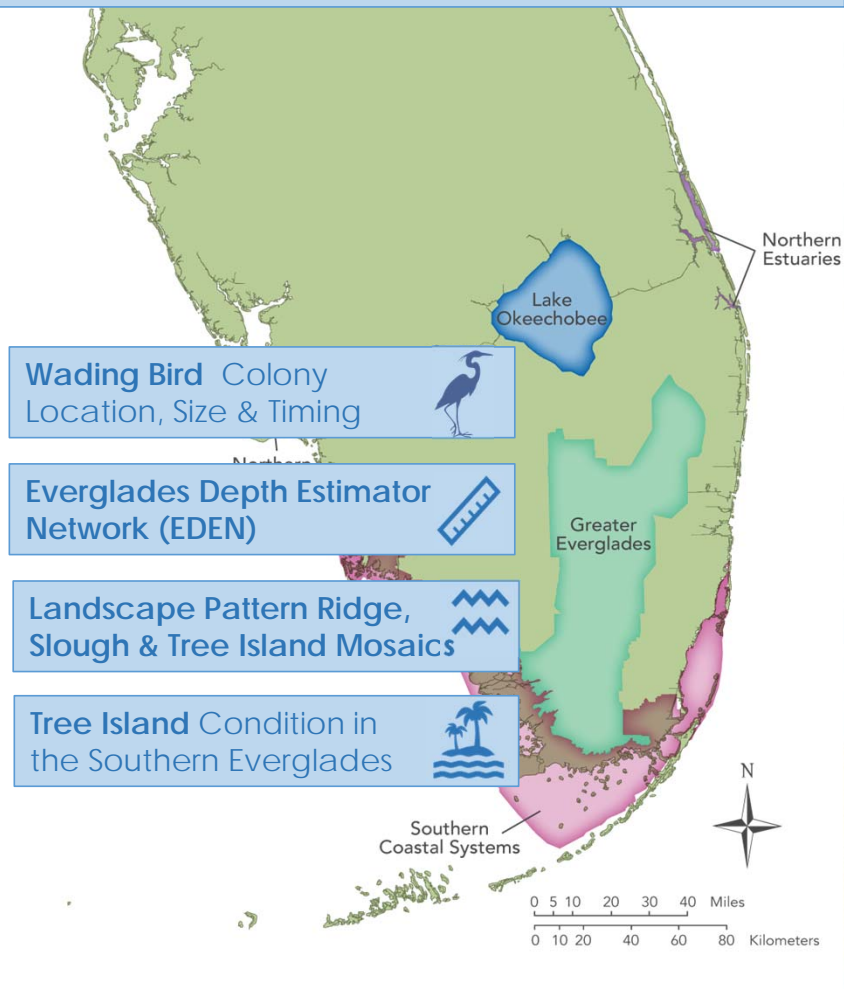
South FL Ecosystem Restoration Support (CERP & non CERP)

- **SFWMD annual South Florida Environmental Report**
- **South Florida Ecosystem Task Force System-Wide Biennial Report & Stoplight Indicator Report**
- **South Florida Wading Bird Report**
- **Inform Water Control Plan Development** (ERTP, COP, LOSOM)
- **Inform Weekly Water Management Decisions** (Ecosystem Based Management recommendations, Ecological Conditions Updates, Periodic Scientist Calls)



Select Examples of Data Application

MAP Agreements

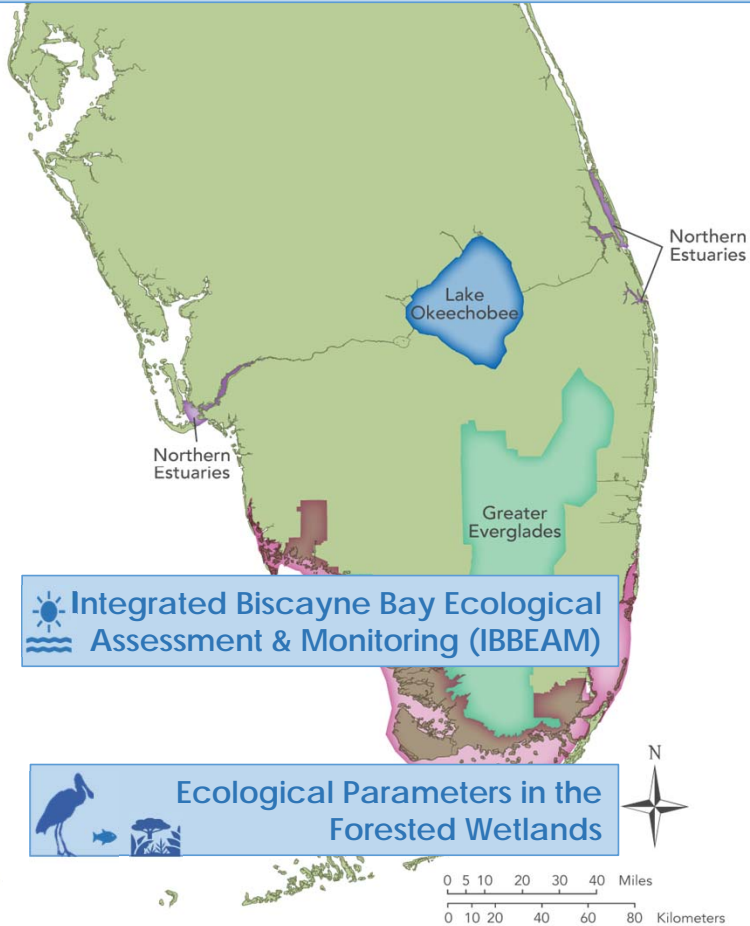


MAP Data Applications

1. WERP Planning & Evaluation
2. CEPP Planning, Evaluation, & Adaptive Management
3. CEPP Monitoring Plan
4. Periodic CERP Update Technical Evaluation
5. Southern Everglades Study Planning & Evaluation
6. Inform Regulatory Monitoring and NEPA analysis
7. Tribal Consultations
8. Ecological Planning Tools (JEM, EverWaders, EVA)
9. COP Planning, Evaluation, & Assessment
10. LOSOM Planning & Evaluation
11. Weekly Water Management Conditions
12. SFWMD South Florida Environmental Report
13. South Florida Wading Bird Report
14. SF Ecosystem Restoration Task Force Biennial Report

Select Examples of Data Application

MAP Agreements



MAP Data Applications

1. Biscayne Bay Salinity Model
2. BBCW Phase-1 Monitoring Plan
3. BBSEER Nearshore Performance Measure
4. BBSEER Habitat Unit Calculations
5. Southern Everglades Study Planning & Evaluation
6. Crocodile PM & Ecological Planning Tool
7. Periodic CERP Update Technical Evaluation
8. Inform Regulatory Monitoring and NEPA analysis
9. C-111 Project Benefits Assessment
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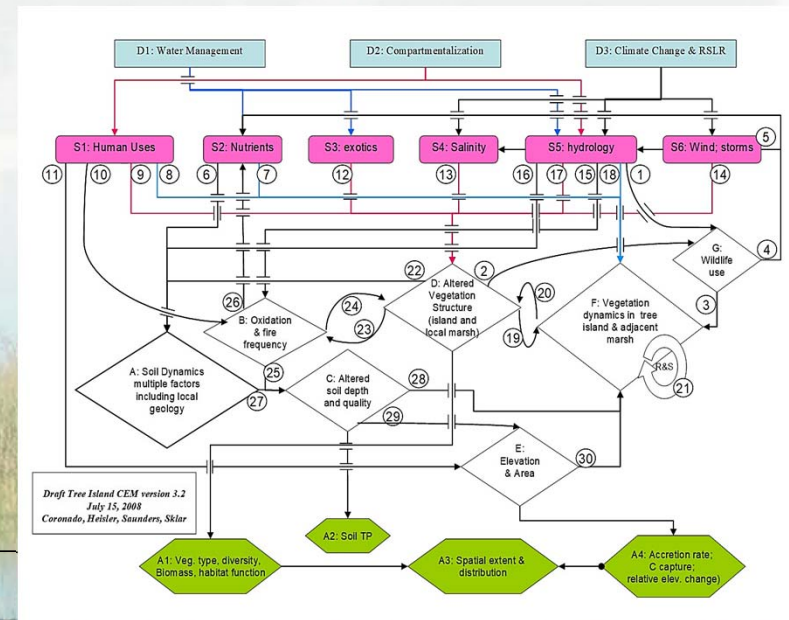
AA&M PATH FORWARD

MAP update:

- FY23, begin multi-year effort of MAP Synthesis & Evaluation
- Develop a Report → Revised MAP
- Leading to this effort are updates to Regional Conceptual Ecological Models (CEM) and Indicator Hypotheses Clusters (HC),

e.g.:

- CEM: Southern Coastal System , Northern Estuaries, Everglades Tree Islands, Ridge & Slough, Big Cypress, Lake Okeechobee
- HC: Seagrass, Oysters, Benthic Infauna, Fish, Avian, Macroinvertebrates, Vegetation/Habitat Mosaic, Alligators





THANK YOU

Questions and Discussion

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