

Memorandum



Date: April 14, 2023

Agenda Item No. 2(B)(2)
May 2, 2023

To: Honorable Chairman Oliver G. Gilbert, III
and Members, Board of County Commissioners

From: Daniella Levine Cava
Mayor

A handwritten signature in blue ink that reads "Daniella Levine Cava".

Subject: Report on the 2023 Annual Report Card Program on the Health of Biscayne Bay –
Directive No. 180799

This report is provided pursuant to Resolution No. R-463-18, which I sponsored as Commissioner, directing the County Mayor or County Mayor’s designee to develop an annual “report card” program that evaluates the health of Biscayne Bay and employs a simple and easy-to-understand “stop-light” approach to reporting on the health of Biscayne Bay. The Resolution further directed that the health evaluation shall be data-driven, shall use sound scientific principles, shall incorporate information on water quality and habitat values throughout Biscayne Bay, shall include easy-to-read graphics suitable for the general public to understand, and that the results of the health evaluation shall be made publicly accessible.

The Biscayne Bay Report Card was developed by staff in the Department of Regulatory and Economic Resources, Division of Environmental Resources Management (RER-DERM). The County has created a website dedicated to Biscayne Bay (www.miamidade.gov/BiscayneBay) which provides public access to the annual report card in an interactive online format. Please see the attached annual report, 2023 Biscayne Bay Report Card, for your review. Out of the 12 regions in the Bay, nine areas remained as rated in 2022, with three showing some deterioration. These results can vary from year to year, making it all the more important to continue our long-term commitment to ongoing Bay initiatives. The report card underscores our need to continue aggressive pursuit of the many positive actions that my administration has undertaken to restore the health of the Bay. These actions will require ongoing support and commitment from our state and municipal partners, since we know water quality is unaffected by jurisdictional boundaries.

Last year the Board supported the adoption of increased fines for over two dozen violations that can impact water quality. The County’s enforcement actions in responding to incidents of pollution in the Bay received significant media attention and showcased this community’s very serious commitment to Bay protection. These changes were made to address violations resulting in impacts to groundwater and surface waters. The increased fines serve as a deterrent such that over time, fewer of these offenses occur through greater awareness and education of the cost of negatively impacting environmental resources or threatening the health of the community. In the first six months since the increase in civil penalties, over 200 citations for various environmental violations were issued. I want to also applaud our municipal partners who joined us in being responsible custodians of construction sites along the Bay within their municipal boundaries and assisted in DERM’s efforts to eradicate illegal connections to our stormwater system.

As you are aware, DERM’s Water Management Division has been awarded \$23 million in grants from the Florida Department of Environmental Protection (FDEP) that are key to ensuring that our future stormwater efforts prioritize management of both water quality and quantity. Flood protection cannot sacrifice water quality if we are serious about Bay health. We have already awarded a contract to implement pilots to test three different innovative stormwater treatment technologies. We were also awarded federal funds to improve water quality in the 127th Street Canal which has been visibly affected for years from chemicals and nutrients emanating from adjacent land uses, and groundwater and stormwater runoff.

Funding from FDEP has also been awarded to identify sources of surface and groundwater pollution in the hardest hit basins, including the Miami River, Little River, and Biscayne Canal, and the County will be working with partners to develop a model that can help us understand how pollution may move through our water resources. In the coming weeks, as part of the same funding effort, pilots for smart cover technology will continue to be deployed to assist us in detecting and preventing sanitary sewer overflows before they occur. The Board also supported critical legislation requiring improved septic standards in areas where our community lacks sewer infrastructure in order to reduce the amount of nutrients migrating through the groundwater to Biscayne Bay. The Board also adopted more stringent regulations relative to feasible distance, ensuring that more sewer connections are made as development and redevelopment occur in our community. We continue to aggressively pursue grant opportunities to assist with implementing septic to sewer conversions, while advancing educational efforts through the “Connect 2 Protect” program. Many more homes will have access to sanitary sewers over the next few years, helping to eliminate pollution effluent to the Bay from septic systems.

Our Environmentally Endangered Lands (EEL) program was also awarded over \$5 million in state funding last year to match County dollars to acquire lands identified on its priority acquisition list. The EEL program conducts important restoration projects that serve to stave off saltwater intrusion and the effects of storm surge, help protect drinking water and provide aquifer recharge, and prevent polluted groundwater from reaching surface waters.

Three years ago, a massive fish kill became the flashpoint for renewed attention to the health of the Bay. This event was preceded by several basins in the Biscayne Bay watershed having experienced significant reductions in seagrass loss over the years. The fish kill made our entire community aware of the importance of water quality. It also put a spotlight on the role that our activity on the land plays in impacting Biscayne Bay. We learned that nutrients, caused by pollutants from our streets and neighborhoods flowing off our “watershed” as both stormwater and groundwater, were in large part to blame for the die off. That is why our continued attention and commitment to protecting Biscayne Bay is so important.

As our community continues to grow and develop, stewardship of our environment must remain a priority in our policy development. The real key to protecting the Bay is not actually out on the Bay, it is on land where we live and work. We know that the way we handle our waste, how we maintain our septic tanks, how we manage our yard waste or landscape, and even what we do with household goods all have the potential to impact our water on its journey from our land to the Bay.

We must continue to help the Bay by making responsible choices about the maintenance of our septic tanks, refraining from using fertilizer during rainy season, choosing to can our cooking oil and grease instead of dumping it down the drain, and making the conscious choice to not litter. For communities interested in educating their residents on responsible fertilizer use under the ordinance, please visit www.miamidade.gov/BiscayneBay and download our toolkit.

The health of Biscayne Bay is a reflection on our quality of life as a community. My administration will continue to prioritize water resource protection with the continued development of educational and legislative initiatives to this end, including better sanitation systems, better ways to manage water, and ensuring that we continue to invest in the expansion of our EEL program, since we all know that high quality regional preserve areas provide significant stormwater management that support enhanced water quality protection. Not only do natural areas provide a place for water to go, they also improve water quality as it journeys to the Bay, in addition to providing habitat benefits.

I will soon be proposing new criteria relative to preservation of pervious areas, which will amplify the benefits of last year's enactment of the new County Flood Criteria. This legislation provided further solutions to our future growth by updating minimum elevation requirements for roadways, canal banks, and individual lots as we develop and redevelop, creating storage capacity during rain events within our urban areas as we prepare for the rising groundwater levels that will accompany sea-level rise. Adoption of impervious area standards along with the implementation of additional water quality treatment standards for stormwater infrastructure will ensure that on site water quality and storage requirements are maintained in perpetuity over the life of a development.

I also want to recognize the work of our Chief Bay Officer, Irela Bague and the Biscayne Bay Watershed Management Advisory Board, whose work advising the Board included recommending that the County work with the state and federal government to develop a Reasonable Assurance Plan (RAP), in collaboration with municipalities, the state, and other bay stakeholders. The RAP will allow the County and our collaborators to address our numerous water quality impairments with a focus on nutrient loading reductions. It will establish pollutant loading allocations across the watershed to help reduce the amount of nutrients entering canals and the Bay. In turn, this will help the County and its collaborators to foster healthier water quality conditions for seagrass communities to rebound.

This weekend we are celebrating the 41st Anniversary of Baynanza, the County's signature annual cleanup of Biscayne Bay. Miami-Dade County has been committed to cleaning up the Bay for over four decades. During those 41 years, over 200,000 people have removed more than 1 million pounds of trash from our shoreline. And in that same time, our community has grown by over a million people and will continue to grow. That is why we must continue to provide solutions that will allow us to live in South Florida in a way that minimizes impacts on resources and preserves our quality of life. Clean water, clean air, streets that are not flooded – my administration, with continued strong support from the Board, will make progress in our mission to save Biscayne Bay.

In accordance with Ordinance 14-65, this memorandum and report will be placed on the next available Board meeting agenda. If you have any questions regarding this report, please contact Lourdes Gomez, RER Director, at 305-375-2886 or Lourdes.Gomez@miamidade.gov or Lisa Spadafina, Assistant Director, RER-DERM at 305-372-6754 or Lisa.Spadafina@miamidade.gov.

Attachment: Report- *2023 Biscayne Bay Report Card* (DERM)

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2023 Biscayne Bay Report Card - Summary

From start to finish, 2022 was an important year for our community and Biscayne Bay. Last year marked year two since the onset of the COVID-19 pandemic, during which we were reminded of how resilient our community can be. We were also reminded of how important Biscayne Bay is to those who visit or call Miami-Dade County home. Whether it was finding solace in the outdoors with a walk along the Bay, going for a paddle, or assembling friends for a quick shoreline cleanup, Biscayne Bay provided an outlet.



Spiny lobsters use many habitats within Biscayne Bay and offshore as they grow. Photographed by DERM biologists, while assessing coverage of seagrass and sponges throughout the bay.

Months after the onset of the pandemic, the Biscayne Bay Task Force's efforts culminated in a report to the Board of County Commissioners (Board) in the summer of 2020 that was approved – and the work began. One key piece of legislation recommended by the Biscayne Bay Task Force that has since been implemented is the County's Fertilizer Ordinance. Spearheaded by then-commissioner Levine Cava and championed by local non-profits and later the Board, the goal of the fertilizer ordinance is to help reduce pollutant loading to Biscayne Bay and its tributaries. During the summer months, when rainfall is heaviest, fertilizer use is restricted to prevent fertilizer and its nutrients from potentially impacting the Bay, canals, and groundwater. Furthermore, the use of fertilizer containing phosphorus is prohibited year-round. The Biscayne Bay Watershed Management Advisory Board held its first full year of meetings in 2022. The Watershed Board is the governance structure envisioned by the Biscayne Bay Task Force to act as, for the first time, a body of stakeholders from diverse disciplines to oversee the implementation of Biscayne Bay restoration initiatives over time. Various policy initiatives were conceived of or advanced through the Watershed Board this past year as recommendations to the Board including policies related to stormwater and water quality. Additional state dollars also were received this year to further the County's restoration goals, with an additional \$14.5 million announced as part of the Florida Department of Environmental Protection's (FDEP) Water Quality Grant Program to specifically focus on septic-to-sewer conversions where septic systems are likely to or are already failing and may be contributing nutrients to the Bay.

Among the nine actions taken by the Board in 2022 in direct support of Biscayne Bay restoration, one of the most significant initiatives was to direct the County to develop a Reasonable Assurance Plan (RAP). The County, in collaboration with municipalities, the state, and other bay stakeholders, is developing a RAP for Biscayne Bay to address the Bay's water quality impairments with a focus on nutrient loading reductions. The RAP must be approved by FDEP, and it will establish pollutant loading allocations across the watershed to help reduce the amount of nutrients entering canals and the Bay. In turn, this will help the County and its collaborators to foster healthier water quality conditions for seagrasses to rebound.

Setting seagrass and restoration goals is on the horizon, and the results of the 2023 Biscayne Bay Report Card program strongly indicate why these goals and actions are needed. In 2018, then-Commissioner Levine Cava sponsored a resolution approved by the Board to direct DERM to develop and implement an annual report card program that would serve as a user-friendly update on the status of the Bay's overall health using a red, yellow, and green "stoplight" approach. A rigorous methodology was established to create a historic baseline that represents healthier Bay conditions against which each current year of data will be compared as well as a process for analyzing five water quality parameters and two habitat parameters. To evaluate current

conditions of the Bay, the annual geometric means for each parameter are assigned a stoplight score and are compared to the historic baseline. The evaluation presented provides an overall stoplight score per region. The table below provides a snapshot of changes from year to year without inferring any statistically significant trends. Trends will be evaluated over time when additional years of data analysis can be performed. It is noted that short-term changes between years are not uncommon as climatological patterns, changes in rainfall and incidence of severe storms, water management activities and other factors differ between years. Presented herein via the link below is the 2023 Biscayne Bay Report Card, reporting on the state of the Bay based on data collected during the 2022 calendar year. The online interactive tool showcasing the report card and a discussion of results can be found at www.miamidade.gov/BiscayneBay. More information on the methodology describing how the report card was developed can be found at the “Methodology” tab of the online tool. Information on what the public can do to help protect and restore Biscayne Bay can be found at the “Restoring Biscayne Bay” tab. Additional resources on the seagrass loss in northern Biscayne Bay can be found at a link on the “Submerged Aquatic Vegetation” tab.

The findings of the 2023 Biscayne Bay Report Card continue to support analyses from prior years indicating that nutrients and bacteria from within the watershed are documented in canals at concentrations that can ultimately impact Bay resources. Conditions noted in the 2023 Biscayne Bay Report Card are similar to those found in past report cards, with few notable changes and all regions in the overall score are either in “fair” or “poor” condition. Most regions of Biscayne Bay, including the highly compartmentalized basins of northern Biscayne Bay, are now or largely remain in the “poor” to “fair” range, with a decrease in sponge frequency in South North Bay-C noted. Reduced seagrass cover in the north, as well as nutrient inputs and elevated

chlorophyll concentrations across the bay relative to baseline conditions remain an issue. Total phosphorus conditions are generally “fair” or “poor” throughout northern Biscayne Bay and most tidal portions of tributaries across the watershed. Total nitrogen and chlorophyll-a remain largely “fair” or “poor” across Biscayne Bay and its tributaries, with South North Bay-A remaining in “poor” condition for several years, along with most coastal regions. This was the first year that all regions but for South North Bay – C are in “poor” condition for elevated chlorophyll levels. This aligns with the state’s recent designation of several regions in Biscayne Bay impaired for chlorophyll-a and/or total nitrogen.

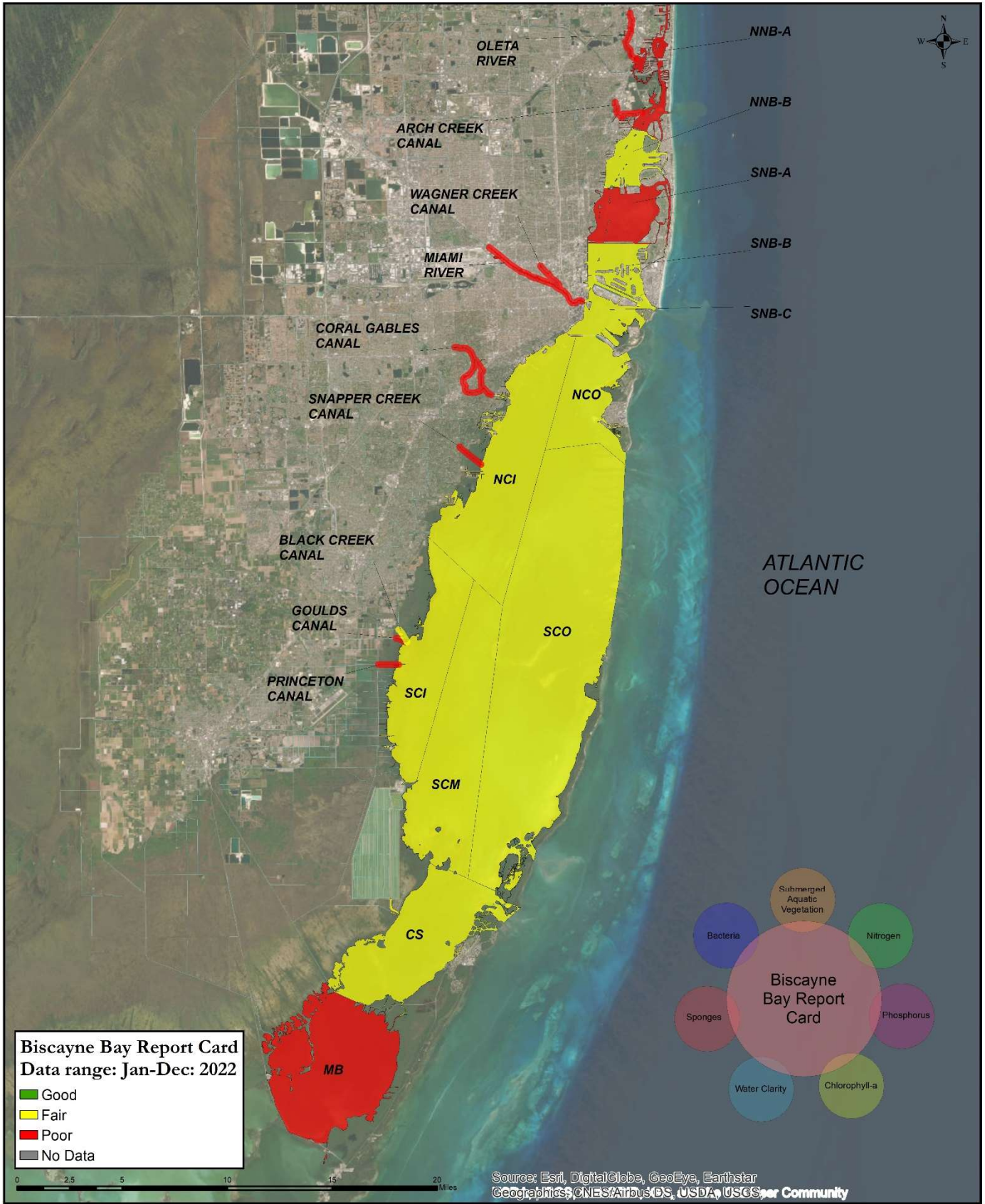


A cushion sea star in turtle grass, photographed by DERM biologists in northern Miami-Dade County.

Biscayne Bay restoration in the coming years to restore the Bay’s health and resilience. The County will continue to engage with stakeholders, academic institutions, state and federal resource agencies and municipalities to set goals and priorities as well as undertake infrastructure projects and technical investigations that will help identify potential sources of pollution and continue our work to reduce or eliminate pollution reaching our Bay.

The County and its partners are committed to accomplishing major goals established for

2023 Biscayne Bay Report Card



Report Card Region	2019 Score	2020 Score	2021 Score	2022 Score	2023 Score	2023 Biscayne Bay Health Status by Region*		
						0 – 2.90	2.90 – 3.90	>3.90
NNB-A	Fair	Poor	Poor	Fair (3)	Poor (2.5)	Continued elevated nutrients and chlorophyll-a remains high. Additionally, <i>E. coli</i> concentrations increased substantially, and water clarity deteriorated.		
NNB-B	Fair	Fair	Poor	Fair	Fair	Continued sparse seagrass cover following die-off events with little recovery, nutrient inputs and elevated chlorophyll-a concentrations relative to baseline conditions.		
SNB-A	Poor	Poor	Poor	Poor	Poor	Continued decline relative to baseline conditions following seagrass die off with little recovery and continued elevated chlorophyll-a concentrations and nutrient inputs.		
SNB-B	Poor	Fair	Fair	Fair	Fair	Continued sparse seagrass cover from the Julia Tuttle Causeway to MacArthur Causeway, and sustained nutrient inputs and elevated chlorophyll-a.		
SNB-C	Fair	Fair	Fair	Good (4)	Fair (3.9)	Seagrass cover and sponge frequency declined while chlorophyll-a increased slightly.		
NCI	Fair	Fair	Poor	Fair	Fair	Algal blooms have impacted seagrass cover, and elevated nutrient inputs and chlorophyll-a concentrations relative to baseline conditions.		
NCO	Fair	Fair	Fair	Fair	Fair	Sustained high chlorophyll-a concentrations, and some elevated nutrient inputs relative to baseline conditions. Slight improvement in SAV and Total Nitrogen concentrations.		
SCI	Poor	Fair	Fair	Fair	Fair	Sustained low sponge frequency, nutrient inputs and elevated chlorophyll-a concentrations relative to baseline conditions.		
SCM	Fair	Good	Fair	Fair	Fair	While seagrass cover is consistent with historic conditions this basin has elevated nutrients, including nitrogen and chlorophyll-a as well as low sponge frequency.		
SCO	Good	Fair	Fair	Fair	Fair	Seagrass cover continues to be consistent, however total nitrogen and chlorophyll-a continue to be elevated.		
CS	Fair	Fair	Fair	Fair	Fair	Continued sparse seagrass cover with nutrient inputs and elevated chlorophyll-a concentrations relative to baseline conditions.		
MB	Poor	Poor	Poor	Fair (3)	Poor (2.5)	Decline in seagrass cover and sponge frequency and increased chlorophyll-a		

* The annual Biscayne Bay Report Card uses data from the prior calendar year, January through December.