



# AN UPDATE ON THE BISCAYNE BAY REASONABLE ASSURANCE PLAN (RAP): A PATH TO RESTORING WATER QUALITY AND HABITAT



Pamela Sweeney - Senior Manager

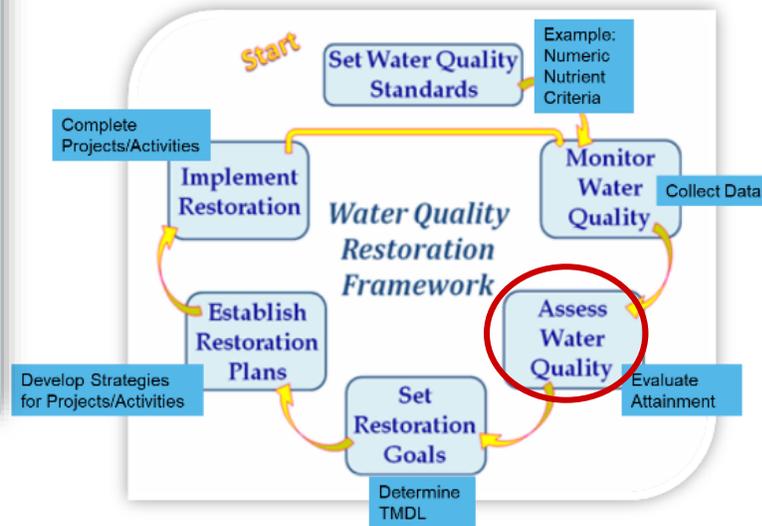
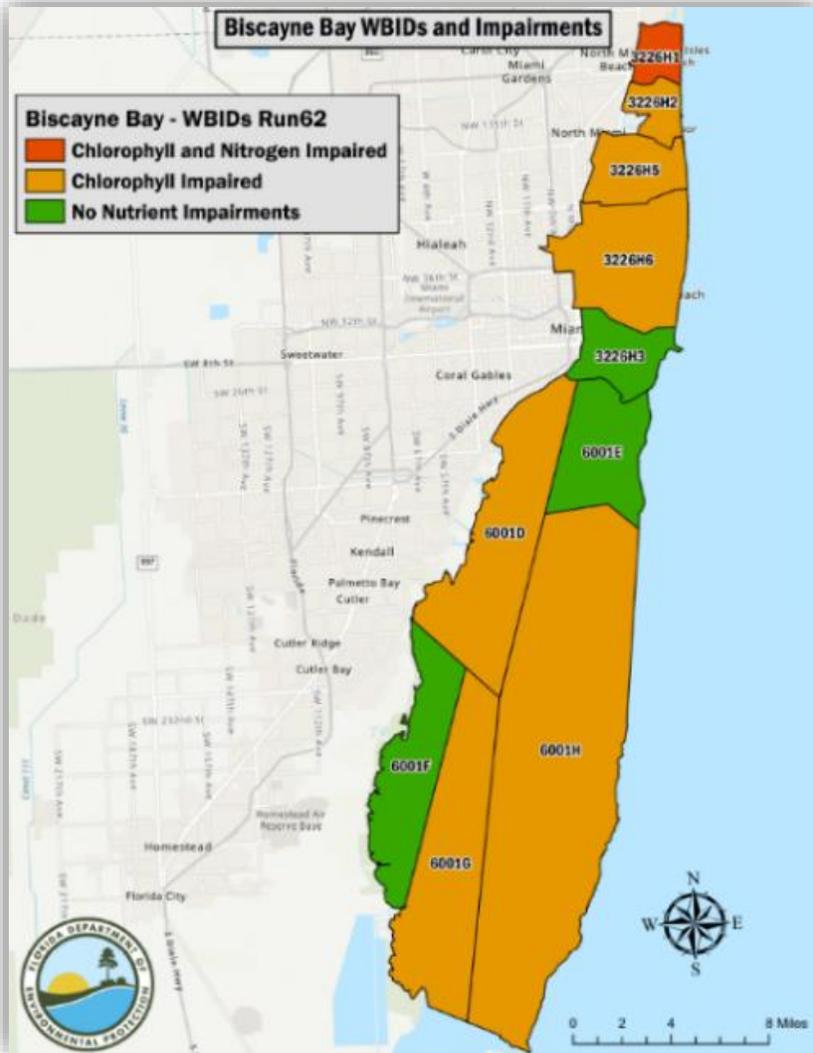
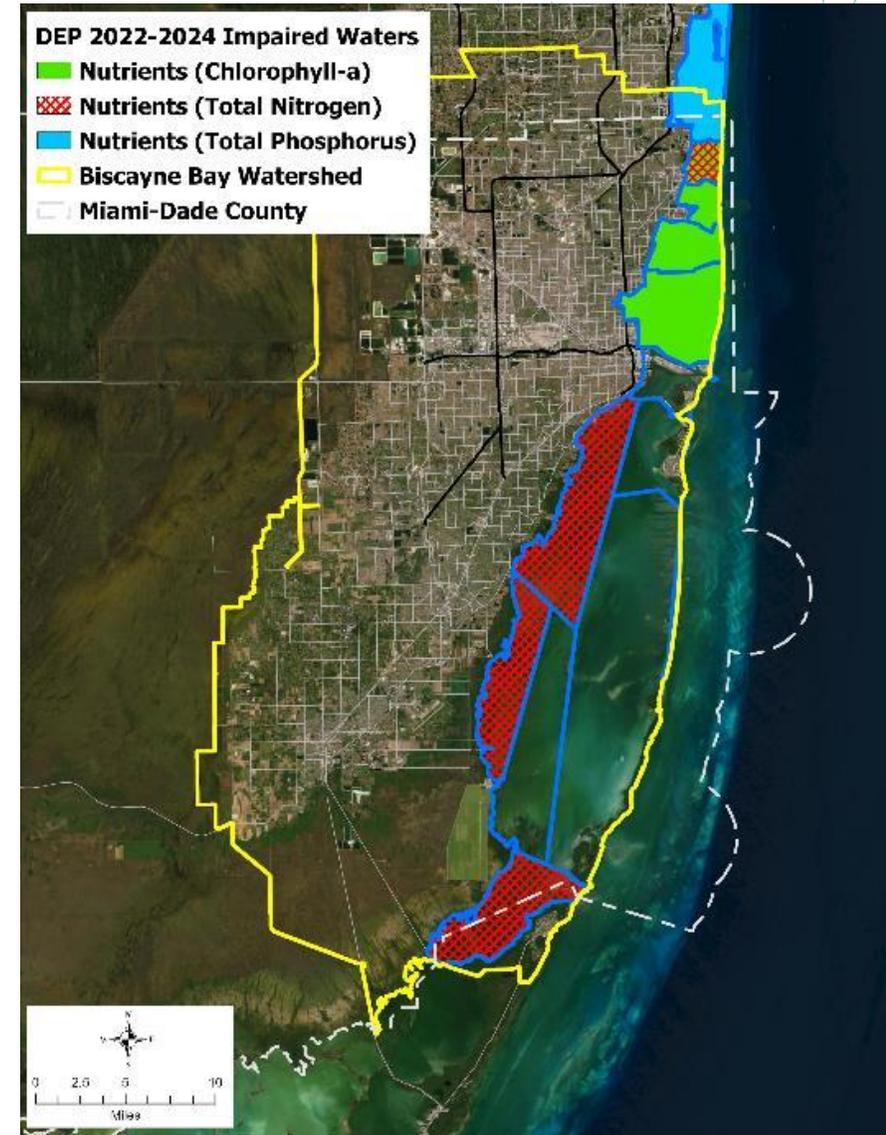
Division of Environmental Resources Management (DERM)

BBWMAB | December 6, 2024



# BISCAYNE BAY'S IMPAIRED WATERS

- State and Federal Legislation
  - Section 303(d) of the Federal Clean Water Act
  - Impaired Waters Rule (IWR), Ch. 62-303, F.A.C.
  - Surface Water Quality Standards, Ch. 62-302, F.A.C.
- Class III Waters: Fish Consumption, Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife



# WHAT ARE THE ELEMENTS OF A RAP?

- Description of the impaired waterbody, water quality and aquatic ecological goals
- Determine appropriate water quality target for pollutant reductions - Chlorophyll-a and nutrients
- Determine method to assign stakeholder loadings
- Estimate load reductions that are needed to attain water quality standards
- Identify completed, ongoing, or planned projects to address pollutant sources and develop schedule for implementation
- Engage stakeholders and broader public
- Provide assurance of funding sources for projects
- Develop monitoring plan to measure progress
- Provide a commitment to take additional actions if the planned activities do not adequately address the impairment



THE PROCESS WILL IDENTIFY NUTRIENT REDUCTIONS NEEDED TO REDUCE LOADING (POINT SOURCE & NON-POINT SOURCES)

# BISCAYNE BAY RAP VS. OTHER RAPS

## Other RAPS

- 5 approved RAPS
- Funding is collaborative amongst stakeholders
- Completion ~5 years for larger waterbodies

## BB RAP

Complex watershed

- Large estuary
- Varied and intensive land uses, most populous County
- Complex interactions between groundwater and surface water, many pathways for pollution
- County solely funding effort to ease burden and prevent time constraints
- Plan of Study concept to gain consensus early on
- Peer-review work (in-house)
- Accelerated timeline
- Close coordination with DEP; use of Decision Memos
- Tasks running in parallel

# UPDATES SINCE MAY 2024 BBWMAB MEETING

- Plan of Study completed and approved by DEP through Decision Memo
  - This provides a DEP-approved path forward
  - Identified methodologies, modeling approach, stakeholder engagement strategy, and more
- Shift in funding source
- Finalized procurement for modeling and project identification services
- Kick off meetings
  - ESA and County Depts
  - ESA and academic and agency partners
  - ESA, modeling consultants, project identification consultants
    - Compilation of available data; map-making; drafting narrative
- Began stakeholder engagement meetings
- DEP updated map of impaired waters ('22-'24) – Phosphorus impairment in extreme northeast WBID



## FLORIDA DEPARTMENT OF Environmental Protection

Ron DeSantis  
Governor

Jeanette Nuñez  
Lt. Governor

Shawn Hamilton  
Secretary

Bob Martinez Center  
2600 Blair Stone Road  
Tallahassee, FL 32399-2400

November 22, 2024

VIA EMAIL

Pamela Sweeney  
Division of Environmental Resources Management (DERM)  
Miami-Dade County Department of Regulatory and Economic Resources (RER)  
701 NW 1<sup>st</sup> Court – 4<sup>th</sup> Floor  
Miami, Florida 33136

RE: Biscayne Bay RAP – Plan of Study Document Approval

Dear Ms. Sweeney,

This letter confirms the Florida Department of Environmental Protection's (DEP) approval of the "Plan of Study for the Biscayne Bay Reasonable Assurance Plan, November 2024," submitted by the Miami-Dade County Department of Regulatory and Economic Resources, Division of Environmental Resources Management (RER-DERM). This plan outlines the necessary steps to develop the Reasonable Assurance Plan (RAP) for Biscayne Bay and its watershed.

DEP appreciates your team's efforts in addressing our comments on the draft Plan of Study and providing the final version on November 19, 2024. We also support the ongoing use of the Decision Memos that RER-DERM will submit to document continued collaboration in developing a stakeholder-led RAP to restore and protect Biscayne Bay.

We agree that the Plan of Study presents a reasonable and realistic approach to developing a successful RAP, based on sound science, to restore and protect Biscayne Bay's water quality and ensure full support of aquatic life and recreational uses.

DEP is pleased to approve the Plan of Study and looks forward to continued coordination in support of this effort as our respective teams work through its implementation with the ultimate goal of developing a stakeholder supported and scientifically defensible RAP.

If you have additional questions about DEP's acceptance of this document, please contact Kevin O'Donnell at (850) 245-8469 or [Kevin.O'Donnell@FloridaDEP.gov](mailto:Kevin.O'Donnell@FloridaDEP.gov).

Sincerely,  
*Kevin J. O'Donnell*

Kevin O'Donnell, Program Administrator  
Water Quality Evaluation and TMDL Program

CC: Craig Grossenbacher, RER-DERM  
Omar Abdelrahman, RER-DERM  
Ken Weaver – DEP  
Benjamin Ralys – DEP

RAP Milestones	Time from Notice to Proceed (NTP)	DEP Decision Memos (DM)
Procurement of RAP expert and project management support	Completed	
Selection of engineering contractors	Procurement Underway	
Define Reference Period - Obtain and Analyze existing WQ data	90 days from NTP	
Define bay water quality targets based on Reference Period		
Draft Plan of Study - submittal to DEP		
Final Plan of Study		DM <b>DM #1</b>
Stakeholder Engagement (RAP 101, Project Identification)	90 days from NTP	
Identify and employ methods to establish surface water loadings	6 months from NTP	DM
Identify and employ methods to establish groundwater and septic loadings		DM
Identify and employ methods to establish point source loadings		DM
Peer Review of Loading Estimates	8 months from NTP (2 months after previous step when loading estimates are completed)	DM
Define and apply methods to be used to assign loadings estimates to all stakeholders	6 months from NTP	DM
Provide stakeholders with loading allocations	6 months from NTP	
Compare current loadings to stakeholder allocations - identify potential deficit	9 months from NTP	DM
Define load reductions necessary to achieve allocations	12 months from NTP	DM
Identify projects to achieve defined load reductions	15 months from NTP	
Draft RAP document - submittal to DEP	20 months from NTP	Full Review
Final RAP	22 months from NTP	Approval



In model development & Project ID phase



# FDEP Biscayne Bay Water Quality Improvement Grant Program

## Presenters

Galo Pacheco, M.Sc., P.E.  
Interim Chief, Water and Wastewater Division, DERM

Marina Blanco-Pape, P.E.  
Chief, Water Management Division, DERM

Christine Wartman, Sr. P.E.  
Utility Construction Division, Priority Projects, WASD

Laura Eldredge  
Restoration and Enhancement Section Manager, DERM



ENVIRONMENTAL  
RESOURCES

# RER-DERM SmartCover Pilot Study

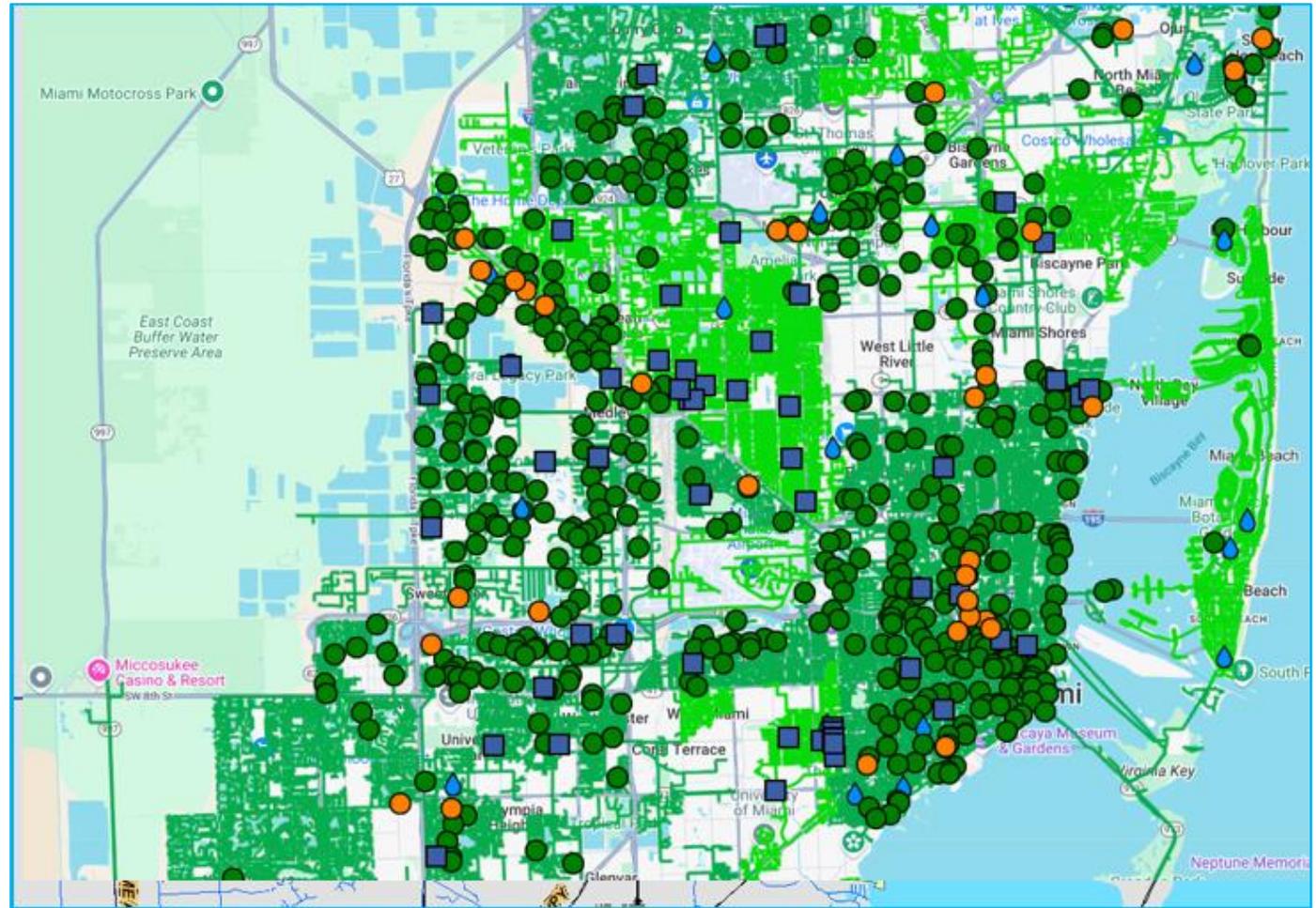


**Total Units installed: 426**

- Units Installed under Phase I: 192 (May 2023)
- Units Installed in Phase II: 234 (October 2024)

Utilities	Units Quantity (PH1)	Units Quantity (PH2)
Bay Harbour Island	1	
Opa-Locka	4	5
CNM	6	11
Hialeah Gardens	20	
Medley	33	
WASD	128	218
Total	192	234

- **Criteria:** Key manholes and pump stations, Historical SSOs, Citizen complaints, Sanitary Sewer Basin Moratoria.
- Real-time collection system monitoring, reporting and spill prevention
- Analysis of Inflow & Infiltration (I&I)
- Participating utilities receive the alarms and have access to dashboard





ENVIRONMENTAL  
RESOURCES

# The RER-DERM SmartCover Pilot Study has helped to PREVENT 150 SSOs from January 2023 to October 2024



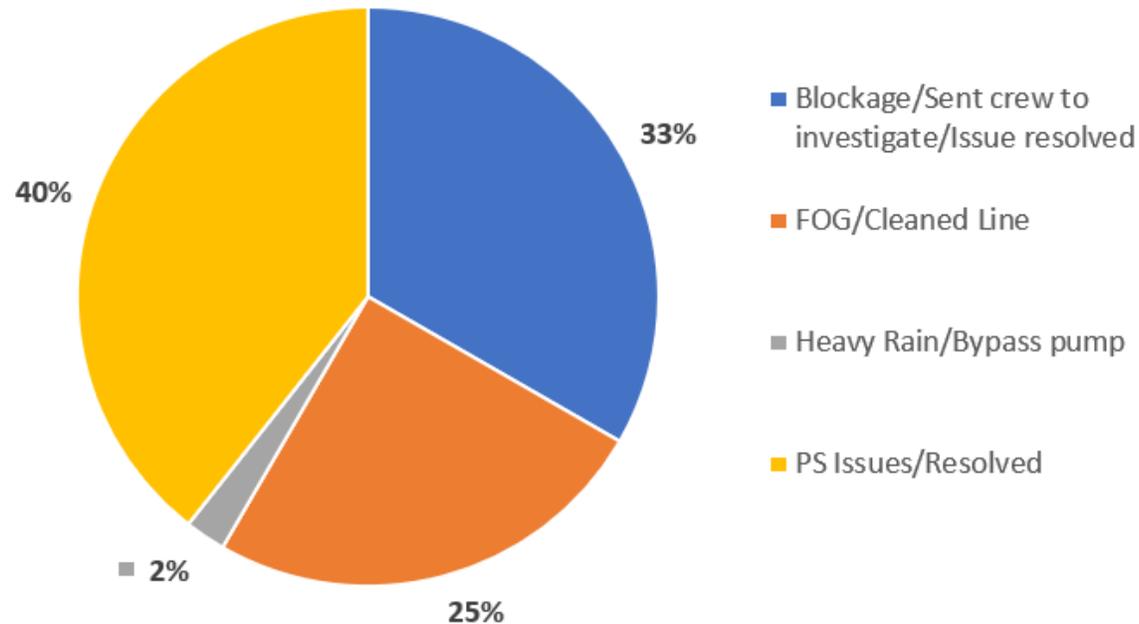
99 PREVENTED SSOs during Phase 1 (January 2023 – March 2024)  
51 PREVENTED SSOs during Phase 2 (April 2024- October 2024)



*The system has also  
helped to identify :*

- *Illegal Discharges*
- *RDII*
- *Changes on the operation of the sewer system due to force main breaks.*

### Prevented SSOs by Cause and Actions Taken Phase I & 2



# 2024 Highlights

BBWMAB December 6, 2024

## FDEP Biscayne Bay Water Quality Improvement Grant Program – Stormwater Update



### Installation of new technologies and upgrades to improve water quality and flood control

- ▶ Implement new technologies
- ▶ Data collection to confirm performance & optimize maintenance cycles
- ▶ Enhance community engagement



**\$3.3MM in Multi-Year Grant Awarded... FDEP Coral Reef Protection and Restoration (CPR) Grant Phases I & II**

MM = Million

KK = Thousand

### Phase I: Design & Construction Completed; Pre-Monitoring Completed & Post-Monitoring On-Going (Construction Contract \$812KK+)

Site 1: NW 111 Street to NW 107 Street from NW 21 Court to NW 17 Avenue

Site 2: NW 96 Street to 93 Terrace from NW 17 Avenue to NW 14 Avenue

Site 3: NW 85 Street to NW 82 Street from NW 2 Avenue to North Miami Avenue

No.	Site	Device type	Average removal efficiency by device type				Median removal efficiency by device type			
			Enterococci	E. Coli	Total Nitrogen	Total Phosphorus	Enterococci	E. Coli	Total Nitrogen	Total Phosphorus
1	Site 1	Ultra-Urban Filter	-62%	1471%	12%	43%	-81%	33%	8%	13%
2	Site 1	StormBasin Plus Filter	-41%	117%	2%	59%	-89%	-32%	2%	15%
3	Site 1	EcoVault	45%	2433%	15%	-13%	45%	2433%	15%	-13%
4	Site 2	Hydro DryScreen	NA	NA	NA	NA	NA	NA	NA	NA
5	Site 2	Stormwater Curb Inlet Filter	324%	135%	-28%	-30%	152%	-12%	-33%	-27%
6	Site 2	Ultra Urban with Smart Sponge	4%	-61%	3%	-29%	-21%	-81%	6%	-38%
7	Site 3	Jellyfish Structure	-39%	-31%	71%	28%	-39%	-31%	71%	28%
8	Site 3	Smart Sponge Filter cage	-82%	-51%	NA	NA	-82%	-51%	NA	NA
9	Site 3	Smart Sponge Booms	-56%	-52%	NA	NA	-56%	-52%	NA	NA
10	Site 3	SOP Technologies' Stormwater Filter Basket	11%	69%	47%	58%	-42%	-23%	52%	36%

Notes

"-62%" means the concentration decreased by 62% after the installation of the stormwater treatment devices.

Data analyzed include 2 rounds of pre-installation and 2 rounds of post-installation sampling results. Additional 2 rounds of post-installation sampling activities will be conducted.

NA: Needs additional data from 3rd and 4th post-installation sampling activities to analyze the efficiencies.

### Phase II: Design Completed; Construction Contract Awarded; Pre-Installation Monitoring On-Going (Construction Contract \$1.5 MM+)

Site 1: NW 32 Avenue from NW 99 Street to NW 106 Street

Site 2: NW 22 Avenue from NW 94 Street to NW 105 Terrace

Site 3: NW 17 Avenue from NW 89 Street to NW 98 Street

Site 4: NW 12 Avenue from NW 88 Street to NW 83 Street, and NW 83 Street from NW 15 Avenue to NW 12 Avenue

Site 5: North Miami Avenue from NW 71 Street to NW 91 Street

### Secondary System (Regional)

- ▶ Increase storage in network of secondary canals to detain flows, and provide treatment
- ▶ Benefits are countywide



### Stormwater Management Program (Flood Mitigation, Increasing Level of Service for a 2060 Scenario with Sea Level Rise, and Improvements to Water Quality):

- ▶ Awarded over \$32 MM in construction contracts funded by Stormwater Utility Fees (SWU) and FDEP grant (over \$16 MM) - Secondary Canal Improvements
- ▶ Received two FEMA BRIC grant funding awards in partnership with the South Florida Water Management District totaling over \$9 MM (projects totaling over \$18 MM with the match funded by the SWU fees) - Secondary Canal Improvements
- ▶ Received five (5) new grant awards totaling over \$4 MM (projects totaling over \$8 MM with the match funded by the SWU fees) - Local Drainage System Improvements
- ▶ Submitted eleven (11) new grant requests to the State for projects totaling over \$37 MM (grant request of over \$18 MM) - Secondary Canal and Local Drainage Improvements

### Tertiary System (Local)

- ▶ Improve localized flood control and water quality of direct discharges
- ▶ Improve and add pump stations
- ▶ Benefits are local/neighborhoods



Over \$35 MM in Multi-Year Grants Awarded...  
Current New Grant Requests for an Additional \$18 MM

MM = Million

# CONNECT 2 PROTECT

PROGRAM	COST	APPROXIMATE CONNECTIONS
Lateral Expansion Program	\$90,000,000	~9,000
OJUS Urban Area District Project	\$6,700,000	~100
Commercial Corridors Connection Project	\$126,000,000	~1000
FDEP Biscayne Bay Water Quality Improvement Grant Program – Phases 1-3	\$26,240,000	~800



\$ 280M  
GRANTS  
AWARDED



3,000  
COMPLETED  
DESIGNS



775  
CONVERSIONS /  
NEW INSTALLS



~11,000 lbs/yr NITROGEN  
AND  
1,500 lbs/yr  
PHOSPHOROUS  
REDUCTION

# LITTLE RIVER ADAPTION ACTION AREA

## Scope:

Multi-phase effort to extend sanitary sewer system to the Little River area

## Funding:

- **\$5.05 Million for** from FDEP Biscayne Bay Water Quality Improvement Grant (Year 1)
- Building Better Communities General Obligation Bond



~ 370  
Connections



# EL PORTAL

## Scope:

Installation of force main, gravity sewer and laterals

## Funding:

**\$6.7 Million** from FDEP Biscayne Bay Water Quality Improvement Grant (Year 2)



~ 100

**Connections**

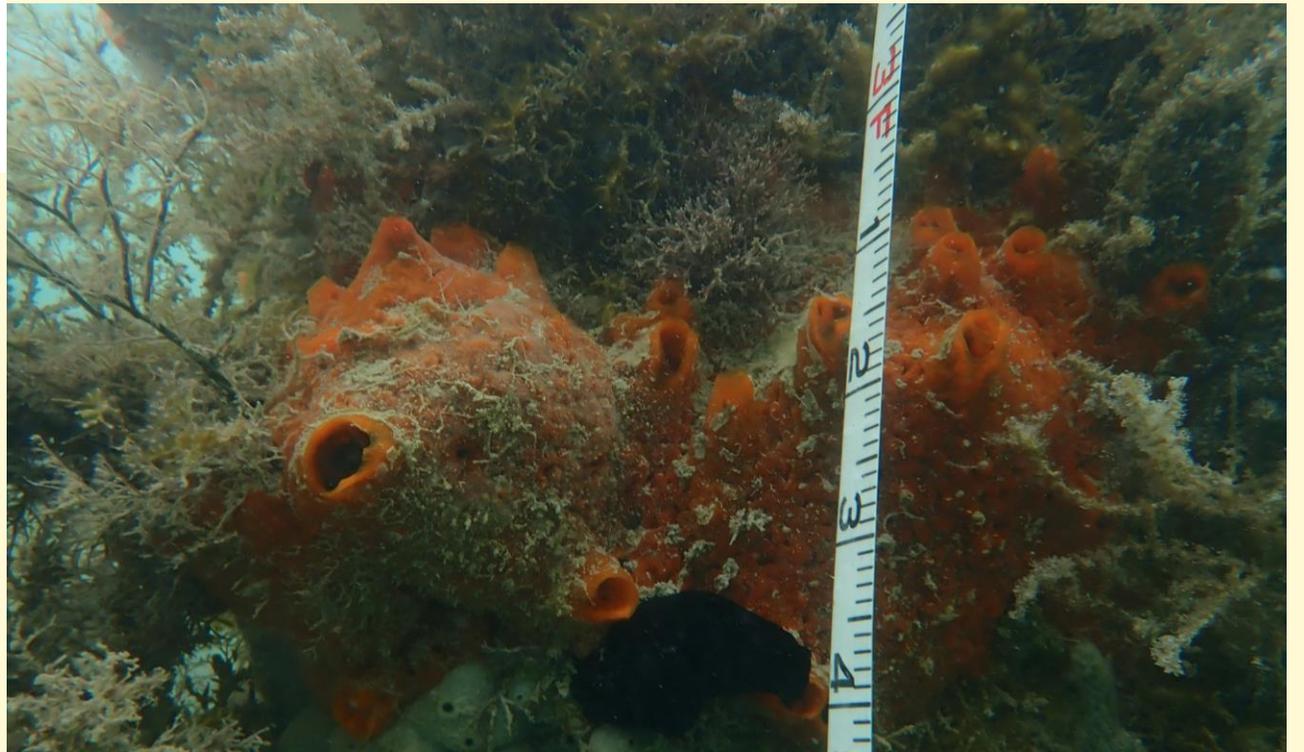
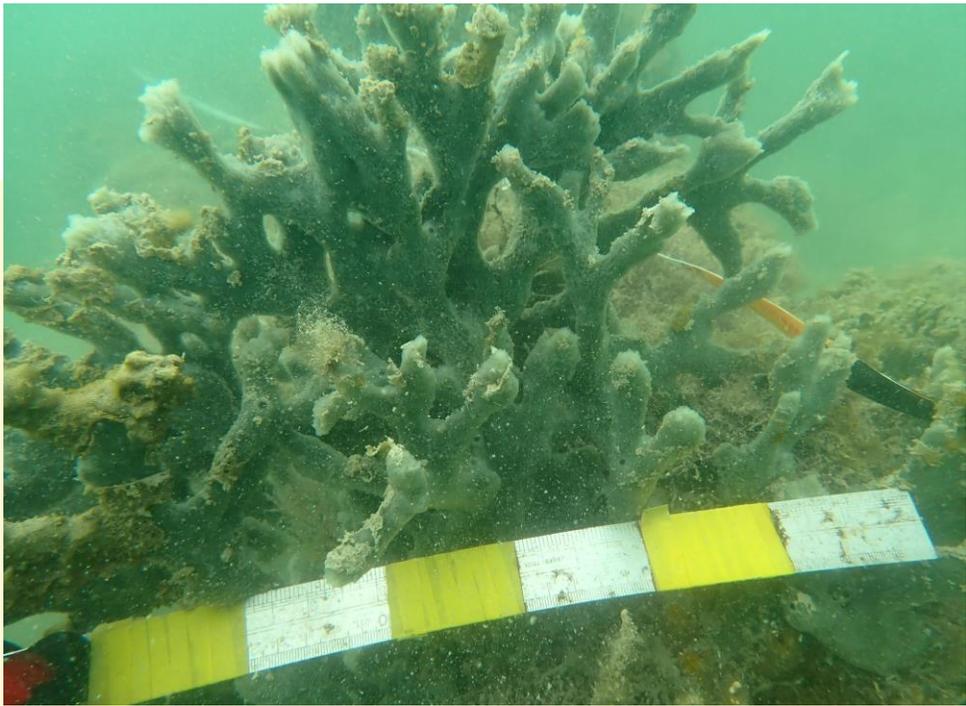




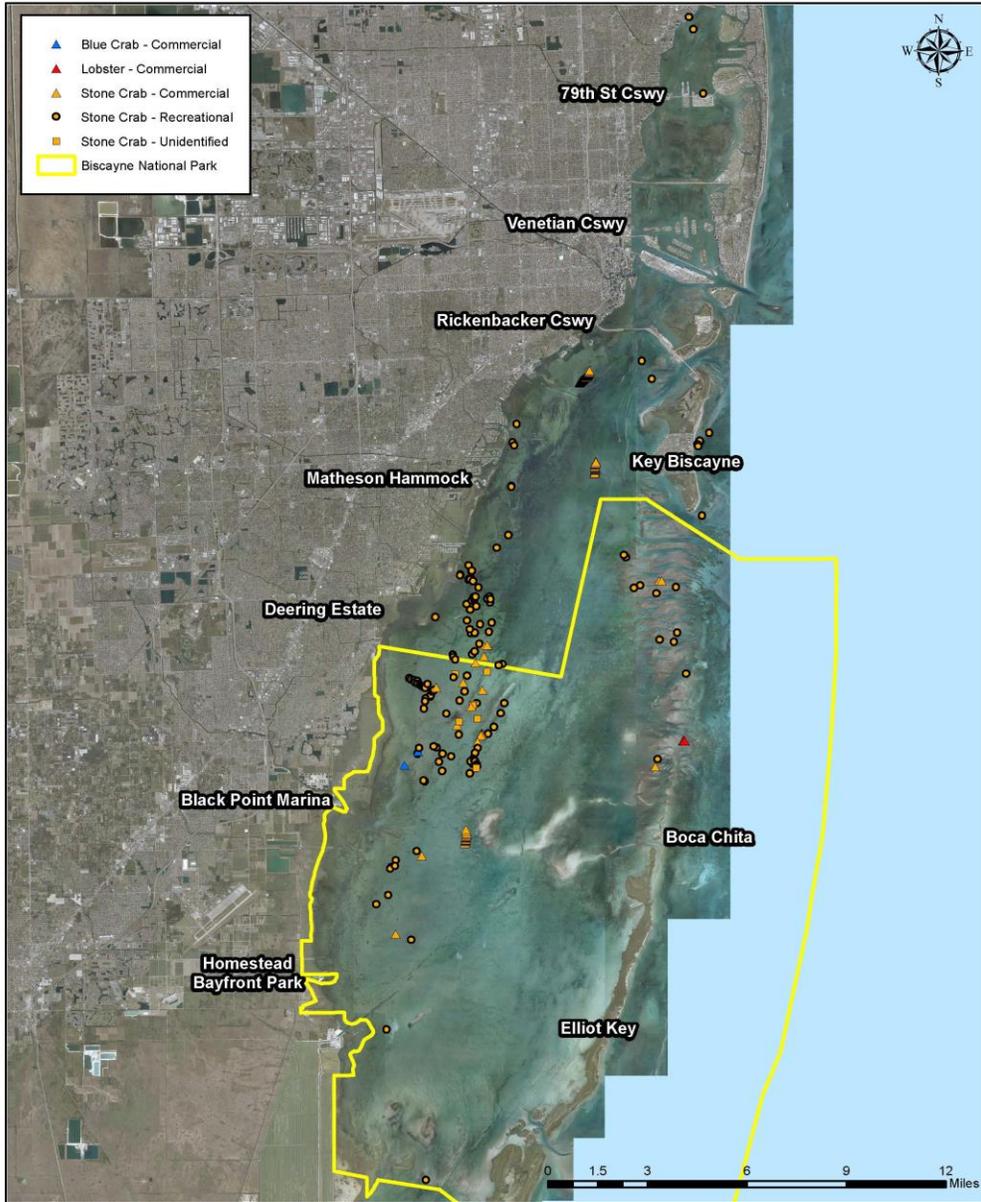
**CLEMMENS | CEDERBERG**  
 Coastal & Marine Engineering  
[www.clemmencederberg.com](http://www.clemmencederberg.com)

Notes:  
 1. Survey conducted by Clemmens Cederberg, Inc. between February 15, 2008 and February 28, 2008.  
 2. Background Imagery Date: January 2002 (Aerial-Date Corrected)  
 3. Contour interval: 4 feet

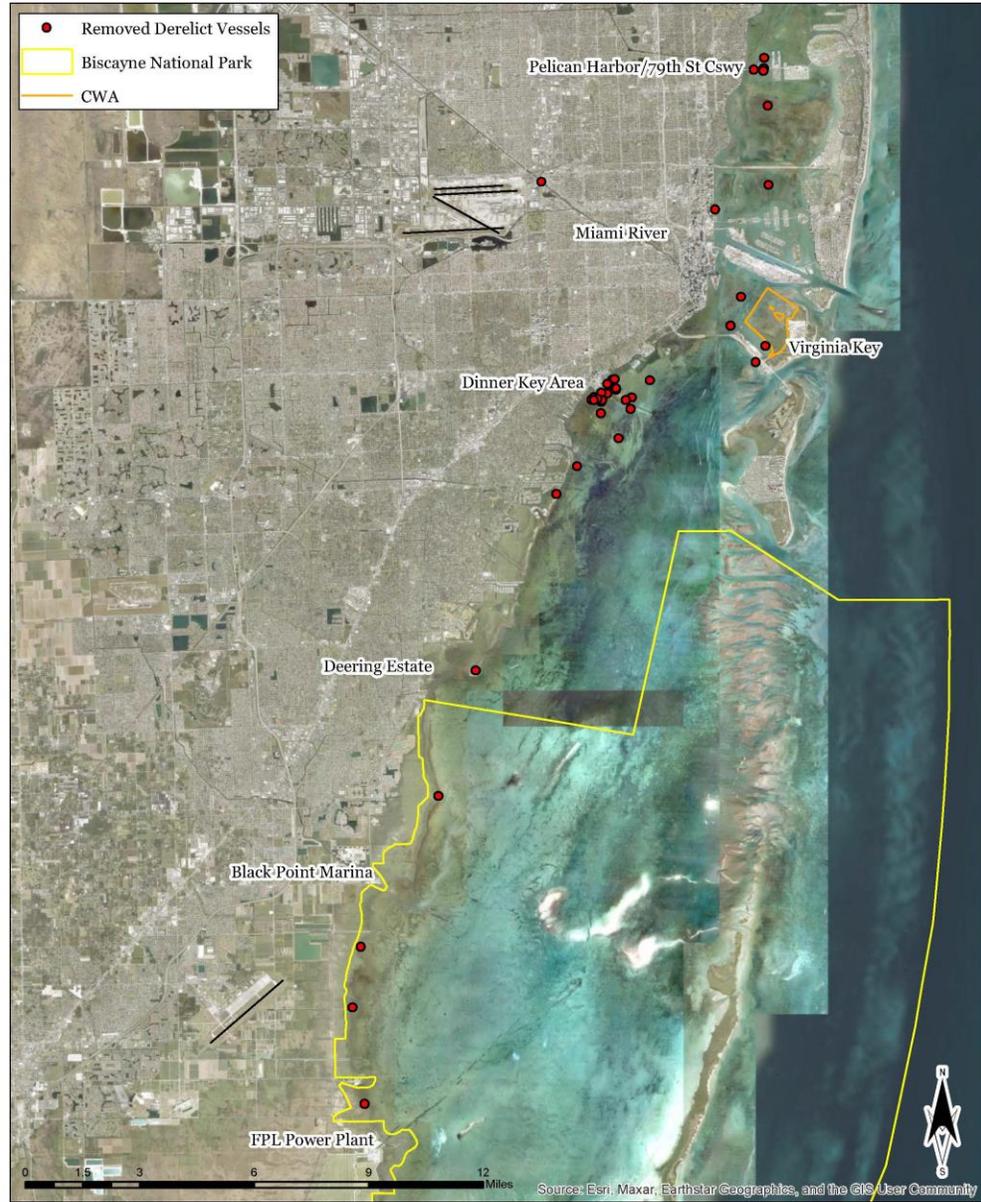
0 500 1,000 2,000 Feet  
 NAD 1983 2011 StatePlane Florida East FIPS 0901 F1 US  
 Map Scale: 1:12,000  
 1 inch = 1,000 feet



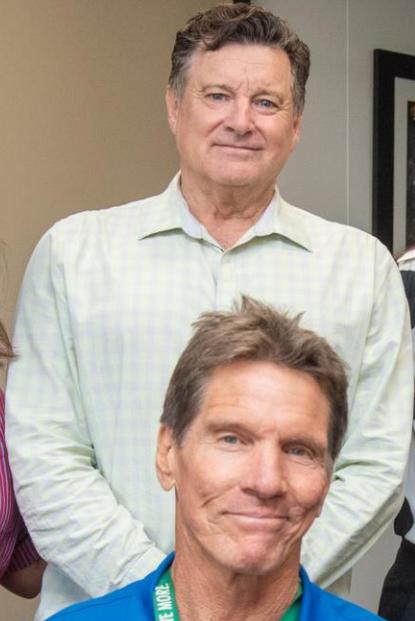
## Miami-Dade County Derelict Crab Traps Removed 2024



## 2024 Miami-Dade County - Derelict Vessels Removed









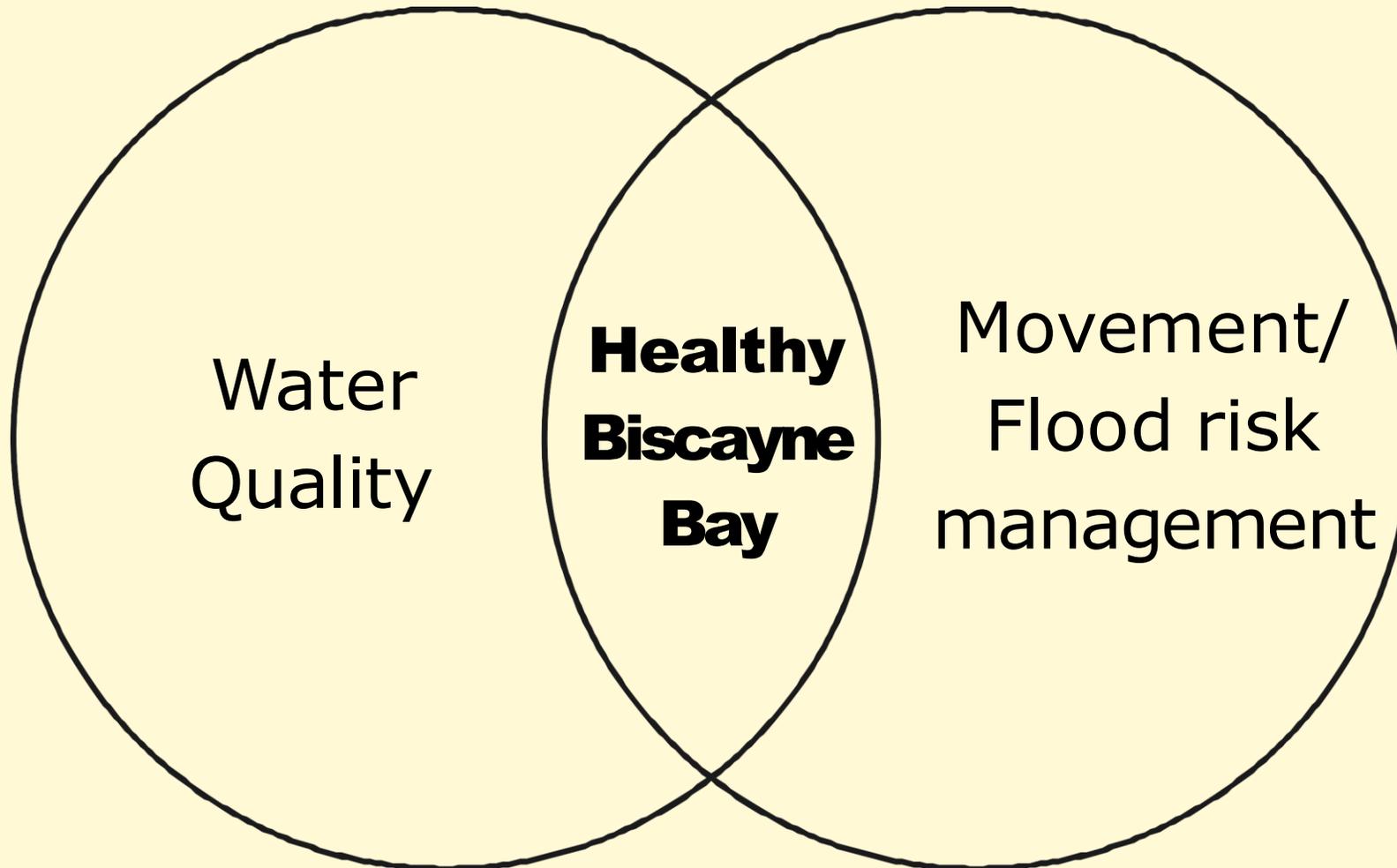
# Countywide Accomplishments

December 05, 2024





# Chief Bay + Water Resources





# Internal Improvements

- Structural changes to prioritize WQ + conveyances
  - Mayoral Memo re. Bay
  - New Chief of utilities Roy Coley with focus on stormwater
- Led to more departmental collaboration



# Departmental Success

**PROS | New bioswale  
at Biscayne Gardens  
park**





# Departmental Success

## DTPW | N Hobie beach stormwater drainage





# Departmental Success

## WASD | Septic to sewer financial assistance





# Policy + Legislation

- Success with State legislature
  - \$500k watershed plan
- Emergency Management
  - Flood response plan
  - Muni roundtable with 28 cities





# Policy + Legislation

- Back Bay Study | Chiefs Report and WRDA inclusion
  - NBS in Bay
- Leave no trace
  - Comprehensive rollout in 2025





# Communications + Outreach

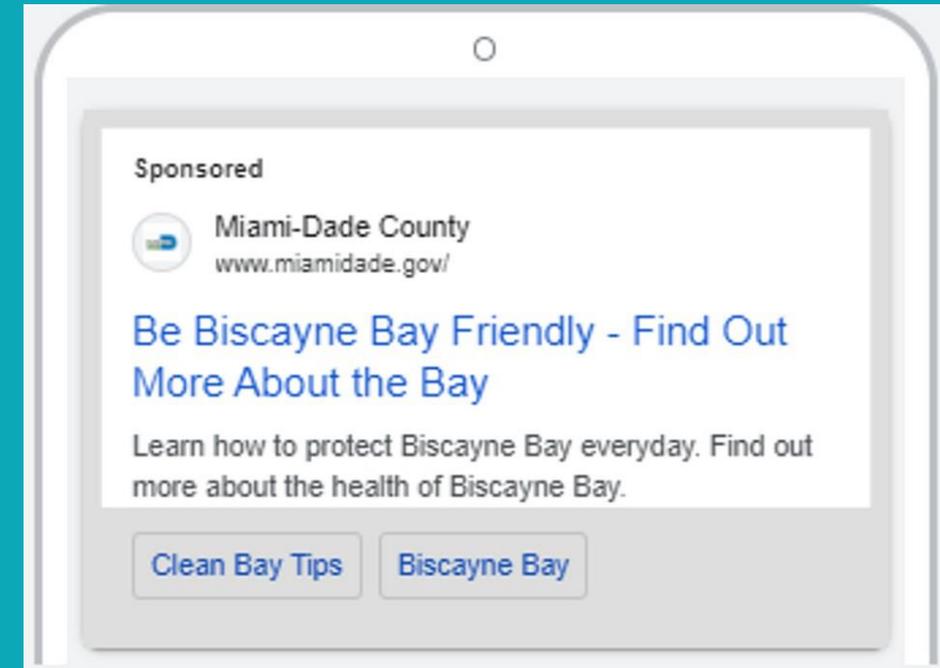
- Specialty license plate
  - Updated media kit to nonprofit partners
  - Dozens of tabling events
  - ICC partnership: 1k flyers in clean up kits
  - Plate samples





# Communications + Outreach

- \$10k in BBF campaign
  - Social media alone: over 500k impressions, 140k reached
    - Over 55k engagements
  - Connected TV (youtube)
  - Over 360k impressions





**Thank you!**

# Biscayne National Park

*South Florida Natural Resources Center*

National Park Service  
U.S. Department of the Interior



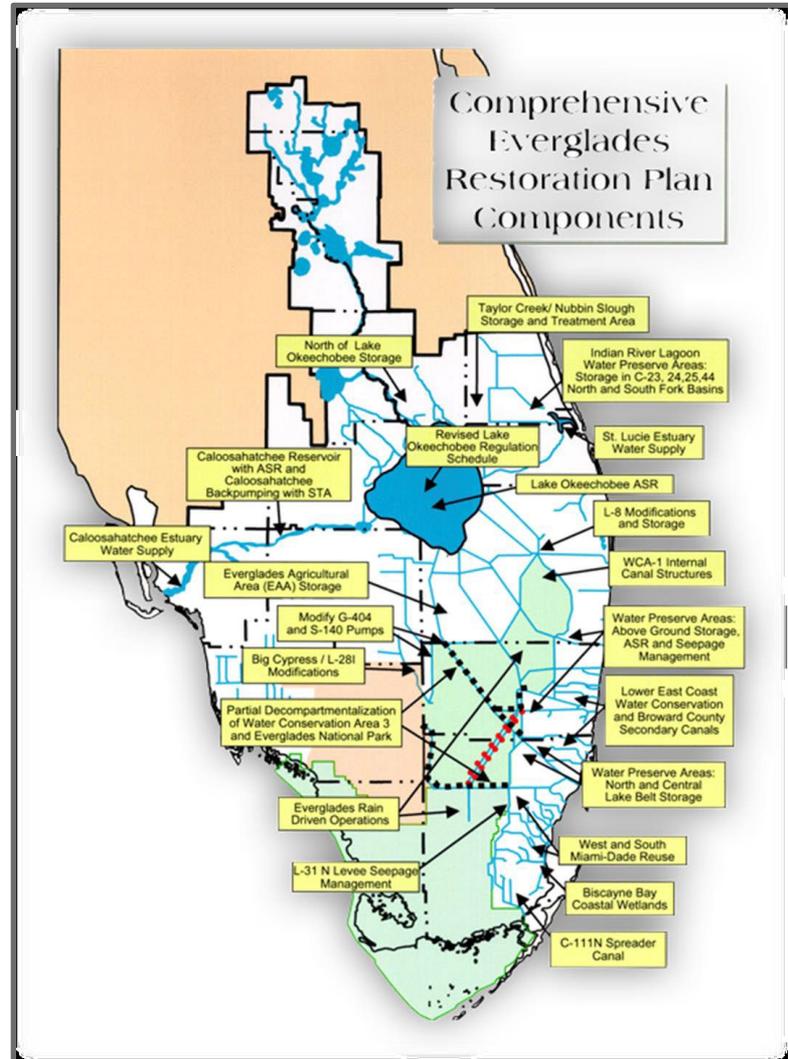
## **Biscayne Bay Southeastern Everglades Restoration (BBSEER) Project and the Greater Everglades Restoration Program:**

### **2024 Status Update**

*Erik Stabenau  
South Florida Natural Resources Center  
Biscayne National Park*

# Everglades Restoration Program

- 68 Components + foundation projects and local efforts
- Biscayne Bay benefits by improved water quality and management across state
- Local projects include
  - Biscayne Bay Coastal Wetlands (BBCW) currently in construction
  - Biscayne Bay and Southeastern Everglades Restoration (BBSEER) project, currently in planning phase



**Biscayne National Park**

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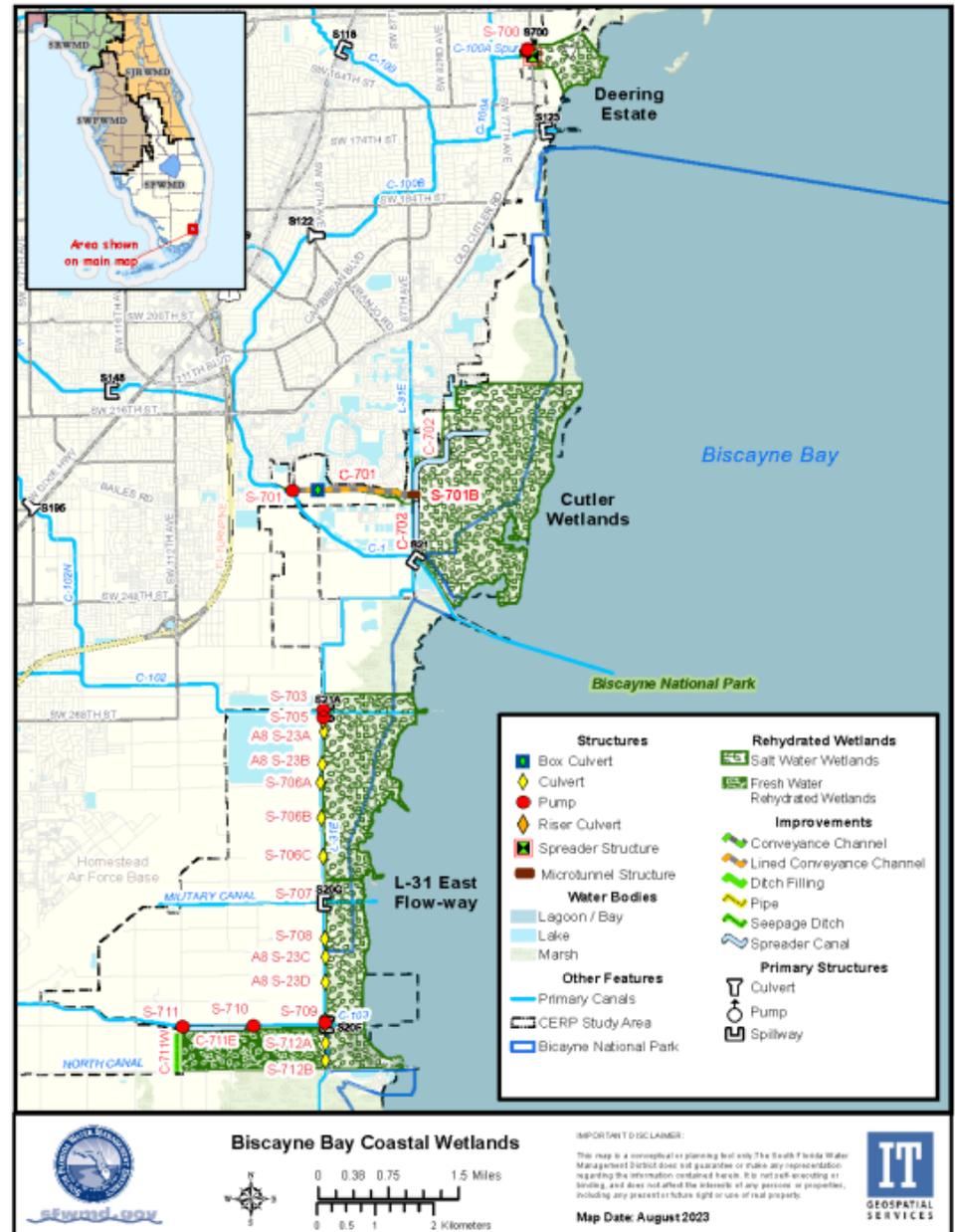
# Biscayne Bay Coastal Wetlands (BBCW)

## Anticipated project benefits:

- Increased hydroperiods in the target freshwater wetlands will increase from approximately 70 to 200 days per year.
- Improved oyster bars, submerged aquatic vegetation which should increase fish and abundance and diversity
- Coastal habitat for alligators, crocodiles & wading birds.
- Net increase in 6,396 acres of functional wetlands

## Status

- Most features complete including S-700 at Deering Estate, culverts and water management in L-31E north of the Biscayne National Park visitor center
- Construction underway on Cutler Flow-way, a major component bringing additional freshwater to the coastal wetlands and the bay



## Biscayne National Park

South Florida Natural Resources Center

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NPS & County staff field visit to BBCW restoration site along L-31E, May 24, 2024



**Biscayne National Park**

*South Florida Natural Resources Center*

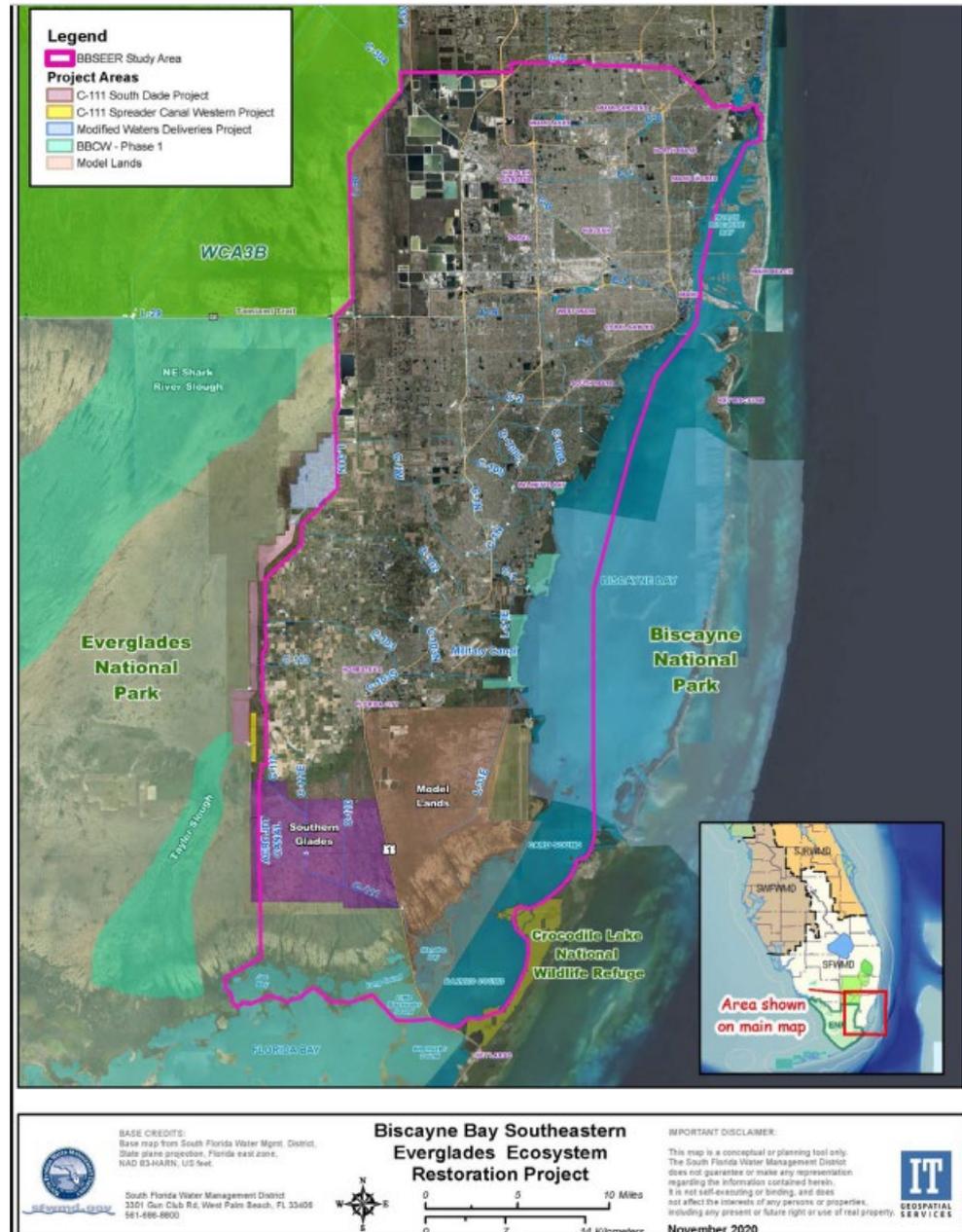
# Biscayne Bay and Southeastern Everglades Restoration (BBSEER) Project

Complex merger of two CERP projects, to jointly;

- Restore 500 m mesohaline strip along coast in Biscayne Bay
- Improve wetland condition in zone between Biscayne and Everglades National Parks
- Increase ecological resiliency in face of sea level rise

## Status

- In year 3 of development and round 3 or modeling
- Project challenges include developing local water storage solutions and identifying appropriate source for additional water



## Biscayne National Park

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# Florida's Coral Reef Coordination Team

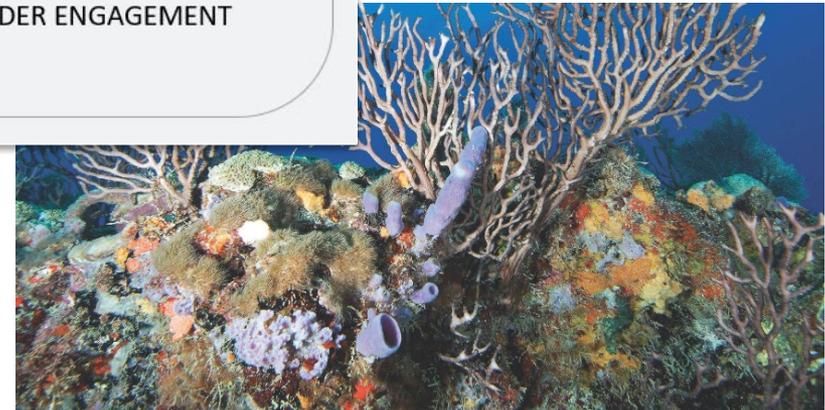
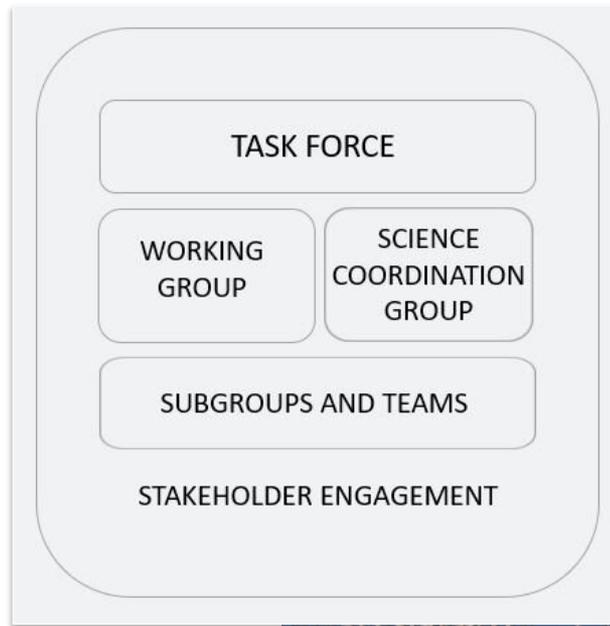
Reports to **Working Group**

Membership includes multiple state and federal partners in voting and non-voting role

County resource agencies include Miami-Dade (Laura Eldredge, DERM)

Primary activity has been to create a **Coordinated Action Plan** including the **Anticipated Impacts Watchlist**

- Actions include identifying data availability and gaps
- Identify projects that have potential to influence coastal water quality
- Encourage involvement in project development and design considerations
- Improve communication between terrestrial and aquatic resource managers



## UNIFIED MONITORING FRAMEWORK FOR FLORIDA'S CORAL REEF

ADOPTED: November 9, 2023



## Biscayne National Park

South Florida Natural Resources Center



# Discussion

- Biscayne Bay Coastal Wetlands Project
- Biscayne Bay & Southeastern Everglades Project
- Florida's Coral Reef Coordination Team



**Biscayne National Park**

*South Florida Natural Resources Center*