

ISSUE SPOTLIGHT:

ENVIRONMENT AND CLIMATE RESILIENCE

Miami-Dade County (M-DC), a vibrant hub of culture and commerce nestled along Florida's southeastern coast, faces a unique set of challenges amidst the backdrop of the global climate crisis. With Florida earning the ominous title of "Ground Zero" by the Union of Concerned Scientists, the urgency for action is more pressing than ever.

Rising to these challenges, our community has rallied together to find collaborative and innovative ways to continue to build a stronger and greener Miami.

With this brief, we hope to provide a preliminary understanding of where our community stands on environment and climate resilience. Using key metrics, we explore the concerns that exist, what's being done and what you can do to help.

This brief was prepared by The Miami Foundation in partnership with FIU's Jorge M. Pérez Metropolitan Center as our commitment to help Miamians learn and engage with issues that matter most to our community. Thanks to Frederick A. DeLuca Foundation for fueling data-driven products like this. Special thanks to Rachel Silverstein (Miami Waterkeeper) for her insights to strengthen this brief.

WHERE WE STAND

Sea-level Rise & Water Quality

As a coastal city with an average elevation of about six feet, M-DC has been labeled "ground zero" for the projected impacts of climate change and sea level rise.

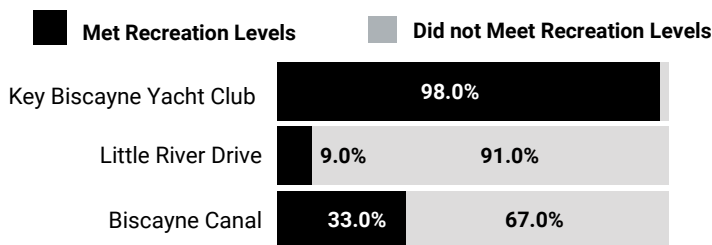
Since 1996, six inches of sea level rise has already resulted in 400% more flooding.

Mean Tide Level is slowly increasing over time
(Source: measured annually at Virginia Beach)



The Biscayne Bay Aquifer is the primary source of drinking water for M-DC and contributes \$64B in economic output. Being so close to ground level, it is highly susceptible to saltwater intrusion and waste contamination.

Throughout the year, a local nonprofit, Miami Waterkeeper, tests water sources at 22 different M-DC locations. Below is a sample of three testing sites and the proportion of times they met safe swimming standards.

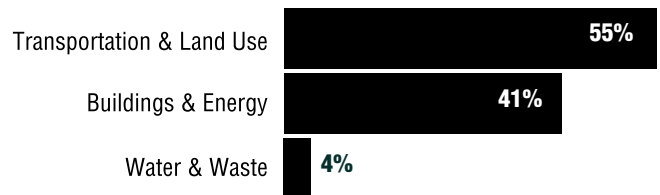


Greenhouse Gases & Electricity

Greenhouse gases trap heat in the atmosphere and produce more severe heat waves, floods, and droughts, accelerating sea-level rise and warming up the oceans.

The County produced 36.4 million metric tons of greenhouse gas (GHG) emissions in 2019, approximately 13.4 metric tons per capita.

Transportation and land use account for over half of Miami-Dade County's greenhouse gas emissions.



While the County's greenhouse gas emissions are below the U.S. average of 20.2 metric tons per capita, Miami-Dade County has set goals for greater reduction.

By 2030, Miami-Dade County has set the following goals for greenhouse gas emissions and electricity consumption:

- Decrease greenhouse gas emissions by 50%
- Expand renewable energy through solar panels
- 50% of non-recyclable garbage converted to energy



Urban Tree Coverage

Urban Tree Canopy is the leafy cover from trees that residents and local governments maintain to reduce electricity bills, storm water runoff, and air temperature.

In 2023, M-DC's tree coverage was 18.9%, compared to 22% in New York city and 33% nationally.



Waste Production

More than 40 percent of U.S. greenhouse gas emissions result in disposal of material goods. Reducing, reusing, recycling, and composting can lessen the environmental impact of mass consumption.

Miami-Dade County ranks among the lowest in the region for recycling.



Municipalities with the Highest Urban Tree Coverage

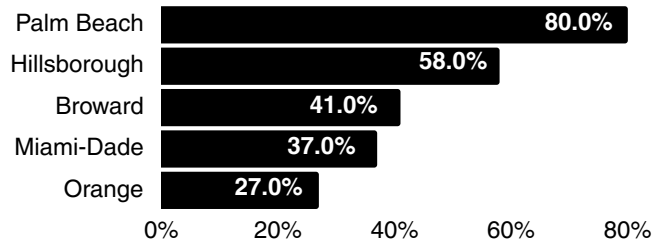
46.7% Coral Gables	46.0% Pinecrest	38.3% Palmetto Bay
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Municipalities with the Lowest Urban Tree Coverage



9.6% Sunny Isles	7.7% North Bay Village	5.6% Medley
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Recycling Rates per County



Extreme Heat

Extreme heat is when temperatures are above 90 degrees for at least two days. In Miami, extreme heat is on the rise due to changing climate and urban development patterns.



Social Vulnerability

The Risk Index is a comprehensive tool that incorporates economic, social, and environmental factors to determine a community's resilience in the face of natural disasters.

49+

More extreme heat days in M-DC in 2022 compared to 1970

100%

Increase in peak weekly heat-related Emergency Department visits from 2022 to 2023

99.8 Risk Index Score

M-DC is ranked among the top counties with the highest risk for expected annual loss of infrastructure and agriculture due to natural hazards.

37.1 Community Resilience Score

M-DC is ranked below 60 percent of U.S. counties in its ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions.

90.1 Community Resilience Score

M-DC is in the top 10 percent of counties whose populations are most susceptible to natural hazards as a result of socioeconomic status, household characteristics and other factors.

M-DC Neighborhoods Vulnerable to Extreme Heat 1: low vulnerability 5: high vulnerability

Zip Code	Neighborhood	Vulnerability Score
33034	Homestead	5
33054	Opa-Locka	4
33136	Overtown	4

Sources: Miami-Dade County, [Urban Tree Canopy Assessment \(2021\)](#); Miami-Dade County (2023) [Urban Tree Canopy](#), CityLimits (June 20, 2023), [More Trees for NYC: What Will It Take to Meet 'Ambitious' Canopy Goal?](#); American Forests, [For Tree Equity and Climate Change, How Many Urban Trees Do We Need](#); Florida Department of Environmental Protection, [2022 Solid Waste Management Report](#); Miami-Dade County, [Understanding Heat Exposure in Miami-Dade County](#); Miami-Dade County, [Extreme Heat in 2023](#); Khayat et al. (2022). [Impacts of Climate Change and Heat Stress on Farmworkers' Health: A Scoping Review](#). Front Public Health. 2022; 10: 782811. Federal Emergency Management Agency, National Risk Index. [Community Report - Miami-Dade County, Florida](#)

WHAT'S BEING DONE?

Celebrating our Community's Wins

The fight for a more resilient future is a long game. We're heartened by some big wins for our community recently. Behind these wins is an army of relentless nonprofit organizations working in environmental protection, conservation, education and climate change. Alongside these, our government partners have also signaled their commitment to tackling these issues through dedicated resources like a Chief Resilience Officer, Chief Bay Officer and the world's first appointed Chief Heat Officer.

Climate Resilience Hub

Led by Miami-Dade County, the South Florida Climate Resilience Tech Hub was chosen as one of the nation's 31 inaugural hubs to lead on developing homegrown climate technologies for adaptation and mitigation.

\$8M

The Knight Foundation invested \$8 Million in two local environmental organizations to create greater community awareness and participation in climate solutions.

2nd Lowest Waste

In Florida counties with a population of over half million, M-DC has the second lowest solid waste per capita (1.8 metric tons), after Polk County (1.5 metric tons).

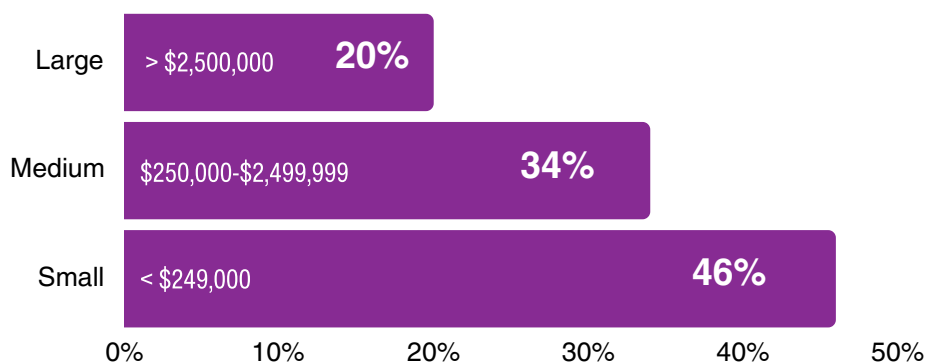
Phase II Back-Bay Study

The critical Back-bay feasibility study was approved for resuming its work in 2023. The findings can unlock significant federal funding for local solutions to protect our coasts from storm-surge.

SPOTLIGHT: Environmental Nonprofit Ecosystem

The Miami Foundation's wealth of data from Give Miami Day sheds light on 59 nonprofit organizations working in the environmental space to build a more resilient Miami. While these organizations are doing vital work for our region, they are in need of more support. In 2023, 7% of all Give Miami Day donations went to environmental organizations. This is an increase from 4% the previous year, but still small considering 41% of the funds went to organizations focused on youth and education. These environmental nonprofits have an average of only 8 months of cash reserves, limiting their ability to take bolder, bigger actions.

Almost half of Miami's environmental organizations have a small operating budget



59%

operate with restricted funding, meaning they cannot flexibly spend their dollars to meet the community's emerging needs.

73%

do not have a Permanent Endowment, which suggests less liquidity and more pressure to fundraise all year round.

LEARN MORE. ACT MORE.

The Greater Miami Area has a responsibility to lead the charge on climate resilience. Environmental issues are intersectional and complex and cannot be summed up in a brief, but our hope is that this brief will inspire you to action. Read on for how you can continue your learning on this important issue and find ways to engage with Miami's leaders who are protecting our coastal city.

Learn about our community's plans and efforts for a resilient future:

- Read the [County's Climate Action Strategy](#)
- Read the history and strategy of [Resilient 305](#) to explore collective action
- Read the [2023 Biscayne Bay Economic Study](#) to understand the critical role that Biscayne Bay plays in our local economy

Take action in one or all of these ways for a climate-strong Miami:

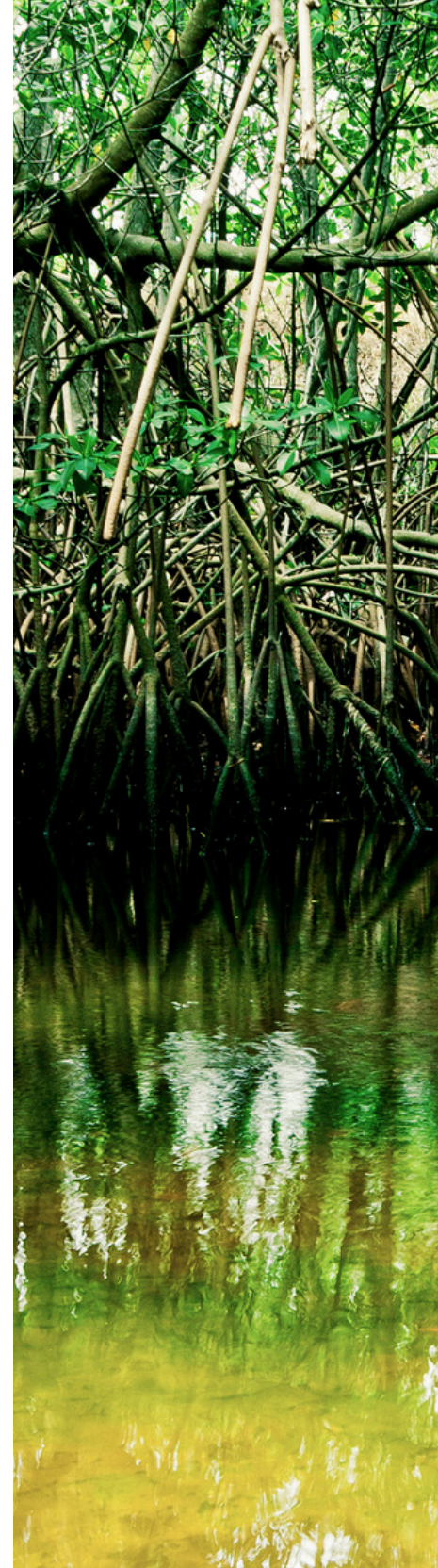
Purchase a [specialty license plate](#) to protect Biscayne Bay

[Check local water quality](#) to protect yourself before hitting the beach

Give to local funds, such as the [Disaster Resilience Fund](#), that help protect our community against extreme weather events

[Get involved](#) with local organizations to raise awareness on environmental issues, [clean-up our coastlines](#) and [advocate for more sustainable communities](#)

[Check out these tips](#) on how to live a greener life



We'd love to hear from you!

For further questions or suggestions, please contact [Priya Kekre \(The Miami Foundation\)](#) or [Dr. Maria Ilcheva \(Florida International University\)](#).
