

Living Shorelines



Biscayne Bay, known as the 'blue heart' of Miami-Dade County, attracts millions with its iconic coastline and thriving aquatic resources. Historically pristine, the bay featured diverse habitats like marshes and mangrove wetlands. However, rapid urbanization over the past 130 years has reduced mangrove forests and freshwater inputs, leading to poor water quality and increased coastal flooding. Living shorelines can help protect against erosion, restore natural habitats, and improve water quality.

The Living Shoreline Guidance Document for the Biscayne Bay Watershed is intended to provide a clear path forward for public and private property owners, implementing living shorelines in Miami-Dade County. Living shorelines can provide coastal infrastructure protection against sea level rise and coastal flooding, and help restore the natural function of waterways while providing socioeconomic and ecosystem benefits to the community. Living shorelines include a combination of natural materials, sustainable implementation practices, and hard infrastructure. Living shorelines are resilient, sustainable, and adaptable solutions to our changing environmental conditions in Miami-Dade County.

Why are Living Shorelines Important?

Living shorelines and other best management practices can slow the flow of water to Biscayne Bay and allow time for pollutants to settle out, provide natural water filtration, and potentially reduce inland flooding. As living shorelines make the shoreline greener, softer, and more complex, they can better support aquatic life, while making the water's edge more natural and improving the beauty of the shore both from land and from the Bay. More natural shores with native plants and trees providing shade align with Miami-Dade County's goals of the Resilient305 program and the Southeast Florida Climate Change Compact's Regional Climate Action Plan. The implementation of living shorelines should help Miami-Dade County become more resilient and adaptable to climate change and sea level rise, while not fundamentally altering the vibrant, diverse, and dynamic essence of the County's coastline.



Brittany Bay Park Living Shoreline

What are the Benefits of a Living Shoreline?



Resilient to
changing
conditions



Performance
improves
with time



Creates
educational
opportunities



Provides
better risk
mitigation



Establishes
habitat for plants
and animals

Living Shoreline Implementation

Shorelines are dynamic environments and can vary dramatically, as such, there is no single solution available. This guidance document includes a step-by-step process of how to plan for, design, and permit a living shoreline project.

Process for installing a living shoreline:



Shoreline Options

The guidance document includes several living shoreline solutions that could be permitted and constructed in Miami-Dade County. These design options will need to be adjusted according to local site conditions.

More Information

The Miami-Dade County Living Shoreline Guidance Document for the Biscayne Bay Watershed is available online at:

<https://miamidade.gov/BiscayneBay>

Questions? Contact:

Miami-Dade County Coastal Resources Section

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Miami-Dade County. 2024. Living Shoreline Guidance Document for the Biscayne Bay Watershed. Prepared for Miami-Dade County, Department of Regulatory & Economic Resources, Division of Environmental Resources Management by Tetra Tech. December 2024.

Living Shoreline Solutions

General living shoreline solutions that can be implemented in Miami-Dade County.



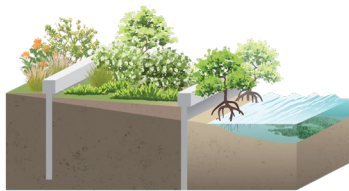
New Biomimicking Seawall

A biomimicking wall installed waterward of the existing wall where seagrass occurs at the toe of the wall.



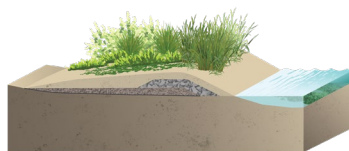
New Seawall with Riprap or Bioblock Toe Stabilization

Installation of riprap or bioblocks at the toe of the wall to reduce erosion and provide habitat.



Gradual Slope with Layered Bulkheads and Plantings

Install bulkheads upland of the mean high water line to raise and stabilize the slope.



Hybrid/Nature-based Dune

This solution uses *Sargassum* to bind and strengthen the topsoil while providing nutrients to help the planted native vegetation take hold and grow.



Resiliency Berm

A resiliency berm consists of an armored stone core covered by topsoil or a geotextile lining material, topped with salt tolerant native vegetation.



Mangrove Planters with Breakwaters

Mangrove planters stabilize the shoreline between a coastal breakwater and a riprap slope stabilized upland.



Reused Seawall with Mangroves

A failing seawall could be cut, and the wall structure reused with additional riprap or breakwater stabilization. Mangroves and native planters can provide additional stabilization of the slope.



Riprap and Natural Vegetation with Porous Pavement

Riprap or bioblocks stabilize the shoreline against erosion and wave action, and green surfaces on the landside such as dirt trails, bike paths, and porous car park facilities can soften the landscape.

For additional information on these and other living shoreline solutions, see the Miami-Dade County Living Shoreline Guidance Document here: <https://miamidade.gov/BiscayneBay>

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BISCAYNE BAY WATERSHED MANAGEMENT ADVISORY BOARD (BBWMAB)

Recommendations and Urgings for Board of County Commissioners

Meeting date: June 5, 2026

Board Member presenting: Dave Doebler

Topic 1: Incorporating the 2020 Biscayne Bay Task Force Recommendations into the Miami-Dade County Comprehensive Development Master Plan (CDMP) via the Evaluation and Appraisal Report (EAR) Process.

Background: In June 2020, the Biscayne Bay Task Force — established by the Miami-Dade Board of County Commissioners through Resolution R-165-19 — published a comprehensive report titled '*A Unified Approach to Recovery for a Healthy & Resilient Biscayne Bay*'. The report set forth science-based findings and 35 enumerated recommendations across seven policy themes: Water Quality, Governance, Infrastructure, Watershed Habitat Restoration and Natural Infrastructure, Marine Debris, Education and Outreach, and Funding.

Among those recommendations, the Task Force explicitly called for elevating Biscayne Bay watershed management planning elements into the Miami-Dade County Comprehensive Development Master Plan (CDMP), stating that "planning efforts should consider alternative design and development criteria in sensitive areas in order to reduce discharge, reduce pollutant loads, and increase watershed pollutant treatment efficiency" (Recommendation 1H).

The CDMP is Miami-Dade County's primary long-range planning document governing land use, development, and infrastructure decisions across the county. Miami-Dade County is currently undergoing a mandatory seven-year review and update of the CDMP through an Evaluation and Appraisal Report (EAR) process, with a planning horizon extended to 2050. An EAR Task Force convened by the Mayor is actively receiving presentations and stakeholder input — including a January 8, 2026 presentation on Biscayne Bay health and resilience — and will produce recommendations that inform CDMP amendments.

Proposed action: The Biscayne Bay Watershed Management Advisory Board moves to formally recommend that the Miami-Dade County Evaluation and Appraisal Report (EAR) Task Force incorporate the following areas of the 2020 Biscayne Bay Task Force Report and Recommendations into proposed amendments to the Comprehensive Development Master Plan (CDMP):

1. Water Quality Standards in Land Use Planning (Recommendations 1A, 1H, 1K) The CDMP should establish science-based pollutant load reduction goals as a guiding standard for future land use and development decisions within the Biscayne Bay watershed. Development review criteria should explicitly require stormwater retention, permeable surfaces, and green infrastructure sufficient to meet nutrient reduction targets. A county-wide fertilizer restriction — including seasonal application bans and nutrient-free buffer zones adjacent to waterways — should be embedded in CDMP policy language.

2. Stormwater Infrastructure Requirements (Recommendations 3F, 3G, 3H) The CDMP should require updated stormwater design standards for all new development and substantially improved structures within the watershed, including mandates for property-level retention and infiltration. Policies should set a long-term planning goal of eliminating direct and indirect untreated stormwater discharges into Biscayne Bay and its tributary canals, with basin-specific retrofit prioritization tied to documented water quality and habitat degradation data.

3. Coastal Development Standards and Natural Infrastructure (Recommendations 4A, 4C, 4D, 4E) The CDMP should establish policies requiring ecological review of all new seawall permits and promoting living shoreline alternatives consistent with the Biscayne Bay Aquatic Preserve Act. Land use policies should protect existing mangrove shorelines, establish voluntary Mangrove Protection and Restoration Zone designations in flood-prone coastal communities, and incentivize green and blue infrastructure — including green roofs, bioswales, and vegetated shorelines — for new development, substantially improved structures, and coastal retrofit projects.

4. Everglades Restoration Coordination (Recommendations 4F, 4G) The CDMP should include explicit policy support for the Biscayne Bay Coastal Wetlands (BBCW) project and the Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER) plan, affirming the County's commitment to timely construction commencement, land acquisition coordination, and ongoing advocacy for adequate state and federal funding. These restoration projects should be recognized in the CDMP as critical freshwater delivery infrastructure essential to the long-term health of the Bay.

5. Watershed-Scale Governance and Intergovernmental Coordination (Recommendations 2A, 2E) The CDMP should formally recognize the Biscayne Bay Watershed Management Board (BBWMB) as the intergovernmental body responsible for Bay restoration planning and coordination, and should direct County departments to align capital improvement planning, development review, and stormwater management with BBWMB priorities and Watershed Restoration Plan (WRP) goals.

6. Climate Resilience and Adaptation Planning (Recommendation 1I) The CDMP's Adaptation Action Area framework should be expanded to explicitly address Biscayne Bay watershed vulnerability, incorporating scenarios for sea level rise, increased storm frequency, and altered freshwater delivery. Development standards in identified Adaptation Action Areas should reflect the Bay's dependence on clean freshwater flows and the cumulative water quality impacts of coastal land use decisions through 2050.

The Board further requests that this motion be transmitted in writing to the EAR Task Force, the Miami-Dade Department of Regulatory and Economic Resources (RER) Long Range Planning Division, and the Office of the Mayor, with a request that Bay watershed protection policies be formally included in the EAR's recommended CDMP amendments.



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