August 2021

Resource available to assist with vulnerability assessments in Miami-Dade County

> Katie Hagemann Resilience Program Manager, Adaptation Office of Resilience, Miami-Dade County



Miami-Dade County's Vulnerability Assessment of Critical Facilities



Miami-Dade County's Vulnerability Viewer

<u>link</u>



Flooding Vulnerability

Search an address or locate on map

990 NE 79TH ST, MIAMI, FL, 33: 🗙 🔍 📀

Miami-Dade Vulnerability

Property Information

Folio: Address: 0132070163510 960 NE 79 ST Miami 33138-4716

Elevations based on 5ft Digital Elevation Model (Vertical Datum: NAVD88) Parcel Center: 4.18 ft Parcel Mean : 3.46 ft

FEMA Flood Zone Information (Vertical Datum: NGVD29) Zone: AE Zone Subtype: Base Flood Elevation: B It

Vulnerability to Storm Surge Inundation (Depth above ground) Cat 1: None Cat 2: 1.5 - 3 ft Cat 3: 5 - 7 ft. Cat 4: 5 - 7 ft Cat 5: 7 - 10 ft

Vulnerability to King Tide Flooding None

Vulnerability to Sea Level Rise

More GIS Services Miami-Dade Building Model Text Version Only Contact Us



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Miami-Dade Vulnerability

(Vertical Datum: NAVDSS) Parcel Center: 4.18 ft Parcel Mean : 3.46 ft

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Vulnerability to Storm Surge Inundation (Depth above ground) Cat 1: None Cat 2: 1.5 - 3 ft Cat 3: 5 - 7 ft Cat 4: 5 - 7 ft Cat 5: 7 - 10 ft

Vulnerability to King Tide Flooding None

Vulnerability to Sea Level Rise Permanently inundated at a sea level rise of 2 feet or higher. NOAA Intermediate-Low (2040) : No NOAA Intermediate-Low (2070) : No NOAA Intermediate-Low (2070) : No NOAA Intermediate-High (2070) : Yes

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UF's SLR Sketch Planning Tool

<u>link</u>





Flood Factor

link







Marshes and Wetlands



Climate Central

<u>link</u>







COASTAL RISK SCREENING TOOL

FEET OF WATER

A water level of 3.5 feet above the high tide line could be reached through combinations of sea level rise, tides, and storm surge.



(024)

Biscayne Park

Barry

University

(924)

CHOOSE MAP

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Full Roadmap

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Local Mitigation Strategy (LMS)

link





Sea Level Rise Strategy









There are many other to be assets from flood damage. In many cases, "dry flood-proofing measures," or measures intended to keep water out of a structure, are used to protect built assets from temporary events like storm surge or rain-induced flooding.

One example of dry flood-proofing is temporary flood panels. They are used on many buildings in Miami-Dade County to keep water out during short-term events. The panels are mobile barriers deployed to protect a building or other asset from short-term flooding events. These panels, which are typically put in place just before a storm, help temporarily

How does it help us?

Flood panels can be temporarily deployed to protect vulnerable buildings from short-term flooding events, such as storm surge from an incoming hurricane. The panels themselves create a seal around the building, thereby blocking or reducing the amount of water that can get in. Flood panels provide a cheaper and more flexible option compared to other flood-proofing tools such as raising a building or installing permanent flood doors. However, they are a temporary fix and must be deployed and then removed to enter a structure after a flooding event. Flood panels must also be stored in an accessible place, and the user must **kowk hav (An deploy, He-panels** for them to be effective.

Temporary flood panels work best to reduce risks from occasional events like tropical storms. They are not designed to permanently keep out water, so they cannot be used to address sea level rise. They may be a necessary intermediate tool while longer-term solutions, like raising or redeveloping a building, are implemented. Under current flood insurance regulations, panels can only be used for commercial buildings, not for private homes. Additionally, these panels can be labor intensive to install; therefore, they are most appropriate for institutions with sufficient staft.

be What are the advantages?

 Flood panels can be cost-effective for businesses as a temporary solution to short-term events.

 Flood panels are a less expensive method to keep water out of a structure in the short-term while longer-term solutions are implemented.

What are the limitations?

 Flood panels are a short-term solution for occasional flooding events; they will not work against regular tidal flooding or sea level rise.

Flood panels are most appropriate for commercial businesses.

 Flood panels cannot be used to bring a substantially damaged or substantially improved residential structure into compliance with local floodplain management ordinances.

 To be effective, users must know many things before the storm hits: 1) where the flood panels are located; 2) what tools are needed to deploy them; and 3) how to install them.

Flood panels can require significant storage space, time
 Hand laborto dapage.it cost?

Costs vary depending on level of flood protection. One study estimates \$1,500 per linear foot of flood panel. Temporary flood panels also incur labor and storage costs.

According to an analysis by the US Army Corps of Engineers, the average cost of flood-proofing an entire building with temporary flood panels is \$151,000 for structures between

0 and 20,000 square feet, and \$357,000 for structures

Federal Emergency Management Agency –





Miami-Dade County staff install temporary flood panels around the Miami-Dade County Courthouse before Hurricane Matthew in 2017.

Date: Deployed before storms | Location: Miami-Dade County Courthouse

Temporary flood panels can be installed before a storm to help keep water out of certain spaces. They cannot be used as a permanent water barrier, but they are very helpful to protect against temporary flooding from a storm. Miami- Dade County uses temporary flood panels to protect certain buildings when hurricanes are approaching.

Miami-Dade County's Internal Services Department uses temporary flood panels to protect the basement of the County Courthouse on Flagler Street. The flood panels are made of aluminum and fit into permanent anchor points outside of the building. It takes two professionals to install each panel. When preparing the building for a hurricane, the panels are the last protective measure to be installed.

Because they block access to the space they are protecting, the panels are deployed just before staff members evacuate the building before a hurricane. During a storm, the panels help minimize the flow of water that comes into the basement from the streets. Because they minimize the flow of water into the building, the panels give the sump pumps inside the structure time to pump out the water that does come in. Between storms, the panels are stored on-site and can be used repeatedly during future storms.



Elevating buildings involves raising buildings above expected water levels as well as retrofitting them with complementary measures (see Elevating Critical Equipment) to reduce the risk of flooding to the building. Elevating buildings is typically most cost-effective for new construction as higher elevations can be designed into the project before construction begins. However, raising existing buildings is technically feasible, but it can be very expensive. Buildings can be elevated on pilings or elevated on fill to increase their height above predicted flood levels. Elevating on pilings, like we see in some areas of the Florida Keys, allows water to flow under a structure. Building on fill, like we see in many parts of western Miami-Dade County, elevates the entire parcel on top of new soil that has been mined from other areas.

How does it help us?

Elevating on pilings or on fill raises a structure out of the floodplain. Being above expected flood levels is often the most effective way to protect a building from flood damage. Further, elevated buildings can still have certain materials below the first livable floor. Like you see in the Florida Keys, it is possible to have materials on the ground level that are designed to break away during storms or let water pass through them. That way, the space can be enjoyed and used between storms for certain purposes, like parking or temporary storage.

Where will it work?

Elevating buildings technically works everywhere, though it can be more or less feasible depending on the structure type, size, and age. How high a structure should be elevated depends on its location. In areas that face high storm surge risk and the potential for damaging waves, it is particularly important to elevate buildings. It is very important to note that it is much more cost-effective to design an elevated building and build it to a higher standard than to retroactively elevate an existing 0.25 to 1.5% of total construction costs for private homes building or to flood-proof it with water-tight doors and panels.

What are the advantages?

- · Building above code has a proven financial benefit: for every \$1 spent, \$4 is saved.
- Elevating buildings protects against multiple flooding hazards (storm surge and groundwater, tidal, or stormwater flooding) at once.

Tidal looding

Waves

What hazards does it address?



Flooding



· Elevating buildings reduces longer-term risks from flooding exacerbated by sea level rise.

· Elevating buildings allows for roads to be raised incrementally as sea levels rise.

· Elevating a property will likely lead to reduced flood insurance premiums.

What are the limitations?

· It is expensive to elevate existing structures. In some cases, the cost may exceed the value of the building.

- · Elevating on fill can create drainage issues for adjacent properties if stormwater is not retained on site.
- Elevating buildings can pose accessibility Therefore, buildings may need
- elevators to facilitate access.
- issues, additional Elevating buildings can change neighborhood character.

How much does it cost?

The average cost of elevating existing structures, based on Federal Emergency Management Agency (FEMA) mitigation grant data is \$230,000 per structure based on 192 structures in Florida, According to research by the U.S. Army Corps of Engineers, the average cost of elevating existing structures based on market research in New Orleans (with prices adjusted to Miami) is approximately \$203,000 per structure. Note that these construction costs will vary significantly per structure as well as per foundation type. The cost of building a new building at a higher elevation is

according to FEMA. Other studies of public assets have estimated 1 to 5% of construction costs per foot of elevation for hardening assets, and 0.5 to 1% of construction per foot for hardening buildings/facilities. This cost holds true for the Water and Sewer Department's Central District Wastewater

Groundwater

Floodina

Miami-Dade County



Miami-Dade County Water and Sewer Department (WASD) constructed one of their new chlorine buildings to harden against flooding from storm surge, sea level rise, and rain- induced events. WASD is one of the first County departments to integrate sea level rise design standards into all their capital projects.

Location: Virginia Key

The Miami-Dade County Water and Sewer Department (WASD) is designing improvements to their wastewater treatment plants to anticipate the impact of rising sea levels on flooding frequency and higher storm surges, among other events. As seen in the picture above, WASD recently constructed their new chlorine building at the Central District Wastewater Treatment Plant at a higher elevation to withstand future storms. Because this building is so critical to providing wastewater treatment, the floor of the building was raised from 16 feet National Geodetic Vertical Datum of 1929 (NGVD29) to 20.3 feet NGVD29. The left portion of the photo shows the floor elevation of the new chlorine building. Note that the doorway is at approximately the same height as the roof of the old facility on the right portion of the photo.

WASD has design standards for both existing and new wastewater treatment facility assets. They prioritize which assets will be protected first based on a variety of factors, including protecting staff who work in the facilities and protecting equipment that is critical for treatment of wastewater.



Dunes are natural or man-made ridges of sand along the coast. Dune plants, especially their roots, help keep the sand in place and reduce erosion from wind and waves. Dunes are critical to coastal protection and, when paired with a healthy beach, can radically reduce storm damage. For this reason, we build up dunes through a process called "dune restoration or enhancement." Dune enhancement involves planting native plants to help trap and hold sand during and between storms. This process allows dunes to grow and strengthen.

There are other forms of enhancement that are not common in this region. In other areas, enhancement can involve burying boulders or other structures beneath the dunes to **PROVERSURVEY HERE US?**

Dunes are some of the most effective buffers against storms on the coast because they can absorb wave energy and block or reduce storm surge flooding to areas behind them. They can also reduce wind forces. Their protective value can be enhanced by janting native plants which trap the sand and help the dunes arow taller.

For example, the dunes along Miami Beach were constructed in the 1980s. Since that time, they have grown vertically by several feet due to the dune plants trapping sand and sediment over time. Because dunes are living systems and we actively manage them, they have an amazing potential to gradually adapt to changing conditions over time. Our continued investment could allow them to keep pace with sea level rise. In addition to their many protective benefits, dunes are also an integral component of the beach system because they provide a reserve of sand to Management time of the the section.

Dune creation, restoration, or enhancement works in conjunction with any healthy beach, on any barrier island where there is room for a dune system, and in certain locations facing Biscayne Bay. Dunes can already be found along many of our local beaches, including on Miami Beach and in Crandon Park on Key Biscayne.

What hazards does it



What are the advantages?

 Dunes can help absorb wave energy and slow down wind speeds to reduce damage to buildings, trees, and vegetation behind them.

 Dunes are an important part of wildlife habitats; many sea turtles and shorebirds rely on them.

 Protecting and restoring dunes is important to maintain our healthy beaches, which drive the economy in our region.

 Miami-Dade County has decades of experience enhancing and managing dunes, and the techniques are well understood.

What are the limitations?

 Dunes are reliant on plants which help keep sand in place. Without plants and active management to ensure the health of the coastal environment, new sand can get washed or blown away.

 The coastal environment is very dynamic, and a series of strong storms or changes in wave patterns can lead to beach erosion or sand loss, as well as habitat damage, over time

How much does it cost?

Costs are similar to the cost of beach nourishment (\$61/cubic yard), with some potential minor added cost of planting.

Where can you learn more?

 The Nature Conservancy & the Southeast Florida Regional Climate Change Compact -

 American Planning Association, Naturally Resilient Communities - Beaches and Dunes

· Miami-Dade County Parks,



Dune planting by volunteers at Miami-Dade County's Crandon Park helps keep dunes strong to protect against storm surge.

Date: 2002, 2017 | Locations: Haulover Park and Crandon Park

In the early 2000s, Haulover Park was selected for a much-needed dune restoration project. Since the 1980s, when the dunes were last nourished, invasive plants had taken root, outcompeting native plants in the area. To combat invasive plants and re-establish a healthy system, a two-phased plant restoration project began in 2002. The project was intended to both help restore healthy dunes for environmental benefits and to provide storm surge protection.

The Miami-Dade County Parks, Recreation and Open Spaces (PROS) Department worked with partners to plant native plants and remove invasive plants at Haulover Park. As part of the restoration, PROS surveyed, monitored, and planted rare, threatened, and endangered sand dune species at the site. During the project, PROS restored 4,510 feet of dunes and planted 13,400 native dune plants. The restoration helps the dunes gradually trap sand in the wind and grow taller over time. Restoration makes dunes better able to protect our communities from waves, storm surge, and erosion.

In recent years, the County has been focused on enhancing our existing dunes, especially after Hurricane Irma in 2017. The PROS Department has hosted various volunteer groups at Crandon Park, who have helped with small-scale sea oat plantings on the dunes. These plants help stabilize the dunes and will help manage long-term erosion accelerated by sea level rise.



Coastal wetlands provide innumerable benefits by expanding habitat and improving air and water guality. When they are healthy and intact, they can also help protect our communities from hurricanes and long-term sea level rise. Preserving wetlands through conservation programs ensures that the protective benefits they provide to our communities are not lost. Without the protection of existing wetlands through programs like the Environmentally Endangered Lands (EEL) program, some of these lands could be redeveloped, and the existing ecosystems could be

partially or completely destroyed.

more areas.

Existing wetlands provide many benefits to our communities. For example, an existing, healthy mangrove forest can act as a buffer between waves and a neighborhood by reducing wave energy. A young or fragmented forest cannot provide these same benefits. Though exact values will vary by location, a local study found that our existing mangrove forests effectively reduced storm surge and flooding in areas impacted by Hurricane Wilma. In addition to their storm protection benefits, wetlands can help prevent saltwater intrusion into our aquifer and can trap sand, which prevents sand loss (or erosion) over time.

What are the advantages?

Existing wetlands provide fish and wildlife habitat.

Existing wetlands can act as carbon sinks, meaning they help mitigate climate change.

Existing wetlands, particularly mangrove forests, limit shoreline erosion by absorbing wave energy.

· Wetlands can prevent saltwater intrusion.

What are the limitations?

· Wetlands provide the most benefits to communities and the environment when they are intact, mature, and healthy,

Local wetland conservation programs are not fully funded and need additional investment to realize full benefits.

How much does it cost?

EEL Program acquisition, restoration, and maintenance costs vary widely depending on the size of the wetland, the location, and needed restoration actions.

Where can you learn more?

Where will it work?	 Miami-Dade 	Count
Wetlands preservation efforts are limited to undeveloped areas where these ecosystems already exist. These areas tend to be concentrated in the southern and western portions of the county. The EEL program, as well as state, federal, and private conservation programs, are working to acquire	• Miami-Dade	Count





Environmentally Endangered Lands Program

The Environmentally Endangered Lands program manages more than 23,500 protected acres. Volunteers and advocates are critical to the success of the program. In South Dade, there are additional wetland preservation and restoration projects, like the Biscavne Bay Coastal Wetlands Project,

Since 1990, Miami-Dade County's Environmentally Endangered Lands (EEL) has been acquiring and managing environmentally endangered lands for preservation. The EEL Program and its partners have bought and protected more than 20,700 acres of land. These lands help to sequester carbon, protect our drinking water wellfields, reduce the impacts of floods, and complement regional restoration efforts such as the Comprehensive Everglades Restoration Project, In addition, the EEL Program manages 2,800 acres of natural lands within the Miami-Dade County parks system which serves as recreational space for residents and tourists alike. Collectively, the Program manages over 23,500 of protected acres.

The EEL Program recently acquired more than 100 acres of land along the Card Sound Road. This purchase provides a number of benefits but will especially help with supporting a hydrologic project in the canal to manage saltwater intrusion. In addition to this project, preserving wetlands in the central and southern portions of the County also preserves public lands along the natural mangrove coast and provides protection against storms. Beyond helping with sea level rise, the EEL Program lands provide protection of globally-threatened habitats. These ecosystems have high biological diversity and provide critical refuge for rare species that would otherwise be lost.

MIAMI- DADE COUNTY SEA LEVEL RISE STRATEGY | MINI- GUIDE, TOOLS & CASE STUDIES



Expanding our green spaces, like parks and wetlands, increases the amount of land available to hold water during rain events and to serve as a buffer against storm surge. particularly along the coast and canals. In some cases, green spaces can be expanded on a large scale. For example, we can expand existing acquisition programs to protect entire areas of wetlands to the west and south that are located outside of the Urban Development Boundary, or the planning boundary that delineates the areas in which we can develop in Miami-Dade County.

Green spaces can also be expanded at the community scale. By acquiring a property in an urban area or neighborhood to create a park, we can provide recreational amenities, like playgrounds or trails. A park can also be designed to hold water during rain events. Expanding our green spaces has multiple advantages and is an effective tool to address long-HAWSELPEVEITISELP Making more room for water.

Green spaces can act as a buffer to waves and storm surge. thereby decreasing damage to communities and reducing erosion along our coastline. To further reduce impacts from waves, green spaces with limited or no development can be enhanced with additional natural features such as urban forests, manaroves, and living shorelines.

Green spaces provide many other benefits. They can help block debris from moving through our canal system during storm events, reduce stormwater runoff, and support recreation and physical and mental well-being. They can also reduce the risk of saltwater intrusion by holding excess water and allowing it to recharge our aquifer. Like waterfront setbacks, they can also be used for recreation when they

aveheateloopledt work?

Increasing multipurpose green spaces will work in most areas. For flood protection benefits, this tool will be most effective along waterways and along Biscavne Bay. In these waterfront areas, green spaces can serve as protective buffers during storms and can become part of the greenways and blueways trails network outlined in the Miami-Dade County Parks Master Plan.

What hazards does it



Shoreline Erosion







Tidal

Floodina





What are the advantages?

infrastructure, and other community assets.

run-off before it enters canals or the Bay.

provide many other health benefits.

residents and tourists.

green spaces.

Department -

Storm Surae

What are the limitations?

housing from our housing stock.

potentially reducing the tax base.

Where can you learn more?

How much does it cost?

Green spaces can retain water during heavy rain events

and help prevent flood impacts to homes, roads, critical

· Green spaces improve water guality by filtering stormwater

Green spaces increase habitat for wildlife and plants.

· Green spaces reduce stress, increase lifespans, and

· Green spaces reduce urban heat to help keep us cooler.

· Green spaces increase recreational opportunities for

· Properties near parks have been shown to increase in

· Property values are high in Miami-Dade County, making it

· Green spaces remove land from the real estate market,

Costs associated with expanding and improving parks and

open space include the cost to acquire property and the cost

to maintain the park. Acquisition costs vary by location.

· Miami-Dade County Parks, Recreation and Open Spaces

Maintenance costs depend on types of park features.

difficult for governments to compete to acquire parcels for

· Creating green spaces on flood-prone parcels removes



Saltwater Intrusion



An aerial view of the Snake Creek Trail (above) which connects Greynolds Park to Sierra Park. Miami-Dade County has implemented more than 160 miles of trails with the goal of implementing a network of more than 500 miles of greenways and trails.

Miami-Dade County Parks, Recreation and Open Spaces (PROS) Department works to create and expand recreational opportunities and green spaces for residents. In the last 10 years, PROS has acquired more than 180 acres of property across the County.

In northern Miami-Dade County, PROS manages a recreational amenity for the community called the Snake Creek Trail. The trail is a nearly 8-mile multi-use path next to a canal for walkers, runners, cyclists, and other users. It is a recreation "greenway" that connects Greynolds Park and Sierra Park. In addition to its recreational value, the trail helps protect the community from flooding by creating a setback, or buffer, between houses and other structures and the canal.

Recently, the PROS Department acquired a 2.2-acre lake-adjacent property, called Arthur Woodard Park, located at NW 99th Street and NW 12th Avenue. Locating the park near a lake provides an additional protective buffer from flooding in the future and reduces stormwater runoff in the neighborhood. The park also increases water access to the lake for this community.

The County will continue to expand parks, open spaces, and green infrastructure well into the future in order to filter and store more water, mitigate climate change impacts and increase opportunities for outdoor recreation for our growing community.



Miami-Dade County has lost a substantial area of mangroves and marshes to development. Restoring mangroves and marshes brings back habitat and water guality benefits. While restoration efforts have focused on maximizing value to ecosystems, restoration projects also have potential cobenefits.

How does it help us?

Mangroves are amazing trees; their roots and trunks can reduce wave energy. Marshes that are wide and mature can therefore reduce storm damage to communities by reducing the force and impact of waves. Additionally, healthy mangroves and marshes have the potential to grow vertically and transition to higher ground to keep up with sea level rise. If there is available space, this process can ultimately reduce the amount of habitat we will lose as sea levels rise. However, successful restoration takes time. While restoration is crucial, it is also necessary to preserve existing wetlands to protect the remaining mature wetlands we already have.

Where will it work?

Mangroves and marshes typically thrive in or near calm waters as opposed to areas with high waves. These ecosystems also have a very specific tolerance for different levels of regular flooding from tides. If the waters become too deep, the plants can die. These ecosystems need to trap sediment and have space to migrate inland to higher ground to adapt and survive in the face of sea level rise.

Miami-Dade County has completed many restoration projects through the Comprehensive Everglades Restoration Plan and the Environmentally Endangered Lands (EEL) program, including along the Oleta River Corridor, However, development pressures need to be addressed to give restored mangroves and marshes space to grow and migrate.

What are the advantages?

Mangroves and marshes act as carbon sinks, so restoring them can help mitigate climate change.

· Restoring mangroves and marshes can increase natural barriers to protect communities

· Restoring mangroves and marshes increases fish and wildlife habitat, commercial fishing opportunities, and recreational fishing and snorkeling opportunities.

· Restoring mangroves and marshes can help improve water quality.

What are the limitations?

· Restoration takes time. Preserving existing wetlands is crucial to benefit from mature, dense, healthy wetlands.

· Manaroves and marshes need space to migrate inland to higher ground as sea levels rise.

 As living organisms, wetland ecosystems can be stressed by changing water guality or new environmental conditions.

· Mangroves and marshes need wide areas of land to be effective against waves.

Expanding restoration largely depends on the County's ability to acquire coastal land or on private landowners Hengaging in restoration activities.

The cost is approximately \$100,000 per acre. Costs can increase if there are any complications such as contaminated sediment that requires special disposal, if the site is difficult to access and requires barge access, if there are excessive amounts of solid waste or invasive vegetation that require clearing, or if other infrastructure (such as revetments) are required as a complementary measure.

Where can you learn more?

Miami-Dade County, Mangrove Wetlands



Mangrove restoration has been successful on the "earthen plug," part of the Card Sound Canal restoration project that began in the early 2000s. The image above was taken shortly after mangroves were planted; the image to the right shows the plug in its current state.

Date: 2000s | Location: Card Sound Road, southern Miami-Dade County | Cost: \$1.2 million (restoration & enhancement costs)

Saltwater intrusion into our freshwater aquifer is one consequence of sea level rise. To slow saltwater intrusion and to help restore the local ecosystem, Miami-Dade County has pursued two projects in the Card Sound canal.

In the 2000s, the County began with a pilot project to strategically fill the canal and plant mangroves in the filled section. An "earthen plug," or a barrier made of soil, was built in the canal to help restore the natural condition and slow the drainage of freshwater. The earthen plug was planted with red mangrove seedlings, which increased wetland habitat, Before this project, the canal was exacerbating local saltwater intrusion. Restoring the wetlands in the canal protects the freshwater upstream.

The mangrove restoration has also improved water quality within the aquifer and wetlands in the area. The area is currently being managed to ensure that appropriate plants continue to thrive. The enhancement of native plant communities should increase wildlife habitat around the project area. The improved hydrology should also help smaller organisms at the base of the food chain flourish, which will in turn help larger animals thrive. After the pilot project, the County moved forward with another restoration project in the area. We have allocated \$600,000 toward this project and recently received \$600,000 in additional funding from the State of Florida. This will help to restore more than an 800-foot segment of the canal a few miles upstream. This area, which will ultimately become sawgrass wetlands, will help slow the intrusion of saltwater into the South Dade area.

To begin the restoration project, the canal will be filled with clean limerock material then restored using native vegetation found in freshwater wetlands. This project will directly restore 0.65 acre of wetlands, but it will contribute to the health of a much larger area. The hydrology and vegetation withing the existing wetlands in the vicinity will be restored or enhanced by allowing the system to convert to a more freshwater driven system. This project will also be helped by the large project in this area that the land acquisition County recently completed through the











Storm Surge



Saltwater Intrusion

Groundwater

Floodina

Adaptation Team



Katie

Katherine.Hagemann@ miamidade.gov



Monica

Monica.Gregory@ miamidade.gov



Christian

Christian.Kamrath@ miamidade.gov