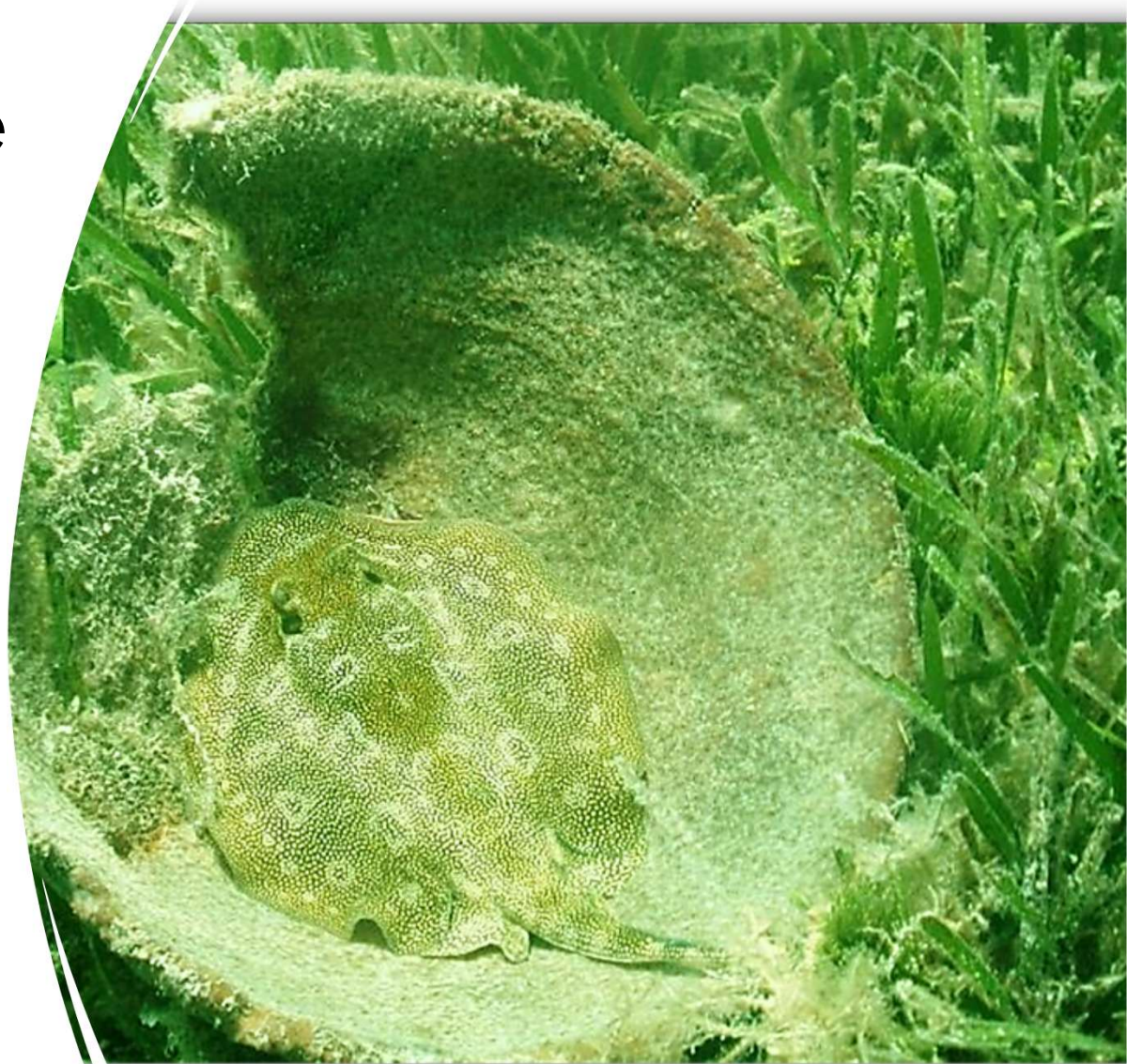


Restoring Biscayne Bay Health and Resilience

Evaluation and Appraisal Report Task
Force Meeting | December 11, 2025

Pamela Sweeney | Chief, Water
Resources Coordination Division
Miami-Dade County DERM



THE FUTURE OF BISCAYNE BAY

EAR Task Force goals:

- Recommending changes to the CDMP to account for a planning horizon of 2050
- Identifying barriers that prevent the County from achieving the CDMP Vision Statement and associated goals, objectives and policies
- Recommending changes to the CDMP goals, objectives, policies and text that guide growth in the County, specifically including those focused on infill development and future expansion areas



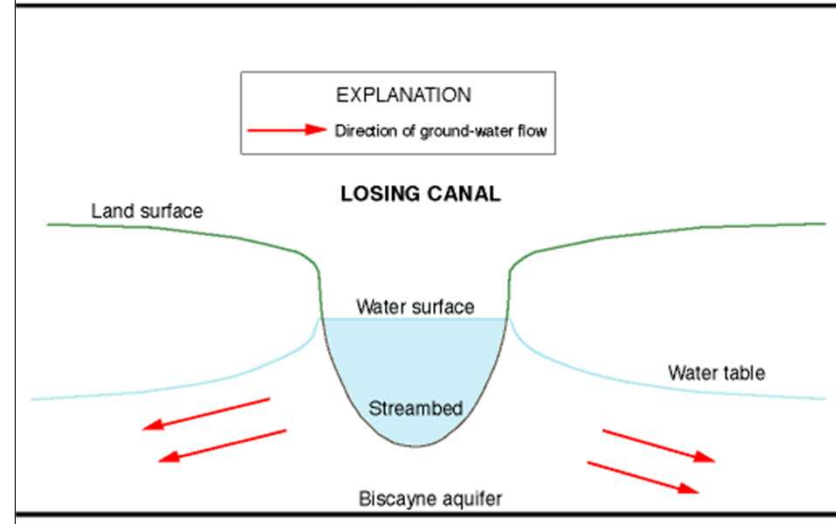
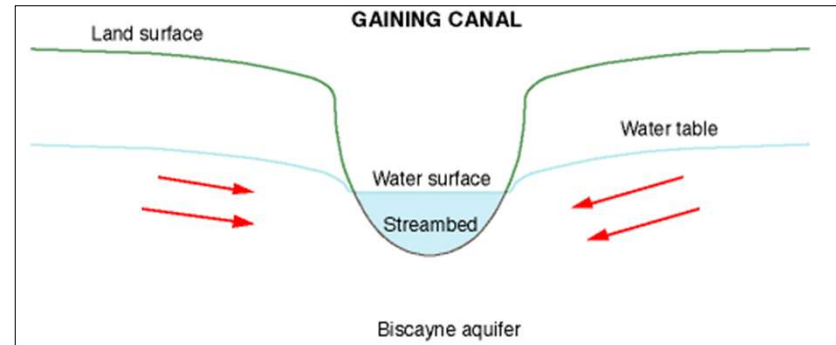
NATURAL HISTORY OF BISCAYNE BAY & OUR CHANGING LANDSCAPE



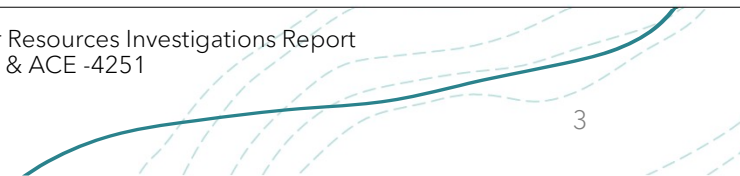
Rapids, North Fork of Miami River (~ NW 27th Ave)
-HistoryMiami, Munroe Collection



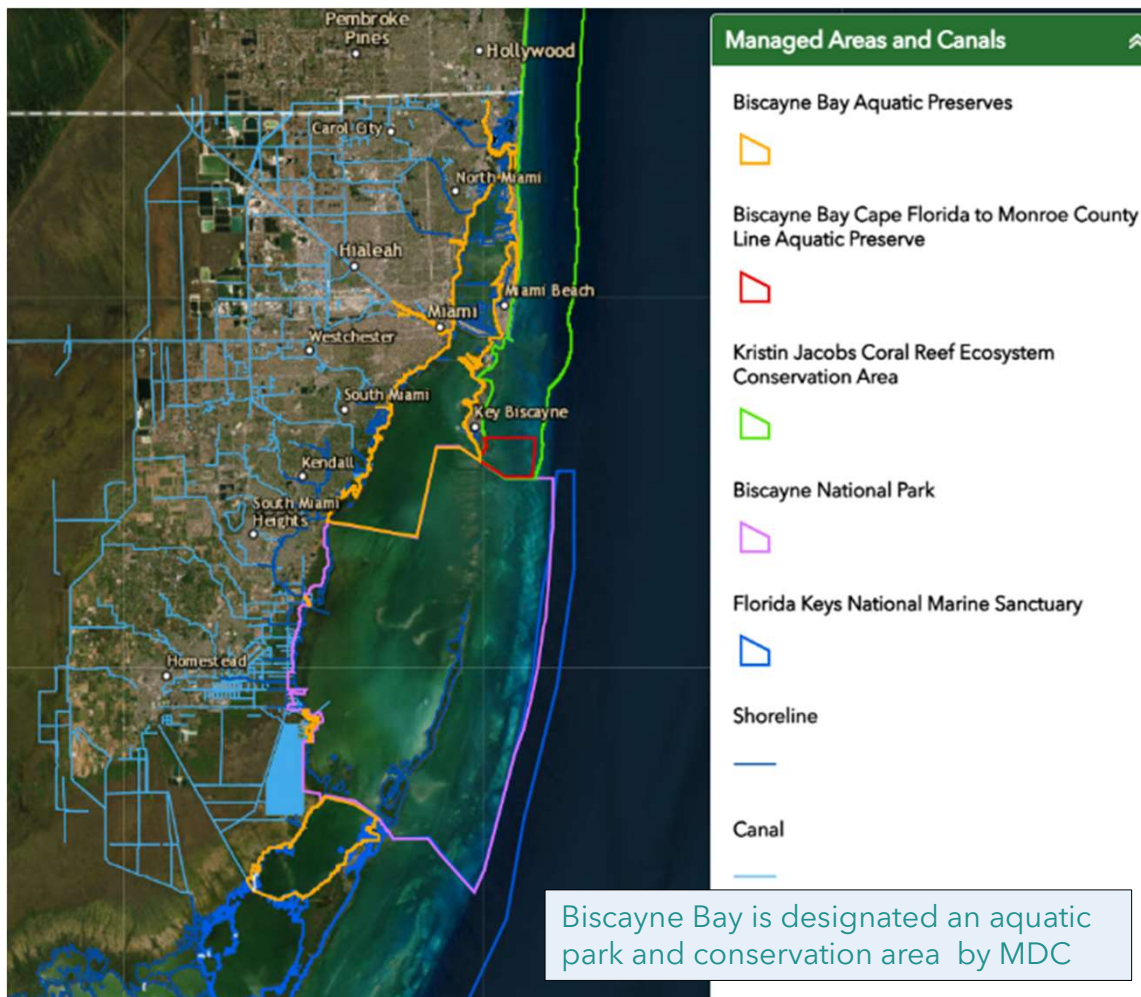
Miami Canal, S-26 - sofia.usgs.gov



Water Resources Investigations Report
USGS & ACE -4251



MANAGEMENT OF BISCAYNE BAY



Biscayne Bay Protection - County Activities

- CDMP Elements
 - Conservation, Aquifer Recharge, Drainage
 - Coastal
 - Land Use
 - Chapters 7, 24, 33 (Code of Miami-Dade County)
 - Biscayne Bay Management Plan (1981)
-
- Surface water and groundwater monitoring
 - Habitat monitoring
 - Habitat restoration
 - Pollution investigations
 - Pollution reduction projects / Innovation
 - Internal and external collaboration
 - Water resources projects
 - Regional restoration goals
 - Policy development
 - Provide analysis for regulatory programs/process including T/E species, habitat, water resources
 - Emergency response
 - Environmentally Endangered Lands Program
 - Biscayne Bay restoration & governance structure

What impacts water quality and why does it matter?

-Stormwater Runoff

- Pet waste
- Gas and oil
- Landscape waste
- Trash
- Industrial uses
- Agriculture
- Construction sediment

-Wastewater

- Aged sanitary sewer lines
- Septic systems

-Fertilizer & other chemicals

-Non-compliance & other illicit issues

Nutrient
Enrichment

Seagrass Loss in the Julia Tuttle Basin



An underwater photograph of a large stingray resting on a sandy seabed. The water is a deep teal color, and the sand is light-colored. The stingray is positioned horizontally, facing right. Its body is dark, and its long tail extends towards the right. The lighting is soft, creating a calm atmosphere.

BISCAYNE BAY IS SPECTACULAR.


AND IT'S OUT OF BALANCE -
LOSING ITS *RESILIENCE*.

20XX


The ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events - National Academies of Science

6

BISCAYNE BAY REPORT CARD



2025 Biscayne Bay Report Card



2025 Biscayne Bay Report Card

Protected Areas

Water Monitoring


Habitat Monitoring

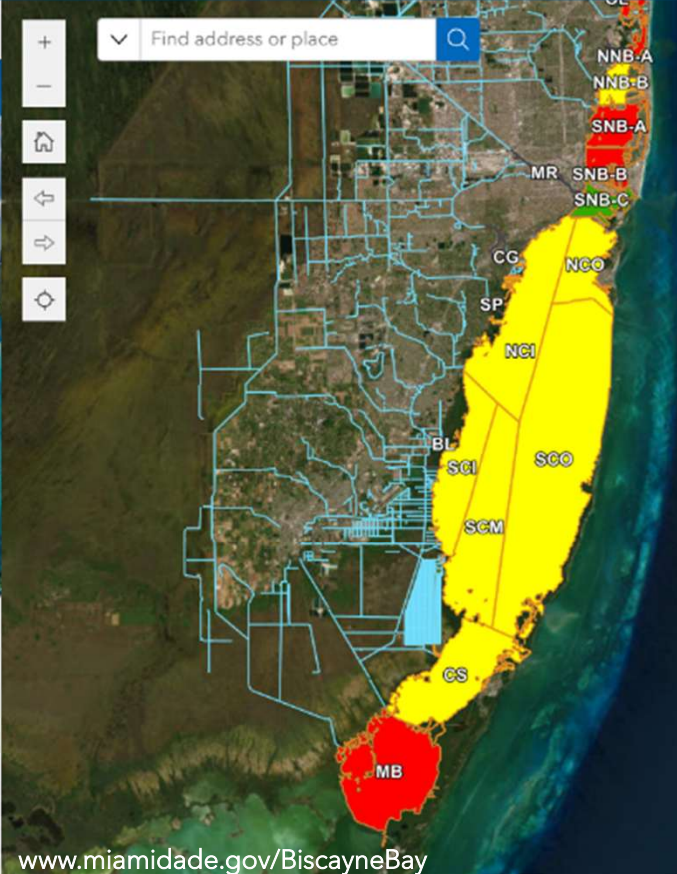
2025 Scores

Restoration Actions

Methodology

2025 Biscayne Bay Report Card






Nutrient Regions

■ Good

■ Fair

■ Poor

The Biscayne Bay Report Card evaluates water quality and habitat in Biscayne Bay as the representative aspects of the Bay's overall ecological health. There are several indicators of water quality and habitat quality that are collected on a regular basis by the Department of Regulatory and Economic Resources' Division of Environmental Resources Management (DERM). Water quality parameters include total phosphorus, total nitrogen, water clarity, bacteriological indicators and chlorophyll-a. Habitat quality indicators include submerged aquatic vegetation (i.e., seagrass and macroalgae) as well as sponges. Data collected during the 2024 calendar year were used to develop the Biscayne Bay Report Card.



www.miamidade.gov/BiscayneBay

BISCAYNE BAY RESTORATION - REASONABLE ASSURANCE PLAN



Biscayne Bay Task Force Report

Recommendations

The following section outlines recommendations the County should take to restore water quality in Biscayne Bay. The Task Force recommends the establishment of an overarching administrative structure to implement recommendations under seven policy themes.

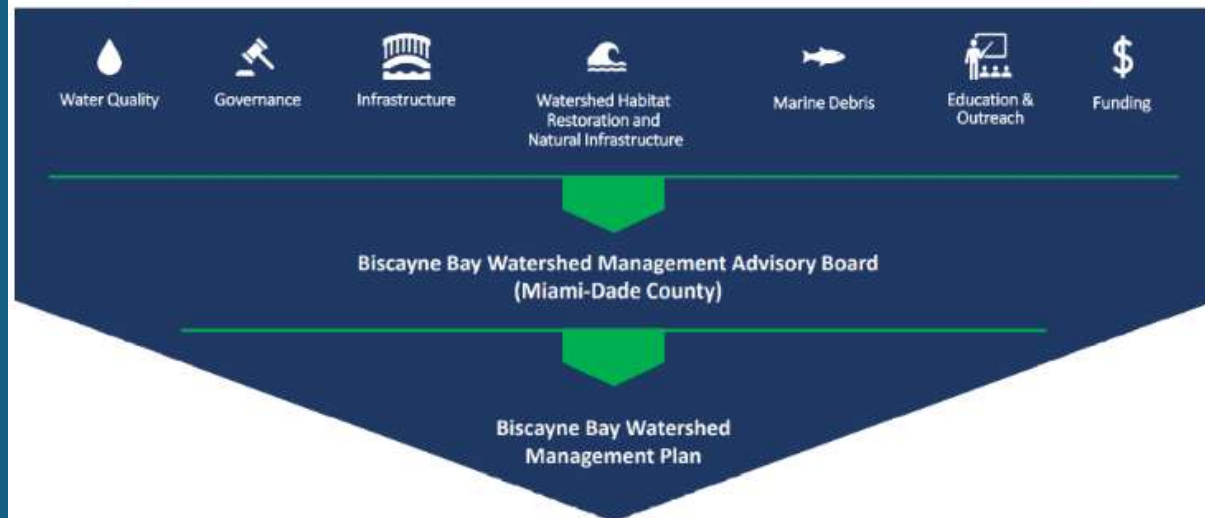
Overarching Recommendation

A unified and collaborative approach to watershed restoration is urgently needed. To improve the water quality and the health of Biscayne Bay, the Task Force recommends:

- Miami-Dade County's Board of County Commissioners (BCC) should create a new intergovernmental body called the Biscayne Bay Watershed Management Board (WMB).
- The WMB should be supported by the creation of a new position called the Chief Bay Officer (CBO) in the Office of the Mayor. The WMB and the CBO should be supported by County staff, appropriate technical experts and community input to improve water quality in the Biscayne Bay watershed.
- The WMB will be responsible to develop and, upon approval by the BCC, implement the Biscayne Bay Watershed Restoration Plan (WRP). The WMB, working with the CBO, should ensure that the following recommendations by the Task Force are implemented.

Biscayne Bay Task Force Recommendations Allowed Us To:

- IDENTIFY DATA GAPS THAT WILL HELP US CREATE NUTRIENT REDUCTION PLANS AND HABITAT RESTORATION PLANS
- PRIORITIZE WATER QUALITY ISSUES AND HOT SPOTS
- PRIORITIZE INFRASTRUCTURE PROJECTS, INCLUDING STORMWATER AND WASTEWATER PROJECTS





DEP Biscayne Bay Water Quality Improvement Grant - Overview



Project: Water Quality Characterization and Pollution Reduction

Task / Type	Project Name	Description	Phase 1 ('20 '21) (\$10M)	Phase 2 (21 22) (\$12.9M)	Phase 3 ('22 '23) (\$14.5M)	Phase 4 (23 24) (\$13.5M)	Phase 5 (24 25) (\$1.1M)
Task 3 <i>Investigative</i>	Water Quality Characterization	Identify sources of pollution in Biscayne Bay / Groundwater	\$2,150,000	\$2,250,000	\$0	\$800,000	\$0
Task 4 <i>Preventative</i>	Innovative Technology – Wastewater	- Prevent Sanitary Sewer Overflows with SmartCovers and Smart Rain Gauges - Distributed WW Treatment	\$1,159,544.36	\$2,000,000	\$0	\$50,000	\$0
Task 5 <i>Preventative</i>	Septic Education & Outreach - Connect2Protect	Education efforts in Little River Adaptation Action Area for Connect2Protect	\$500,000	\$0	\$0	\$0	\$0
Task 6 <i>Restorative</i>	Septic to Sewer Conversion*	Connect vulnerable properties to sewer	\$5,050,000	\$6,690,463	\$14,490,455.64	\$12,650,000	\$0
Task 7 <i>Restorative</i>	Stormwater Treatment	Implement green stormwater technology in the Little River area.	\$1,300,000	\$2,000,000	\$0	\$0	\$1,100,000
Task 8 <i>Restorative</i>	Biological Restoration to Enhance Water Quality	- Develop a “Living Shoreline” guide for the county. - Sponge nursery(ies) host site and donor site characterization	\$500,000	\$0	\$0	\$0	\$0

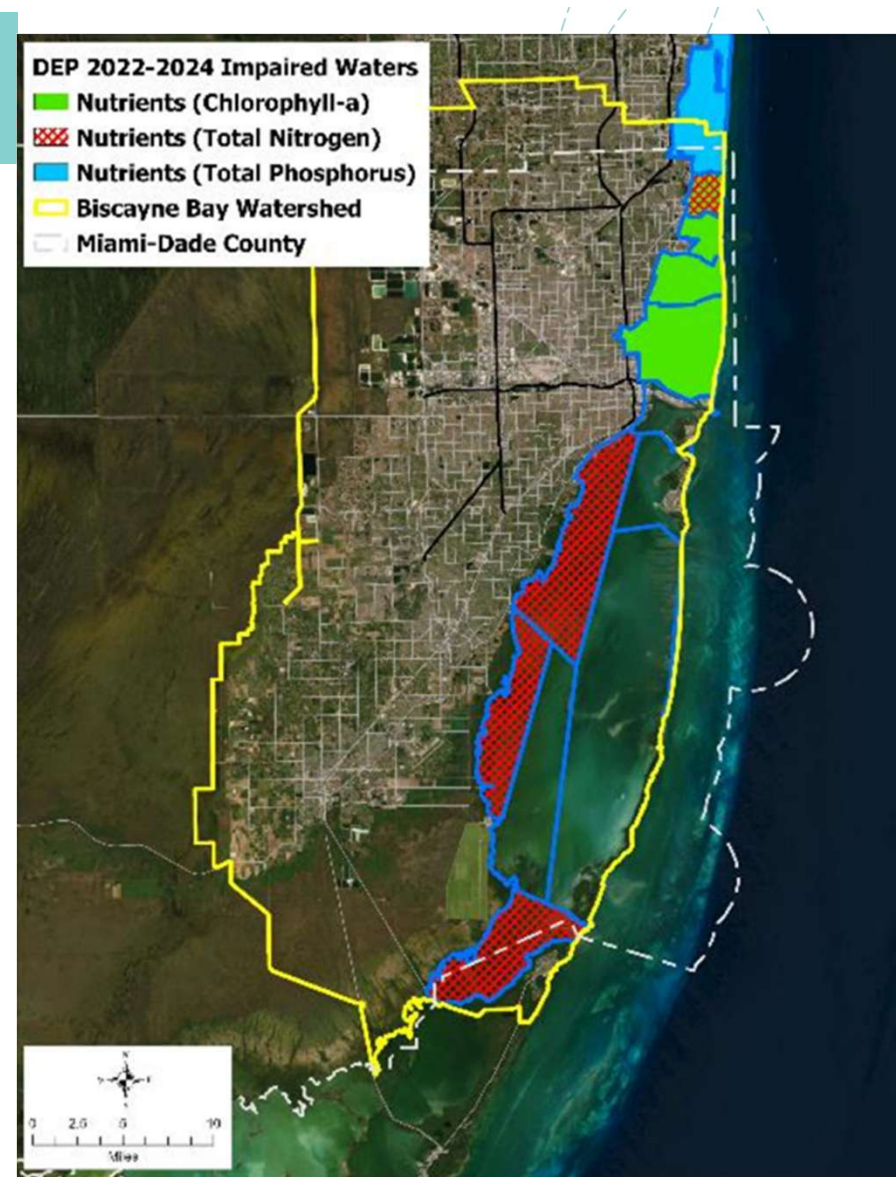
Total for 5 phases: \$52,690,463

WHAT IS A REASONABLE ASSURANCE PLAN?

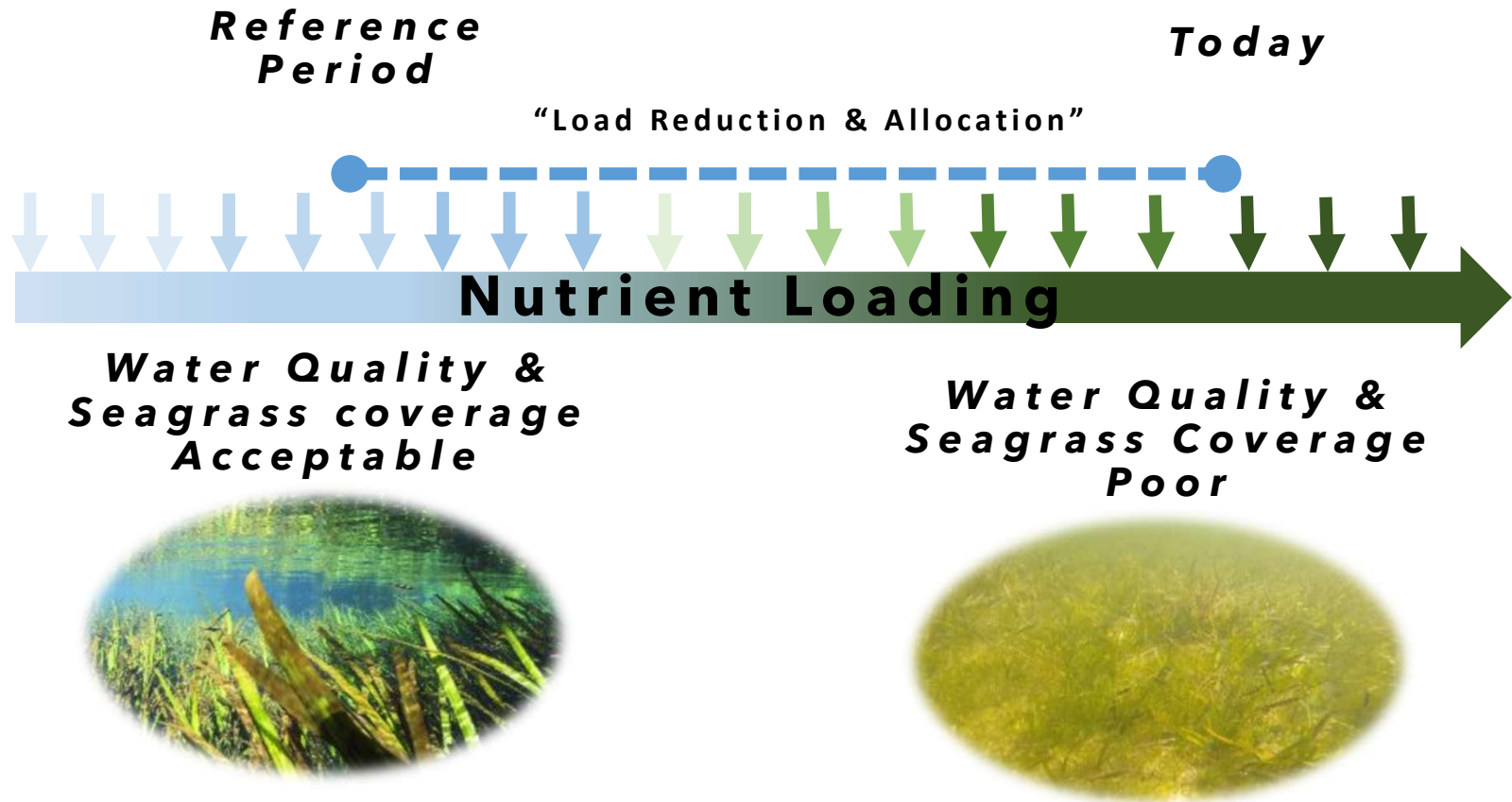
WHAT WILL IT DO FOR THE BAY?

- 8 out of 12 segments are designated impaired by DEP
- Impairments must be addressed. There are two main ways:
 1. State drives the process: *Total Maximum Daily Load + Basin Management Action Plan*
 2. Stakeholders collaborate to drive the process: RAP is an alternative
- TMDL/BMAPs also take several years.
- RAP is a *collaborative* effort with stakeholders to address Biscayne Bay's water quality issues

RAP = Cleaner water, *faster*



Reasonable Assurance Plan

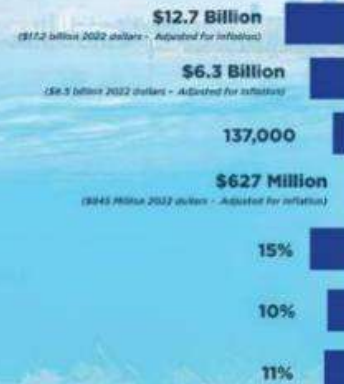


CREDIT: CARLOS HERNANDEZ, P.E.

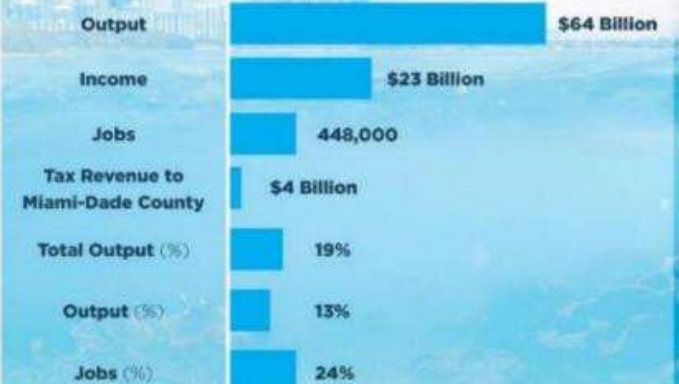


Comparison - 2005 to 2023 Biscayne Bay Economic Study

2004 Annual Economic Contributions
(2004 Dollars)



2022 Annual Economic Contributions
(2022 Dollars)

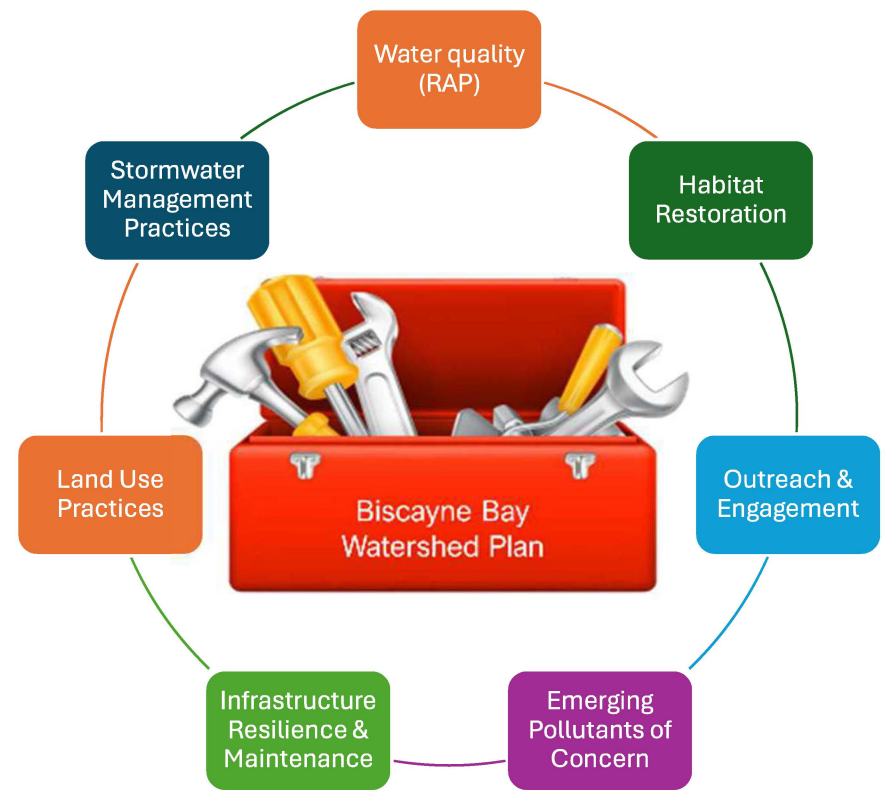
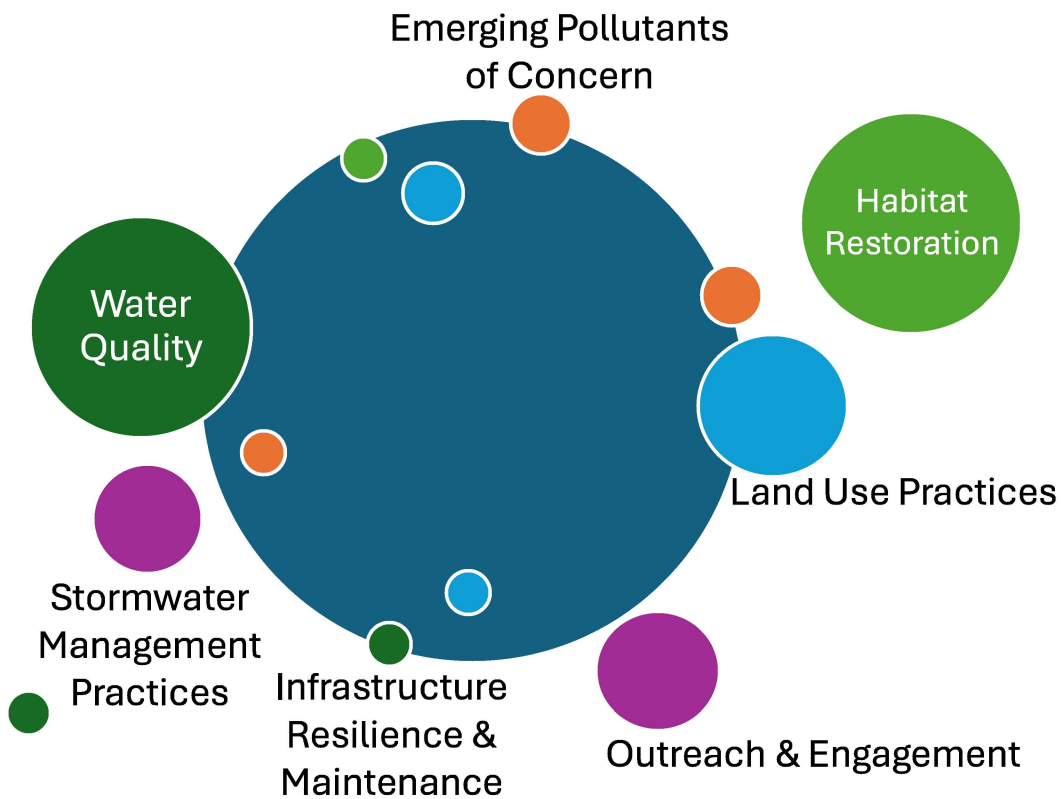


Data provided from the 2023 Biscayne Bay Economic Study Update by Hazen and Sawyer and 2005 Biscayne Bay Economic Study



Why a Watershed Plan for Biscayne Bay?

GOAL: Unified Approach to Protecting and Restoring Biscayne Bay Health and Resilience



(Representative Issues for Presentation Purposes Only)

CDMP ELEMENTS CENTRAL TO BISCAYNE BAY PROTECTION

CONSERVATION, AQUIFER RECHARGE, DRAINAGE

- CON-2K. Miami-Dade County shall use the data generated in its ambient ground and surface water monitoring programs to determine ...National Pollution Discharge Elimination Systems (NPDES) priority pollutants
- CON-2L. By 2020, Miami-Dade County shall prepare a management plan for the protection and proper utilization of the Floridan Aquifer. This management plan should identify potential areas of water withdrawals, potential sources of contamination, ...and the development of practices that will maintain this aquifer as a viable water supply source.
- CON-4A. The aquifer-recharge values of undeveloped land and the water storage values of wetland areas shall be maintained and, where feasible, enhanced or restored. There shall be no further positive drainage of wetlands to accommodate urban development or agricultural uses
- CON-5G. Miami-Dade County shall encourage, based on analysis of water impoundment areas, the need for buffers between water impoundment areas and development in order to increase the level of flood protection provided to developed areas.
- CON-7C. Miami-Dade County shall continue to promote the restoration and maintenance of the natural, surface water flow regimes into, and through wetland systems such as the Shark River Slough, Everglades National Park and the saline wetlands of southeastern Miami-Dade County.
- CON-7D. Management plans shall be developed to govern all development activity within all natural communities on County-owned lands to protect natural and historic resources. The Division of Environmental Resources Management (DERM) and the Office of Historic and Archeological Resources shall assist the appropriate County agencies in the development of these plans, which shall be subject to public review and comment as they are prepared and implemented.
- CON-7J. In evaluating applications that will result in alterations or adverse impacts to wetlands Miami-Dade County shall consider the applications' consistency with Comprehensive Everglades Restoration Program (CERP) objectives. Applications that are found to be inconsistent with CERP objectives, projects or features shall be denied.
- CON-9A. All activities that adversely affect habitat that is critical to federal or State designated, endangered or threatened species shall be prohibited unless such activity(ies) are a public necessity and there are no possible alternative sites where the activity(ies) can occur. (See Appendix B)
- CON-9B. All nesting, roosting and feeding habitats used by federal or State designated endangered or threatened species, shall be protected and buffered from surrounding development or activities and further degradation or destruction of such habitat shall not be authorized.

CDMP ELEMENTS CENTRAL TO BISCAYNE BAY PROTECTION

COASTAL

- CM-1K. The preservation of estuarine nursery functions shall be taken into consideration in making decisions about canal discharge schedules. The County shall work with the U.S. Army Corps of Engineers, Biscayne National Park, and the South Florida Water Management District to better understand existing and historic surface and ground water flows to Biscayne Bay and their relationship to the Bay's critical estuarine nursery functions.
- CM-3P. Miami-Dade County shall continue to assist the State of Florida in developing antidegradation targets to protect Outstanding Florida Waters and Outstanding National Resource Waters of Biscayne Bay.
- CM-4A. Areas that are used for nesting, feeding or congregation by endangered and threatened species shall be protected from alteration and human activities that would further imperil those species.
- CM-4B. Miami-Dade County shall seek to establish, or reestablish, in cooperation with appropriate agencies, wildlife corridors in appropriate coastal locations such as: the Oleta River; areas between Matheson Hammock and Turkey Point; in the South Dade Wetlands and Southern Glades Wildlife and Environmental Area; and within the boundaries of Everglades National Park and Biscayne National Park.
- CM-4C. Travel corridors used by endangered or threatened species shall be protected to the extent possible from alteration and human activities that would further imperil those species.
- CM-4J. Miami Dade County shall continue to restore its coastal habitat for the coastal wildlife and other protected species which may utilize these habitats.
- CM-5F. The siting of public or private water dependent facilities shall be based on upland, shoreline and in-water characteristics, as well as submerged land ownership. At a minimum, the following general criteria shall be used to determine the appropriateness of sites within the Coastal Area for marina/water-dependent projects:
 - iv) The proposed marina/water-dependent facility shall:
 - (a) Preserve or improve traditional public shoreline uses and public access to estuarine and coastal waters, and
 - (b) Preserve or enhance the quality of the estuarine and coastal waters, water circulation, tidal flushing and light penetration, and
 - (c) Preserve archaeological artifacts or zones and preserves or sensitively incorporate historic sites, and (d) Provide a hurricane contingency plan.
- CM-7G. To better document the values, and to promote appreciation of Miami-Dade County's natural resources by residents and tourists, the County shall seek to have a study VII-12 conducted to support and sustain tourism, marina, water-dependent and water[1]related uses and to quantify the economic, health, and recreational benefits the community derives from protecting coastal resources and their water-dependent and water-related uses.

CDMP ELEMENTS CENTRAL TO BISCAYNE BAY PROTECTION

LAND USE

- LU-3J. Miami-Dade County continues to support the Comprehensive Everglades Restoration Plan (CERP), and related regional and local habitat restoration and preservation initiatives through its development review processes and long range land planning initiatives.
- LU-3B. All significant natural resources and systems shall be protected from incompatible land use including Biscayne Bay, future coastal and inland wetlands, future potable water-supply wellfield areas identified in the Land Use Element or in adopted wellfield protection plans, and forested portions of Environmentally Sensitive Natural Forest Communities as identified in the Natural Forest Inventory, as may be amended from time to time.
- LU-8G. When considering land areas to add to the UDB, after demonstrating that a need exists, in accordance with the foregoing Policy LU-8F:
 - i) The following areas shall not be considered:
 - a) The Northwest Wellfield Protection Area located west of the Turnpike Extension between Okeechobee Road and NW 25 Street and the West Wellfield Protection Area west of SW 157 Avenue between SW 8 Street and SW 42 Street;
 - b) Water Conservation Areas, Everglades National Park, Biscayne National Park, Pennsuco Wetlands, and Bird Drive Wetlands, as depicted on Figure 14; October 2017 Cycle; App. 8; Adopted 9-27-18; Ord. 18-109 I-17
 - c) Comprehensive Everglades Restoration Plan project footprints delineated in Tentatively Selected Plans and/or Project Implementation Reports;
 - d) The Redland area south of Eureka Drive (SW 184 Street);
 - e) Areas within the accident potential zones of the Homestead Air Reserve Base; and
 - f) Applications for residential land uses within the Coastal High Hazard Areas



WITH GRATITUDE

Your efforts and time are essential to the protection of native habitats and water resources of Miami-Dade County.

Questions?

Pamela.Sweeney@miamidade.gov