



Biscayne Bay: Improving Our Water Quality

Irela Bagué
Chief Bay Officer
Office of Resilience



Miami-Dade County Chief Bay Officer

Advise | Coordinate | Advocate

- Advise County Mayor & Board of County Commissioners
- Work with County departments, governments, agencies, stakeholders to develop a new watershed management plan.
- Help coordinate Biscayne Bay recovery plans & projects
 - Septic to Sewer Conversions
 - Wastewater Improvements
 - Stormwater Improvements
 - Restoration of Coastal Habitats
- Improve public education and advocate the importance of restoring Biscayne Bay and report on progress.



Julia Tuttle Basin- Seagrass Die Off





Miami-Dade County Biscayne Bay Task Force



- Stemmed from a Call to Action from the 2017 Biscayne Bay Marine Health Summit.
- Established by Miami-Dade County Board of County Commissioners via Resolution - February 2019.
- Held 18 meetings heard 35 presentations from local and state agencies, municipalities, academia, community-based organizations, and key stakeholders.
- The final report presented to Miami- Dade County Board of County Commissioners on August 31, 2020.

Biscayne Bay Recovery Plan Summary of Biscayne Bay Task Force Recommendations



Water Quality



Governance



Infrastructure



**Watershed Habitat Restoration
and Natural Infrastructure**



Marine Debris



Education and Outreach



Funding



A Unified Approach to Recovery for a Healthy & Resilient Biscayne Bay

Biscayne Bay Task Force Report and Recommendations

June 2020

Biscayne Bay Task Force Members

Irela Bagué, Task Force Chairperson, President, Bagué Group

David Martin, Task Force Vice Chairperson, President, Terra Group

Lynette Cardoch, Ph.D., Director of Resilience & Adaptation, Moffatt & Nichol

Lee Hefty, Director, Division of Environmental Resources Management, Miami-Dade County

James Murley, Chief Resilience Officer, Office of Resilience, Miami-Dade County

John Pistorino, P.E., Principal, Pistorino and Alam

Alyce Robertson, Executive Director, Downtown Development Authority

Steve Sauls, Biscayne Bay Marine Health Summit Steering Committee Member

Tiffany Troxler, Ph.D., Director of Science, Sea Level Solutions Center, Florida International University

We Now Know That What Happens On The Land Ends Up In Our Bay!



Stormwater Run-off



Fertilizers & Pesticides



Septic Systems



Aging Sewer Pipes



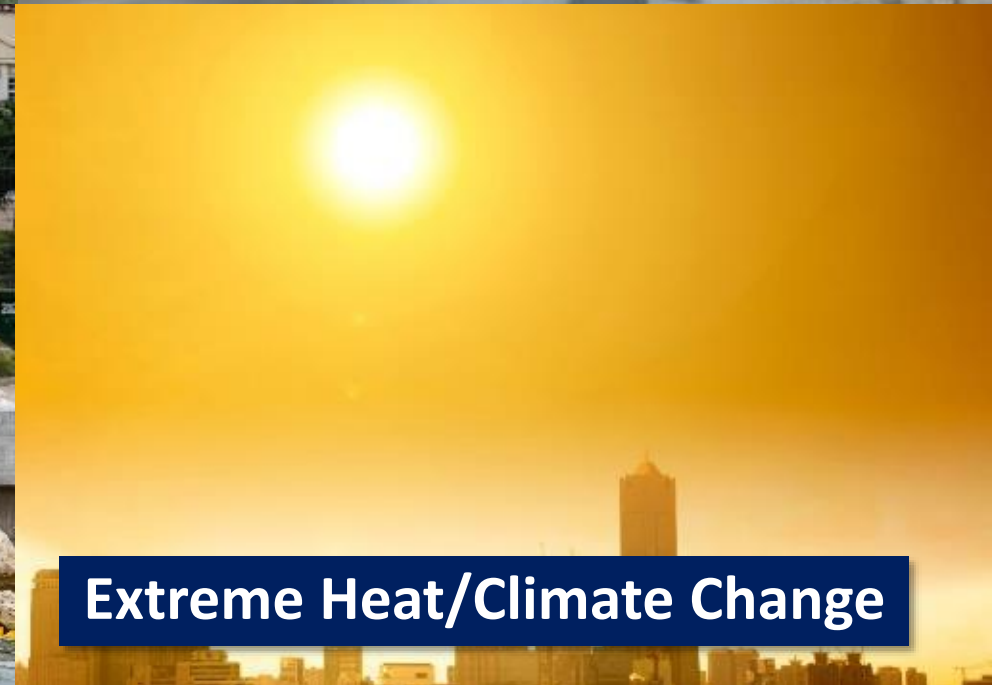
Dirty Canals



Plastic Pollution



Construction Debris



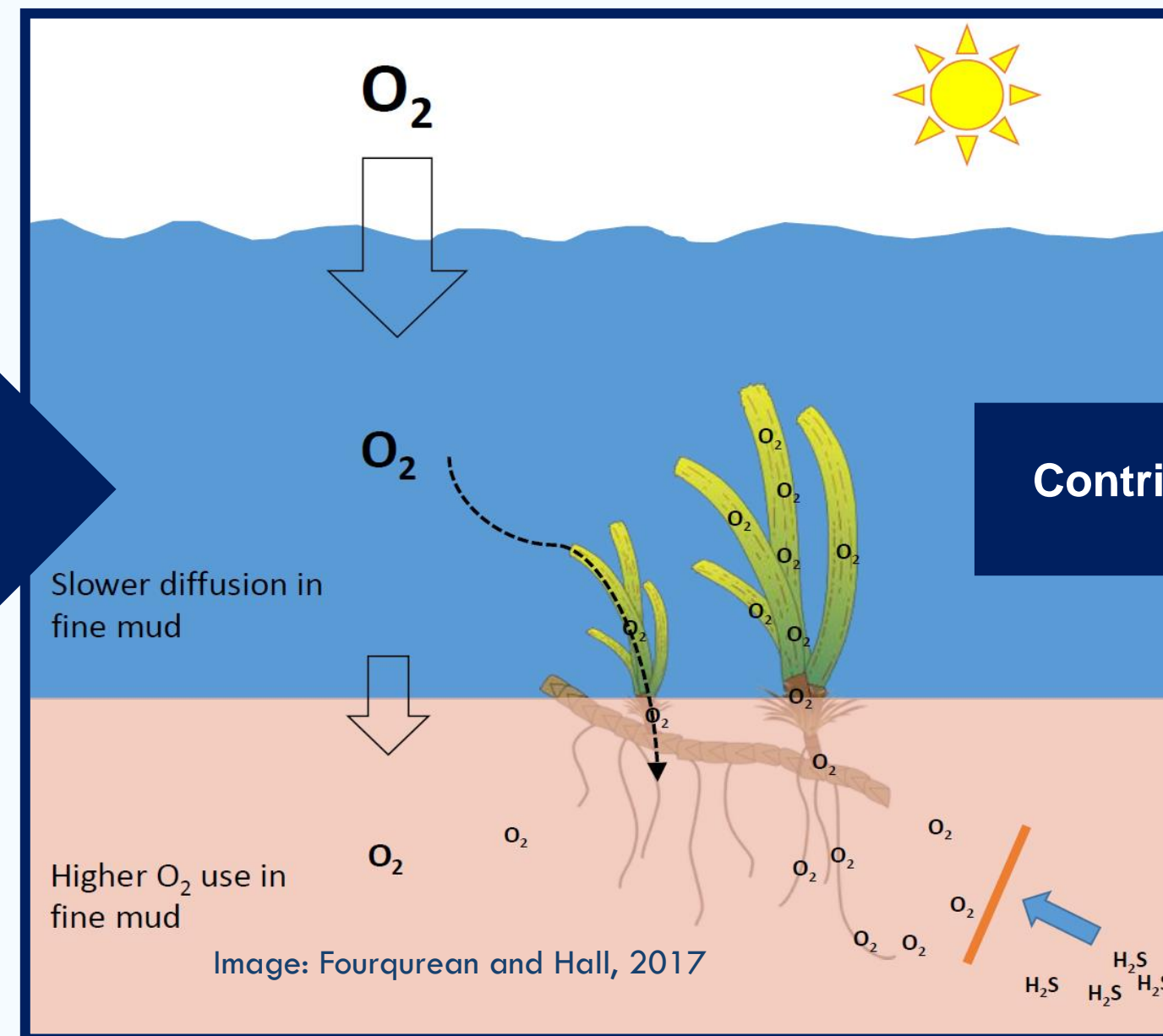
Extreme Heat/Climate Change

We needed coordination and collaboration with all levels of government and the general public.

Biscayne Bay Recovery – Water Quality Impacts and Why it Matters

- Nitrogen
- Phosphorus
- Bacteria
- Heavy metals
- Herbicides
- Environmental Pollutants of Concern

Nutrient Enrichment & Pollutants



Contributing to

- Seagrass Die-offs**
- Algal Blooms**
 - Micro (phytoplankton) & Macro
 - Transition to a algal-dominated system
- Fish Kills**

Fish Kills

2020



2021



2022



Courtesy of Waterkeeper

An aerial photograph of a coastal city, likely Miami, showing a large body of water filled with numerous sailboats. The city skyline is visible in the background, and the foreground features modern residential buildings and lush greenery. The sky is filled with dramatic, white and grey clouds.

Governance

Biscayne Bay Watershed Management Advisory Board (BBWMAB)

The BBWMAB is a 21-member board provides a local perspective on Biscayne Bay problems, issues, and solutions; and includes representatives from a variety of local entities: elected officials, industry experts, academia, and advocates. The board will collaborate with the State of Florida's Biscayne Bay Commission and work towards creating a watershed management plan for Biscayne Bay. **Inaugural Meeting: December 6, 2021**

For upcoming meetings and updates go to: www.miamidade.gov/biscaynebay



2022 - BBWMAB Legislative Action

**9 Legislative
Items Adopted**

Wastewater Grant Program - Reasonable Assurance Plan

[Legislative Matter \(MiamiDade.Gov\)](#)

3/1/2022

Onsite Sewage Treatment And Disposal System

[Legislative Matter \(MiamiDade.Gov\)](#)

6/7/2022

Recognize The Town Of Cutler Bay

[Legislative Matter \(MiamiDade.Gov\)](#)

7/19/2022

Ordinance Relating To Environmental Protection - Increased Penalties And Fines

[Legislative Matter \(MiamiDade.Gov\)](#)

7/19/2022

BBCW Phase I Restoration Project

[Legislative Matter \(MiamiDade.Gov\)](#)

7/19/2022

Operations And Maintenance Of Municipal Stormwater Systems

[Legislative Matter \(MiamiDade.Gov\)](#)

9/1/2022

Biscayne Bay Friendly Decals Awareness Campaign

[Legislative Matter \(MiamiDade.Gov\)](#)

10/6/2022

Biscayne Bay And For Septic-to-sewer Conversion Projects

[Legislative Matter \(MiamiDade.Gov\)](#)

11/15/2022

Feasible Distance To Connect To Public Sanitary Sewer Systems

[Legislative Matter \(MiamiDade.Gov\)](#)

11/21/2022

State of Florida - Biscayne Bay Commission

The Biscayne Bay commission was established by the Florida Legislature in 2021 with a focus to support key funding and restoration initiatives and guide regulatory changes that are needed to improve water quality.

9-members:

- Florida Department of Environmental Protection (FDEP)
- South Florida Water Management District (SFWMD)
- Florida Fish and Wildlife Conservation Commission (FWC)
- Florida Inland Navigation District (FIND)
- 3 Miami-Dade County Commissioners
- 1 Municipality appointed by the League of Cities (Cutler Bay).

For upcoming meetings and updates go to:
www.protectingfloridatogether.gov/BiscayneBayCommission



About ▾

BISCAYNE BAY COMMISSION

Biscayne Bay is adjacent to Miami-Dade County, Florida's most populous county. The bay contains the largest passenger port in the world, is an international sailing destination and plays a critical role in the health of Florida's Coral Reef. Protecting the bay is important to Florida both environmentally and economically.

Governor DeSantis took a major step forward in protecting vital natural resources within Biscayne Bay through the creation of the Biscayne Bay Commission.

The Biscayne Bay Commission, through a deliberative and transparent process, will ensure that objective and sound science inform decision-making regarding the bay. Input from the commission will be used to support key funding and restoration initiatives and guide regulatory changes that are needed to improve water quality.

Questions or Comments?

Sign-up for Updates

Biscayne Bay Watershed Management Advisory Board

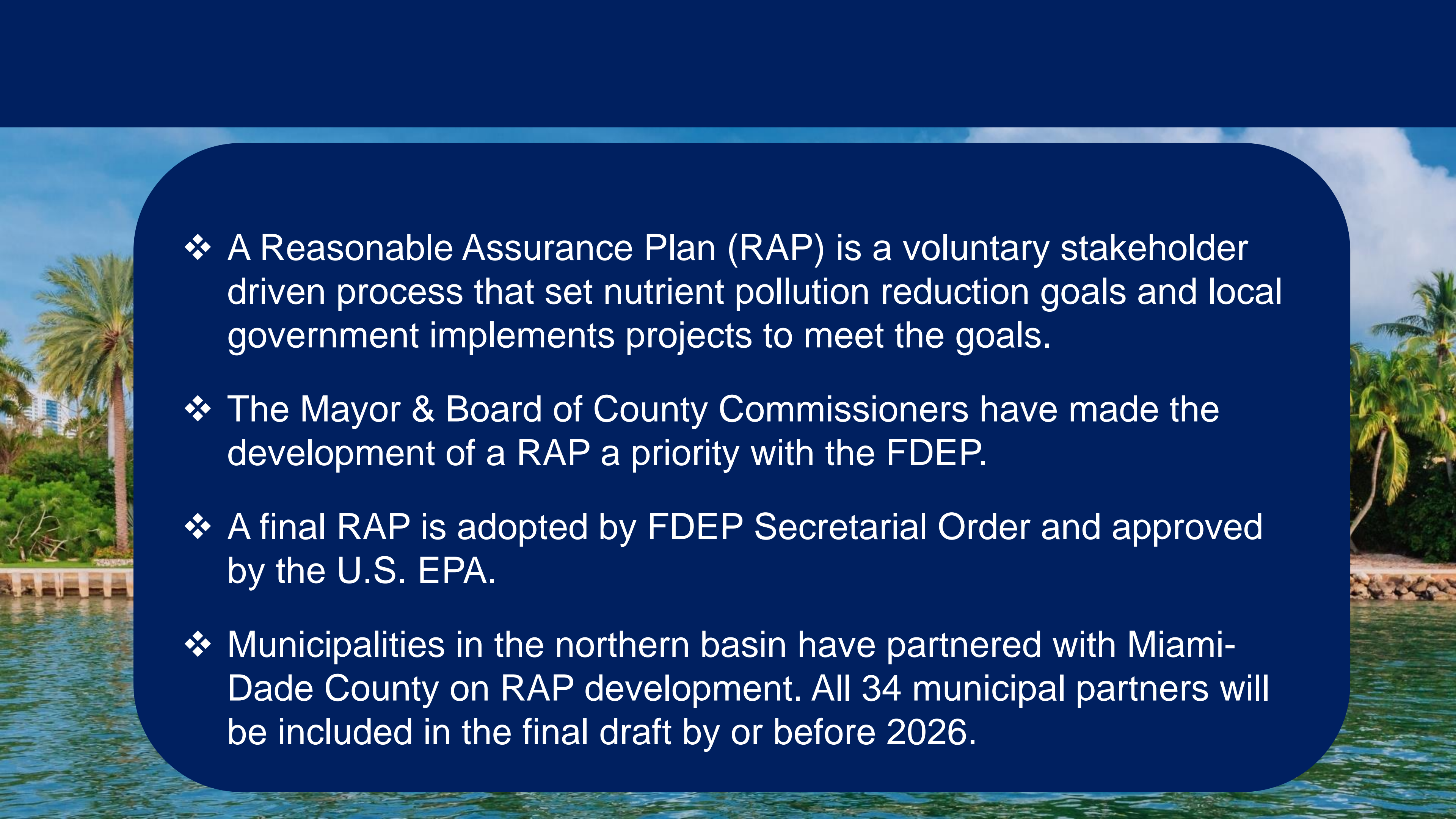
UPCOMING MEETING

Nov. 30, 2022 - 9 a.m.
Florida International University's Biscayne Bay Campus
Wolfe University Center, Room 221
3000 N.E. 151st St.
North Miami, FL 33181



A serene sunset scene over a body of water. The sun is low on the horizon, casting a golden glow across the sky and reflecting on the water's surface. A mangrove tree with green leaves is in the foreground on the right. The text "Reasonable Assurance Plan & Grant Funding" is overlaid in white, bold, sans-serif font in the center of the image.

Reasonable Assurance Plan & Grant Funding

- 
- ❖ A Reasonable Assurance Plan (RAP) is a voluntary stakeholder driven process that set nutrient pollution reduction goals and local government implements projects to meet the goals.
 - ❖ The Mayor & Board of County Commissioners have made the development of a RAP a priority with the FDEP.
 - ❖ A final RAP is adopted by FDEP Secretarial Order and approved by the U.S. EPA.
 - ❖ Municipalities in the northern basin have partnered with Miami-Dade County on RAP development. All 34 municipal partners will be included in the final draft by or before 2026.

It's Our Bay...It's Our RAP



**Establish a RAP framework
within which stakeholders
will participate**



**Establish appropriate
indicators, endpoints,
goals, and targets**



**Assess the current
water quality and
biological conditions**



**Determine the appropriate
prevention or restoration
measures needed**



**Develop a plan
for adoption**



**Monitor and measure the
prevention or restoration**

Grant Funding



Coral Reef Protection Grant
Fiscal Year 2020-2021 - Phase 1
\$10M FDEP + \$10M MDC match



Biscayne Bay Water Quality Grant Program
Fiscal Year 2021-2022 - Phase 2 - **\$12.9M + MDC match**
Fiscal Year 2022-2023 – Phase 3 - **\$14.5M + MDC match**



State of Florida Grant Opportunities:
Wastewater, Innovation Technology, Biscayne Bay Water Quality

What will this funding help with?



Infrastructure Improvements



Water Quality Hot Spot Investigations



Stormwater Improvements



Wastewater Improvements



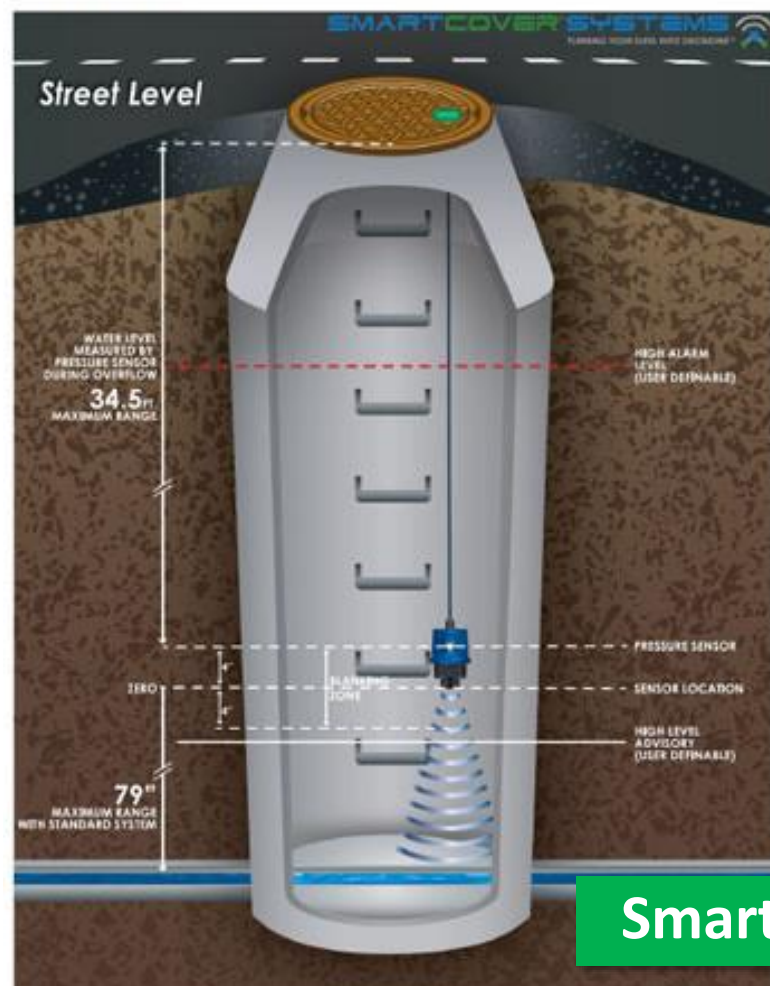
Habitat Restoration

Grant Dollars at Work through Innovation

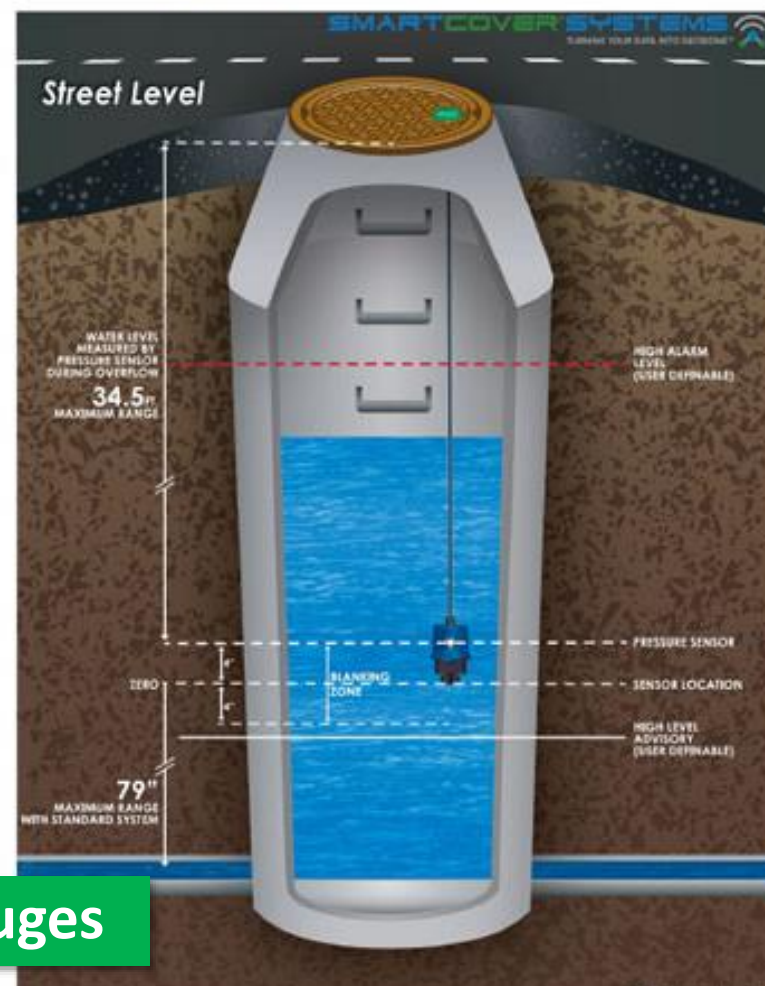


Smart Covers predict sewer overflows

Unsubmerged – low water levels



Submerged – high water levels



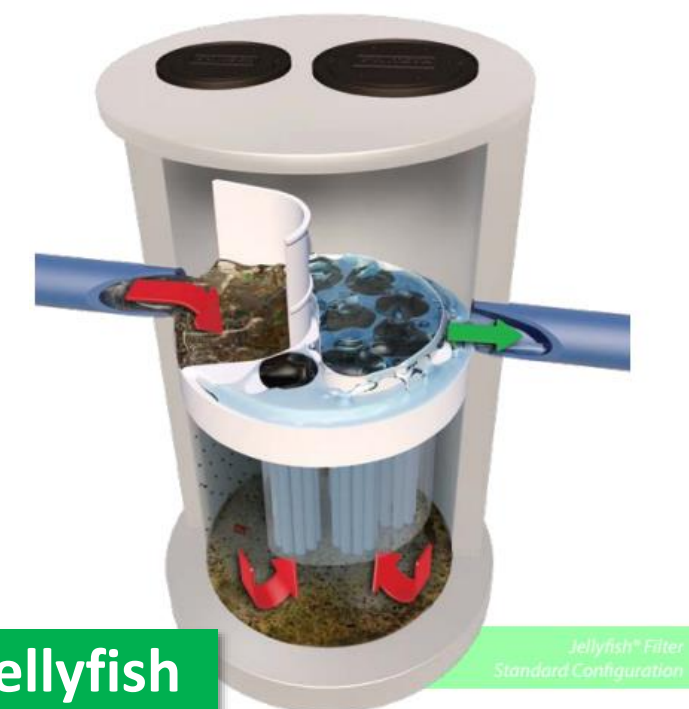
Smart Gauges



Inlet Screens and Filter Baskets



Contech-Jellyfish



Jellyfish™ Filter Standard Configuration



Biscayne Bay Water Quality Grant Program Fiscal Year 2021-2022

City of Coral Gables	Coral Gables Waterway/ Biscayne Bay Water Quality Improvements Construction	\$900,000
City of Coral Gables	King's Bay Septic-to-Sewer Conversion	\$2,750,000

Biscayne Bay Water Quality Grant Program Fiscal Year 2022-2023

City of Coral Gables	City of Coral Gables – Coastal Bay Service Area Sanitary Sewer Rehabilitation Project (Phase I)	\$2,000,000
----------------------	--	-------------



Challenges



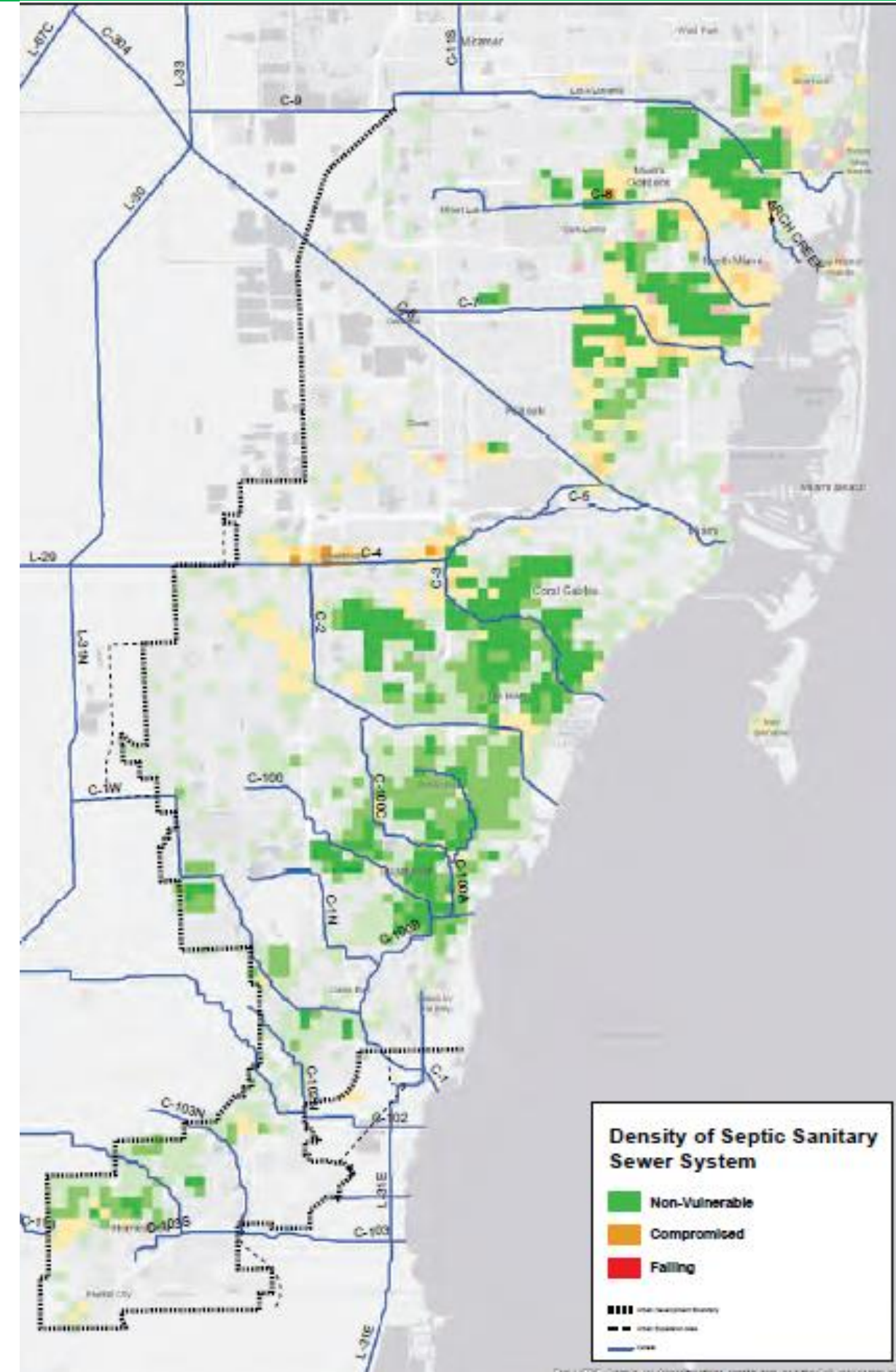
Septic Tanks

Miami- Dade has **120,000 properties** on septic systems

9,000 septic systems are considered vulnerable to compromise or failure under current groundwater conditions

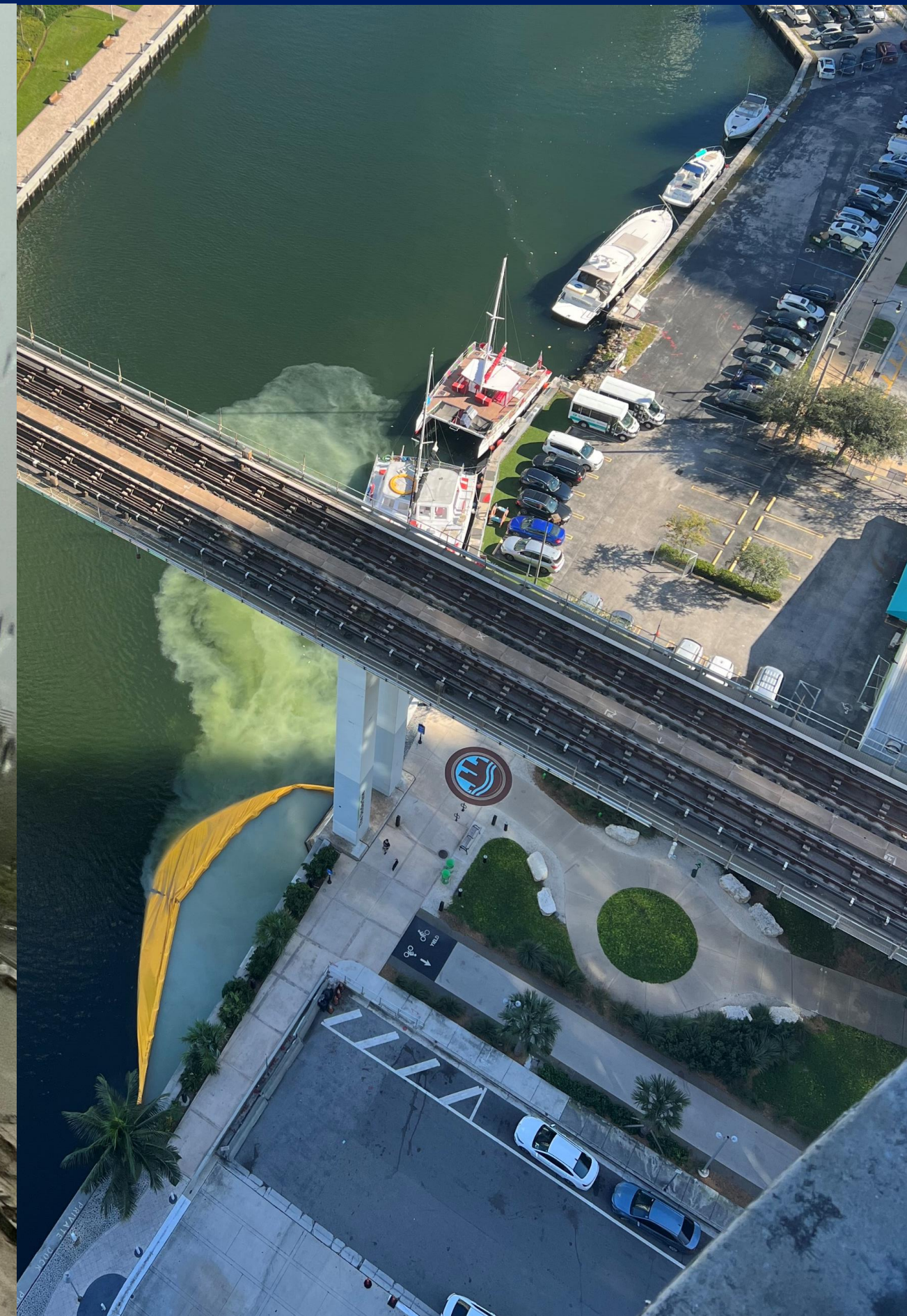
Estimated **13,500** will fail by **2040**

FY 2022-2023 – Biscayne Bay Water Quality Grants provided **\$14.5M** for **septic to sewer conversion**



Construction Sites & Stormwater Management

- Miami-Dade County conducts regulatory sweeps prior to the rainy season May thru October and increased fines last year.
- City of Miami adopted Red Tag to stop work if site is found in violation
- DERM working on updates to the County code on stormwater operation and maintenance guidelines and new standards for municipal systems.



Marine Patrol | Derelict Vessels



2021

51 Derelict Vessels Removed

2022

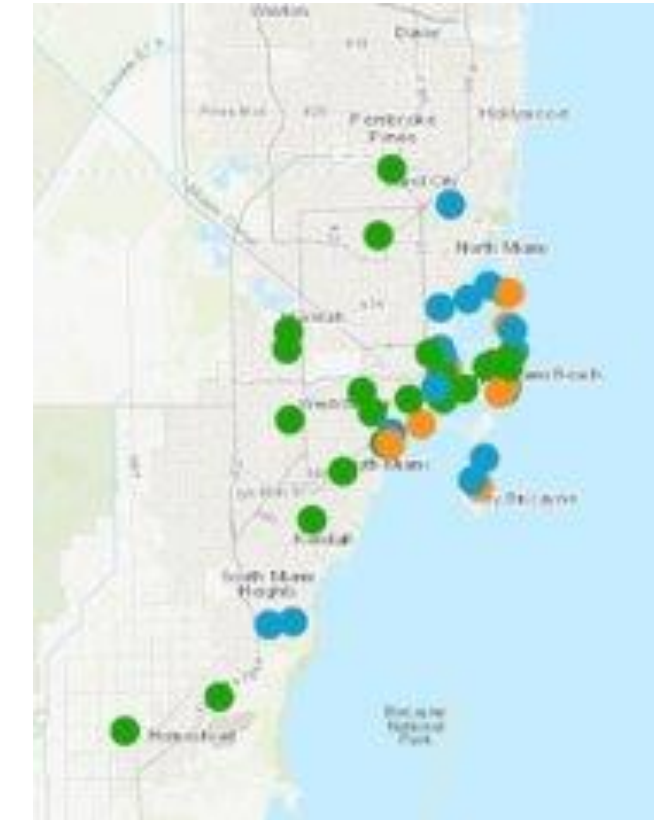
27 Derelict Vessels

273 Traps (crab traps)

There are over 74,622 registered boaters
in Miami-Dade County

Understaffed Marine Law Enforcement

Marine Debris



Marine debris is one of the most widespread problems stressing the world's oceans, waterways, and coastlines.

It is estimated that 80% of marine debris is from land-based sources.

Plastic Free 305 celebrates Miami-Dade County businesses dedicated to reducing or eliminating the purchase and use of single-use plastics through the adoption of reuse and sustainable replacement strategies. It also continues local environmental stewardship initiatives like **Plastic Free Miami Beach** and **Greener Coral Way**.

www.miamidade.gov/plasticfree305

Coral Gables Waterway

It is All Connected!



FIU Coral Gables Water Quality Assessment Preliminary Findings

- FDEP thresholds for total nitrogen, total phosphorus, and chlorophyll-a are **exceeded** at nearly every sampling station.
- FIU two-year study underway

Recommendations in the interim:

- Improve Stormwater Management
- Limit Run-off from Golf Courses
- Educate & Enforce Fertilizer Ordinance
- Reduce herbicide spraying
- Connect 2 Protect (septic to sewer)

Accomplishments



Biscayne Bay Accomplishments



Partnered and Invested:

2020: State & County \$20M (50/50)
2021: \$20M FDEP Grants
2022: State \$21M | Federal \$40M
2023: State \$22M



Adopted

Countywide Fertilizer Ordinance
May 15th – Oct 31st



Created

Interactive Biscayne Bay Report
Card and Biscayne Bay Webpage
www.miamidade.gov/biscaynebay



Developed

Bay Watch Campaign to report bay
related issues on the **311 App** or
email to baywatch@miamidade.gov



Removed

27 Derelict Vessels in 2022
51 Derelict Vessels in 2021



Launched

“Protect Biscayne Bay” specialty
license plate for education
and conservation
www.miamifoundation.org/biscaynebay



Established

Biscayne Bay Watershed
Management Advisory Board



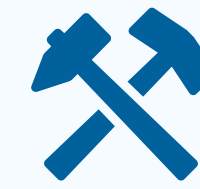
Adopted

Plastic Free 305 Campaign
www.miamidade.gov/plasticfree305



Invested

SFWMD Update to 2005 Biscayne
Bay Economic Study



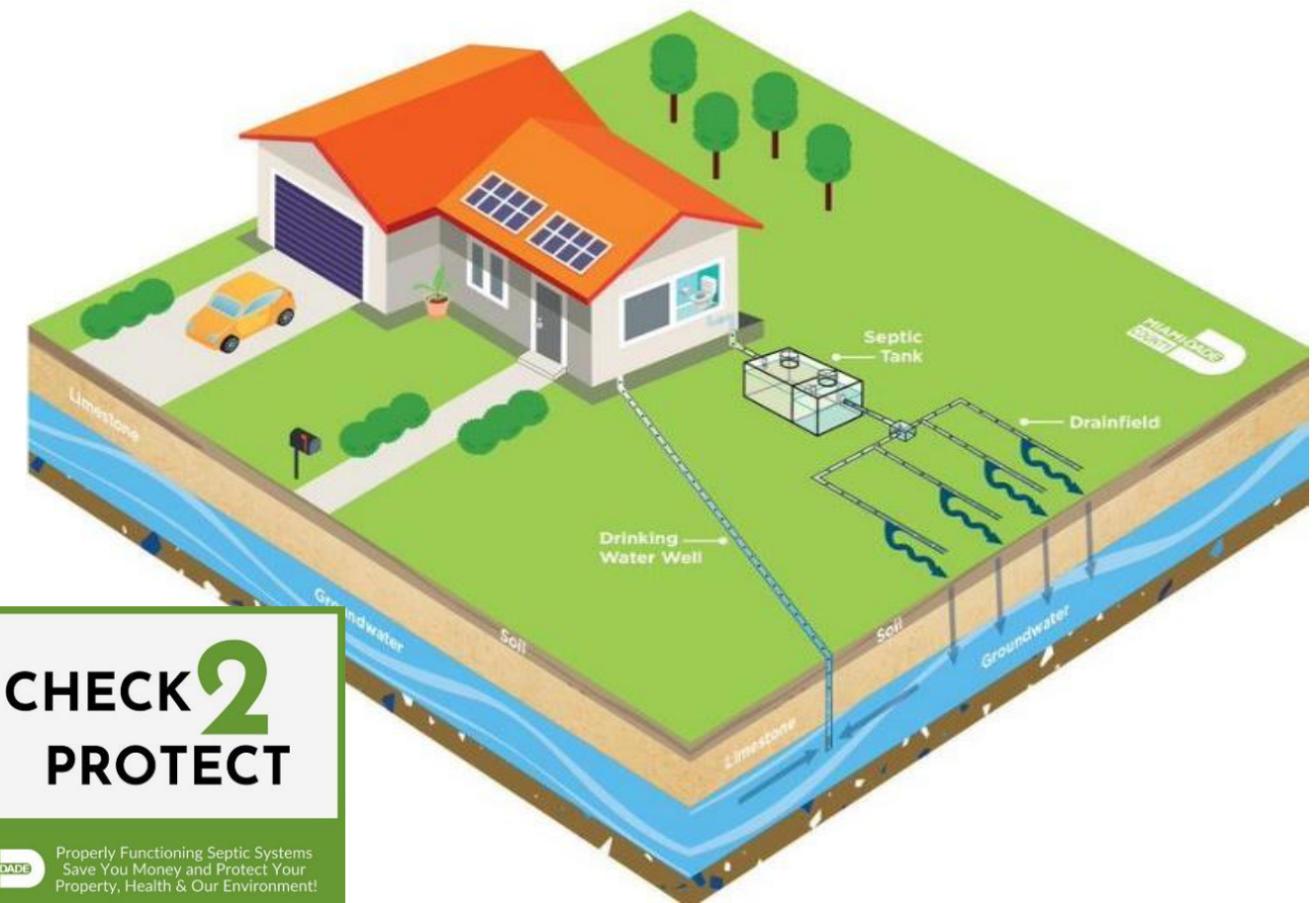
Outreach & Educational Toolkits

Abandoned Derelict Vessels
Fertilizer Ordinance

Septic to Sewer



Connect 2 Protect is the County's approach to extending sanitary sewer service to residents with septic systems in order to protect properties, health, groundwater and natural areas such as Biscayne Bay.



Check 2 Protect is the County's program to help teach residents to properly care for their septic tanks. Residents learn what warning signs to look out for and when to contact a licensed and permitted septic system professional.

Accomplishments through Partner Collaborations

**At-Risk Vessel Task Force
Marine Law Enforcement**



**51 Derelict Vessels Removed
FWC + FIND**



**Manatee Education & Enforcement
FWC + MDPD**



Academic Partnerships



Water Quality Monitoring FDEP



**Spoil Island Coordination
FDEP & Cities**



Education & Outreach

Countywide Fertilizer Ordinance



The ordinance helps reduce effects of excess nutrients caused by fertilizer runoff entering Biscayne Bay through groundwater and stormwater entering surface water bodies such as canals.

**Don't Fertilize From
May 15th through October 31st**
Visit www.miamidade.gov/fertilizer

Baywatch Campaign



It was important that we updated the current reporting process to make it easier for residents to report any issues on the bay. Residents now have four ways ways to report environmental complaints to the County: 311 App and Online Email, Online Form and Phone Number.

Report Issues on Biscayne Bay

Email baywatch@miamidade.gov
Visit: tinyurl.com/baywatch305
Call: 305-372-6955

Fish Kill Action Plan



The County prepared staff and secured the appropriate vendors to the pickup and disposal of fish. A reporting guide was shared with municipalities to reach out directly to the county for assistance.

Report Environmental Complaints on 311



Visit www.miamidade.gov/311direct/
Or Download the App on
Android or Apple Store

Education and Outreach

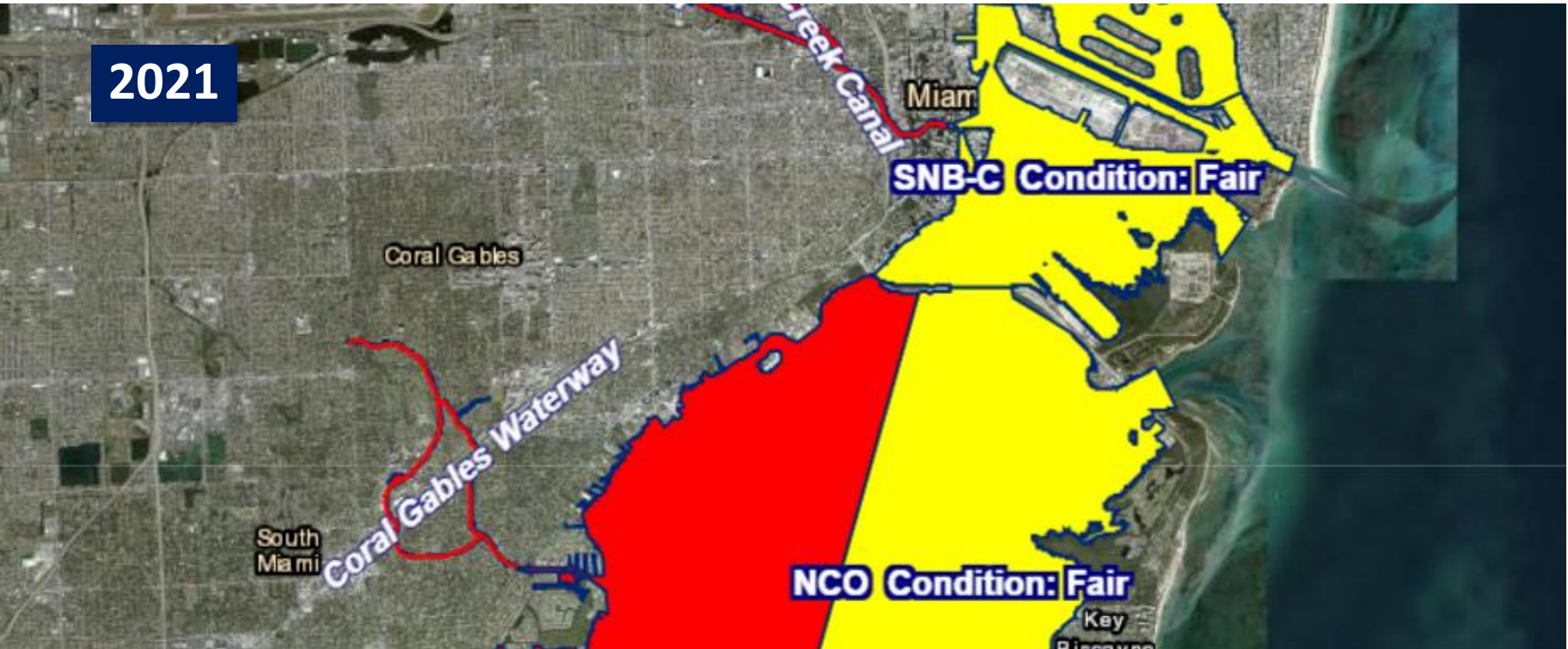
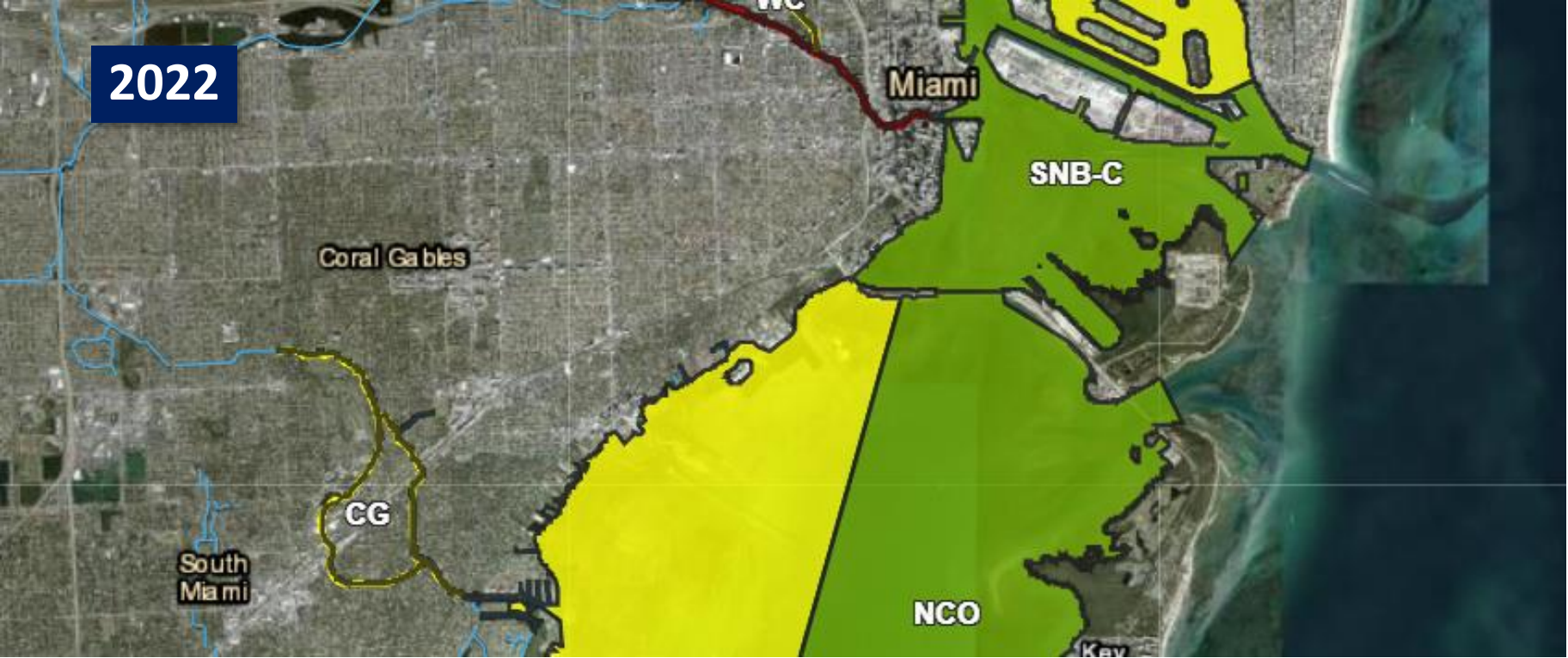
Biscayne Bay Website and Report Card

Created a Biscayne Bay Webpage and an interactive version of the Biscayne Bay Report Card

Visit: www.miamidade.gov/biscaynebay

The screenshot shows the 'Biscayne Bay Report Card 2021' website. At the top, there are navigation tabs: Overview, Monitoring Stations, Biscayne Bay Report Card 2021 (selected), Combined Water Quality, Total Phosphorus, and Total Nitrogen. The main content area features a map of Biscayne Bay with various monitoring stations labeled with their names and conditions. A sidebar on the left includes a photo of a cushion sea star and a circular diagram of water quality parameters. The bottom of the page has a footer with 'Earthstar Geographics | GIS Technical Support | Esri, HERE, Garmin' and the Esri logo.

Monitoring Station	Condition
NNB-B	Poor
SNB-A	Poor
SNB-C	Fair
NCO	Fair
NCI	Poor
SCI	Fair
SCM	Fair
CS	Fair
MB	Poor



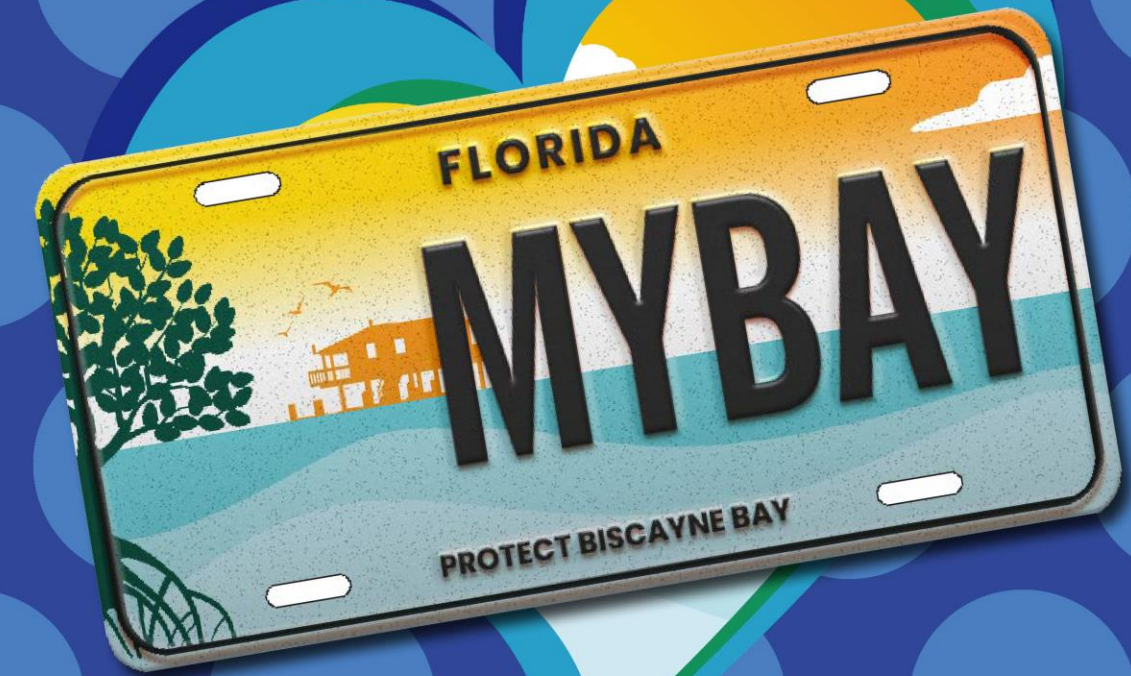
Support & Protect Biscayne Bay

Protect Biscayne Bay Specialty License Plate

Advocated for the “Protect Biscayne Bay” specialty license plate
Proceeds will go to the Miami Foundation to help fund education and
conservation efforts for Biscayne Bay’s recovery.

We must pre-sell 3,000 to get the plate in circulation!

To purchase your pre-sale voucher, visit:
www.miamidade.gov/mybayplate



Let others see your
love for Biscayne Bay

Join other Bay Lovers & get your plate voucher
at miamifoundation.org/biscaynebay





Thank you, Together We Can!

For more information & updates on Biscayne Bay:
www.miamidade.gov/biscaynebay