SOUTH FLORIDA WATER MANAGEMENT DISTRICT

SEA LEVEL RISE AND FLOOD RESILIENCY PLAN

Public Comments

(Comment period: November 29, 2021 - January 28, 2022)

Miami-Dade County
111 NW 1st Street
Miami, FL 33128
T 305-375-5593

January 14, 2021

Executive Director Drew Bartlett
South Florida Water Management District
Contact Information
3301 Gun Club Road
West Palm Beach, FL 33406

Re: South Florida Water Management District's Draft Sea Level Rise and Flood Resiliency Plan

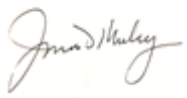
Dear Director Bartlett,

Thank you for the opportunity to continue to collaborate as the South Florida Water Management District develops it approach to addressing sea level rise and increasing resiliency. First, we would like to commend your agency for your proactive approach to addressing these issues and for the high-quality science and analysis that your agency is doing on this issue.

Attached please find our comments on your agency's draft *Sea Level Rise and Flood Resiliency Plan*. These comments were drawn from experts in our Regulatory and Economic Resources and Water and Sewer Departments.

Again, I would like to commend the District for its proactive and collaborative approach to addressing sea level rise. Miami-Dade County stands ready and willing to continue to serve as a partner in all phases from planning to implementation. We look forward to continuing to work with the District to identify the most promising adaptation measures that will help us achieve our shared goals of reducing risk, protecting water resources, and ecological restoration.

Sincerely,



James F. Murley
Chief Resilience Officer
Miami-Dade County Regulatory & Economic Resources Department
James.Murley@miamidade.gov

Miami-Dade County
111 NW 1st Street
Miami, FL 33128
T 305-375-5593

South Florida Water Management District – Sea Level Rise and Resiliency Plan

Technical comments from Miami-Dade County

Draft last updated 1/14/2021

Overall comments:

We would like to thank the South Florida Water Management District ("the District") for adopting a forward-looking approach to addressing the challenges of climate change. One of the most important priorities for Miami-Dade County is ensuring that our water management system is adapted to these changing conditions. Miami-Dade County shares the concern that that existing level of flood protection provided by the regional system must be improved to reduce flood risks to our community. With sea levels rising the urgency of these projects is increasing.

We would also like to recognize the collaborative approach the District has taken in its planning efforts including the recent Level of Service assessments of drainage basins within the County. We are very heartened to see the District's commitment to continuing this program and we will continue to partner.

We also applaud the District for creating the District Resiliency Team and for the exceptionally high-caliber science, analysis, and pro-active planning that the agency is engaged in. Their innovative work is undoubtedly a model which other agencies with follow. Further, the dynamic adaptive pathways approach and the approach used to determine priority basis that the agency is pursuing are very sound. These will help ensure we can move quickly in the short-term and ensure adaptation measures are flexible enough to respond to uncertainties in the future.

Miami-Dade County is strongly supportive of the overall resiliency goals in this plan; however, we would request that greater emphasis be put on pursuing adaptation strategies that are well aligned with existing County plans such as our own Sea Level Rise Strategy, Climate Action Strategy, and Biscayne Bay Task Force Recommendations. There are several areas of promising alignment which we highlight below. However, there are also areas were there could be better agreement and alignment between local and regional priorities.

The County is focused on pursuing a One Water approach that both reduces flood risk and improves water quality. Our community's recent efforts to protect and restore the health of Biscayne Bay, will only be successful if they are paired with complementary water management strategies. Investment in green and blue innovative infrastructure strategies must be central to tackling water challenges in our region.

In addition, the County's Climate Action Strategy sets ambitious goals for reducing our community's greenhouse gas emissions which, drive sea level rises, more extreme rainfall events, and other changes that increase risks in our area. It is essential that as we find ways to adapt without increasing our energy demand and greenhouse gas emissions. We encourage the District to first pursue adaptation strategies

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that depend less on structural solutions (e.g., forward pumps) and instead center around non-structural solutions (e.g., building elevation, voluntary land acquisitions, etc.) The County is ready and willing to collaborate both on planning and funding implementation to ensure the protection and wider benefits our investments aim to secure are long-lasting and equitable.

Comments on proposed resiliency measures

Miami-Dade County **strongly supports** efforts to **harden the coastal control structures and implement "self-preservation mode" to increase operational capacity and flexibility.** These investments will help ensure that the structures can be operated with more flexibility as any storm approaches. These investments have a potential co-benefit of protecting inland areas from minor storm surge flooding as a tropical storm or minor hurricane approaches. The County would like to commend the District for looking for opportunities for these existing structures to potentially serve a dual purpose and help address compound flooding in addition to reducing saltwater intrusion. Where possible, Miami-Dade County strongly supports the District's goal of tying the structures back to higher elevation where possible. Because of the dual nature of these benefits they are likely highly cost effective and they will likely have a very high return on investment. These improvements will help protect our communities in the coming decades.

Miami-Dade County **strongly supports** efforts to **increase locally distributed and regional storage and infiltration** and **increasing basin interconnectivity** options. These types of projects have multiple benefits including a potential co-benefit of recharging our aquifer and reducing some of the water quality impacts of stormwater run-off. Distributed storage may also have ecological and recreational value. To the extent that they allow the District more operational flexibility and additional storage, they could also help temper the impacts of drought on our drinking water resources. While these strategies are mentioned in the introduction, it is not clear where the planned investments are to support these measures. Miami-Dade County would strongly support projects that implement the basin interconnectivity and additional storage.

Miami-Dade County **strongly supports** efforts to **maximize the integration of green infrastructure and nature-based solutions** into future projects. This approach is a cornerstone of the County's own Sea Level Rise Strategy, Climate Action Strategy, and the Biscayne Bay Task Force Report. These projects will help us address several other important goals such as improving water quality and maintaining key habitat areas. Reducing pollutant loads in the regional canals is a key component of improving the health of Biscayne Bay Biscayne, which is incredibly important to our community and the State of Florida. As a shallow estuary that is home to two state aquatic preserves, a critical wildlife area, a national park and national marine sanctuary, it is essential to our local quality of life, tourism-based economy, and globally unique ecosystems. Our waterways are also critical habitat for several threatened and endangered species and maximizing the use of nature-based solutions has the potential to support the recovery of these species. Miami-Dade County strongly supports increasing the scale of investment in these adaptation approaches and is willing to partner on implementation.

Miami-Dade County **strongly supports** the District's efforts to **expand planning, including H&H modeling and data analysis and monitoring**. Recent efforts to assess the level of flood protection provided by the

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Miami, FL 33128
T 305-375-5593

canals have been excellent. These efforts have been highly collaborative and have utilized high-quality science and analytical approaches. The results of these studies have been directly useful to the County's own flood-risk work, including Adaptation Action Area planning, as well as to other entities such as the municipalities. Many smaller governments would lack the resources to conduct this caliber analysis on their own and therefore the District's work is serving a critical function. These planning and research efforts have also directly supported federal projects led by the U.S. Army Corps of Engineers. On-going efforts to make certain data more accessible and clearly communicate key resilience metrics have also been very valuable. This type of work is essential to ensuring we can maintain the regional water management system as sea levels rise and other climate components change.

While recognizing the intention and the potential value of the other four proposed measures, Miami-Dade County has some concerns about the other approaches outlined focused on increasing conveyance and basin discharges. The County would like to offer the following considerations as the District seeks to reduce flood risk.

Recognizing that the discharge capacity of multiple canals has diminished over time due to sea level rise and other factors, Miami-Dade County understands the intent to **restore basin discharges and enhance drainage and canal conveyance.** However, there are very real constraints that need to be integrated into the decision-making process when determining how to achieve this goal.

Water Quality

Primarily, the existing water quality in many canals is compromised and is already stressing the health of Biscayne Bay and other water bodies. While recognizing that this document discusses restoring historic basin discharges, rather than increasing discharges, we would like to emphasize that moving toward a system that relies upon extensive forward pumping has several drawbacks. Given the current water quality conditions it may be very difficult to design a forward pumping system that does not incidentally increase turbidity and pulsed discharges of nutrients and bacteria. This would be counterproductive to several on-going water quality initiatives funded locally and with state funding support.

For any location in Miami-Dade County where forward pumps are proposed and where operation of forward pumps would otherwise cause a violation of the dissolved oxygen standard as per the Code of Miami-Dade County (i.e., never less than 4 mg/l), water quality improvements shall be implemented such that the SFWMD's activities are compliant with this standard. The District should also consider the extent of water quality impairments in those waters not attaining standards as designated by the Florida Department of Environmental Protection in basins where forward pumps are proposed such that forward pumps and/or other infrastructure do not exacerbate existing water quality issues. The District's projects should also be consistent with any management strategy approved and enforced by the State of Florida to reduce pollutant loads (i.e., Basin Management Action Plan, Reasonable Assurance Plan, etc.) as part of Miami-Dade County's and the Florida Department of Environmental Protection's restoration goals for Biscayne Bay and its tributaries. Understanding that in light of sea level rise a gravity-driven system may not be able to continue indefinitely, we would ask that the District fully consider and implement other flood mitigation and water quality programs in advance of moving toward extensive forward pumping. Other measures such as non-structural flood mitigation, increasing basin interconnectivity, distributed storage, emergency detention

Miami-Dade County
111 NW 1st Street
Miami, FL 33128
T 305-375-5593

basins, raising canal banks, and nature based-solutions could be pursued aggressively in the short-term ahead of deployment of multiple forward pumps. In many instances, this type of approach will require coordination with other entities to implement flood mitigation measures that are outside the District's purview, and Miami-Dade County stands ready as a dedicated partner to pursue those projects.

Long-term effectiveness and constructability

This phased and more decentralized approach may also have the advantage of being more immediately implementable given the lower initial costs. These types of measures could be considered no-regrets approaches to climate change adaptation because they offer many co-benefits. Important to note, these ancillary benefits, such as improving water quality, recharging the aquifer, and reducing storm surge damage, may also create an opportunity to leverage other funding sources and financing mechanisms. We would also like to commend the District for its willingness to explore innovative technologies and approaches as these will certainly be a key piece of the solution.

This approach may also have the advantage of being more cost-effective in the face of long-term sea level rise. As shown in the C-7 Level of Service assessment, in some instances non-structural flood mitigation measures, such as raising the lowest-lying properties (shown in green below), may have substantially longer efficacy than forward pumps. Of course, the reality of climate change may necessitate both, but we would encourage the District to continue including non-structural approaches into the decision-making process. In some instances, these non-structural measures may be more cost-effective and may lead to a reduction in the pump station capacity and real estate needed or may delay the need for the investment in forward pumps. Pursuing other flood mitigation measures in a first phase may also reduce the impacts to water quality and critical wildlife habitat.

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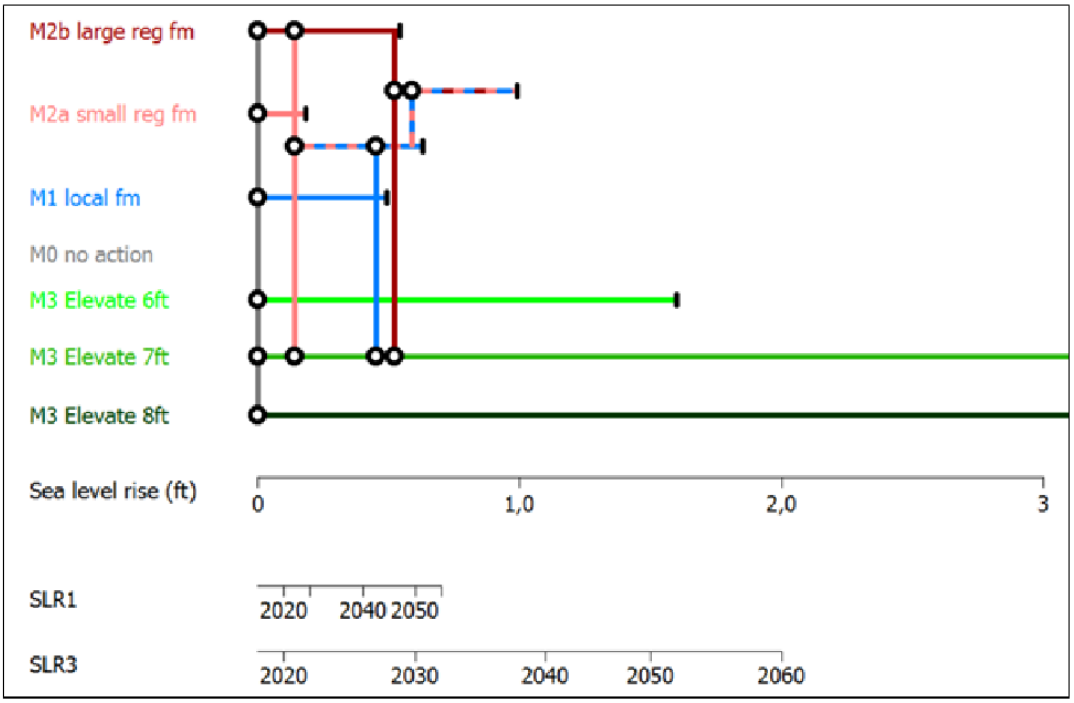

Figure 9. Adaptation Pathways map for the entire basin, based on the simulated expected annual damage for the current sea-level and the two possible future sea level rise scenarios.

Increased energy demand and emissions

Another potential concern with moving toward a system that relies heavily upon a pumped discharge is that it will increase energy demand and greenhouse gas emissions. Given the pumps purpose, it is presumed that the size and energy demands of the forward pumps and supporting energy infrastructure would both need to be large. In instances where increased pump capacity is needed to protect life and safety, we would encourage the District to explore energy efficiency measures and the carbon-intensity of the energy supporting the infrastructure.

Replacement structure design

The draft reports notes that some coastal control structures may need to be reconstructed. This could provide an opportunity to better integrate features into the structure design that would reduce impacts to Manatees and other protected species. Similarly, as pipe culverts are replaced there is an opportunity to enhance both flood protection and ecological connectivity through the replacement design. We would also encourage the District to explore whether features to control the discharge of floating debris could also be integrated into future designs.

L-31E Levee

The project description on page 61 could be clarified. Is the intention of the hardening project to raise the levee elevation or fix existing deficiencies while maintaining the same design? It may also be helpful to

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T 305-375-5593

note that these improvements should be made in concert with improvements to the downstream coastal structure in order to achieve the full flood protection benefits. Additionally, any modifications should first be evaluated for their compatibility with on-going restoration and conservation efforts in that immediate vicinity.

Comments on consistency with CERP

Some of the hardening/forward pumping projects that are proposed may be inconsistent with regional restoration goals and CERP. The District should consider abandonment of structures such as S-197 in lieu of hardening and forward pumping at this structure if CERP planning determines the C-111 canal should be backfilled in this area. In addition, the District should consider the potential relocation of proposed forward pumps at water control structures such as S-123. The proposed pump station at S-123 could instead be located just upstream of the control structure in a location consistent with CERP planning concepts and at lower costs. Instead of forward pumping the water down the C-100 canal to the Bay, the water could be pumped to a nearby spreader canal so that additional wetlands rehydration and bay salinity improvements also result in additional flood protection.

Comments on South Miami Dade Curtain Wall

Miami-Dade County continues to have significant concerns with the concept of a large curtain wall proposed to extend well into southern Miami-Dade County. Reductions in groundwater flow to the southernmost wellfields as well as the Florida City Canal and Model Lands basins are not recommended as resiliency features intended to address salt intrusion and wellfield protection. Any future curtain wall beyond the scope of the currently authorized segments should be modeled for efficacy and impacts on water supply to both Miami-Dade wellfields and flows to the Florida City canal and Model Lands basins which need to increase water movement east in order to achieve regional restoration goals, reduce salt intrusion, and increase resiliency.

Comments on emergency water storage

Additional emergency storage options are needed beyond the C-4 Emergency Detention Basin (C-4 EDB), and the District is encouraged to work with Miami-Dade County to identify potential sites and develop and operationalize these solutions.

Comments on flood mitigation alternatives

The Draft Sea Level Rise and Flood Resiliency Plan summarizes hardening and resiliency projects that are being planned by the District. Many of these projects include adding forward pumping capacity at the major outfall locations. The County supports the District's efforts to increase flood protection level of service. However, greater emphasis should also be placed on protecting water resources and minimizing negative impacts to Biscayne Bay. In this regard, additional flood mitigation alternatives should be considered in concert with Miami-Dade County to increase storage capacity and reduce the volume of water conveyed through coastal structures and received by the Outstanding Florida Water body. This could include identifying opportunities for additional wetlands rehydration projects that can improve wetland habitat and function, while providing additional water storage and water quality improvement prior to discharging to Biscayne Bay.

Comments on the Future Conditions Groundwater Modeling & Saltwater Interface Mapping

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Miami-Dade County will continue our collaboration with the U.S. Geological Survey (USGS) for monitoring, modeling and mapping the salt front in Miami-Dade County. We encourage the District to develop a comprehensive program with local agencies and utilities to coordinate salt front monitoring and modeling efforts across south Florida.

We would also recommend the District develop better tools to assess salt water movement in the Floridan aquifer. As utilities develop alternative water supplies such as Upper Floridan aquifer wellfields that have impact beyond County boundaries, these increases in stress on the aquifer will result in salt water movement horizontally and vertically. Miami-Dade County is working with the USGS to further develop variable-density models to better assess the impacts of production, storage and injection wells in the Floridan aquifer, and we support integrating our efforts with the District's modeling efforts.

Overall Recommendation:

We would like to take this opportunity to commend the District for its proactive and collaborative approach to addressing sea level rise. Miami-Dade County stands ready and willing to continue to serve as a partner in all phases from planning to implementation. We look forward to continuing to work with the District to identify the most promising adaptation measures that will help us achieve our shared goals of reducing risk, protecting water resources, and ecological restoration.

RESILIENT ENVIRONMENT DEPARTMENT
115 S. Andrews Avenue, Room 329 • Fort Lauderdale, Florida 33301 • 954-357-6612 • FAX 954-357-8655

Drew Bartlett, Executive Director
South Florida Water Management District
3301 Gun Club Rd.
West Palm Beach FL, 33406

Re: Draft Sea Level Rise and Flood Resiliency Plan

Dear Executive Director Bartlett,

I would like to begin by acknowledging the significant efforts of The South Florida Water Management District toward improving the resilience of our regional water management system for improved drainage, flood protection, water supply, water resource sustainability, and other environmental priorities under predicted conditions of climate change. The County appreciates the positive partnership and on-going collaborations we enjoy with District staff as part of priority projects, technical investigations, and regional programs.

We thank you for opportunity to provide comment on the District's initial draft Sea Level Rise and Flood Resiliency Plan in August 2021, and we were pleased to see several of the County's requests addressed as part of the revised project ranking, including incorporation of updated Finished Floor Elevations and saltwater intrusion considerations relevant to structures and wellfields in Broward County. We understood the limits on what could be addressed within the time constraints for presentation of the District's plan to the Florida Department of Environmental Protection and were amenable to deferring on some of the more detailed aspects of our recommendations pertaining to project weighting and ranking criteria to a later process.

With the District's current solicitation for stakeholder input, we appreciate the opportunity to reiterate these earlier requests to help inform additional edits.

The County's comments are as follows:

1. We request that the District provide further review of the weighting and grouping of project ranking criteria. Currently, the criteria do not give adequate weight to areas already identified to flood, and those areas where technical evaluations have already documented level of service deficiencies. Further, criteria addressing severe but infrequent storm conditions with a low probability are weighted equally with criteria having higher probability, even certainty as part of current conditions. We believe it appropriate that

criteria weighting reflect the distinction between immediate and potential or longer-term flood risk/failure. Please see the proposed alternative ranking provided here as a starting point for discussion.

Ranking Criteria

Existing

Category	Basis	Weighting
Return Period of Overbar Flooding Sea Level Resulting in Overbank Flooding	Coastal Structure Performance Under High Tailwater Elevations	20%
FFE<BFE + 3' (or 2' inland	Coastal Structure Finish Fl Elevation versus Flood Elevation	20%
Lockout required to prot equipment under Cat5 Storm Surge	Coastal Structure Operati Limitations Under Cat5 Storm Surge	20%
Exceedance of Canal Normal Operating Range	Inland Canal Performanc Under Higher Tailwater Elevations	20%
FPLOS Phase I Deficiency (Current Conditions) FPLOS Phase I Deficiency (Future Conditions)	Basinwide Level of Servic Current and Future FPLOS Assessment Results	20%
Known chronic and nuisance flooding report	Major Observed Floodin (where FPLOS Assessmer Results are not available)	

Proposed

Category	Basis	Weighting
Return Period of Overbank Flooding Sea Level Resulting in Overba Flooding Exceedance of Canal Normal Operating Range	Coastal Structure and Inland Canal Performar Under Higher Tailwate Elevations	40%
FFE<BFE + 3' (or 2' inland)	Coastal Structure Finis Floor Elevation versus Flood Elevation	10%
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Known chronic and nuisance flooding report	Major Observed Floodi (where FPLOS Assessme Results are not availal	20%

Or combined 40% to the maximum

This alternative weighting scheme combines similar relevant criteria into one category and distinguishes between coastal structures and inland conditions. Another approach might include some accounting for volumetric discharges as in some instances a structure might be more at risk, but less significant to overall conveyance. In addition, in areas controlled by several structures, planned improvements and resulting operations should be considered as a whole.

2. The use of presence/absence categories does not necessarily provide a quantitative metric relevant to the actual impact attributed to that category (e.g., AAA). Additionally, there are several categories where there does not appear a direct nexus with the metric and potential for risk or where a better measure might be used (e.g., economic metrics).

			Consequence of Failure Scoring						
			No Impact				High Impact		
Category	Basis	Weighting	1	2	3	4	5	TOTAL BY CATEGORY	JUSTIFICATION
Total Population	Census Population at each Basin Drainage Area	20%	Up to 50,000 people	Up to 100,000 people	Up to 200,000 people	Up to 500,000 people	More than 500,000 people		
Counties Adaptation Action Areas	Priority Action Areas Boundaries, as identified by the Counties	20%	Does not Intersect Adaptation Action Area				Intersect Adaptation Action Area		
Financially Disadvantage Areas Density	Households with income below $15,000 per Basin Drainage Area	20%	Lower Density		Average		Higher Density		
Public Water Supply Wellfields	Public water supply wellfields within 20,000ft of the 2018/2019 Saltwater Interface	20%	Lower Number		Average		Higher Number		
Critical Assets / Critical Lifelines Density	Critical lifeline assets per drainage area (Airports, Hospitals, Hazardous Waste, Law Enforcement, Schools, Fire Station, etc.)	20%	Lower Density		Average		Higher Density		
							TOTAL WEIGHTED AVERAGE CONSEQUENCY OF FAILURE	0	

We would suggest several revisions to this table, including:

- Incorporating population density and number or type of residential structures
- A determination of relevance of a designated AAA to the structure/condition rather than a binary award of point, with a clear nexus as the basis for award of points
- Expansion of the AAA point criteria to consider similar but equivalent designations, such as Priority Planning Areas (PPA) as in Broward County
- Revised financial threshold by which Disadvantaged Communities measured by a threshold more reflective of regional economics instead of a statewide value
- Wellfield pumpage and the rate of change of saltwater intrusion and a critical asset analysis to address the degree of vulnerability

Once again, we appreciate the extensive effort reflected in this initial assessment and look forward to working with the District on additional adjustments to project criteria and weighting to help refine this regional evaluation of project prioritization. We look forward to this next iteration and welcome additional discussion.

Thank you for your consideration and ongoing effort to improve the resilience of our communities.

Sincerely,

Dr. Jennifer Jurado
Chief Resilience Officer and Deputy Director, Broward County Resilient Environment Department

Cc: Dr. Gregory J. Mount, Water Resources Manager, Broward County
Dr. Carolina Maran, P.E., SFWMD Resiliency Officer
David J. Colangelo, SFWMD Resiliency Grant Manager

From: Zygnerski, Michael
To: Colangelo, David; Adorisio, Carlos; Mount, Gregory; Bodmann, Susan; Sishodia, Rajendra
Cc: Maran, Ana Carolina; Pena Guerra, Francisco
Subject: RE: DEADLINE EXTENDED: Submit Comments on the Draft Sea Level Rise and Flood Resiliency Plan
Date: Friday, January 21, 2022 11:11:40 AM
Attachments: image002.png

[Please remember, this is an external email]

Hi David

Thanks for reaching out. I believe that this sentiment came out when we were discussing ranked projects for some grant funding earlier in the year… specifically addressing G57. But I feel this can be applied to your SLR and Flood Resiliency Plan.

In summary I would suggest that volumetric discharges should be considered when prioritizing projects only because in some instances a structure might be more susceptible but yet not as influential in general conveyance. In addition, in areas that are controlled by several structures, all the structures, planned improvements and resulting operations should be considered as a whole. As a bonus, rerouting to beneficial use/recharge areas should also be prioritized when possible to minimize freshwater lost to tide.

Here are our thoughts specifically on the G57 but can be applied to other projects for the Plan to help illustrate our opinions.

The C-14 West basin is one of the larger basins in Broward County that collects and moves water East to both the C-14 East and Pompano Canal Basins and the eventual ocean discharges via the G57 and S37A. In addition to collecting basin runoff it receives arguably the highest volume of regional deliveries (within Broward) via the S38. The C14 is also the termination point of water flowing through the WMD water control districts for flood control. WMD welcomes any improvements to maintain or improve the flow of water through the Pompano Canal and Cypress Creek Canal, especially with the impending challenges of climate change and related seas level rise.
When considering system improvements in this area it should be holistic in that it should consider all 4 structures that help to route water in the C14 canal. To fully utilize an improved G57 structure, operations changes and related improvements to the G56 that precedes the G57 and the long culvert between the structures should be evaluated. Currently the S-37A is responsible for the most volumetric discharges in Broward County while the G57 is the least used structure for discharges. So, while it may be useful to alleviate some of the pressure facing S37A with future SLR, the operational rules used in the area and improvements to the G56, G57, and related culvert must be considered. Another strategy that may be considered and useful would be operational and structure improvements to the Cypress Creek Canal, including the S37A and S37B, to route more water to the Prospect Wellfield. That is generally a water poor area that results in the only negative water table elevations in Broward County due to the strong cone of influence from the pumping of the wellfield. Although water levels should be maintained at the coastal structures to aid in the abetment of saltwater intrusion, “discharges” may be routed more to the wellfield as SLR may make ocean discharges more challenging.

Again, the WMD recognized the importance of maintaining the C14 Basin and believe considering the all related structures and operational rules would be important to a successful enhancement of the C14. WMD would also look to work with the SFWMD on operations in the area as mentioned we utilize the basin as a termination of our system and are currently contemplating improvements of our secondary and tertiary facilities in the area that may also impact SFWMD considerations.

Happy to discuss further if you would like.

Mike

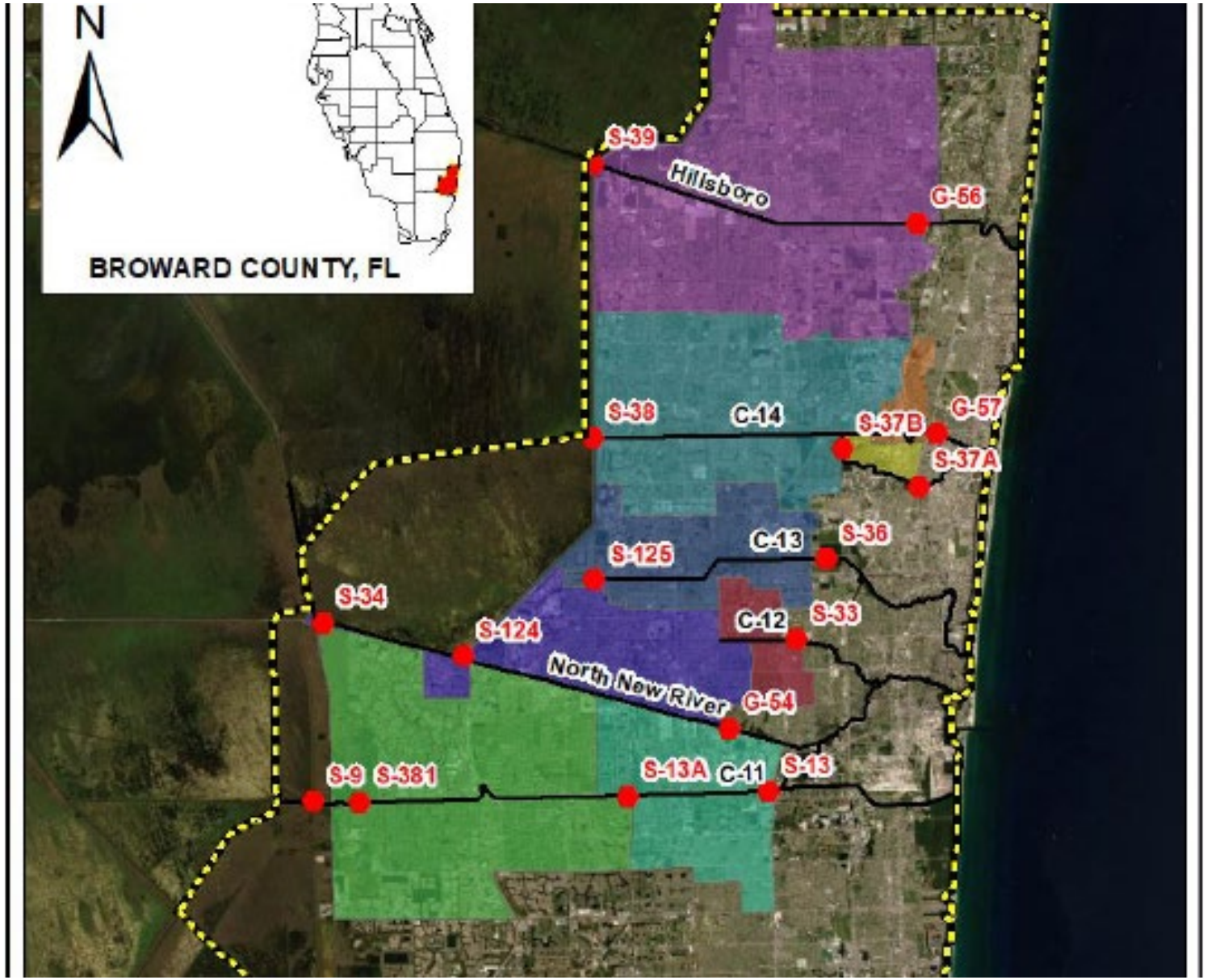
BROWARD COUNTY FLORIDA

Michael R Zygnerski,
Environmental Program Supervisor, Water Supply Planning
Public Works, Water Management Division
2555 Copans Road | Pompano Beach, Florida 33069-1233
954.831.0760

[redacted]

SFWMD Resiliency Project Proposal

Structures and watersheds in Broward County



Ranking Criteria

Existing

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Proposed

Category	Basis	Weighting
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Known chronic and nuisance flooding report	Major Observed Flooding (where FPLOS Assessment Results are not available)	20%

Or combined 40% to the maximum

Other Criteria

- FFE criteria – BFE for Broward Structures?
- Water Supply Wellfields – G-57 and S-37A
  - PWS wells within 20000 ft of Isochor for S37B = 28
- Adaptation Action Areas – Priority Planning Areas
- Financially Disadvantaged Areas – Income levels at $15,000

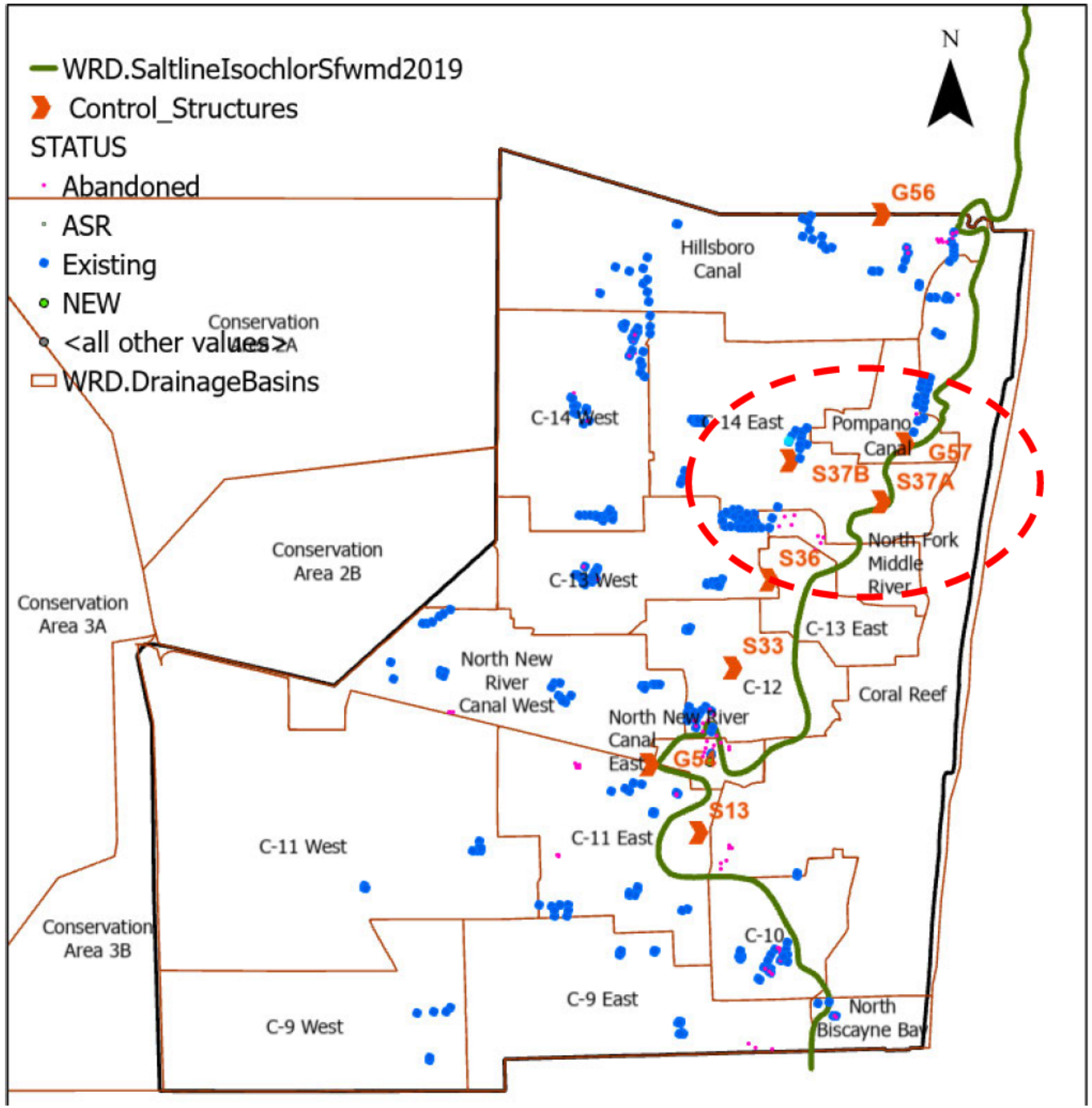


Table 1. Ranking of Infrastructure Projects, according to the likelihood of failure and consequence of failure criteria, and total summarized points.

Structures	Likelihood of Failure								Consequence of Failure					Likelihood of Failure Scoring	Consequence of Failure Scoring	Resiliency Total Points	SIP Overall Rating	CIP Status	Total Points (SIP + Resiliency)
	Return Period of Overbank Flooding	Sea Level Resulting in Overbank Flooding	FFE<BFE + 3' (or 2' inland)	Lock out needed (Cat5)	Exceedance of Canal Normal Operating Range	FPLOS Phase I Deficiency (Current Conditions)	FPLOS Phase I Deficiency (Future Conditions)	Known chronic and nuisance flooding report	Total Population	Counties Adaptation Action Areas	Financially Disadvantage Areas	Public Water Supply Wellfields	Critical Assets / Lifelines Density						
S27	5	5	5	5	4	5	5	0	4	5	5	3	5	4.80	4.40	**21.12**	3	5	**25.12**
S26/S26PS	3	5	5	5	4	0	0	5	4	1	5	5	3	4.60	3.60	**16.56**	5	5	**21.56**
S29	3	3	5	5	3	1	4	0	5	1	5	5	3	4.00	3.80	**15.20**	5	5	**20.20**
S22	3	2	5	5	5	0	0	5	4	1	5	3	5	4.50	3.60	**16.20**	3	5	**20.20**
S28	5	5	5	5	4	3	4	0	3	5	5	1	5	4.60	3.80	**17.48**	3	0	**18.98**
S25	5	5	5	5	4	0	0	5	1	1	5	1	5	4.80	2.60	**12.48**	3	0	**13.98**
S25B/S25BPS	5	5	5	0	3	3	5	5	3	1	5	1	1	3.60	2.20	**7.92**	5	5	**12.92**
G58	5	5	0	5	4	0	0	0	1	5	5	1	3	2.80	3.00	**8.40**	5	0	**10.90**
G93	3	3	0	0	5	0	0	5	1	1	5	1	5	2.60	2.60	**6.76**	3	5	**10.76**
S21	3	3	5	5	5	0	0	0	1	1	5	1	3	3.60	2.20	**7.92**	5	0	**10.42**
G57	3	3	0	0	4	5	5	0	1	1	5	1	5	2.40	2.60	**6.24**	3	5	**10.24**
G54	3	5	0	0	2	0	1	5	3	1	1	5	3	2.20	2.60	**5.72**	3	5	**9.72**
S123	3	5	5	5	5	0	0	0	1	1	1	1	3	3.80	1.40	**5.32**	3	5	**9.32**
S33	3	3	0	0	3	1	5	0	2	1	5	3	5	2.20	3.20	**7.04**	3	0	**8.54**
S20F	3	2	5	5	5	0	0	0	1	1	1	1	1	3.50	1.00	**3.50**	5	5	**8.50**
S21A	3	1	5	5	5	0	0	0	1	1	1	1	1	3.40	1.00	**3.40**	5	5	**8.40**
G56	3	1	0	0	2	0	0	5	4	1	1	5	1	1.80	2.40	**4.32**	3	5	**8.32**
S20G	3	1	5	5	5	0	0	0	1	1	1	1	3	3.40	1.40	**4.76**	5	0	**7.26**
S37A	3	5	0	0	3	1	5	0	1	1	5	1	3	2.40	2.20	**5.28**	3	0	**6.78**
S36	3	3	0	0	2	1	3	0	3	1	5	3	3	1.60	3.00	**4.80**	1	0	**5.30**
S197	3	1	0	5	2	0	0	5	1	1	1	1	1	2.80	1.00	**2.80**	3	0	**4.30**
S20	5	5	0	5	3	0	0	0	1	1	1	1	1	2.60	1.00	**2.60**	3	0	**4.10**
S13/S13PS	1	1	0	0	2	3	4	5	4	1	1	3	3	1.60	2.40	**3.84**	0	0	**3.84**

- Broward County Structures Scored zero for –
- a) Coastal Structure (equipment housing) FFE<BFE + 3' (or 2' inland) and
- b) Lockout needed to protect the equipment (generator etc.) under CAT5 storm surge

Proposed Amendments Pending Discussion of S-13

Structures	Likelihood of Failure								Consequence of Failure					Likelihood of Failure Scoring	Consequence of Failure Scoring	Resiliency Total Points	SIP Overall Rating	CIP Status	FPLOS	Total Points (SIP + Resiliency)
	Return Period of Overbank Flooding	Sea Level Resulting in Overbank Flooding	FFE<BFE + 3' (or 2' inland)	Lock out needed (Cat5)	Exceedance of Canal Normal Operating Range	FPLOS Phase I Deficiency (Current Conditions)	FPLOS Phase I Deficiency (Future Conditions)	Known chronic and nuisance flooding report	Total Population	Counties Adaptation Action Areas	Financially Disadvantage Areas	Public Water Supply Wellfields	Critical Assets / Lifelines Density							
S27	5	5	5	5	4	5	5	0	4	5	5	3	5	3.87	4.40	17.01	3	5	5	26.01
G57	3	3	5	0	4	5	5	0	1	1	5	5	5	2.83	3.40	9.63	3	5	5	18.63
S28	5	5	5	5	4	3	4	0	3	5	5	1	5	3.57	3.80	13.55	3	0	3.5	18.55
S26/S26PS	3	5	5	5	4	0	0	5	4	1	5	5	3	3.60	3.60	12.96	5	5	0	17.96
S25B/S25BPS	5	5	5	0	3	3	5	5	3	1	5	1	1	4.03	2.20	8.87	5	5	4	17.87
S29	3	3	5	5	3	1	4	0	5	1	5	5	3	2.70	3.80	10.26	5	5	2.5	17.76
S22	3	2	5	5	5	0	0	5	4	1	5	3	5	3.33	3.60	12.00	3	5	0	16.00
S37A	3	5	5	0	3	1	5	0	1	1	5	5	3	2.57	3.00	7.70	3	0	3	12.20
S25	5	5	5	5	4	0	0	5	1	1	5	1	5	3.87	2.60	10.05	3	0	0	11.55
G54	3	5	0	0	2	0	1	5	3	1	1	5	3	2.43	2.60	6.33	3	5	0.5	10.83
G93	3	3	0	0	5	0	0	5	1	1	5	1	5	2.47	2.60	6.41	3	5	0	10.41
S33	3	3	0	0	3	1	5	0	2	1	5	3	5	1.80	3.20	5.76	3	0	3	10.26
S13/S13PS	1	1	5	0	2	3	4	5	4	1	1	3	3	2.73	2.40	6.56	0	0	3.5	10.06
G58	5	5	0	5	4	0	0	0	1	5	5	1	3	2.37	3.00	7.10	5	0	0	9.60
G56	3	1	5	0	2	0	0	5	4	1	1	5	1	2.30	2.40	5.52	3	5	0	9.52
S21	3	3	5	5	5	0	0	0	1	1	5	1	3	2.47	2.20	5.43	5	0	0	7.93
S123	3	5	5	5	5	0	0	0	1	1	1	1	3	2.73	1.40	3.83	3	5	0	7.83
S20F	3	2	5	5	5	0	0	0	1	1	1	1	1	2.33	1.00	2.33	5	5	0	7.33
S21A	3	1	5	5	5	0	0	0	1	1	1	1	1	2.20	1.00	2.20	5	5	0	7.20
S36	3	3	0	0	2	1	3	0	3	1	5	3	3	1.47	3.00	4.40	1	0	2	6.90
S20G	3	1	5	5	5	0	0	0	1	1	1	1	3	2.20	1.40	3.08	5	0	0	5.58
S197	3	1	0	5	2	0	0	5	1	1	1	1	1	2.30	1.00	2.30	3	0	0	3.80
S20	5	5	0	5	3	0	0	0	1	1	1	1	1	2.23	1.00	2.23	3	0	0	3.73

County Administration
P.O. Box 1989
West Palm Beach, FL 33402-1989
(561) 355-2040
FAX: (561) 355-3982
www.pbcgov.com

January 13, 2022

Dr. Carolina Maran, PE, Ph.D.
District Resiliency Officer
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, Florida 33406

Dear Dr. Maran,

Subject: Palm Beach County Comments on the South Florida Water Management District Sea Level Rise and Flood Resiliency Plan (Draft Version 2.2, September 2021)

Palm Beach County (County) appreciates the opportunity to provide the following comments on the subject document.

Regarding green infrastructure and nature-based solutions (Pages 3, 9, 16 and 81), the County supports the South Florida Water Management District (SFWMD) maximizing the integration of green infrastructure and nature-based solutions. One specific example would be the implementation of a shallow wetland or natural flow-way on the Mecca site versus the planned deep storage reservoir. A wetland or natural flow-way on this site would provide ecological, recreational and aesthetic benefits that would far exceed those provided by a deep reservoir.

Regarding Priority Structures summarized in Section 5 (Pages 28-55), please include location maps and other detailed information for the structures (e.g. County that the structures are located within, etc.).

It appears that the USACE High, NOAA High, and IPCC AR5 Intermediate sea level rise projections included in Figure 18 (Page 34) are from the Southeast Florida Regional Climate Change Compact's 2015 sea level rise projections. These projections were updated in 2019 and are likely more appropriate for use for this and future resiliency plans.

During any future evaluations regarding hardening, modification and/or replacement of Structure S-155 (spillway that conveys C-51 Canal discharges to the Lake Worth Lagoon Estuary; Pages 54-55), the County strongly encourages the SFWMD to evaluate and implement water quality treatment and sediment removal features to address the long-standing sediment loading issue that has plagued the Estuary for many years.

On page 54, it is not clear what the term "3.7SLR inundation scenario" means. Please define.

Page 54 states "The restoration of discharge capacities will need to be combined with additional upstream and downstream solutions to be characterized as part of FPLOS Phase II Adaptation Strategies, and advanced as part of the Design phase." The County encourages the SFWMD to invest in additional upstream solutions such as water storage facilities within the C-51 and L-8 Basins. Examples include the Loxahatchee River replacement storage feature required as part of the FDEP-issued permits and consent orders related to the SFWMD's Restoration Strategies program and the C-51 Phase 2 Reservoir.

The County strongly supports SFWMD efforts to complete the Corbett Levee improvements (Page 60). To assist in advancing this project, the County has allocated $2 million of American Rescue Plan Act funds and looks forward to continued discussions with SFWMD and others on finding ways to complete this important flood resiliency project that impacts over 40,000 County residents.

As previously communicated to SFWMD staff, the County supports SFWMD efforts to expedite execution of the Flood Protection Level of Service Program within the County (Page 75) to enable the assessment of flood control assets to determine their ability to meet and continue to meet flood protection needs of the region.

The County supports SFWMD efforts to conduct Future Conditions Groundwater Modeling and Saltwater Interface Mapping (Page 77) as this is critical to ensuring the sustainability of regional water supplies.

Please feel free to contact me at jmcbryan@pbcgov.org or 561-355-4600 if you have any questions or would like to discuss any of the above comments.

Sincerely,

Jeremy McBryan, PE, CFM
County Water Resources Manager

cc: Patrick Rutter, Assistant County Administrator, Palm Beach County
Megan Houston, Director, Office of Resilience, Palm Beach County
Deb Drum, Director, Environmental Resources Management, Palm Beach County

County of Monroe
The Florida Keys

January 14, 2022

Ana Carolina Maran, P.E., Ph.D
District Resiliency Officer
South Florida Water Management District

Ms. Maran:

This correspondence provides comments from Monroe County, on the South Florida Water Management District's (SFWMD) Sea Level Rise and Flood Resiliency Plan (2021-2022) (the Plan). We understand that the purpose of the Sea Level Rise and Flood Resiliency Plan is to compile a comprehensive list of priority resiliency projects with the goal of increasing community resiliency to flooding and SLR impacts throughout South Florida. This initial list of projects was compiled based upon ongoing flood vulnerability assessments.

The Plan covers the territory of the SFWMD, all or part 16 counties from Orlando to the Florida Keys, serving a population of over 9 million residents. Monroe County is the only designated Area of Critical State Concern within the 16 counties of the SFWMD.

Fundamentally, the Plan document would benefit from a clearer depiction of the sea level rise scenarios used. Figure 9 is confusing about which sea level rise increases are projected and what year they are likely to occur. We understand that there are 16 counties within the SFWMD's geography, and there are various regional and individual sea level rise and climate planning efforts ongoing across the region, but in order for us to compare our work and analysis with the SFWMD's, the Plan should be very clear on what the rate of increase is that forms the basis of the Plan's projected structure failure or impact determinations. A legend and narrative should be included describing Figure 9, or perhaps reconfiguring the graphic so it clearly shows the rate of increase, year or range for sea level rise that the SFWMD is considering in the Plan.

On page 20, the document identifies FEMA Coastal Zone A Maps, the USACE South Atlantic Coastal Study and the Back Bay Feasibility Studies that have been completed. It is important to note that the USACE also has completed a Florida Keys Coastal Storm Risk Management Study in Monroe County.

Inclusion of Monroe County within the Plan. As part of the Basin Assessment Priorities, it appears as though Monroe County is included within Miami #5 "C-111 & Other Basins", but it is unclear because nothing is identified within the Monroe County jurisdiction. This is an important point to be clarified, because as a community that contributes to the SFWMD's regional assessment base, the County should be identified on Figure 1, page 11. The County's wellfields are located in Miami Dade County. And while the County understands that the closest SFWMD coastal flood control structures are actually located within Miami Dade County, Monroe County's flood control needs should be considered in the planning efforts.

Resilience Planning in Monroe County. Monroe County is one of the few communities within the SFWMD's geographic boundaries that has been consistently planning for climate issues, adaptation and response for many

years. The County has undertaken tremendous efforts to update and secure data and analyze the potential vulnerabilities and threats for infrastructure and assets across the County. A summary of those efforts includes:

- Completion of ourfirst Vulnerability Assessment in 2015, and updated this year
- A Pilot Roads Report evaluating road elevation and stormwater design in two neighborhoods in Monroe County
- A Roads Vulnerability Analysis and Capital Plan for roadway, stormwater and tidewater adaptation planning process (to be completed later this year)
-
- Notice of grant award for two neighborhood roadway elevation construction projects and one design project.
- Adoption of a Climate and Energy Element in the Comprehensive Plan
- Securing countywide mobile LiDAR elevation data for roads and assets
- Completion of a Watershed Management Plan that has helped the County achieve a Class 3 rating in FEMA's Community Rating System Program
- Completion of two Resilience Planning grants from the Florida Department of Environmental Protection (DEP) to develop its *Peril of Flood* amendments and create *Adaptation Action Areas* (AAAs) (although these have not been adopted yet)
- Completion of a Vulnerability Assessment update conducted in 2021

The County is anticipating launching several new adaptation planning efforts to bridge the gap between conceptual planning and actual projects similar to the roads adaptation planning process that is already ongoing. One of these efforts, a Natural Resources Adaptation Plan, will be an important tool for the County to generate actionable information as well as bring the multitude of resource managers with jurisdiction in the County together to start this challenging conversation. Again, as the only Area of Critical State Concern within the SFWMD geography, it would be important to gather the most recent and best habitat information for use in this study. We hope that the SFWMD will be a partner in that effort given the intrinsic relationship between our unique natural resources and the economic health of Monroe County.

Management of the Central & Southern Florida (C&SF) Project and Impacts to Monroe County. It is the management of these water supply and flood control structures, lands and this part of the C&SF project that all influence the quantity and quality of water that impacts our water supply and the flows into Florida Bay. The ability to continue southern Miami Dade system operations as designed (including the South Dade Conveyance System) stands to impact Monroe County greatly. Any changes that diminish those operations due to increased tidal flooding from sea level rise also stands to impact Monroe County. Though much work has been done in this part of the system to restore flows southward through authorizations for projects even prior to the Comprehensive Everglades Restoration Plan (CERP), such as Modified Water Deliveries and the C-111 Project, it is unknown how those projects may be further compromised by increasing sea level rise in the decades to come.

The only structure projected to be impacted by the scenarios in listed on Table 1, page 23 is S-197 yet it is not shown anywhere on Figures 12-15. What is the tailwater condition estimated in Figure 12? The figures should be better labeled on what the assumptions for sea level rise will be in the future also. Does this mean that no other structures within South Dade are projected to be impacted by sea level rise until the 3.7SLR inundation scenario as indicated on page 54 (such as S-176, S-177, S-178, S-179, S-200, S-332, etc.)?

Also, in relation to the S-197 structure, the document states: "The supplementary pumping capacity will extend the conveyance performance for additional years as sea levels rise, delay out of bank flooding, and reduce canal peak stages." Related to this S-197 discussion on page 52, it is unclear what year of functionality the supplementary pumping capacity contemplated by the project will achieve, the document merely states

"additional years". Given that this structure deals addresses both flood control and protects against saltwater intrusion which could impact the County's water supply, it would be important to note what hardening this structure actually achieves when extending its useful life.

Table 3, page 59 also lists several South Dade structures that will need "self-preservation" measures or "hardening". The discussion prior to Table 3 on pages 56-58 does not indicate when the measures for hardening, such as modifying gates for added high tide protection against reverse flow, will be needed. S-197 is listed as needing this work at 4 gates (for additional programming). Is the assumption that the actual gate modification is included within the budget for Coastal Structure Resiliency on page 52?

Other Comments of Note. On page 20, the document states: "The District is working closely with these Federal Agencies to coordinate the implementation of coastal adaptation strategies such as beach and dune restoration, shoreline stabilization, flood walls and nature and natural base solutions, including living shorelines, oyster and coral reefs, marshes, etc." Monroe County is also interested in partnering with the SFWMD on the implementation of coastal adaptation strategies in our county such as beach and dune restoration, shoreline stabilization, flood walls and nature and natural base solutions, including living shorelines, oyster and coral reefs, marshes, etc. We hope such partnerships extend beyond just those with Federal agencies. An example of such a partnership with a local government is described in the document is on page 81-82 in which the SFWMD has partnered with Miami Dade County and FIU to develop "Green Infrastructure Flood Mitigation Strategies" in the Little River Watershed. We would like to see more of those partnerships conducted here in Monroe County.

Monroe County is moving into implementation of certain projects as well. The County has designed two pilot road elevation projects and has secured environmental resource permits (ERPs) for those projects. Planning of $1.8 Billion in recommended roadway elevation and integrated tidewater adaptation & stormwater management projects is underway as part of the County's overall efforts to adapt its roadways to tidal flooding conditions predicted in the future. Road right-of-way in Monroe County does not leave much flexibility for stormwater system design to meet ERP criteria and this will result in more challenges as the County moves from planning to implementation of these types of adaptation projects. There is no policy or regulatory discussion in the Plan about these types of issues and this is a reality that is of great interest to the County. The Plan document should be expanded to address the confluence of policy and regulatory initiatives in the context of changing climate conditions.

A great example of this is the Clean Waterways Act directing DEP and Florida's water management districts (WMDs) to update stormwater design and operation regulations under Part IV, Chapter 373, Florida Statutes (F.S.), using the latest scientific information. The design and operation of stormwater management systems will be directly impacted by changes in weather patterns due to climate change and sea level rise tidal flooding. While the SFWMD has participated in the Technical Advisory Committee meetings for this rule development, it is unclear how the SFWMD is integrating all of these data collection and resilience planning efforts into that rule development. Climate impacts on stormwater management systems' design and operations may be dramatic in some locations and these issues go to the core of the design, cost and planning for public infrastructure adaptation projects that will require permits. There is no discussion about this in the Plan.

The Plan does a good job of prioritizing coastal structure impacts from sea level rise and climate change, but there is little analysis regarding impacted natural areas and habitat[1]. Habitat-focused projects do not appear in the Plan at all.[2] We acknowledge the inclusion of a narrative on the Everglades Mangrove Mitigation Assessment

[1] It should be noted that Section 380.093(2)(a)4. defines critical assets to include: Natural, cultural, and historical resources, including conservation lands, parks, shorelines, surface waters, wetlands, and historical and cultural assets.
[2] Page 21 of the Plan: "All *infrastructure* projects receive a certain amount of points for each of the evaluated criteria".

(EMMA), but we believe impacts to habitat within the 16-county region are going to be extensive and daunting to address given the multiple entities that own, maintain and manage natural resources within the SFWMD's geography. The Plan would benefit from an evaluation of comprehensive critical assets including conservation lands, surface water, wetlands and other natural resources as well as an overview of the data, analysis and efforts related to adaptation for these resources of the region beyond the structural components of the system. The discussion on "Applying the Resilient Florida Program Criteria to Determine Priority Basins" misses the discussion on what a critical asset is entirely and that should be included.

We recognize the SFWMD's efforts to collect and make regional flood, precipitation, climate and sea level rise data available to assist in local government planning efforts and we support those initiatives. They are important to our ability to design, permit and budget adaptation projects, so perhaps the SFWMD should consider more regular forums to communicate about this information and make this data available to local governments for their use.

This is an important document as part of the regional efforts to respond to climate change, sea level rise and make our communities more resilient. We look forward to continued communication with you on the Plan. For any further information or questions related to these comments, please do not hesitate to contact Rhonda Haag, our Chief Resilience Officer, at (305) 395-9928, or haag-rhonda@monroecounty-fl.gov.

Thank you,

Roman Gastesi
Monroe County
County Administrator

MARTIN COUNTY

BOARD OF COUNTY COMMISSIONERS

2401 S.E. MONTEREY ROAD • STUART, FL 34996

DOUG SMITH	Commissioner, District 1	**TARYN KRYZDA, CPM**	County Administrator
STACEY HETHERINGTON	Commissioner, District 2	**SARAH W. WOODS**	County Attorney
HAROLD E. JENKINS II	Commissioner, District 3		
SARAH HEARD	Commissioner, District 4	**TELEPHONE**	(772) 288-5400
EDWARD V. CIAMPI	Commissioner, District 5	**WEBSITE**	www.martin.fl.us

January 14, 2022

Carolina Maran
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

SENT VIA ELECTRONIC MAIL TO resiliency@sfwmd.gov

Re: Sea Level Rise and Flood Resiliency Plan Comments

Ms. Maran,

Thank you for the opportunity to comment on the South Florida Water Management District's (District's) Draft Sea Level Rise (SLR) and Flood Resiliency Plan. Martin County values its relationship with the District and shares the vision of reducing risk to the impacts of climate change through effective resilient solutions and anticipation of future conditions.

The initiative to compile a comprehensive list of priority actions/projects within the District's 16 counties to protect from flooding and SLR impacts is to be applauded. Whereas the District's priorities aim to address issues common to many counties, such as aging and threatened flood control infrastructure in the southern counties, there are parallel efforts that can be prioritized as well. Martin County supports the District's Future Conditions Groundwater Modeling & Saltwater Interface Mapping planning project and requests that the District prioritize the understanding of climate change, SLR and flooding mitigation in less immediate flood control threat areas. It is essential to understand future water use vulnerability and this can be accomplished by conducting future conditions groundwater modeling and strengthening the District's saltwater intrusions monitoring network. Martin County is eager to see these efforts advance and seeks to partner with the District in order to accomplish these goals.

Martin County's Board of County Commissioners has been dedicated to developing a more resilient county for years. Concrete steps began in 2018 with a vulnerability analysis that was partially funded by the Florida Department of Environmental Protection (FDEP). Since that time,

we have received additional grant funding to further develop the County's vulnerability assessment that has resulted in a Sea Level Rise Report that establishes Priority Action Areas (PAA's) and an extensive list of measures to support increased resilience within these PAA's. Currently, the County is conducting two pilot projects in vulnerable neighborhoods to help us develop the best tools and policies to protect our communities from sea level rise induced flooding. Recently, we were notified that five of our submitted construction project grant proposals were included in the Resilient Florida project list advancing these projects closer to implementation.

The District's Plan marks an important step in regional efforts to respond to climate change, sea level rise and to make our communities more resilient. We appreciate the District's focus on protecting the delicate ecology of our region and incorporating nature-based solutions where possible to improve coastal adaptation. We fully support the District's efforts to improve our understanding of climate change and its influence on meteorological events such as extreme precipitation events, hurricanes, and droughts. Martin County looks forward to continuing our long-term partnership with the District and opportunities to develop joint projects especially focused on the hydrogeology of the northern region.

If you have any questions or would like to engage in further discussion, please contact Kathy FitzPatrick (kfitzpat@martin.fl.us) or Emily Dark (Edark@martin.fl.us).

Regards,

Kathy FitzPatrick

Kathy FitzPatrick, P.E.
Coastal Engineer
Martin County Board of Commissioners
Public Works Department

KP/ed/ab

copies: Erin L. Deady, PA
Anne Murray, Martin County

ST. LUCIE COUNTY FLORIDA

ST. LUCIE WORKS

January 14, 2022

South Florida Water Management District
3301 Gun Club Rd.
West Palm Beach, FL 33406

January 14, 2022

RE: SFWMD Flood and Sea Level Rise Resiliency Plan – Public Comments

Dear SFWMD Resiliency Team,

Thank you for the opportunity to comment on the South Florida Water Management District's (SFWMD) initial Sea Level Rise and Flood Resiliency Plan. Please consider St. Lucie County's input for this and potential future plans, as outlined below.

1. We recognize in 2021, the State Legislature passed SB 1954 creating the Resilient Florida Program, which required each of the Water Management Districts to develop a Flood & Sea Level Rise Resilience Plan and list of priority projects by September 1, 2021 and annually thereafter. This legislation was signed into law in May 2021. Given the short timeframe for development, it is understandable this initial plan focuses on narrow geographical areas at highest risk from flooding and sea level rise, as well as major water control structures. For the next update due September 1, 2022, we would like to ensure a more comprehensive analysis and collaborative plan

2. The State faces extreme challenges that will require action at multiple levels and involve numerous partners. Coastal communities throughout the state will need to develop and/or implement strategies in the next few years to be effective in avoiding devastating or deleterious impacts to people, the economy, the environment, and critical infrastructure.

Mark Satterlee | Deputy County Administrator | Administration
langk@stlucieco.org
2300 Virginia Avenue | Fort Pierce, FL 34982 (772) 462-1156 (772) 462-1428 (772) 462-2331 www.stlucieco.gov

St. Lucie County, partnering with its municipalities, is working toward a community-wide Resilience Plan to address the most immediate and critical needs, as well as long-term levels of service in our strategic planning and budget processes. Partnering with the Water Management District to enhance data collection and analyses, reduce duplicative efforts, and develop innovative and effective gray and green infrastructure strategies will be essential to the success of this common initiative. This will require a robust process for collaboration between the County and the District, as well as a clear schedule of assessments, hydraulic and hydrological studies, and other data-based studies being performed by the SFWMD. Working with local entities provides a more intimate perspective and understanding in data gaps, areas of increased risk, and actions that have the highest return and effectiveness at the primary, secondary and tertiary water management levels.

3. More data is needed to accurately understand existing conditions in St. Lucie County. In addition to the SFWMD Canals (C23, C24, & C25, among others) installed as components of the Central and Southern Florida project, St. Lucie County relies on two larger natural waterways, Ten Mile Creek and Five Mile Creek, which become the North Fork of the St. Lucie River (NFSLR) to drain nearly 100 square miles of the County. Long-term tidal influences should be studied by the district to determine the effects of sea level rise on these systems, as well as including consideration of the increased basin rainfall patterns. There is value to include support and needed funding for the continued restoration of the NFSLR, its floodplain, and the western lands/natural storage components of Comprehensive Everglades Restoration Plan (CERP).

4. The IRL-South project proposes large reservoirs and stormwater treatment areas (STAs) for the storage and abatement of unwanted fresh water being discharged to the Indian River Lagoon and the St. Lucie Estuary. These critically important projects have been supported by St. Lucie County for their water quality improvements. However, the District has not provided substantial assurance to the concerns brought forth about flooding from the redirection of water from the C23/C24 system into the Ten-Mile Creek basin (the Northern Diversion). Ten Mile Creek is a severely overgrown FDEP-regulated waterway with documented severe response to high-flow events. An operational plan and model for the C23/24 system have not been provided to demonstrate that this additional flow into the system will not cause undue harm.

5. Page 75 of the document shows a map with basins in various stages of study. A large amount of southeastern St. Lucie County appears to be outside the Phase 1 project and has not been assigned a priority. Much of this uncategorized area is subject to tidal influence and is deserving of study. Please advise when the County would expect to see these basins integrated into the plan.

6. A critical aspect of resiliency planning is recognizing how Florida's coastal beach and dune system function and abate damages associated with future storm events and sea level rise. Barrier Islands rely heavily on this coastal feature for storm protection, and Florida's beaches and dunes play a vital role in preserving our Barrier Islands and Intracoastal Waterways. It should be noted that if the beach and dune systems were neglected most - if not all - future back-bay modifications would become obsolete. The absence of this natural system would disrupt every aspect of future coastal planning. A strong coastal beach and dune system is a prerequisite to our future resiliency planning efforts and should be noted as being the "first line of defense." FDEP has extensive knowledge of facts concerning Florida's Critically Eroded Shorelines, and we believe that SFWMD should address the absence of this acknowledgment in the final draft of this Sea Level Rise and Flood Resiliency Plan.

St. Lucie County would like to thank the South Florida Water Management District for the opportunity to provide comments regarding this important issue. We recognize that planning for resiliency in Central and South Florida is not an easy task and we appreciate all the work you are doing to develop a data-driven plan that benefits people, the environment, and the economy in an equitable and collaborative way.

Sincerely,

Mark Satterlee
Deputy County Administrator

CC: Howard Tipton, County Administrator
Amy Griffin, Environmental Resources Director
Roger Jacobson, Mosquito Control Director
Don West, Public Works Director
Patrick Dayan, Assistant Public Works Director
James Lappert, Water Quality Division Director
Josh Revord, Senior Coastal Engineer
Mike Middlebrook, Assistant Environmental Resources Director
Nicole Fogarty, Legislative Affairs Director
Courtney Calderone, Legislative Affairs Grand Coordinator
Jennifer McGee, Sr. Strategic P&R Coordinator
Sandra Bogan, Resilience Navigator

From:	Boutelle, Stephen
To:	Resiliency
Cc:	Ottolini, Roland; LaGuardia, Joan; Boutelle, Stephen
Subject:	Public Input on Draft Sea Level Rise and Flood Resiliency Plan
Date:	Wednesday, January 12, 2022 12:02:24 PM

[Please remember, this is an external email]

The *District Sea Level Rise and Flood Resiliency Plan* states the scope quite directly in that "this first list of priority resiliency projects focuses primarily on the investments needed to increase the resiliency of the District's coastal structures". As such it does virtually nothing to plan for SLR or flooding in Lee County. While we understand this may be a logical first step, we believe the document as titled falls far short of a districtwide "Sea Level Rise and Resiliency Plan". We strongly suggest that the Plan be significantly modified to consider District and basin wide existing vulnerabilities and potential changes related to climate, and implement planning activity to increase resilience throughout the entire District including at a minimum the topics of flood protection and water supply. Alternatively, the District might consider retitling this document to more clearly describe the existing District infrastructure focused contents, and provide additional guidance elsewhere on how and when the District intends to plan for these broader concerns.

Thank you for the opportunity to comment. We look forward to learning more about the District's resiliency planning efforts and how they will benefit Lee County.

Lee County
Southwest Florida

Steve Boutelle | Marine Operations Manager
Natural Resources Division
1500 Monroe Street, 3rd Floor
Fort Myers, FL 33901
office: (239) 533-8128
cell: (239) 565-6186
email: sboutelle@leegov.com
website: www.leegov.com

From:	Tommy Strowd
To:	Resiliency
Cc:	Reagan Walker; Douglas Gunther; Brian Tilles
Subject:	Comments on SFWMD Sea Level Rise and Flood Resiliency Plan (v. 2.2)
Date:	Tuesday, January 25, 2022 11:11:32 AM

[Please remember, this is an external email]

Thank you for the opportunity to comment on the September, 2021 Draft Sea Level Rise and Flood Resiliency Plan. The Lake Worth Drainage District (LWDD) has been charged with the development, implementation and operation of a sub-regional drainage and water control system in southeastern Palm Beach County since its creation by the Florida Legislature in 1915. For over one-hundred years, the agency has been part of numerous major changes in land-use, population dynamics and hydrology. The system was one of the features that led to the transformation of native Everglade's habitats to a large agricultural economy. Subsequently, the drainage system was challenged to support the evolution of agricultural lands into today's complex matrix of farming, urban, suburban, and commercial land uses we know today – serving about half the population of Palm Beach County. The one constant assumed throughout this long evolution was 'climate'. Today, we know that our climate is changing quickly and dramatically, and the effects of this change will have a significant impact, long into the future, on the communities that our drainage systems serves.

LWDD fully supports the initiative outlined in the South Florida Water Management District (SFWMD) Sea Level Rise and Flood Resiliency Plan. Furthermore, we encourage the SFWMD's initiative to develop integrated basin-wide hydrologic and hydraulic models through the Flood Protection Level Of Service Program (FPLOS). LWDD has recently initiated a multi-year program to develop a comprehensive surface water hydrologic simulation model that may be used to assist in future flood resiliency studies in southeastern Palm Beach County. This, in conjunction with the recent addition of a Supervisory Control & Data Acquisition (SCADA) data monitoring system, places our District in a position to partner with SFWMD as these important assessments continue.

Similarly, LWDD endorses the regional priorities established for the FPLOS assessment in this plan; particularly, the inclusion of the Hillsboro Canal basin, a portion of which is located within the current LWDD service area boundary. Recently, LWDD developed a surface water simulation model for the northwest portion of the Hillsboro Canal basin that may be useful in assisting SFWMD with the FPLOS of that basin and the assessment of potential management measures to address the effects of climate change.

LWDD looks forward to working closely with SFWMD as more detailed assessments are performed in the moderate basin assessment priority areas of Palm Beach County.

We would like to take this opportunity to suggest that part of the FPLOS should consider the impact of short-term coastal storm surges on water control structure discharge capacities and the subsequent effect on headwater stages and inland flooding potential when heavy rains and high onshore winds are coincident (e.g. hurricanes, tropical storms, etc.) A likely potential flood scenario in southeastern Palm Beach County is outlined as follows;

- As historically observed in Miami-Dade and Broward counties, future storm surges will certainly temporarily reduce (and in some situations prohibit) the coastal discharge of flood flows from SFWMD coastal structures in Palm Beach County.
- Because the general control elevation within most of LWDD is ~15 – 16 ft above sea level, we will likely not experience a direct reduction in discharge capability from these elevated basins during a major wind / rain event

However, the E-4 sub-basin (lying in a north-south alignment, generally just west of I-95) is held at about 7.5 ft. above sea level and is sandwiched between the coastline and LWDDs higher basins. LWDD's higher basins discharge floodwater into the E-4, which in-turn discharges to tide via SFWMD structures.

- If a coastal storm surge significantly reduces storm outflows at SFWMD structures along the E-4, stages in the E-4 will rapidly rise as a result (potentially impacting areas of Boynton, Delray, Lake Worth, etc. in the vicinity of Lake Ida and Lake Osborne).
- This would then place LWDD in a position to have to throttle-back flood discharges from the higher basins into the E-4 at a critical point, thereby significantly increasing flood potential in those higher areas as well. This is not entirely theoretical—it's happened several times in LWDD experience over the past 30 years, and we suspect it will occur more frequently in coming years as sea levels continue to rise.

As your assessment of the impacts of sea level rise and climate change looks into areas of moderate flood risk identified in the Plan, we encourage you to work with us so we can together ensure that all the components of the regional flood control system are functioning effectively to best serve the flood control needs of our communities well into the future.

Sincerely,

Tommy B. Strowd, P.E.
Executive Director / District Engineer
LAKE WORTH DRAINAGE DISTRICT

Florida Keys Aqueduct Authority

1100 Kennedy Drive
Key West, Florida 33040
Telephone (305) 296-2454
www.fkaa.com

January 26, 2022

Via Email (Dbartlett@sfwmd.gov)

Mr. Drew Bartlett
Executive Director
South Florida Water Management District 3301 Gun Club Road
West Palm Beach, Florida 33406

Re: Draft South Florida Water Management District Sea Level Rise and Flood Resiliency Plan

Dear Mr. Bartlett,

The Florida Keys Aqueduct Authority (Authority) has reviewed the South Florida Water Management District's (SFWMD) Draft Sea Level Rise and Flood Resiliency Plan (Plan). The Authority supports SFWMD's efforts to compile a comprehensive list of priority resiliency projects with the stated goal of "increasing community resiliency to flooding and sea level rise impacts throughout South Florida."

We believe the Plan could be strengthened and critical resources further protected by addressing the following items.

1. The Plan addresses the risks to structures and flooding communities but does not fully take into account the protection and enhancement of water supplies.

2. Through the Plan, SFWMD seeks to prioritize projects that benefit the largest possible populations and those that impact community lifelines (fundamental services that allow society to function), among other considerations. The Authority believes that the population of the Florida Keys should be considered for those projects that may affect the quantity or quality of water at the Authority's wellfield.

3. The potential for increased saline water intrusion from an inland seepage barrier is not addressed. To date there has been no evidence presented that provides assurance that an inland seepage barrier will not reduce groundwater flow or not increase the probability of saltwater intrusion along the coast.

4. The Authority agrees that reevaluating and maintaining the saltwater intrusion monitoring network is essential to monitoring the potential intrusion of saltwater into fresh coastal aquifers and the sustainability of these resources. The Authority supports SFWMD's request of $1.2 million from the State of Florida for improving the monitoring program. If the increased monitoring program were to show increased saline water intrusion from the construction of an inland seepage barrier, what recourse or remedial action would be available for reversing that outcome?

We appreciate SFWMD's efforts and look forward to continued dialogue in furtherance of our mutual goal of protecting these critical resources.

Sincerely,

Kerry G Shelby
Executive Director

cc: Ms. Cheryl Meads, South Florida Water Management District Governing Board
(cmeads@sfwmd.gov)

SFWMD Sea Level Rise and Floor Resiliency Plan Project Team
(resiliency@sfwmd.gov)

OFFICE OF THE TOWN MANAGER
Rafael G. Casals, ICMA-CM, CFM
Town Manager

January 28, 2022

Ms. Carolina Maran, P.E., Ph.D.
Chief of District Resiliency
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406
cmaran@sfwmd.gov
resiliency@sfwmd.gov

RE: Comments on the South Florida Water Management District Draft Sea-level Rise and Flood Resiliency Plan

Dear Carolina Maran,

The Town of Cutler Bay (the "Town") submits the following comments regarding the South Florida Water Management District's (the "District") Sea-level Rise and Flood Resiliency Plan (SLRFRP) required under Senate Bill 1954 (2021). This bill recognized Florida's vulnerability to sea-level rise and flooding, which is an admirable step in the right direction. We commend the state and your agency for recognizing this issue and working to solve it. The bill also acknowledged the importance of mitigating the effects of sea-level rise and flooding to preserve the state's water supply, which is critical.

As shown in Figures 1 and 2, the Town's coastal location makes it one of the most vulnerable areas in the district to the impacts of sea-level rise, flooding, and climate change. Figure 2 displays a LIDAR map of the Town. In the past, the Town has partnered with the District to increase resiliency to sea-level rise and flooding in the region, notably with the purchase of an 8.4-acre parcel of land purchased adjacent to BBSEER by the Town in 2020 for the purpose of increasing the efficacy of regional restoration efforts and by working to find funding to restore the adjacent 53-acre parcel to the BBCW footprint owned by the District. We would look to find more ways to partner with the District because we are so vulnerable to the impacts of flooding and sea-level rise.

Overall while we are happy to be taking this first step, we feel the District's SLRFRP does not go far enough to improve the resilience of the District's water resources and does not describe how it will mitigate against some of the associated impacts of the actions proposed. In addition, the effects of climate change on South Florida and the ongoing issues of saltwater intrusion and sea-level rise need to be at the forefront of this plan; this should not be a catch all for already existing plans like the curtain wall for example. These funds should be used to make your district in the built environment more resilient, not less.

There are many unexplored opportunities to expand the scope and ultimate impact of this plan. For example, in spite of the tremendous capacity for carbon storage in healthy everglades, only twice does it mention carbon sequestration. Reducing our carbon footprint while restoring the Everglades and investing in infrastructure will have to work in coordination with a much more aggressive time schedule and in coordination with a more aggressive land-buying program, and not once do we see a proposal to expedite land buying here which if done now will be a much better investment than waiting.

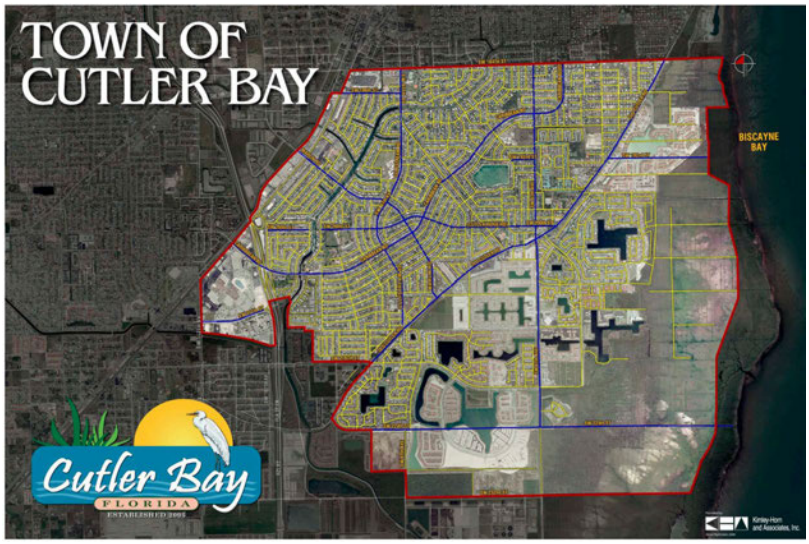


Figure 1. Aerial Map of the Town of Cutler Bay[1]

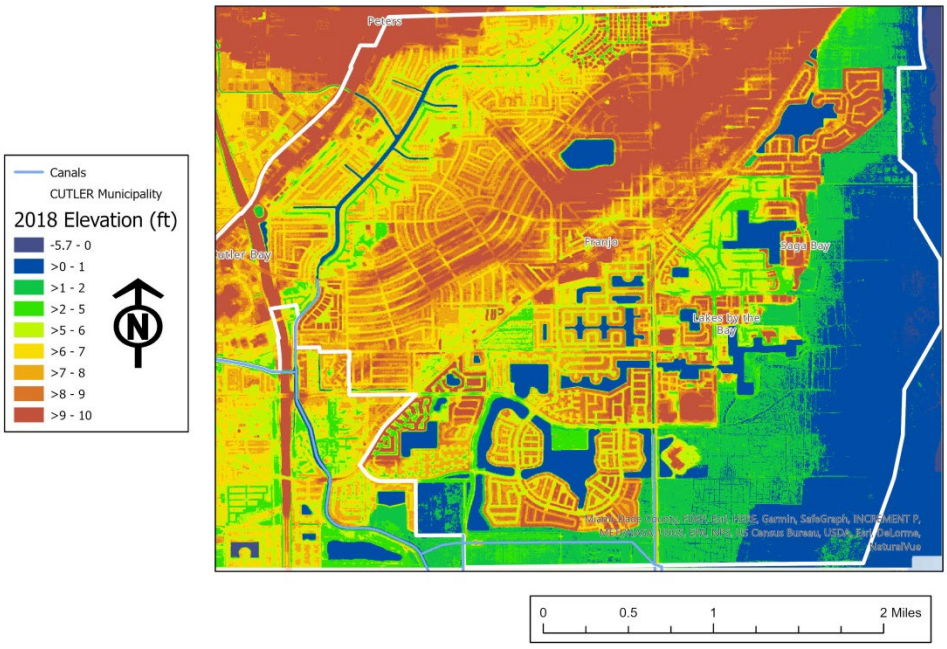


Figure 2. LIDAR Map of the Town of Cutler Bay Selecting the Vulnerability to Sea-level Rise

[1] Town of Cutler Bay, Florida. (n.d.) *Town Map.* Community. Cutlerbay-fl.gov. https://www.cutlerbay-fl.gov/sites/default/files/fileattachments/community/page/2971/2cutler_bay_arial.pdf

We are glad to see many of the infrastructure upgrades in and around our area on the priority list. For example, the upgrade of the S-123 spillway will improve water drainage around the Town following extreme storm surge and flooding. In addition to the upgrades of coastal structures just to the south and north of us. The Town is concerned about sunny day flooding especially during king tide events and our ability to move water off the landscape during severe weather events, so we appreciate that several of the infrastructure upgrades are set to improve water drainage in the area surrounding and within the Town, we would hope that more information can be provided about our area specifically and how this work will improve flood risk to the Town.

We would like to see implementation of natural shoreline defenses rather than hard, engineered defenses, such as the flood wall proposed for Miami by the ACOE Back Bay Plan, it is in our best interest to expand nature based solution and expedite and possibly expand projects like EMMA. If this pilot project is successful the SFWMD should investigate the possibility of expanding the EMMA project to include a demonstration/research site at a location within the Town or adjacent to us. Expanding the footprint of the EMMA project to include a shoreline location in or near the urbanized coast is the fastest way to demonstrate whether constructed mangrove wetlands offer a feasible strategy for resilience in built-up areas near the shoreline.

I. The SLRFRP Must Take Climate Change, Green Infrastructure, and Equity into Consideration

Florida must reduce carbon consumption and promote carbon sequestration statewide. At the same time, adaptation and mitigation considerations are key to a successful climate plan. We will have to do both to extend our ability to thrive in South Florida into an uncertain future. The Town supports any effort to sequester Carbon and promote resilience through the purchase and protection of buffer lands surrounding the southern end of the county and through restoration and mangrove planting efforts that will help accelerate accretion rates along the coast to keep pace with sea-level rise.

Much of the open land in Miami Dade is threatened by development. This plan is missing an opportunity to aggressively purchase coastal areas that remain in South Dade which many have been identified already as needed for restoration but are already threatened by development. We suggest that this could be achieved through an aggressive land-buying strategy centered upon acquiring lands for resiliency and facilitating continued agricultural operation until the lands are needed for projects like an expanded EMMA or BBSEER or can just be acquired for flood protection and carbon sequestration projects just simply stripping development rights. A similar process took place when the STAs to the north were being purchased; if we wait the lands will be too expensive or already developed.

This plan should focus more on reducing peat subsidence as a tool for carbon sequestration. The decaying organic matter in peat soil reduces global warming by storing atmospheric carbon. When peat subsidence occurs the stored carbon is released back into the atmosphere. The Everglades have suffered from conditions of peat subsidence over the course of the last century as a result of drainage and sea-level rise.

It is estimated that peat soil is subsiding in the Everglades at a rate of 1 inch per year.[2] If preserved, the natural ecosystem services provided by peat can be used to mitigate carbon emissions and reduce greenhouse gas emissions. This plan needs to address the threat posed by peat subsidence, as well as the incredible opportunity to simultaneously address climate change at the source and promote a healthier Everglades ecosystem through the targeting and mitigation of this phenomenon.

The Everglades Mangrove Mitigation Assessment (EMMA) Pilot Study needs to take water quality concerns into account but looks very promising. It is encouraging to see this pilot study using green infrastructure in the form of mangroves to mitigate the impacts of sea-level rise. However, the EMMA Pilot Study must include a clear plan to offset the impacts of turbidity and nutrient inflow on water quality from the distribution of dredge soil. Potentially that could be in the upstream purchase of lands to offset water quality impacts to the bay. We are currently seeing losses of seagrass and that are impacting tourism, the fishing industry, and quality of life for our residents and we are concerned that BBSEER does not make Water Quality a goal but only a constraint.

If the EMMA plan proves to be successful from this pilot study with minimal impacts to water quality, we encourage the widespread implementation of the plan. As a form of green infrastructure, mangroves sequester carbon and protect the built environment from flooding. We encourage the District to use resilience funds to purchase additional land in order to incorporate mangroves as a region-wide flood resilience strategy.

The SLRFRP should consider equity in the entirety of its projects. Lower-income residents in our community tend to be more vulnerable to the impacts of sea-level rise and flooding.[3] All projects should take into consideration potential disproportionate impacts on lower-income communities and areas. Furthermore, this plan should take into consideration steps to improve the resilience of areas that have been historically excluded in past projects because of how we calculate risk.

We are at an increased risk of depletion of our water supply due to saltwater intrusion County-wide and the County consumptive use permits are predicated on the full implementation of CERP, these projects will have to be more robust to keep pace with sea-level rise. For that reason, this plan should endorse the most robust BBSEER and Southern Everglades Study efforts to ensure full benefits of CERP are realized.

[SPACE LEFT INTENTIONALLY BLANK]

[2] American Society of Agronomy. (2020, January 15). Are sinking soils in the Everglades related to climate change? ScienceDaily. Retrieved January 10, 2022 from www.sciencedaily.com/releases/2020/01/200115075617 htm
[3] Ariza, M. A. (2009, September 29). *As Miami Keeps Building, Rising Seas Deepen Its Social Divide.* Yale Environment 360. https://e360.yale.edu/features/as-miami-keeps-building-rising-seas-deepen-its-social-divide

II. The SLRFRP Does Not Make it Clear how the District will Mitigate for Excess Saltwater Intrusion into Miami-Dade County

Overall, this plan does not address the diminishing flow of fresh groundwater into Biscayne Bay. In fact, the construction of the curtain wall proposed in this plan will further limit fresh groundwater flow into the bay. It will also limit inflow of water into the Biscayne Aquifer, exacerbating conditions of saltwater intrusion. Figure 3 displays the extent of saltwater intrusion between 2011 and 2018. As indicated in the diagram, the greatest extent of saltwater intrusion is occurring in Southern Miami-Dade County and according to your basic modeling results most of the loss of water flow occurs in that same area. Saltwater intrusion is already occurring and is being exacerbated by other activities such as the seasonal agricultural drawdown and the operations at Turkey Point. A better use of these funds would be to improve our vulnerability to sea-level rise not continue to make us more vulnerable without a plan to fix existing concerns. We understand the benefits of a curtain wall on the water supply of the Taylor Slough and Florida Bay, but the Town cannot support the curtain wall project if it is not made much clearer how the District intends to mitigate for the consequences of this project on Biscayne Bay and Miami Dade County's water supply.

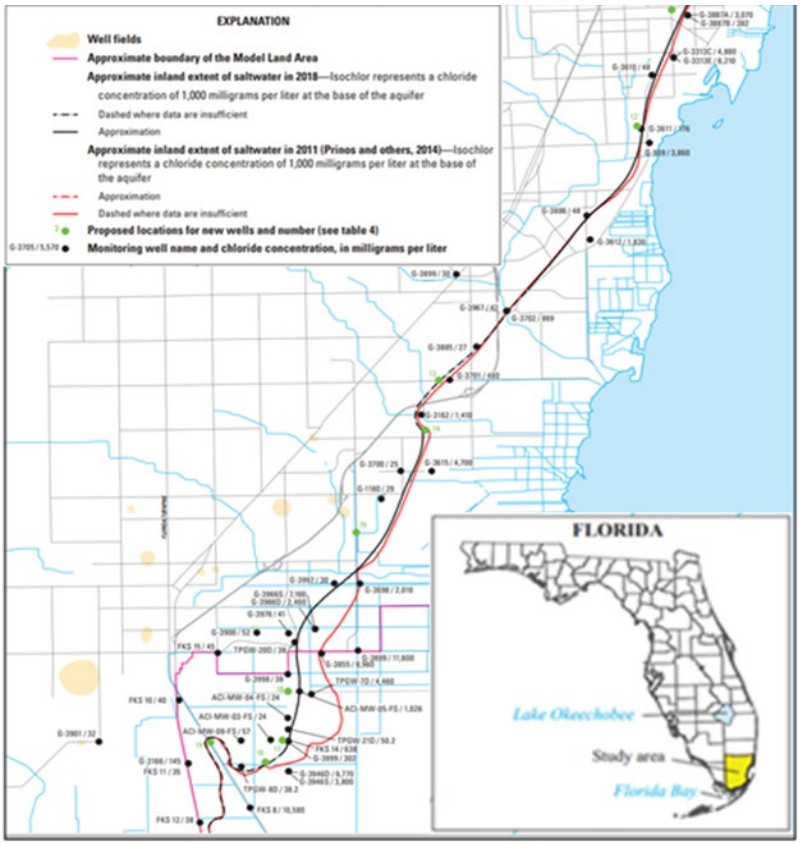


Figure 3. Inland Extent of Saltwater in the Base of the Biscayne Aquifer in South Miami-Dade County[4]

[4] Prinos, S.T., 2019, Map of the approximate inland extent of saltwater at the base of the Biscayne aquifer in Miami-Dade County, Florida, 2018: U.S. Geological Survey Scientific Investigations Map 3438, 10-p. pamphlet, 1 sheet, https://doi.org/10 3133/sim3438

To help prevent saltwater intrusion into the Biscayne Aquifer the District must modify the seasonal agricultural drawdown practices within Miami-Dade County. Currently, the agricultural drawdown practice reduces the groundwater level by releasing an average of 21.4 billion gallons of freshwater.[5] Without sufficient recharge from the Everglades, the release of this volume of freshwater from the Biscayne Aquifer leaves our source of drinking water increasingly vulnerable to saltwater intrusion. The agricultural drawdown practice harms Biscayne Bay by rapidly increasing saline conditions. [6] Alternatives to current agricultural drawdown operations have been proposed which deserve further investigation and an expedited timeline. Can we really wait until 2026 to fund this under BBSEER? We think it would be more appropriate to have those kinds of solutions proposed here so they can be expedited and additional work can be done in BBSEER to enhance a project that has already begun.

The curtain wall proposal would exacerbate the threat of saltwater intrusion by blocking freshwater recharge from the Groundwater and making the coast more vulnerable. It is questionable whether the use of resiliency funds is appropriate for a curtain wall given it will make Miami Dade County more vulnerable without major mitigation and a clear plan.

Any one of the three alternative curtain walls would further block the flow of groundwater to the Biscayne Aquifer, reducing wellfield recharge for Miami-Dade's water supply. Figure 4 displays the location of wellfields in Miami-Dade County. Note that these wellfield recharge areas are located east of the proposed curtain wall. We would like more data on the modeling results including all of the assumptions built into the model itself. We would also like to understand the timing of all projects in the area and how these impacts will be mitigated for and how the Town will benefit from this activity.

[SPACE LEFT INTENTIONALLY BLANK]

[5] Kearns, Edward & Renshaw, A. & Bellmund, Sarah. (2008). Environmental Impacts of the Annual Agricultural Drawdown in Southern Miami-Dade County.
[6] Kearns, Edward & Renshaw, A. & Bellmund, Sarah. (2008). Environmental Impacts of the Annual Agricultural Drawdown in Southern Miami-Dade County.

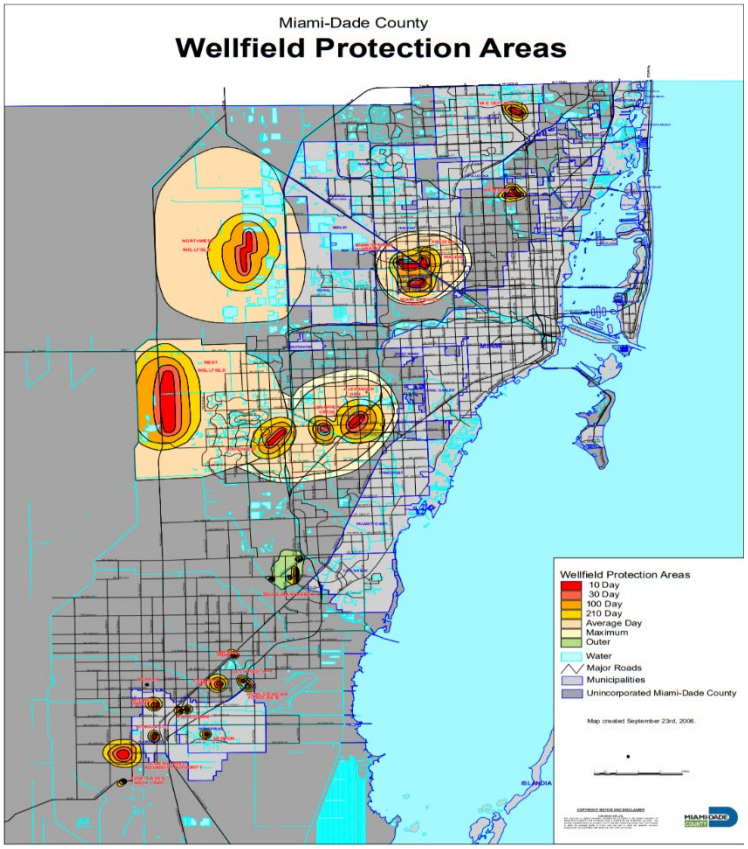


Figure 4. Wellfield Protection Areas in Miami-Dade County[7]

III. The SLRFRP does not consider impacts to Biscayne Bay

We expected to see a more detailed discussion of additional measures addressing the 10-mile hypersaline plume of salinity and nutrient pollution from Turkey Point. This plant is operating at sea-level and no mitigation to date has been required to offset decades of impacts to Biscayne Bay. The National Park Service and the District have noted a historical increase in salinity in Biscayne Bay.[8] The rise in salinity has already affected the population of a number of species in the bay, including oyster (*Crassostrea virginica)* beds and red drum (*Sciaenops ocellatus)* species. In their Ecological Targets for Western Biscayne National Park, the National Park Service stated that water flow decisions should be made specifically to promote the estuarine condition of the area to promote healthy ecosystems.[9] In accordance with this, water flow management decisions should consider Biscayne Bay's resultant salinity levels. In the recent weekly ecological conditions report published by John Mitnik, Biscayne Bay is not even mentioned.

[7] Miami-Dade County. (2017, August 10). *Wellfield Protection Areas.* Regulatory and Economic Resources. https://www.miamidade.gov/environment/library/maps/wellfield-protection-areas.pdf
[8] Stabenau, E. (n.d.). *Freshwater Discharge and Protecting the Coastal Ecosystem in Biscayne National Park.* National Park Service South Florida Natural Resources Center. https://www.sfwmd.gov/sites/default/files/documents/water_challenges_facing_bisc_np.pdf
[9] National Park Service. (2006, April). *Ecological Targets for Western Biscayne National Park.* Florida International University Libraries. http://dpanther.fiu.edu/sobek/FI11060807/00001

We suggest, the Cooling Canal System just like with Unit 5, the use reuse water for cooling to replace the use of our regional supply and the Floridian Aquifer. The cooling canal water budget uses both. The more we can reduce our reliance on the use of groundwater and replace it with reuse water, the more sustainable we will be. We suggest mechanical draft cooling towers for all cooling activities at the plant, with the use of deep well injection and the placement of those mechanical draft towers well above sea-level to increase the plant's resilience to sea-level rise and flooding. If done properly, deep well injection will preserve the health of the Biscayne Aquifer and Biscayne Bay. This would allow restoration activities of over 6,000 acres on the coast of Biscayne National Park to work in tandem with BBSEER to achieve shared resiliency goals and would be a perfect location for expanded EMMA projects.

The curtain wall proposal in the SLRFRP would exacerbate the problem of saltwater intrusion in South Dade, negatively impacting the health of Biscayne Bay. Groundwater flow is more biologically available than surface water.[10] The flow of fresh groundwater is vital to maintain the ideal mesohaline estuarine conditions in Biscayne Bay's nearshore. The rise in salinity in Biscayne Bay has caused a decrease in ecosystem productivity, reducing the bay's environmental and economic value.[11] Currently, groundwater only consists of 10% of freshwater input into Biscayne Bay in the wet season and 5% of input in the dry season. Any further limitations of this flow would be contrary to restoration plans of current projects like BBSEER that seek to increase freshwater input into Biscayne Bay. Many times surface water is dumped into the bay and never mixes prolonging the lagoonal conditions that persist impacting fisheries and tourism in our area. Potentially expediting the purchase of the Bird Drive Recharge Area and creating a flowage equalization basin (FEB) there to recharge groundwater would offset any negative impacts cause by the curtain wall and preservation of a green buffer will allow for aquifer recharge along the east side of Miami Dade County to help preserve pathways for recharge and seepage management. These projects should be expedited and completed before any additional seepage barriers are built.

IV. The District should conduct and publish analyses based on the DBHydro Data

We support the development of a Water and Climate Resiliency Metrics Web Tool as a way to inform the public of resiliency metrics. This new web tool should emphasize the impacts of climate change on each of these criteria. However, the release of this data to the public should not replace the District conducting their own analyses and publishing of the results of trends in this data. An analysis by the District will increase residents' understanding of the threats of sea-level rise, flooding, and the importance of resilience for their homes and communities.

Climate change must be central to the District's plans going forward since it exacerbates the threats of sea-level rise and flooding. This plan must recognize nature-based solutions such as preservation of peat soil and restoration of seagrass beds to mitigate and adapt to sea-level rise caused by climate change, as well as the importance of sufficient freshwater recharge from the Everglades to the Biscayne Aquifer and Biscayne Bay.

[10] Stalker, J. C., Price, R. M., & Swart, P. K. (2009). Determining spatial and temporal inputs of freshwater, including submarine groundwater discharge, to a subtropical estuary using geochemical tracers, Biscayne Bay, South Florida. Estuaries and coasts, 32(4), 694-708.

OFFICE OF THE TOWN MANAGER
Rafael G. Casals, ICMA-CM, CFM
Town Manager

We understand this draft of the SLRFLP is only the first step to increasing resilience in the District, we want to work with you to help improve it and its effectiveness. Our Town is one of the area's most vulnerable to sea-level rise in the entire county. We look forward to working with you more closely to increase our understanding of your plans and vision and ultimately our resilience against sea-level rise and flooding in our Town. On behalf of the Town Council we thank you for taking time to review our comments.

If you should have any questions or concerns, feel free to contact me at (305) 234-4262 or via email at rcasals@cutlerbay-fl.gov.

Sincerely,

Rafael G. Casals, ICMA-CM, CFM
Town Manager

CC: Drew Bartlett, Executive Director, South Florida Water Management District, dbartlett@sfwmd.gov
Jennifer Reynolds Division Director for Ecosystem Restoration & Capital Projects, South Florida Water Management District Governing Board, jreynolds@sfwmd.gov
Daniella Levine Cava, Mayor, Miami-Dade County, mayor@miamidade.gov
Danielle Cohen Higgins, Commissioner, Miami-Dade County, District8@miamidade.gov
Jim Murley, Chief Resiliency Officer, Miami-Dade County, resilience@miamidade.gov
Laura Reynolds, Environmental Consultant, Town of Cutler Bay, lreynolds@conservationconceptsllc.org

Audubon | FLORIDA

4500 Biscayne Boulevard
Suite 350
Miami, FL 33137

305.371.6399
fl.audubon.org

January 28, 2022

Dear Mr. Barlett,

Thank you for the opportunity to comment on the South Florida Water Management District's draft Sea Level Rise and Flood Resiliency Plan. We applaud the District's efforts to develop a comprehensive strategy toward addressing threats from flooding and sea-level rise. This Plan represents an important opportunity to capitalize on the state's recent $640 million dollar investment in resilient infrastructure and preparedness under Governor DeSantis' Flooding and Sea Level Rise Resilience plan. It also showcases the District's continued leadership and expertise in the resiliency field.

With the understanding that this plan may be used across the state of Florida as a model for other Water Management Districts, Audubon Florida supports including additional considerations to further strengthen this plan. Those elements are included below and in more detail in the attached addendum for staff consideration:

1) **Nature-based solutions** -- We recommend that the District more closely integrate nature-based solutions in each of the priority projects and evaluate hybrid approaches that combine both gray and green infrastructure.
2) **Social Vulnerability** -- We encourage the District to consider implementing a social vulnerability index to more comprehensively evaluate flood impacts to at-risk communities, including in-land communities, throughout the South Florida footprint.
3) **Flood risk and resiliency** – We recommend including an additional focus in this Plan on storing water, rather than focusing on drainage alone, to simultaneously ameliorate floods and droughts.
4) **Saltwater Intrusion** -- We recommend that the District eliminate the agricultural drawdown practice in Miami Dade County as part of this plan.

We are encouraged to see the District undertaking resiliency planning and with additional considerations, we feel the Plan will be well-positioned to inform agency decision-making, expedite project retrofits, and achieve resiliency goals across the South Florida region.

Thank you for your time and consideration.

Sincerely,

Kelly Cox, Esq.
Director of Everglades Policy | Audubon Florida
Kelly.cox@audubon.org
(561) 573-8197

Addendum

Nature-Based Solutions

We applaud the District's commitment to implement nature-based solutions under this Sea Level Rise and Flood Resiliency Plan. Nature-based solutions such as mangroves, wetlands, and living shorelines can help protect coastal communities, wildlife, and the economy from climate change and extreme weather. Research tells us one acre of wetlands can hold up to 1.5 million gallons of floodwater and every mile of wetland area can reduce storm surges by 1-2 feet.

In places like Miami Dade County, these benefits are critical. The newly formed Biscayne Bay Commission convened for the first time this month and highlighted the importance of rapid action and investment to improve water quality for Biscayne Bay. With a number of the Resiliency Plan's projects occurring in Miami Dade County's interior waterways with direct connection to Biscayne Bay, it seems prudent to implement nature-based solutions to help clean and treat the water.

Natural systems also sequester carbon and can be more cost-effective to maintain. These solutions provide benefits that are often not quantified in economic feasibility studies, but these benefits do contribute to overall affordability in the long term.

This Plan commits to invest in innovative green and nature-based solutions, but only a handful of the resiliency projects in the plan contemplate nature-based measures. The Everglades Mangrove Mitigation Assessment is considered as a pilot study in the Plan which could have excellent outcomes. However, we do not need a study to implement common nature-based measures at several of the highlighted projects because we know these approaches are effective already. Many of the projects selected in this Plan can be made more resilient with native plants or wetland features.

We recommend that the District more closely integrate nature-based solutions in each of the priority projects, evaluating hybrid approaches that combine both gray and green infrastructure.

Social Vulnerability

This Plan intends to implement projects that benefit the largest population in a cost-efficient manner, which is a laudable goal. However, by including cost-efficiency as a guiding metric for projects, some projects in low-lying communities may be bypassed. We recommend including a more robust analysis that considers how home elevation, infrastructure hardening, floodproofing, and drought-proofing of critical infrastructure may exacerbate existing inequalities, protecting some residents while leaving others behind.

Notably, the Plan also highlights priority areas such as the Upper Kissimmee Basin for projects. However, nearly all of the projects take place in Miami Dade County with no mention of the Upper Kissimmee Valley. Miami Dade County is the most populated county within the District's jurisdiction and deserves focus, but the Orlando metropolitan area is also heavily populated and has immediate flooding and water supply challenges. Resolving water challenges in the upper part of the watershed incrementally benefits downstream systems.

We encourage the District to consider implementing a social vulnerability index to more comprehensively evaluate flood impacts to at-risk communities, including in-land communities, throughout the South Florida footprint.

Flood Risk & Resiliency

The Plan articulates many appropriate goals, but its content is dominated by addressing issues with coastal structures. The District's Resiliency Plan does a great job of addressing adaptation measures to minimize flood risk. The Plan considers flood mitigation measures, or approaches that address the causes of flooding such as the "self-preservation modes." These measures could be made more robust. Often during storms, human environments drain into natural systems, adding stress to already-stressed environments. The self-preservation mode should consider this to avoid exacerbating natural system impacts.

The Plan largely addresses inland flows from rainfall entering waterways, but should also more acutely account for storm surge flooding and King Tide events which can disable structures in the short term and contribute to community abandonment in the long term. It should also consider differences in forecasting based on wet and dry seasons, accounting for drought-proofing measures where relevant.

Importantly, the Plan focuses on flood mitigation, however, flood mitigation is often exacerbated by rising sea levels driven by anthropogenic climate change. The Southeast Florida Climate Compact's Regional Climate Action Plan contains a number of both adaptation and mitigation measures that could help bolster the District's Resiliency Plan.

Climate change not only promises increased excess rain events but also increased drought events. Flood control that creates more drainage exacerbates drought severity. We recommend including an additional focus in this Plan on storing water, rather than drainage alone, to simultaneously ameliorate floods and droughts.

While this is a Flood and SLR Resiliency Plan, research and experience make it clear that unbalanced flood control infrastructure operation can significantly impact dry season water levels and be especially harmful during droughts. Audubon recommends dry season modeling and optimizing operations to benefit dry season water levels. Resiliency should include lower Levels of Service for flood protection that tolerate yard and smaller street flooding but protect homes and businesses. It is also important to use District resiliency modeling and data to proactively help local governments make better land-use plans which move or keep development out of flood-prone areas.

Saltwater Intrusion

The District's Plan contemplates several current and future groundwater impacts, including saltwater intrusion. However, the District should also reconsider the practice of the agricultural drawdown in Miami Dade County as a resiliency measure.

Lowering groundwater levels when sea levels are at their seasonal maximum and the end of the rainy season increases saltwater intrusion and compromises aquifer integrity. The adverse effects of this practice on groundwater integrity will be further seen as sea levels continue to rise and saltwater lens pressure from Biscayne Bay increases. What's more, the agricultural drawdown reduces the region's protection against saltwater intrusion and threatens the Biscayne Aquifer, the primary source of drinking water for Miami Dade and Monroe County. Releasing water also increases vulnerability to drought impacts, which need more consideration in this Plan. We recommend the District eliminate this practice as a part of the Resilience Plan.

Evaluating Success

We encourage the District to define what success means under this Plan to create a framework upon which other agencies or governments can rely as a model. We also encourage the District to implement measurable standards and timelines as periodic basin review parameters are further developed.

300 ENGINEERING GROUP, P.A.
Efficient. Responsive. Innovative.

January 14th, 2022
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

Re: Comments to District Sea Level Rise and Flood Resilience Plan

Dear SFWMD colleagues:

Thanks for the opportunity to review the above-referenced document. We would like to first commend the District for addressing critical issues for South Florida's water resources as our region grapples with sea level rise and adaptation to flooding conditions brought by climate change, changes in land use and demographics of this very dynamic part of the state, the country and the world.

We would like to provide the following comments to the current version of the document (v2.2) in an effort to improve what is already an impressive and well thought out rationale for addressing issues of sea level rise and flood protection in South Florida.

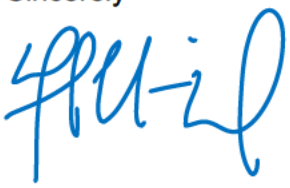
(1) In Chapter 1 (pp. 11-13): We think that some explanation of Figure 2 and Figure 3 is needed to improve understanding of the graphics included in these figures. It is not trivial to follow what the flood protection level of service concept implies, as well as what is conveyed in the comparison of existing vs future conditions in each figure. We suggest adding a short paragraph (a few sentences) to explain these figures in the report narrative that precedes them.
(2) In Chapter 1 (pp. 16): There is mention of nature-based solutions (NBS), but the narrative that is included in that paragraph does not really mention anything specific being done (or proposed to being done) using NBS. The narrative moves quickly to an example of FPLOS in the C-7 basin that is not focused at all on NBS. We believe it would be useful to expand a bit on the concept/use of NBS through a specific example, even if it is just at a planning stage (better yet if there is an example already being implemented).
(3) Chapter 4 (pp. 24-27): The sequence of Figures 12-15 has no explanation in the document and are not referred to at all in the narrative. It is hard to follow the results themselves, as well as how they fit into this part of the document. We would suggest adding some narrative (as suggested with Figures 2-3) preceding these figures so that it is clear what results they are conveying and how these results are relevant.
(4) Chapter 5 (pp. 29 and onwards): this very informative chapter shows summaries of rationale and cost estimates for a wide variety of projects that the District is tackling under this work. It would be useful to add a sentence at the end of pp.28 that indicates to the reader the transition to the list of projects. As the text stands, this transition is somewhat abrupt.
(5) Chapter 6 (pp. 58): The paragraph on basin connectivity is extremely important when it comes to resiliency. We feel that a somewhat expanded version of this paragraph, perhaps amended with specific examples of basins that could use improved connectivity, would improve this point significantly. The high compartmentalization of basins in South Florida merits this topic of connectivity to be rated as a priority strategy.

Email: email@300engineering.com | PH : 305-602-4602 | Fax: (305) 675-2373 |
2222 Ponce de Leon Blvd Suite 300 | Coral Gables, Florida 33134 | www.300engineering.com

(6) Chapter 7 (pp. 76): Are the resiliency metrics referred to documented in another report? If so, it would be useful to add a reference to that document. If not, it could be better clarified that this is work in progress.
(7) Other minor comments are a needed section of cited references, as there are numerous citations throughout the document. Also, some minor typos are included in the attached marked up version of the document.

We trust that these comments will be helpful in producing a revised version of the document and thank you again for the opportunity to review and provide this input.

Sincerely



Fernando Miralles-Wilhelm, PE, PhD, PMP, BCEE, D. WRE

Technical Advisor/Environmental Engineering Lead

300 Engineering Group, P.A.

Attachments:

South Florida Water Management District Sea Level Rise and Flood Resiliency Plan Comments

January 28, 2022

Submitted via electronic mail

Carolina Maran, Ph.D., P.E.
District Resiliency Officer
South Florida Water Management District
resiliency@sfwmd.gov

Re: Comments on SFWMD Draft Sea Level Rise and Flood Resiliency Plan

Dear Dr. Maran,

On behalf of the Center for Biological Diversity and our south Florida members, I submit the following comments on the South Florida Water Management District's (District) Draft Sea Level Rise and Flood Resiliency Plan (Draft Plan). Upon reviewing the Draft Plan, we provide general comments urging the District to prioritize the implementation of nature-based coastal resiliency measures in addition to researching such measures. We also encourage the District to comprehensively analyze how activities set forth in the Draft Plan, together with the effects of sea level rise, storm surge, and flooding, will affect imperiled species and rare ecosystems throughout the District. Undertaking these recommendations will ensure that the Sea Level Rise and Flood Resiliency Plan not only protects human communities in the District but also contributes to a resilient future for Florida's natural places and native species.

Natural and Nature-based Measures

We also urge the District to include and prioritize strategies that that implement more natural and nature-based coastal resiliency measures like coral reef restoration, living shorelines, wetland protection and enhancement, and mangrove establishment and restoration. Although the Draft Plan establishes a general goal to "maximize the integration of green infrastructure and nature-based solutions,"[1] and commits to "seeking 'green' or nature-based solutions," the only specific nature-based proposals in the Plan are limited to research: the Everglades Mangrove Migration Assessment (EMMA) Pilot Study and the Green Infrastructure Mitigation Strategies research project.[2] While we support scientific research in the field of nature-based coastal resiliency measures, we also emphasize the importance of implementing such measures. At this time the plan does not propose the actual implementation of any nature-based strategies. Accordingly, we encourage the District to begin implementing nature-based measures *in addition to* the research projects it has committed to.

In its accounting of costs, the District should also consider the opportunity costs of opting to improve or establish gray infrastructure instead of implementing natural and nature-based resiliency measures, including considering the benefits of potential nature-based measures that

[1] Draft Plan at 3, 8, 9, 16.
[2] *Id.* at 63–68, 81.

would be temporarily or permanently precluded by establishing or improving gray infrastructure. The District should also consider the cost of any damage or harm that establishing or improving gray infrastructure may cause to the environmental quality, habitats, and species.

Endangered Species and Habitat Impacts

The District should also include in its Sea Level Rise and Flood Resiliency Plan substantive analyses of the impacts individual resiliency actions will have on imperiled species and the habitats they need to survive. Although many areas of south Florida are significantly developed, the District is home to many rare and imperiled species, including federally protected species like the Florida panther, eastern indigo snake, Florida bonneted bat, Miami tiger beetle, and loggerhead turtle, and state protected species like the American oystercatcher, gopher tortoise, rim rock crowned snake, to name a few. The District also contains many rare and crucial habitats, including some of the last remaining fragments of the globally imperiled pine rockland ecosystem.[3]

Proposals in the Draft Plan could cause or contribute to threats to imperiled species. For example, coastal species face significant risks from coastal squeeze that occurs when habitat is pressed between rising sea levels and coastal development that prevents landward movement.[4] Human responses to sea-level rise and coastal flooding, including coastal armoring, infrastructure hardening, stormwater management, and landward migration, can pose significant risks to the ability of species threatened by sea-level rise to move landward to other potentially suitable habitats were even available.[5] With significant projected human population growth and development in Florida,[6] and increased sea-level-rise and flood response measures, coastal squeeze is a significant threat to species that warrants the District's analysis and thoughtful recommendations.

While we urge the District to consider the impacts of the activities set forth in the Draft Plan on imperiled species on its own initiative, we also note that the District may be subject to state or federal laws requiring such an analysis. For instance, the federal Endangered Species Act requires any activities that are authorized, funded, or carried out by federal agencies to undergo a comprehensive consultation process between the federal agency and the U.S. Fish and Wildlife

[3] *See, e.g.*, Possley, J.E., J.M. Maschinski, J. Maguire & C. Guerra. 2014. Vegetation Monitoring to Guide Management Decisions in Miami's Urban Pine Rockland Preserves. *Nat. Areas J.* 34, 154–165; Diamond, J.M. & J.T. Heinen. 2016. Conserving rare plants in locally-protected urban forest fragments: A case study from Miami-Dade County, Florida. *Urban Forestry & Urban Greening* 20, 1–11.

[4] Scavia, D. et al. 2002. Climate change impacts on U.S. coastal and marine ecosystems. *Estuaries*, 25: 149–164; Fitzgerald, D.M., M.S. Fenster, B.A. Argow, and I.V. Buynevich. 2008. Coastal impacts due to sea level rise. *Annual Review of Earth and Planetary Science*, 36: 601–647, at 601–634; Defeo, O., A. McLachlan, D.S. Schoeman, T.A. Schlacher, J. Dugan, A. Jones, M. Lastra, and F. Scapini. 2009. Threats to sandy beach ecosystems: a review. *Estuarine, Coastal and Shelf Science*, 81: 1-12, at 6–7; LeDee, O.E. K.C. Nelson, and F. Cuthbert. 2010. The challenge of threatened and endangered species management in coastal areas. *Coastal Management*, 38(4): 337–353; Menon, S., J. Soberon, X. Li, and A.T. Peterson. 2010. Preliminary global assessment of terrestrial biodiversity consequences of sea level rise mediated by climate change. *Biodiversity and Conservation*, 19(6): 1599–1609; Noss, R. 2011. Between the devil and the deep blue sea: Florida's unenviable position with respect to sea level rise. *Climate Change*, 107(1): 1–16.

[5] Defeo et al. (2009) at 1–9.

[6] Carr, M.H. and P.D. Zwick. 2016. Florida 2070 mapping Florida's future – alternative patterns of development in 2070. GeoPlan Center at the University of Florida, Gainesville, Florida.

Service to ensure the action will not jeopardize any species' existence or adversely modify their critical habitat.[7] For actions without a federal nexus, a habitat conservation plan and incidental take permit may be required where an action is likely to take listed species.[8]

South Florida hosts "vast natural resources supporting threatened and endangered species as well as providing a wealth of ecosystem goods and services."[9] These species and natural resources face the same or worse threats from climate change, sea level rise, and coastal flooding,[10] and will only be put at further risk if they are not prioritized in comprehensive planning. Therefore, in addition to assessing direct effects to species and habitat from sea level rise and climate change, the District should consider how sea level rise and climate change will affect protected species and assess how its own recommendations will affect species and habitat and provide alternatives that avoid, minimize, or mitigate those effects.

Conclusion

Thank you for the opportunity to provide comments on the Draft Plan. As the District prepares the 2022 Sea Level Rise and Flood Resiliency Plan, we urge you to include plans to implement more natural and nature-based measures and take species and habitat considerations. We also encourage you to consider how proposals in the plan will affect rare and imperiled species and their habitats in south Florida. This comprehensive approach to resiliency planning will help secure a future not only for human populations in south Florida, but also for many native species and habitats found nowhere else on Earth. If you have any questions or would like copies of the literature cited, please contact me at (727) 755-6950 or ebennett@biologicaldiversity.org.

Sincerely,

Elise Pautler Bennett
Senior Attorney
Center for Biological Diversity
P.O. Box 2155
St. Petersburg, Florida 33703
(727) 755-6950
ebennett@biologicaldiversity.org

[7] 16 U.S.C. § 1536.
[8] *Id.* §§ 1539, 1540
[9] U.S. Army Corps of Eng'rs, South Atlantic Coastal Study (SACS), Florida Appendix, Final Draft Report, 3-1 October 2021, *available at* https://www.sad.usace.army mil/Portals/60/siteimages/SACS/FinalDraft_SACS_FL_Appendix.pdf?ver=4AVP3YAM91osillJaXHIuQ%3d%3d.
[10] *See, e.g.*, *see also* Ross, M.S., J.J. O'Brien & L. de Silveira Lobo Sternberg. 1994. Sea-Level Rise and the Reduction in Pine Forests in the Florida Keys. *Ecological Applications* 4(1): 144–156.

January 24, 2022

South Florida Water Management District
3301 Gun Club Road
West Palm Beach
FL 33406

Subject: Comments on the draft Sea Level Rise and Flood Resiliency Plan

Dear Resiliency Plan Team,

In response to the call by South Florida Water Management District seeking public input on the draft Sea Level Rise and Flood Resiliency Plan (Version 2.2, September 2021), **this document provides my comments on the Green Infrastructure (GI) related contents of the draft plan.** The opinions are based on my personal research experience and do not necessarily represent the views of Florida International University or other sponsors of my research. I appreciate the awareness and vison presented by the project team in proposing the integration of GI and Nature-based Solutions (NbS) with hard (gray) infrastructure as a major action for flood and sea level rise (SLR) resiliency and climate change adaptation in south Florida. The district resiliency plan defines GI and NbS as "features such as living shorelines, wetlands, artificial reefs, other urban green infrastructure features and preservation and restoration of existing natural features" (page 9). The plan should be commended because it does not limit GI to practices focusing on natural coastlines only. However, clarification is needed on what "other urban GI features" mean in the plan and whether they encompass urban stormwater GI such as bioretention/bioinfiltration systems, permeable pavements, and green roofs, practices that are being used by urban communities for "green streets" and "green buildings".

While most of the recent coastal resilience studies using natural and nature-based features have focused on natural coastlines rather than built coastal areas, multiple lines of defense in both coastlines and built upland areas (coastal cities) are needed to achieve coastal resilience. Alleviating flood volume and pollution loads by adopting stormwater GI practices in built upland areas seems promising because of the sustainable nature of GI that provides social and ecological benefits (e.g., heat island effect and greenhouse gas emission reduction, air quality enhancement, and public health improvement) in addition to flood and pollution regulation services, facilitating social equity and environmental justice especially in underrepresented communities such as those in south Florida. However, there is a knowledge gap about the performance of stormwater GI in urban coastal areas, including south Florida, that are subject to the integrated effects of SLR (e.g., groundwater level rise) and extreme rainfall events.

The international Stormwater BMP Database (https://www.bmpdatabase.org), a publicly accessible repository for stormwater best management practices (i.e., GI) performance data, contains monitoring data for more than 770 sites in the United States and some other countries but includes only one site in south Florida. There are practices such as exfiltration trenches that have been widely used for stormwater control in south Florida (e.g., more than 1.6 million linear feet of exfiltration trenches in Miami-Dade County) but their performance has rarely been monitored quantitatively. Also, there are concerns about the contribution of these exfiltration trenches to groundwater pollution, emphasizing the need to field monitoring of these systems. Moreover, recent national surveys show that there is no observed data on GI performance in urban areas with similar climate and conditions to south Florida, restating the need to collecting observed data about GI performance in the region. Quantifying urban GI performance through field monitoring is necessary to optimize GI design and understanding flood control potential of GI, fate and removal mechanisms of land-based pollution in urban runoff through GI that affect the health of Biscayne Bay and other receiving waters, and socio-ecological services of GI. Obtaining such observed data is a prerequisite for optimal planning, design, and implementation of GI toward resiliency goals in urban areas of south Florida and is also recommended by other national and regional entities including NOAA and the Biscayne Bay Task Force.

To establish a solid foundation for urban GI research toward resiliency and sustainability goals in south Florida, I have recently performed a study (funded by Florida Sea Grant) to identify and prioritize GI research needs in our region. The study developed long- and short-lists of GI research needs in the Greater Miami Area based on surveying multiple entities related to stormwater GI in the region and prioritized the needs based on an array of technical, social, and environmental criteria. As a results of this study, developing GI demonstration sites and field monitoring of different GI types were found as critical needs among other research topics. Such studies can inform policy decisions about the use of urban GIs in concert with gray infrastructure in coastal resilience plans and would be a prerequisite for any action plan and technical project regarding urban GIs. Proposed projects such as “Green Infrastructure Flood Mitigation Strategies - Associating Water Quality Benefits in the Little River Watershed” (page 81) would be useful and effective, only if they build on basic knowledge about the performance of urban GI systems in the region.

In summary:

1. Implementing urban stormwater green infrastructure (practices such as bioretention/ bioinfiltration systems, permeable pavements, and green roofs that are being used for green streets and green buildings) in built upland areas (coastal cities) is as important as using green infrastructure for protecting coastlines.
2. Quantitative understating of the performance of urban GI systems is a prerequisite for the optimal planning, design, and implementation of these systems in urban areas of south

Florida but there is a knowledge gap in this regard. This knowledge gap can be addresses by developing demonstration and field monitoring sites for different urban GI types.

3. Any action plan and technical project regarding GIs in urban areas of south Florida should build on the foundational understanding of GI performance in the region.

Should you have any questions or need additional information, please do not hesitate to contact me. I am happy to provide further insight about the needs and priorities regarding urban GI in our region and discuss the findings of my research projects.

Sincerely,

Ali Ebrahimian, Ph.D.
Assistant Professor
Department of Civil and Environmental Engineering
Florida International University
10555 W. Flagler Street, EC 3740
Miami, FL 33174
E-mail: alebrahi@fiu.edu
Phone: 305-348-4883
Cell: 612-481-4685

FLVCS Input on Draft Sea Level Rise and Flood Resiliency Plan

January 27, 2022

To: Resiliency <resiliency@sfwmd.gov>
Subject: Florida Veterans for Common Sense Input on Draft Sea Level Rise and Flood Resiliency Plan

Florida Veterans for Common Sense (FLVCS) appreciates the opportunity to comment on your Draft Sea Level Rise and Flood Resiliency Plan. We also are grateful for your commitment to addressing the impacts of climate change, including rising sea-levels, and changing rainfall and flood patterns. FLVCS believes that climate change is a threat to our national security, as well as the economic and humanitarian well-being of all Floridians.

FLVCS is deeply committed to reversing the causes of climate change, which seems to be a different approach than the one proposed in your plan. It seems to us that you are wholly concerned with treating the symptoms, rather than the causes of the problem.

There are two strategies for dealing with the climate change crisis: *Adaptation* and *Mitigation*. Examples of adaptation are building dikes and elevating buildings. These are the kinds of action the Sarasota City Manager has in mind for protecting the 220 Sarasota assets identified as vulnerable to seal level rise. SFWMD's plans to beef up flood control infrastructure is another example of adaptation, though you refer to it as a resiliency measure.

Suggestions for SFMWD's adaptation efforts:

1. We can reduce the impact of more flashy rain events, by reducing impervious paving on SFWMD's properties to increase infiltration/groundwater recharge. And a requirement for pervious paving could be included in SFWMD permits. You can publicize your work to serve as a model to the communities and stakeholders so they can follow your example.
2. As sea level rises, saltwater intrudes further inland. South Florida uses the Biscayne Aquifer which has no aquiclude and the aquifer is right at land surface in many instances. So, maintaining or increasing the freshwater head to minimize saltwater intrusion seems very important. The canal systems built and operated by SFWMD drain much of the freshwater out to tidewater which is probably exacerbating the intrusion problem. While avoiding flooding is important and will become even more difficult as sea-level comes up and rainfall becomes more intense, it will also become more critical to avoid saltwater intrusion as much as possible. While we don't know the best engineering solutions to balance these competing crucial aspects of adapting to climate change impacts, we recognize that it needs to be a part of SFWMD deliberations. Since soils store more carbon than above-ground vegetation, and wetland soils store more than terrestrial systems, it is even more critical that you maintain hydrologic systems that preserve or enhance wetland systems.

A*daptation* gets a lot of attention, especially in Florida where the concept of resiliency is popular with public officials who shy away from dealing with the cause of the problem, but still want to get credit for doing something about climate change. *Adaptation* is also popular because there is money to be made. *National Geographic* explains how some are profiting on the threat of rising seas. A proposal for floating islands in the Miami area is an example. "We will dredge to prop everything up," one Miami land use

attorney says. "The watchwords are protect, accommodate, and retreat, which sound a lot like a civil engineer's version of the stages of grief." While adaptation may be profitable for contractors, it is costly for consumers. Elevating a $300,000 home can cost well over $100,000.

Mitigation has to do with slowing and/or reversing global warming, and therefore reducing the likelihood of severe weather events and catastrophic sea level rise. *Mitigation* actions attempt to draw down the excess greenhouse gases in the atmosphere, which are the cause of global warming. Drawdown has two components: (1) eliminating the cause of the problem by reducing/eliminating emissions of greenhouse gases, and (2) increasing photosynthesis, the process by which plants remove carbon dioxide (the principal greenhouse gas) from the atmosphere and store it in the soil and in their biomass.

Unlike *adaptation*, which is costly, *mitigation* can provide a return on investment - if done right. For example, a family investing in a solar water heater can reduce a household's emissions from electrical energy by as much as 30%. That investment can pay a handsome return of 25-30%. On a larger scale, the transition to zero emission energy will serve as an economic boost. Solar jobs in the United States have increased at least 20 percent per year for the past four years. The solar industry added $84 billion to the US GDP in 2016. A 2016 Goldman Sachs research paper says wind provides the lowest cost source of electricity (2.9 cents/kWh compared to 3.8 cents for Fracked natural gas). Less carbon pollution saves lives as well as money. Stanford research estimates that converting to zero emission energy will eliminate about 65,000 premature deaths caused by air pollution in the United States each year and save about $2,600/person/year in health costs.

John Darovec, a Bradenton biologist on the Environmental Working Group at FLVCS, and group leader with Citizens' Climate Lobby, says *adaptation* is trying to manage what you cannot avoid, and *mitigation* is trying to avoid what you cannot manage. Given the cost of the former and the benefits of the latter, it makes plenty of sense to focus on *mitigation*. Michael Oppenheimer, one of the co-authors of the UN report on climate change says, "Everyone agrees that if we don't slow the warming down, our prospects for *adaptation* are not good**."**

Writing in *Forbes Magazine*, Jeffery Ravens explains that focusing exclusively on adaptation, is short-sighted. The climate will continue changing and the long-term impact of climate change will be too severe to manage by simply adapting. Entities that embrace "adaptive mitigation" (those that reduce CO_2 emissions while also helping their residents adapt to a changing climate) are better positioned to remain livable in the years ahead.

Clearly, we must adapt and mitigate, and SFWMD can help.

The main shortcoming of the SFWMD draft plan is that it only deals with adaptation/resiliency and pays no mind to mitigation. Without mitigation, rising sea-levels, increasingly violent rainfall and flood patterns will overcome adaptation measures. Plus, we will see increases in algae blooms. Algae thrives in higher temperatures and with more precipitation. We therefore **recommend that the draft plan be upgraded to include strategies to mitigate climate change with specific plans to (1) eliminate the cause of the problem by reducing/eliminating emissions of greenhouse gases, and (2) removing carbon from the atmosphere by reforestation and soil management.**

Here are some **specific suggestions** for mitigation strategies in your plan.

Reduce/eliminate emissions

- Install a solar photovoltaic system on the roof of SFWMD's headquarters at 3301 Gun Club Road in West Palm Beach to provide power for your operations there.
- Brainstorm with stakeholders (state, tribal, private, and local communities especially taking into consideration the needs of socially vulnerable communities) for creation of solar farms on SFWMD's nearly 1.5 million acres of land within your 16-county jurisdiction. In addition to replacing facilities that emit heat trapping gases, you could be saving residents money (solar, including battery storage is the most competitive form of electricity), and much healthier. You will be saving lives and money.
- Replace SFWMD gas and diesel vehicles with electric vehicles, and charge them with solar power.
- Encourage others to take steps to electrify everything and generate the electricity by zero emission sources of energy. This strategy is key to drawdown global warming on a local, regional, state, national and global level. SFWMD's influence and example could go a long way toward moving others to mitigate.

Remove carbon from the atmosphere by reforestation and soil management

- Develop specific strategies for conserving and expanding mangrove forests in the SFWMD jurisdiction. Mangroves can sequester as much as 10-times the carbon as the same area of tropical forest.
- Likewise protect and expand habitat for other "Blue Carbon." "Blue carbon" is a term for the carbon that is sequestered and stored naturally by marine and coastal wetland ecosystems — mangroves, seagrasses, and tidal marshes. These coastal wetlands are gaining more and more recognition as important and efficient carbon sinks, based on their ability to sequester large amounts of carbon not just in the plants themselves, but also in their soils, where it can remain for hundreds to thousands of years.
- Plant trees anywhere and everywhere possible. This is both adaptation and mitigation. Trees intercept rainfall thereby reducing runoff (adaptation to increased rainfall) and they also sequester carbon thereby mitigating climate change. Brainstorm with stakeholders for reforestation and/or afforestation (planting forests where none existed) opportunities. We should not overlook the benefits of, and need for, urban forest. FLVCS has had good experiences with microforests that use the Miyawaki method to create urban forests that quickly develop the characteristics of a mature native forest. State, tribal, private, and local communities (including socially vulnerable communities) should be part of the decision-process.

Remind stakeholders of the need for mitigation

- Florida folks are aware of the economic and humanitarian threats from sea level rise, rising temperatures, and more frequent and severe storm events. They need to be informed that rising temperatures and more precipitation also cause more algae blooms. Most important, they need to be informed of the need for mitigation because Florida public officials do not explain the cause of global warming (human activity – heat trapping gas emission, deforestation, and poor soil management). In Florida we are focused on adaptation/resiliency, which is a formula or disaster. We are trying to manage what we cannot avoid, which puts us at

risk of not being able to manage the unavoidable. It's time to move from treating the symptoms only and treating the causes of the problem as well – with a focus on mitigation.

These concepts are taken from the FLVCS climate change report, which is available by clicking here: *Urgency and Action: Drawdown to Reverse Global Warming.* The main purpose of this report is to offer ideas for specific action at the individual, community and government levels. Perhaps these ideas may be useful for SFWMD's effort to create mitigation strategies.

Thank you for your consideration.

Sincerely,

Gene Jones
President
Florida Veterans for Common Sense
Email: flveterans@aol.com

Friends of Biscayne Bay

1277 NE 79th St,

Miami, FL 33138-4206

January 28, 2021

South Florida Water Management District
Ms. Carolina Maran, P.E., Ph.D.
Chief of District Resiliency
3301 Gun Club Road
West Palm Beach, FL 33406
cmaran@sfwmd.gov

South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406
resiliency@sfwmd.gov

RE: South Florida Water Management District Draft Sea Level Rise and Flood Resiliency Plan

Dear Carolina Maran,

We comment on behalf of the Friends of Biscayne Bay (FOBB) regarding the South Florida Water Management District's Sea Level Rise and Flood Resiliency Plan required by Senate Bill 1954. This plan recognizes Florida's vulnerability to sea level rise and flooding which is a step in the right direction but we feel there are potentially unintended consequences that will likely negatively impact Biscayne Bay and it's Aquatic Preserves which we are charged to protect.

Biscayne Bay is currently at a tipping point, facing threats from the impacts of climate change and human activities. Biscayne Bay was designated as a state aquatic preserve in 1974, part of which now forms Biscayne National Park. Biscayne Bay is beloved by residents and tourists for its beautiful clear water, ecological richness, and its recreational boating and fishing opportunities. The variety of ecosystems in Biscayne Bay are vital habitats to countless plant and

animal species that provide invaluable ecosystem services and support Southeast Florida's tourism economy. In fact, a recent study valued Biscayne Bay at over $3.3 billion in value to the community.[1] **Because of Biscayne Bay's environmental and economic importance to South Florida, the South Florida Water Management District (SFWMD) must evaluate the potential impacts on Biscayne Bay for all projects in the Sea Level Rise and Flood Resiliency Plan.**

FOBB was formed to educate and increase awareness in our communities about the importance of the Bay and to protect the natural resources of the Aquatic Preserve system. Our organization fights to stop the collapse of Biscayne Bay from threats like overdevelopment, nutrient pollution, and the loss of necessary freshwater inflow. We encourage the SFWMD's push for greater resiliency against sea level rise, flooding, and storm surge. However, these projects cannot go forward if they threaten the long-term health of Biscayne Bay. **Resiliency projects should be devised so that they increase resiliency in the region while also supporting and restoring Biscayne Bay.**

Summary

This plan will likely worsen the already dire conditions in Biscayne Bay. We are concerned with the proposed curtain wall cutting off vital flow of fresh groundwater into Biscayne Bay. Groundwater is the most biologically available and mixes the best to provide mesohaline conditions which is the Goal of the BBSEER Everglades Restoration project. An increase in surface water will not necessarily mix as it enters the bay unless it first can percolate into the ground. That will also help provide a filter for the water before it enters the bay. Salinity caused by this plan threatens continued seagrass loss which can contribute to low DO conditions which in turn during summer months have caused fish kills. We question why the curtain wall is in a resiliency plan when it is likely to make Miami Dade more vulnerable to Salt Water Intrusion. Instead this plan needs to address freshwater decisions that would increase the ecological lift of

[1] Armistead, C., Jensen, C., Madsen, T., Kocian, M. 2019. Restoring Biscayne Bay and the Economic Value of Rehydrating Coastal Wetlands. Earth Economics, Tacoma, WA.

BBSEER. Some ideas would be to come out ahead of the delayed timeline of BBSEER with plans to alter the seasonal agricultural drawdown and to better address operations at the Turkey Point Nuclear Plant include the operations of the Mitigation Bank which could be amended to better hold water in the model lands to allow for groundwater recharge. Another idea would be to move ahead with plans to create an FEB in the Bird Drive Basin to ensure recharge to groundwater to offset the impacts to the curtain wall ahead of BBSEER and the Southern Study. Additionally, land in the 102/103 basin could be purchased early to protect these important areas from the many development threats they will face prior to the project construction. Without concrete detail and actions of how impacts will be mitigated to we cannot be supportive of the curtain wall for example.

A healthy Biscayne Bay increases South Florida's resilience to flooding, storm surge, and sea level rise. Coastal mangrove habitats reduce flooding on our shorelines. Maintaining adequate freshwater flow into the Bay reduces saltwater intrusion into the Biscayne Aquifer, which is Miami's main source of drinking water. Beyond that, healthy marine and wetland ecosystems in Biscayne Bay sequester carbon, improving resilience by acting as a buffer against sea level rise.[2] The SFWMD should pursue solutions that incorporate Biscayne Bay restoration into improving resiliency.

Gray Infrastructure

We strongly support the infrastructure upgrades in this plan. The upgrades and retrofits outlined in this plan will improve flood control and resilience for the areas surrounding Biscayne Bay. These infrastructure upgrades were clearly selected with resiliency in mind. We appreciate that many of these infrastructure projects targeted reductions in flooding and saltwater intrusion. We urge the SFWMD to consider the health of Biscayne Bay when selecting canals for infrastructure improvements. Specifically, the SFWMD should prioritize infrastructure upgrades that will allow

[2] Reynolds, P.L. (2018, April). *Seagrass and Seagrass Beds.* Smithsonian. https://ocean.si.edu/ocean-life/plants-algae/seagrassandseagrassbeds#:~:text=Seagrasses%20support%20commercial%20fisheries%20and,preceded%20by%20estuaries%20and%20wetlands).

for more regular input of freshwater into Biscayne Bay and less point source via surfacewater. Current operations, where freshwater is only discharged periodically from a series of surface canals, inhibits the mixing of freshwater and saltwater necessary for a healthy estuarine ecosystem in the Bay.

Green Infrastructure

It is encouraging to see this pilot study using green infrastructure in the form of mangroves to mitigate the impacts of sea level rise. If the Everglades Mangrove Mitigation Assessment (EMMA) plan proves to be successful from this pilot study with minimal impacts to water quality, we encourage the widespread implementation of the plan. To do that water quality must be monitored closely and analyzed to ensure EMMA can be done without impacting the bay. If it can be we propose the SFWMD consider purchasing land along Biscayne Bay now to restore and use this pilot project to expand along the coast. As a form of green infrastructure, mangroves sequester carbon and protect the built environment. Coastal, low-lying area may be valuable to the SFWMD's water management and resiliency plans going forward. We encourage the SFWMD to use resiliency funds to purchase additional land in order to incorporate mangroves as a region-wide flood resiliency strategy. This will have the added benefit of imporving ecological conditions in Biscayne Bay.

The green infrastructure from an expanded EMMA plan, will likely overall improve costal water quality on the nearshore area where seagrass has been degraded as well as habitat quality. This will have a secondary effect of seagrass restoration in Biscayne Bay and because BBSEER does not have Water Quality as a goal but rather only a constraint that would be a perfect synergy that would actually make the district more resilient. Improved Seagrass habitat in the Bay provides valuable ecosystem services, including flood protection through wave dampening.[3] Seagrass beds are an incredibly effective natural form of carbon sequestration, with one acre of seagrass

[3] Nordlund LM, Koch EW, Barbier EB, Creed JC (2016) Seagrass Ecosystem Services and Their Variability across Genera and Geographical Regions. PLoS ONE 11(10): e0163091. doi:10.1371/journal.pone.0163091

sequestering 740 pounds of carbon in a single year.[4] **Enhancing the ecosystem resistance of seagrass beds in Biscayne Bay will improve resiliency to flooding and storm surge.** It is detrimental to the State's ultimate goal of coastal resiliency to disregard the existing natural solutions offered by seagrass beds in Biscayne Bay.

Curtain Wall

In the past, the SFWMD has participated in initiatives to preserve Biscayne Bay by restoring natural freshwater flow into the bay. For example, the District is a sponsor of BBCW and BBSEER Projects, which recognizes that freshwater discharges have affected the health of mangrove and seagrass habitats in Biscayne Bay.[5] However, the current version of this curtain wall plan does not address the diminishing flow of fresh groundwater into the Bay. The flow of fresh groundwater is vital to maintain the ideal mesohaline estuarine conditions in Biscayne Bay's nearshore. Currently, groundwater only consists of 10% of freshwater input into Biscayne Bay in the wet season and 5% of input in the dry season.[6] Any further limitations of this flow would be contrary to restoration plans of current projects like BBSEER that seek to increase freshwater input into Biscayne Bay. Many times surface water is dumped into the bay and never mixes prolonging the persisting lagoonal conditions that impact fisheries and tourism in our area.

FOBB is opposed to the curtain wall project. **The curtain wall proposal would increase the salinity in Biscayne Bay by blocking freshwater recharge**. The rise in salinity has already affected the population of a number of species in the bay, including oyster (*Crassostrea*

[4] Reynolds, P.L. (2018, April). *Seagrass and Seagrass Beds.* Smithsonian. https://ocean.si.edu/ocean-life/plants-algae/seagrassandseagrassbeds#:~:text=Seagrasses%20support%20commercial%20fisheries%20and,preceded%20by%20estuaries%20and%20wetlands).
[5] US Army Corps of Engineers. (n.d.) *Biscayne Bay and Southeastern Everglades Ecosystem Restoration Project.* US Army Corps of Engineers Jacksonville District Website. https://www.saj.usace.army mil/BBSEER/
[6] Stalker, J. C., Price, R. M., & Swart, P. K. (2009). Determining spatial and temporal inputs of freshwater, including submarine groundwater discharge, to a subtropical estuary using geochemical tracers, Biscayne Bay, South Florida. Estuaries and coasts, 32(4), 694-708.

virginica) beds and red drum (*Sciaenops ocellatus)* species.[7] To prevent die-off of vulnerable species in Biscayne Bay, the District must evaluate the impact of the curtain wall on Biscayne Bay's salinity levels long-term. We understand the benefits of a curtain wall on the water supply of the Taylor Slough and Florida Bay, but FOBB is opposed to the curtain wall project unless it is made much clearer how the District intends to mitigate for the consequences of this project on Biscayne Bay.

Freshwater Management and Use

The SFWMD must release a detailed discussion of additional measures addressing the plume at Turkey Point. This plant is also operating at sea level and no mitigation to date has been required to offset decades of impacts to Biscayne Bay. The National Park Service and the District have noted a historical increase in salinity in Biscayne Bay.[8] **In their Ecological Targets for Western Biscayne National Park, the National Park Service stated that water flow decisions should be made specifically to promote the estuarine condition of the area that is necessary to ensure healthy ecosystems.**[9] In accordance with this, water flow management decisions should take into account Biscayne Bay's resultant salinity levels.

We suggest, just like with Unit 5, the use of reuse water instead of our regional supply or of the Floridan Aquifer. The more we can reduce our reliance on the use of groundwater and replace it with reuse water, the more sustainable we will be. We suggest mechanical draft cooling towers for all cooling activities at the plant, with the use of deep well injection and the placement of those mechanical draft towers well above sea level to increase the plant's resilience to sea level rise and flooding. If done properly, deep well injection will preserve the health of the Biscayne Aquifer and Biscayne Bay. This would allow restoration activities of over 6,000 acres on the

[7] Stabenau, E. (n.d.). *Freshwater Discharge and Protecting the Coastal Ecosystem in Biscayne National Park*. National Park Service South Florida Natural Resources Center. https://www.sfwmd.gov/sites/default/files/documents/water_challenges_facing_bisc_np.pdf
[8] Stabenau, E. (n.d.). *Freshwater Discharge and Protecting the Coastal Ecosystem in Biscayne National Park*. National Park Service South Florida Natural Resources Center. https://www.sfwmd.gov/sites/default/files/documents/water_challenges_facing_bisc_np.pdf
[9] National Park Service. (2006, April). *Ecological Targets for Western Biscayne National Park.* Florida International University Libraries. http://dpanther fiu.edu/sobek/FI11060807/00001

coast of Biscayne National Park to work in tandem with BBSEER to achieve shared resiliency goals.

In addition to this action must be taken now to alter the seasonal agricultural drawdown practices in Miami-Dade County. This sudden release of freshwater leaves Miami-Dade County more vulnerable to saltwater intrusion. The inconsistent freshwater flow as a result of the agricultural drawdown practice is detrimental to the health of Biscayne Bay. Biscayne Bay needs a gradual flow of freshwater to maintain ideal salinity levels throughout the year. The disruption of flow into the Bay causes an increase in salinity later in the growing season when the Bay would typically be receiving freshwater input. The agricultural drawdown exacerbates the problem of rising salinity in Biscayne Bay.

Climate Change and human activities have pushed the Biscayne Bay ecosystem to the brink of collapse. Biscayne Bay is valued at over 3.3 billion dollars because of its ecological biodiversity and economic benefits through tourism and fishing. Therefore, the SFWMD must seriously consider the long term impacts of any projects that will alter the water flow to Biscayne Bay, specifically the curtain wall proposal. The SFWMD should prioritize nature-based solutions like seagrass beds that promote resiliency and Biscayne Bay restoration efforts. An increase of fresh groundwater flow to Biscayne Bay will improve the health of the Bay's natural environments and improve South Florida's resiliency. On behalf of FOBB we thank you for taking time to review our comments, we would be glad to meet to discuss them with you in more detail as you finalize this plan.

Sincerely,

Bruce Matheson
President
Friends of Biscayne Bay

Laura Reynolds
Vice President
Friends of Biscayne Bay

Growing Climate Solutions
Path to Positive
Southwest Florida

January 11, 2022

Dr. Ana Carolina Maran
Chief Resilience Officer
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

Submitted via email to resiliency@sfwmd.gov

Dear Dr. Maran:

Growing Climate Solutions, a climate resiliency initiative of the Community Foundation of Collier County, Collaboratory, Conservancy of Southwest Florida and Florida Gulf Coast University—commends the South Florida Water Management District (SFWMD) for its commitment to addressing the impacts of climate change by creating the Sea Level Rise and Flood Resiliency Plan.

As the lead agency addressing water management and flood prevention in the region, the SFWMD controls an extensive, but aging infrastructure network critical to climate resilience in Florida. While the SFWMD has assessed climate impacts, including projected sea level rise, in their Flood Protection Level of Service (FPLOS) and their Capital Improvement Plans (CIP) in the past, Growing Climate Solutions applauds the District's effort to compile district-wide project information into an integrated plan that prioritizes projects and provides a roadmap for future investment and upgrades.

Upon reviewing the proposed plan, Growing Climate Solutions is pleased to see that the approach taken by the SFWMD includes both nature-based, green infrastructure and gray infrastructure approaches, accounts for water quality and ecosystem restoration objectives, and weighs community-wide benefit and issues of social equity. The District's plan also acknowledges the importance of incorporating public feedback at the project level and ensuring that the District's plans and projects are synergistic with planning efforts identified in local Comprehensive Plans, Climate Adaptation Plans and Local Hazard Mitigation Plans (LMS).

Pertaining to Growing Climate Solutions' service area in Southwest Florida, we note the following:

- There are portions of the Big Cypress Basin in Collier County that currently do not adequately meet the FPLOS, and the entire basin is at risk with two-feet of SLR, (see map on pg 13). However, this report does not identify any project priorities within this area. We urge the State and SFWMD to accelerate the funds and resources to do the Phase II FPLOS studies that would identify the projects and set the engineering

parameters for work in our region. Additionally, when the Phase II FPLOS studies are done, please include the full area impacted by the project, including areas downstream of the system.

- Regarding project implementation plans, it is critical to always keep in mind that the flood control system is a complex integrated system. As specific projects in the second and tertiary parts of the canal system are constructed and improve drainage, it is critical make corresponding improvements to primary canal system, to ensure it has sufficient capacity to manage discharges.
- Finally, we note that the Western Basin, located primarily in Hendry County is identified as a priority basin for FPLOS Phase I Assessment and ask that it be prioritized for analysis in the very next round of funding. As this area is not coastal, the impacts of climate change must focus on changing precipitation patterns and events. To support this, and other climate research in the state, we'd like to see funding for the Statewide Regional Climate Projection project. Likewise, we support the District's request for steady funding that would allow self-preservation mode projects of coastal structures and saltwater intrusion monitoring to advance.

Governor DeSantis' Resilient Florida Program has created opportunities to engage in substantive climate adaptation planning and project implementation work. Growing Climate Solutions, which works with more than 40 businesses, faith and civic organizations in our region, is supportive of SFWMD's Resiliency Vision and the comprehensive, science-based approach outlined in this Resilience Plan. We ask that as the SFWMD moves forward, it vigilantly monitor the needs of Southwest Florida stakeholders and actively engage with our local governments, civic leaders and climate advocates to ensure the region benefits from resources being deployed for climate resilience. Now that Southwest Florida's local governments are currently forming the Southwest Florida Resiliency Compact, our local jurisdictions are better positioned to partner with the SFWMD to advance resiliency assessments and engage in adaptation measures. Growing Climate Solutions, an organization devoted to elevating the public discourse on climate challenges and advancing climate solutions, stands ready to collaborate with the SFWMD should the opportunity to engage the public in climate resiliency planning arise.

Sincerely,

Ana Puszkin-Chevlin, Ph.D.
Regional Director
Growing Climate Solutions, Path to Positive SWFL

MIAMI WATERKEEPER®

January 28, 2022

Drew Bartlett
Executive Director
South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

Subject: Sea Level Rise and Flood Resiliency Plan comments

Dear Mr. Bartlett,

Miami Waterkeeper is pleased to present its comments to the South Florida Water Management District regarding its Sea Level Rise and Flood Resiliency Plan (Plan) dated September 2021. We understand that the goal of the Plan, developed pursuant to Senate Bill 1954/2021, is to increase community resiliency to flooding and sea level rise impacts throughout South Florida. The District indicates that this goal is to be achieved by updating and hardening water management infrastructure and implementing effective, resilient basin-wide solutions. Our comments are as follows:

Priority ranking: Due to the County's dense population that also encompasses socially vulnerable communities, we are pleased to see that priority ranking has been given to resiliency projects in urbanized Miami-Dade County.

Sustainable and clean energy: We appreciate that the District has acknowledged the need to incorporate sustainable and clean energy into projects, utilizing the most efficient designs available. Miami Waterkeeper suggests that running infrastructure on clean energy should be an imperative. It makes no sense to combat sea level rise while contributing to the problem.

Nature-Based Solutions: The District is a key stakeholder in the resilience strategy of the entire region. Miami Waterkeeper appreciates that the District has signaled it will incorporate nature-based solutions. We look forward to seeing successful outcomes associated with the Green Infrastructure Flood Mitigation Strategies project in the Little River Watershed planning project, as a start. We note that the majority of the Plan features hardening existing grey infrastructure.

Nature and Nature-based Features (NNBFs) provide additional benefits such as sequestering carbon, fostering biodiversity, encouraging recreation, reducing heat, reducing wave energy, providing habitat, and removing the excess nutrients that cause ecological crises in our estuaries. Therefore, green infrastructure may be more effective, provide additional benefits, and cost less over the life of a project. NNBFs may require less maintenance costs and actually increase in value over time, rather than decrease. Because of the multiple benefits from nature-based features, we strongly encourage the District to integrate nature-based resilience projects wherever possible for

long-term sea-level rise and climate change adaptation strategies into its portfolio of resiliency projects.

Miami Waterkeeper would like to see the following addressed in SFWMD's Plan and future updates to the Plan:

- Managing flood control structures to more closely mimic the natural seep of water instead of pulsed discharges
- Improving water quality in canals
- Protecting wildlife in canals, as this is also part of the mandate for canal management
- Adding more natural habitat features to canals where feasible, such as addressing canal slopes
- Purchasing and preserving open spaces -- including in urban areas

We suggest the enhancement of canal edges with features that could provide habitat, water storage, and water quality improvements, such as terracing, wetlands, mangrove forests. We envision a paradigm shift in the way that the District considers "flood control" -- changing, from moving the water to the estuaries as quickly as possible to slowing the water down through natural green spaces.

We strongly encourage SFWMD to make the purchase and preservation of open lands for water storage a central feature of this plan. Preserving open areas will additionally help to manage saltwater intrusion via increased aquifer recharge while also cleaning waterways and increasing flood resilience. We know that strategically protecting open areas for water management is already a part of the District's strategy, but we suggest that this could also be considered in the more urbanized areas and even in smaller spaces downstream -- and specifically be used for resiliency purposes. This simple strategy would provide flood control, aquifer recharge, water quality improvement, and habitat enhancement by creating mitigation wetlands and riparian zones. If done in conjunction with the local municipalities, these areas could also have recreation features, such as boardwalks or parks. We recognize that this is a departure for the District, but this is a realistic strategy that would increase resiliency in a multiple of ways, and we urge the District to consider increasing urban land purchase wherever possible.

Miami Waterkeeper would be pleased to work with the District on nature-based resiliency projects in Miami-Dade and Broward counties.

Canal Maintenance Strategy: Miami Waterkeeper understands that it has been the practice of the District to control algae growth with chemical spraying of herbicides, including those that may contain glyphosate. These chemicals are toxic to wildlife and humans and contribute to poor water quality conditions in our estuaries. Nutrient runoff from the land fuels algae growth in the canals. This algae, in effect, acts like a sponge to soak up nutrient pollution and collects it in its biomass. If the algae are then mechanically removed (instead of dissolved with herbicide and allowed to remain in the canal), those absorbed nutrients will also be removed. Water quality conditions will improve; this can also alleviate water quality impairments, such as for dissolved oxygen, nutrients, and others. We therefore urge a paradigm shift in the District's approach in order to take the opportunity to change methods for canal maintenance to improve water quality and our resilience.

Proposed South Miami Dade Curtain Wall: The lands south of Everglades National Park and within Florida Bay critically need freshwater for ecosystem restoration. However, Biscayne Bay is also in need of additional freshwater to meet its salinity targets, including in Biscayne National Park. We

are concerned that the proposed curtain wall would limit groundwater from entering Biscayne Bay. In addition to helping to restore salinity levels in Biscayne Bay, groundwater pressure will also protect our drinking water supply by preventing saltwater intrusion. Additionally, this area is threatened by the saltwater plume from FPL's Turkey Point plant and is an extensively freshwater-starved region. While a small wall further north may help to meet targets, stakeholders would need assurances that this much longer wall would not exacerbate the limited groundwater flow to Biscayne Bay–particularly in the southern region -- or be contrary to the Bay's restoration goals.

Thank you for the opportunity to comment on the Plan. The District is one of the most important stakeholders in the effort to keep sea-level rise and increased flooding in abeyance. We look forward to continuing this important conversation and to many more nature-based resilience projects beyond traditional grey infrastructure that will improve the environment while keeping our community safe.

Sincerely,

Dr. Rachel Silverstein
Executive Director and Waterkeeper
Miami Waterkeeper
PO Box 141596
Coral Gables, FL 33114-1596

From: Kevin Young
To: Pete Gonzalez
Cc: Resiliency; Sam Van Leer
Subject: Re: Sea Level Rise and Flood Resiliency Plan
Date: Friday, January 14, 2022 10:02:45 PM

[Please remember, this is an external email]

Looks good.

On Fri, Jan 14, 2022, 3:25 PM Pete Gonzalez <pete@urban-paradise.org> wrote:

> Urban Paradise Guild is the oldest climate active organization in Miami. We have been specializing in nature-based solutions throughout Miami-Dade county for a decade.
>
> We have ran projects grown, planted and cared for Mangroves at Matheson Hammock to build resilient living shorelines.
>
> We have removed invasive plants and restored local habitats by planting native trees and creating butterfly corridors.
>
> We currently have 2 active projects in Category I and Category II priority basins based on the Coastal Structures Risk spectrum depicted in Figure 12 in the Sea Level Rise and Flood Resiliency Plan.
>
> In Hialeah (classified as Cat II) we are active at Amelia Earhart Park. We have planted endangered Pine Rockland habitat, and run a nursery where we incubate native plants that will ultimately be utilized in our revegetation projects like our active project at Arch Creek East Preserve which is in a Cat I area.
>
> In addition to our projects, we are active in policy. We have a strong relationship with Mayor Daniella Levine Cava, and members of local governments throughout the county. We have influenced climate policies at every level of government, and are experienced in collaborating with great results.
>
> We also have a strong network of local partners we work alongside, and there is one common struggle – **funding.**
>
> In reviewing the Plan, we notice that in “Leveraging Partners” and talks of funding, there is no reference to direct funding for NGOs like ours and other great organizations working on climate issues.
>
> Our capacity and breadth of impact would be significantly enhanced with direct financial support being available through this plan through grants. Furthermore, the Plan alludes to efficiency throughout – funneling funding through local governments only, created inefficiencies and bureaucracy, even IF ultimately some funding ends up with NGOs.
>
> As we all can agree, we are facing a crisis. By allocating some funding to directly support NGOs like UPG, you achieve the efficiency the Plan intends for the Green, Nature Based Solutions. It will enable organizations to expand projects, hire staff, and get to work sooner rather than later.
>
> Lastly, this gives some quality control to the FDEP and SWFMD, by being able to assess whether funding for these green based NBS’s is going to projects that are in line with the vision of this Plan, rather than leaving it to the discretion of politicians who do not have the level of expertise to effectively make those determinations.
>
> UPG asks that you please consider creating a Nature Based Solution Direct Funding pool for NBS projects, and invites you to reach out for collaboration. Thank you for your consideration.
>
> Sincerely,

Pete Gonzalez
Policy Leader
Urban Paradise Guild
pete@urban-paradise.org
305-793-7525

"Creating Sustainable Paradise, One Habitat at a Time."
http://urbanparadiseguild.org/

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VILLAGE HALL
500 NE 87TH ST
EL PORTAL, FL 33138
CHRISTIA E. ALOU
VILLAGE MANAGER
OMARR NICKERSON
MAYOR; LIASION

Sustainability & Resiliency Task Force

January 14, 2022

South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

Re: Village of El Portal Sustainability & Resiliency Task Force Input on Draft Sea Level Rise and Flood Resiliency Plan

Dear Dr. Maran and fellow members of the District Resiliency Project,

On behalf of the Village of El Portal Sustainability & Resiliency Task Force ("Task Force"), we write to provide comments on the South Florida Water Management District (District)'s Sea Level Rise and Flood Resiliency Plan.

BACKGROUND AND UNIQUE GEOGRAPHY OF EL PORTAL

Flood resilience is a major challenge for the Village of El Portal. One of the Village's biggest challenges comes from the fact that the Village is uniquely situated at the drain end of the Little River watershed. The Village also sits on a porous aquifer and the water table in the Village is at the same level as the water level in the Little River & C-7 Canal (the "River"). When the water level in the River rises, the water level beneath people's homes similarly rises and rain and flood water cannot be drained off the landscape. Any change in the River results in a change in the water table in El Portal within minutes.

Flooding in the lowest elevation properties in El Portal begins when water levels in the River go above three feet (normal high tide in Biscayne Bay). There are also unique underground features in parts of the Village, including old spring pathways, that make some areas at higher elevations flood at much lower water elevations than expected as well. In El Portal flooding has serious implications on human health, the environment, water quality, financial security, the economy, and our way of life, all problems that are exacerbated in low-income and at-risk communities. The experience of two flood events in 2020 showed this problem clearly.

Unfortunately, tropical storm systems in and of themselves are not the major threat to flood resilience for El Portal. Rather it is when they are accompanied by torrential rainfall in the greater C-7 basin. Torrential rainfall occurring in the larger C-7 basin drains into the Little River and ends up in El Portal. In the future, this could potentially result in flood levels rising to a height where water begins to flow over and around the S-27 structure. If debris coming down the river blocked

flow under the FEC railroad bridge, flood levels would be even higher. If that should happen, evacuation in El Portal would be necessary for low elevation houses, but mitigating is critical.

While the Task Force had not yet been created at this time, El Portal is grateful that the District invited the Village to participate in the 2017 Flood Protection Level of Service Assessment for the C7 Basin Project. There the Village learned that necessary measures to increase flood drainage through the S-27 structure might entail raising the control level for flood water release as heavy flood events become more frequent. The actual control level this is set at will be essential for El Portal to know as it assesses its own resiliency measures. This information is urgently needed by the Village and Task Force along with much better scientific information on conditions in the aquifer.

The fact that the water levels in the Village are so closely correlated with water levels in the Little River has lead the Task Force to view flood resiliency measures through two strategies: 1) Retain rainfall flood water upstream to be released slowly, and 2) remove water that does end up in the Village with pumps and other means without furthering water quality concerns.

COMMENTS ON THE DISTRICT'S PLAN

Task Force Collaboration

The Task Force is supportive of the District's Plan to give stakeholders an opportunity to provide input and help guide the selection of projects compatible with local efforts and initiatives. The Task Force requests that the District include not only the Village of El Portal directly, but the Task Force in these initiatives as well. We also support the District's focus on including the community through workshops and outreach and providing community members ample opportunities to share their input and help shape the process.

Throughout the Plan, the District mentions, among other things, the S-27 coastal structure upgrade, the C-7 Pilot Phase II Study expected to be initiated in FY22, and a water quality pilot technology in the Little River basin. The Task Force would like to specifically request inclusion in these processes.

Equity and Community Inclusion

Social resilience is a very important aspect of community resilience, especially in El Portal and the Little River area. The legacy of segregation has left destructive boundaries in Miami-Dade County and throughout the State and we urge the District to ensure that equity is an important consideration in their decision making.

Monitoring and Public-Facing Data

The Task Force was pleased to see the District's prioritization of a number of public-facing tools and information sharing projects including the sharing of information on climate change, water quality monitoring, and ground water conditions, among others. The Task Force is very supportive of the expansion of these and similar monitoring and public information sharing measures.

Sustainability & Resiliency Task Force

S-27 Coastal Structure Upgrade

The Task Force is supportive of the District's Plan to upgrade the S-27 structure with a pump, provide self preservation mode technology, and incorporate other modifications and strongly agrees that the S-27 and the Little River Basin are in urgent need of flood and water quality solutions. We are very hopeful that a project of this kind can assist the Village with flooding and help to address some of the environmental human health concerns associated with flooding.

As the Plan itself points out in Figure 1 on page 23 of the Plan, the S-27 has the very highest priority in the Plan because it has the highest "likelihood of failure" score AND the highest "consequence of failure" score out of every infrastructure project assessed. The Plan states on page 15 that "pump sizes at the most immediate priority structures have been initially estimated using one half of the design discharge capacity at the structure." We believe that the S-27 structure needs to be retrofitted with equipment that provides the highest possible level of flood protection, while also taking into consideration important factors like water quality and environmental implications. We also urge the District to consider a pump with a capacity even greater than 50%.

In order to achieve reasonable flood protection for the Village of El Portal and the Little River Basin, this gray infrastructure must be implemented in concert with other resiliency and flood mitigation measures. As stated on page 18, a pump sized at 50% (or even higher) would reduce the amount of flood time by half, but would not eliminate or actually prevent flooding. The Task Force strongly recommends that the District implement more aggressive nature-based and flood mitigation efforts in conjunction with the gray infrastructure proposed to fill this gap in the resiliency solution.

The Task Force also requests more information on plans for future control level of the River in extreme flood events as well as environmental impacts that this project would have on the Little River and Biscayne Bay and potential opportunities for mitigating any impacts. Additionally, Figure 1 on page 23 of the Plan should also reflect the environmental consequences of S-27 failure on the Biscayne Bay ecosystems. The Task Force would welcome an opportunity to discuss this further.

Modernization of District Structures

The Task Force supports the District's plan to implement self preservation mode in District structures, including the S-27. We encourage the District to implement this technology in as many District structures as possible and to use this technology to optimize the operations of storm water treatment areas.

Upstream Resiliency Efforts in the Little River Basin

A) Prevent water from coming into the system in the first place

One of El Portal's most significant issues when it comes to flooding is actually related to what is occurring further upstream in the watershed. As such, in order to truly achieve resiliency for the Little River area, we need to prevent, or at least significantly slow, the upstream waters from entering the neighborhood. We urge the District to consider an upstream reservoir like the type discussed in the Plan and implemented in other areas of Miami-Dade County.

In addition to a reservoir, these upstream projects for water retention could include, among other things, increasing permeable surface, building retention ponds, and incorporating bioswales or other nature-based solutions. Many of the proposed resiliency measures for the Little River Adaptation Action Area Plan, such as expanding greenways and blueways, would also support some of these goals. There also may be an opportunity to use the existing water retention infrastructure to slow the flow down the River as well. El Portal encourages the District to look at water retention methods further upstream for the benefit of those communities, as well as all of the communities further down the watershed.

B) Increase rate of removal

While we need to slow the speed and reduce the quantity of water entering the Little River area, once water is already in the neighborhood we need to rapidly get it out. El Portal has two items on the LMS to address water once it is already in the Village. However, measures in addition to the LMS projects are necessary to remove water more quickly from the neighborhood and people's homes and properties.

Natural and Nature-Based Solutions

The Task Force appreciates many aspects of the Plan, however the Plan should more significantly incorporate upstream and downstream natural and nature-based features. The Plan repeatedly mentions the District's commitment to these types of solutions, but very few are actually proposed. As the District knows, nature and nature-based features are cost effective, environmentally beneficial, and often improve the quality of life in a community. They also provide an opportunity to mitigate our carbon footprints and can reduce the impacts of climate changes on local communities.

The Task Force also believes that nature-based solutions enacted upstream in the C7 basin would enable increased water retention along with the improvement of water quality and urban quality of life in the entire basin.

Water Quality & Environmental Protection

Flooding, stormwater, and climate change are significant causes of water quality issues in our River and Bay. Throughout all of these resiliency related discussions, ensuring water quality in the Little River and Biscayne Bay is of essential importance to the Task Force. This includes environmental inputs from both point sources and nonpoint sources. We need to ensure that any resiliency or adaptation plan fully incorporates improving water quality and furthering environmental protection as vital components. While not within the scope of the District's Plan, the Task Force would also strongly support District efforts that dovetail or provide synergy to a transition from septic to sewer with the Village and the State.

CONCLUSION

El Portal is supportive of many of the measures proposed by the District to ensure resiliency for the Little River area. The Task Force also believes that additional management measures, as discussed above, are necessary to ensure that our neighborhood can achieve resiliency in the face of sea-level rise and climate change. The Task Force supports a Plan that does not rely on one management solution, but rather takes a holistic multifaceted approach to resiliency that

incorporates a mix of solutions. El Portal also remains very open to considering and incorporating new and innovative solutions not discussed in this letter into our collective efforts towards a resilient and sustainable South Florida.

The Village of El Portal sincerely thanks the South Florida Water Management District for its work on the Plan and the opportunity to comment. The Task Force looks forward to continuing to work with the District towards the important goals of obtaining resiliency for South Florida residents and our environment.

Sincerely,

The Village of El Portal Sustainability
& Resiliency Task Force

Elizabeth Fata Carpenter, *Chairperson*
Kristen McLean, *Vice-Chairperson*
Maribel Fruitstone, *Member*
Sandra Valencia, *Member*
Mathew Webb, *Member*
Omarr C. Nickerson, *Mayor; Liaison*

https://elportalvillage.com/resiliency/

January 28, 2021

South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

Letter submitted electronically via: resiliency@sfwmd.gov

Re: Comments on the District Sea Level Rise and Flood Resiliency Plan

Dear South Florida Water Management District,

Both the Sanibel Captiva Conservation Foundation and the Captiva Erosion Prevention District appreciate the opportunity to review the District's Sea Level Rise Flood Resiliency Plan and provide feedback during your public comment period.

The plan as written, focuses specifically on the Central and Southern Florida (C&SF) project and includes updating and hardening associated infrastructure to maintain the District's Flood Protection Level of Service. The District developed a program in 2015 called the Flood Protection Level of Service (FPLOS) Program that was established to ensure that the regional flood control system provides the desired level of flood protection today and into the future, with consideration for land use changes, development and sea level rise. However, there are areas outside of the C&SF project but still within the South Florida Water Management District boundary that are susceptible to sea-level rise and flooding impacts including communities in the Tidal Caloosahatchee basin, communities of Bonita Springs/Imperial River, Orange River, Sanibel and Captiva, etc. (see map on page 54). While these areas may primarily include secondary and tertiary infrastructure and waterways, you indicate that "the District engages partners and stakeholders with responsibility for the secondary and tertiary flood control systems to identify the best course of action to mitigate any identified deficiency" as it refers to the other basins you've already designated within the plan. Therefore, we believe the District needs to include the above regions in addition to C&SF project basins in current and future resiliency efforts.

The plan also categorizes each of the currently designated drainage basins as "low," "medium," and "high" for assessment priority, which is determined by a variety of criteria as outlined in pages 21-27. As our communities here on Sanibel and Captiva are affected by the Caloosahatchee and Lake Okeechobee System basins (and undoubtedly for other communities associated with low priority basins), it is important for there to be a more transparent listing of the current basin rankings and for us to understand along what time frame we can expect these basins be incorporated into the assessment process. We further suggest that rankings be revisited on an annual basis so that any changing conditions and understanding around likelihood and consequence of failure for particular basins can be captured, ensuring a more robust, flexible, and equitable prioritization process. There are also some

3333 Sanibel-Captiva Road, Sanibel FL 33957 ● (239) 472-2329 ●cschuman@sccf.org

ranking criteria that may need to be reconsidered. For example, critical assets/lifeline density may not be an equitable way to assess consequences of basin failure for those parts of the state where there may be fewer affected critical assets but those that do exist are associated with communities that have few alternatives.

The inclusion of the Green Infrastructure Flood Mitigation Strategies project for the Little River Watershed and the Everglades Mangrove Migration Assessment (EMMA) Pilot Study are positive components of the District's commitment to employing "Innovative Green/Nature-Based Solutions." Both may pave the way for more successful use of nature-based solutions across the state. However, we ask that the District continue to clarify and outline how it will use the outcomes of these efforts as well as pre-existing and newly developed natural features in its current and future flood protection efforts and in service of other facets of resiliency including water supply and water quality.

Thank you for the opportunity to engage with you during this process.

Sincerely,

Carrie Schuman, Sanibel Captiva Conservation Foundation Coastal Resilience Manager

DocuSigned by:
John Silvia
7B66A5DEF785439...
, Captiva Erosion Prevention District

3333 Sanibel-Captiva Road, Sanibel FL 33957 ● (239) 472-2329 ●cschuman@sccf.org

January 14, 2022

South Florida Water Management District
3301 Gun Club Road
West Palm Beach, FL 33406

Re: Seeking Public Input on Draft Sea Level Rise and Flood Resiliency Plan

Dear Dr. Maran and fellow members of the District Resiliency Project,

On behalf of the National Parks Conservation Association (NPCA), Tropical Audubon Society, Florida Bay Forever, and the Everglades Law Center, as well as the collective millions of members and supporters of our respective organizations including well over 100,000 Floridians, we write to provide comments on the South Florida Water Management District (SFWMD)'s Sea Level Rise and Flood Resiliency Plan. Florida is especially vulnerable to climate change with its over 1,200 miles of coastline, 6,700 square miles of coastal waterways, and porous limestone geology that makes the state susceptible to future sea level change. The undersigned organizations have long advocated for the implementation of strong climate change adaptation strategies in South Florida given the benefits they will provide to people, built infrastructure, natural environments, Florida's economy, and our iconic national parks.

Support for Draft Sea Level Rise and Flood Resiliency Plan Components:

We support multiple aspects of the SFWMD's plan, including its overall aim to harden water management infrastructure and implement "self-preservation" mode. With many flood protection assets of the Central and Southern Florida Project reaching the end of their useful life, it is imperative that new projects be carried out to make them hardy to climate change. Failure to harden old coastal structures will make the state overly vulnerable to storm surges, sea level rise, flooding, and saltwater intrusion. We also back the automation of water control structures since manually operating them has occasionally led to the over-drainage of upstream areas. This has caused drought conditions and damaged sensitive lands, undermining Everglades restoration. "Self-preservation mode" can help avoid over-drainage and the resulting negative impacts to the natural environment by releasing water only when necessary.

Another aspect of the SFWMD's plan that we support is its consideration of equity. According to the Federal Emergency Management Agency, 22 of the top 25 U.S. cities with socially vulnerable communities are located in Florida. Miami places third on the list and is one of the least affordable cities in the nation.[1] Socially and financially disadvantaged populations are disproportionately affected by impacts of climate change such as flooding and sea level rise. Thus, it is imperative that resiliency projects take the needs of vulnerable populations into account to ensure bottom-line benefits to both our built communities and natural environment. We welcome the SFWMD's

[1] Climate Central. (2017, October 25). *These U.S. cities are most vulnerable to major coastal flooding and sea level rise.* https://www.climatecentral.org/news/us-cities-most-vulnerable-major-coastal-flooding-sea-level-rise-21748#:~:text=New%20York%20City%2C%20Philadelphia%2C%20Houston,difficult%20double%20jeopardy%20over%20time.

incorporation of equity into its scoring system for project assessment and applaud efforts to solicit local feedback during the planning process. It is also encouraging that the SFWMD aims to collaborate with a wide range of stakeholders and partners through the sea level rise and resiliency planning process, including local and tribal populations, to ensure a final plan that is equitable and that investments are first made in communities that need it most.

Lastly, we appreciate the plan's attention to some ecological vulnerabilities and nature-based solutions. Coastal environments are especially endangered by climate change. Sea level rise threatens to convert wetlands into open water habitats and cause peat collapse and tidal creek infilling. We believe that the SFWMD's Everglades Mangrove Migration Assessment (EMMA) pilot study is a step in the right direction for building coastal resiliency. It leverages mangroves' ability to sequester carbon, accrete peat, and capture sediment—all characteristics that make these locally iconic plants valuable mitigators of climate change.[2] Enhancing mangrove communities has numerous benefits like improved flood and erosion control, air and water quality, and wildlife habitat. So long as mangrove communities are carefully enhanced and environmental monitoring is ongoing, we support the SFWMD's exploration of this nature-based management measure.

Other SFWMD resiliency projects supported by the undersigned organizations include:

- the **S-197 coastal structure rehabilitation** project for its expected benefits to Everglades National Park (ENP). This culvert, when closed, diverts flow to the panhandle of the park, which retains water in the protected area and restores some of the Everglades' natural flow. Increasing flow to ENP helps return freshwater wetlands to their original condition, enhance wildlife habitats, and maintain ecosystem function.

- the **27-mile South scenario** for the **South Miami Dade Curtain Wall** project for the flood control and restoration improvements it would provide ENP. Intercepting and redirecting water back into the park would restore some of the natural north-to-south flow while preventing seepage into developed areas. Retaining water in ENP will also support restoration goals by helping to prevent unseasonal droughts in fragile wetlands. Of the three options proposed by the SFWMD for the Curtain Wall, the 27-mile South scenario is recommended by our organizations because it is projected to divert the least amount of water from Biscayne Bay. It is important for the Curtain Wall to supplement—not detract from—other restoration efforts like the Biscayne Bay and Southeastern Everglades Ecosystem Restoration (BBSEER) project.

- the **Corbett Levee** for the hydrologic benefits it would provide to the adjacent Corbett Wildlife Management Area (CWMA). CWMA is presently being held at artificially low water levels, resulting in habitat loss and increased wildfire risk. However, finishing the Corbett Levee will give water managers the ability to retain more water in the protected area and restore its drought-prone wetlands.

- the **Green Infrastructure Flood Mitigation Strategies** because of the focus on natural features to improve South Florida resiliency. This project will evaluate the effectiveness of "green" elements to enhance flood protection and provide water quality benefits, and its

[2] IUCN. (2017, February 2). *Mangroves and marshes key in the climate change battle*. https://www.iucn.org/news/secretariat/201702/mangroves-and-marshes-key-climate-change-battle

results may encourage greater inclusion of "green" features in future watershed restoration planning.

Opportunities to strengthen the Sea Level Rise and Flood Resiliency Plan through incorporation of more nature-based infrastructure investments:

Though we appreciate several aspects of the Sea Level Rise and Flood Resiliency Plan, **the SFWMD should more seriously consider complementing its gray infrastructure projects with upstream and downstream natural and nature-based features (NNBFs)**. The plan repeatedly mentions the SFWMD's "commit[ment] to 'green' or nature-based solutions," yet only two projects (EMMA pilot study and Green Infrastructure Flood Mitigation Strategies) explicitly incorporate such features.[3] NNBFs are cost effective, environmentally beneficial options that deserve to be included in the SFWMD's plan to a greater degree. We are concerned that significant opportunities to reach climate resiliency through restoration are being missed and urge the SFWMD to adopt a stronger focus on NNBFs in its final plan.

The Sea Level Rise and Flood Resiliency Plan mentions potential nature-based solutions such as beach, dune, and coral reef restoration; however, none of these measures were worked into the listed resiliency projects.[4] Beaches, dunes, and coral reefs provide numerous ecosystem services. They also buffer storm surges, protect inland properties from flooding, offer recreational opportunities, and increase land values, among other benefits. Gray infrastructure does not confer the same advantages, is costly to install and maintain, and can often impair the environment.[5] Therefore, it is recommended that SFWMD considers adopting more "green" features to provide coastal protection at significantly lower costs while also ensuring natural benefits that can be more readily sustained into the long-term.

Especially significant to climate resiliency but sidelined in the SFWMD's draft plan are coral reefs. Scientific and engineering communities have a large body of peer-reviewed literature indicative of the importance of coral reefs in providing protective buffer value against storms. Southeast Florida's coral reefs are also economically valuable. According to the National Oceanic and Atmospheric Administration, they have an asset value of $8.5 billion, generate $4.4 billion in local sales and $2 billion in local income, and support 70,400 jobs.[6] Recent bleaching events, though, are causing already endangered corals to become more susceptible to disease and death. This renders them unable to provide their full capabilities of ecosystem services like coastal protection benefits. We urge the SFWMD to thoroughly consider and possibly include natural and/or artificial coral reefs in its plan. Restoring reefs will not only provide coastal storm protection and ecosystem benefits, but also increased stability in the benefits that these NNBFs offer to Florida's economy and local livelihoods.

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[3] South Florida Water Management District. *Sea Level Rise and Flood Resiliency Plan* [Report Draft]. https://www.sfwmd.gov/sites/default/files/FDEP_ResilientFlorida_ResilientProjectsPlan_09_01-2021.pdf

[4] *Ibid*., 20.

[5] Conservation International. (n.d.). *Green-gray infrastructure*. https://www.conservation.org/projects/green-gray-infrastructure#

[6] Florida Keys National Marine Sanctuary. (n.d.). *How do coral reefs benefit the economy?* NOAA. https://floridakeys noaa.gov/corals/economy html#:~:text=By%20one%20estimate%2C%20coral%20reefs,full%20and%20part%2Dtime%20jobs

NNBF solutions to increasing South Florida's resiliency are a clear preference of stakeholders and the public.[7] Miami-Dade County's Biscayne Bay Task Force has already suggested that the SFWMD accelerate "green" infrastructure solutions for the S-27 Coastal Structure Resiliency project.[8] Taking it another step up, we would like to see additional projects in the Sea Level Rise and Flood Resiliency Plan be coupled with NNBFs for the general health and resilience of the Everglades. Emphasizing "green" and nature-based solutions will benefit the natural environment while making the SFWMD's plan more reflective of locally preferred priorities and solutions. South Florida cannot be truly resilient unless its coastal ecosystems are adequately safeguarded and their potential to reduce the risks, damages, and impacts of climate change are fully leveraged. Thus, **we request that the SFWMD rely more heavily on restoration as a tool for resilience and embrace more NNBFs in its quest to build a climate-ready state.**

Thank you for your consideration of our comments.

Sincerely,

Melissa E. Abdo, Ph.D.
Regional Director, Sun Coast Region
National Parks Conservation Association
mabdo@npca.org | (954) 298-0819

Paola Ferreira Miani
Executive Director, Tropical Audubon Society
executivedirector@tropicalaudubon.org | (305) 667-7337

Emma Haydocy
Executive Director, Florida Bay Forever
emma@floridabayforever.org | (305) 563-7970

Elizabeth Fata Carpenter
Managing Attorney, Southern Everglades
Everglades Law Center, Inc.
elizabeth@evergladeslaw.org | (305) 340-3183

[7]City of Miami surveys, Miami-Dade County surveys, Catalyst Miami community visioning workshops, Resilient 305
plan, and public comments on Miami-Dade Back Bay Coastal Storm Risk Management Draft Integrated Feasibility Report and Programmatic Environmental Impact Statement

[8] South Florida Water Management District. *Sea Level Rise and Flood Resiliency Plan* [Report Draft]. https://www.sfwmd.gov/sites/default/files/FDEP_ResilientFlorida_ResilientProjectsPlan_09_01-2021.pdf

Comments on South Florida Water Management District Sea Level Rise and Flood Resiliency Plan

The SFWMD Sea Level Rise and Flood Resiliency Plan needs to be more holistic in its scope. The plan seems primarily focused on flood prevention, not on the contributions to greenhouse gas emissions and hence sea level rise caused by the SFWMD's own operations. These need to be addressed. The Resilient Projects Plan needs to include projects to minimize the carbon footprint of existing facilities, such as reducing waste, installing solar panels and using other sources of renewable energy, and increasing energy efficiency at all SFWMD facilities due to the urgency of climate change. There needs to be a plan to measure the SFWMD's carbon emissions accurately and to reach net zero carbon emissions by 2030.

Clearly define what is meant by coastal communities. The basins that SFWMD is using are not necessarily the basins used by localities. For example, the City of Hialeah does not have a coastline, but is shown in a coastal basin. Communities located along waterways and canals are not necessarily coastal but can still be subject to storm surge. People may see themselves as living in a particular sub-basin rather than in a larger coastal basin.

Has the SFWMD developed a metric by which to determine when it no longer makes sense to try to protect a certain area from flooding? When does it become too expensive, too resource intensive to be justifiable?

There may be stormwater systems within a particular basin that do not connect to the SFWMD's system. How are these systems accounted for? In such cases, increases to the SFWMD infrastructure may not impact flooding at all. Are these situations accounted for to ensure that projects are only implemented where they can be effective?

How is the SFWMD addressing the needs of vulnerable populations that are not currently served by its infrastructure?

The graphic on p. 21 of 83 is completely unrealistic for South Florida, where most of the coastal area is built-up, often with high rise buildings. Often the coastline is privately owned. Does SFWMD intend to require private property owners to cede property or grant an easement to a government agency? The barrier islands, such as Miami Beach, Brickell Key, and Key Biscayne, are also typically highly developed with high real estate prices.

Overall, there needs to be a way to distinguish the effects of sea level rise from the those of increasing imperviousness due to development. Both contribute to flooding, but SFWMD infrastructure hardening designed to mitigate the effects of sea level rise may or may not be effective in combating flooding due to increasing imperviousness.

On p. 22 of 83, under Consequences of Failure, the criteria existence of lower income populations needs to be refined to award points based on the proportion of the affected population that is at or below 120% of the federal poverty level and where the affected residents fall in the CDC's social vulnerability index, separated into ranges from 0 – 0.5 (no points awarded), 0.5-0.75, and 0.75 - 1. The higher, the SVI, the more points awarded. The current ranking system seems to award the same amount of points regardless of the number of socially vulnerable persons affected by the proposed improvements, how far below the poverty level they are, and what proportion of the beneficiaries of the proposed project they constitute.

Homeless shelters and shelters for battered women and children, transitional housing, and substance abuse treatment centers need to be considered critical infrastructure. It is unclear whether they are included in the Florida statute.

Under Likelihood of Failure, change the first bullet to read

- Return period of overbank flow and flood control system deficiencies

For the residents served by the improvement, it doesn't really matter whether the system fails due to sea level rise, climate change, or increasing imperviousness from development. The system needs to work.

Under Likelihood of Failure p. 22 of 83,

add a bullet:

- Ability of project to be successfully maintained after completion. The operator of the new asset needs to have a maintenance plan for the asset, be able to demonstrate that it will be able to properly maintain the asset and demonstrate that it is currently maintaining its existing flood control assets.

On p. 23 of 83, where is the District obtaining the nuisance and chronic flooding reports? Often residents report flooding complaints to local government entities rather than the SFWMD. There also needs to be some way of accounting for the severity of flooding as measured by flooding depth, duration and location – swales, sidewalk, crown of road, or onto private property. This metric also needs to take into account that more affluent individuals may be more likely to complain about flooding, especially less severe flooding and so measuring only raw numbers of complaints may tend to be biased against historically underserved communities.

On p. 23 of 83, under consequences of failure scoring, given the range of cost of living throughout the SFWMD and the variability in the numbers of members of households, a single number for household income should not be used. Rather the points value should be adjusted based on the federal poverty level and the CDC social vulnerability index.

The scoring matrix for projects needs to incorporate points for use of renewable energy and natural and nature-based solutions. Ideally, localities need to be required to implement resiliency and sustainability measures beyond infrastructure projects meant to prevent flooding in order to qualify for funding. If the statute precludes this, project scoring should reward communities for implementing comprehensive resilience and sustainability plans and reducing their carbon emissions. This could be integrated into the scoring for Tier 1 d. and possibly Tier 3.c.

The C-5 culvert is listed as a Category I coastal structure risk, yet there are no points awarded in the matrix for projects that would address this structure/basin in the CIP/SIP risk matrix.

From: julie long
To: Resiliency
Subject: comment on draft Sea LevelRise and Flood Resiliency Plan
Date: Monday, January 24, 2022 11:56:17 AM

[Please remember, this is an external email]

Dear South Florida Water Management District,

First, thank you so much for the work you do to supply us with adequate and clean water. As Floridians I think we sometimes take our water supply for granted because we are surrounded by water and usually have good rainfall.

While I think resiliency is a very good thing to pursue, if we don't start working on mitigation of problems related to sea level rise we will continue to fall further behind and increase the costs of infrastructure repairs and upgrades. While this plan is supposed to be updated yearly from my reading of the report, it is based on data from 10 years ago. Our population, water use and sea level rise has increased significantly so I think the problems are underestimated. As sea level rises, this will jeopardize our groundwater supply. Approximately 8% of houses in Broward County are still on septic tanks even though a state report from 2014 said that the soil in Broward is not suitable for septic tanks. This poses an additional risk to the ground water supply and needs to be addressed. I think this will require a state intervention but without strong warnings about risk, I fear the problem will go unaddressed. This is also a social justice issue as there is a higher percentage of septic tanks in low income neighborhoods. I noticed a section on green solutions to water management and I applaud this. I think the danger of pesticides and fertilizer contamination of our water supply is underappreciated. While the report does mention education, I think this needs much greater emphasis. Local government officials and the general public need to be given information about the risks to their water supply. Thank you for the opportunity to comment on this very important plan and the work you do to supply South Florida with safe water.

Sincerely,
Julie Long, MD

From:	Xavier Cortada
To:	Resiliency
Subject:	Comments on SFWMD Draft Sea Level Rise and Flood Resiliency Plan
Date:	Wednesday, January 5, 2022 10:39:03 PM

[Please remember, this is an external email]

Comments on the draft District Sea Level Rise and Flood Resiliency Plan:

Dear drafters of the District Sea Level Rise and Flood Resiliency Plan:

Few believe we live in a climate emergency. Few get the climate science. Few understand the trouble we are in.

Today, in Miami (and other coastal cities) cranes populate the skyline, building more and more skyscrapers at the water's edge. Growth is what fuels our economy.

Increased development grows the tax base and keeps property taxes from rising.

Developers push for growth. It's a high reward game with little actual risk: they will get their Returns On Investment two years later when the condos get sold.

Buyers, mostly international cash investors, are also hedging their bets - hoping to flip their affluent properties a few years later and way before the psychology of sea level rise busts the real estate bubble.

Homeowners in less affluent areas are on a 30-year timeline. Because of brazen overdevelopment, citizens don't have a real sense that sea level rise poses a true threat to their homes, savings, jobs, and community.

Politicians, who are evaluated in 2-year election cycles, have no incentive to plan for the long-term. They engage in building ribbon cutting ceremonies with impunity even if that will only burden future generations. Their pro-growth actions signal to constituents that everything will be fine, but all they are doing is kicking the can down the road.

As oceans rise and the reality of climate change finds clarity in the psychology of Miami's real estate markets and tourism economy, many marginalized members of the community are going to suffer more than those who have power and means.

Sea level rise will disproportionately impact people of color and poorer residents in low lying areas (as low-income neighborhoods are abandoned, property owners will lose everything).

It will disproportionately impact people of color and poorer residents who rent in higher lying low-income neighborhoods (evicted renters - the victims of climate gentrification).

We must uplift and amplify these voices in the pursuit of social and economic stability for all Miamians. But before they can change society, they must change themselves, believe in their ability, and strengthen their resolve. They need to better understand climate science and what's at stake for them and their progeny.

Your plan needs to better address this.

Sincerely, Xavier Cortada

Xavier Cortada
Artist
Cortada Studio
Pinecrest Gardens, 11000 Red Road, Pinecrest, FL 33156
email: xavier@cortada.com
website: www.cortada.com
social media: @xcortada
he/him/his

Professor of Practice
Department of Art and Art History
University of Miami **College of Arts and Sciences**
email: xcortada@miami.edu

with secondary appointment as:

Professor of Professional Practice
Department of Pediatrics
University of Miami **Miller School of Medicine**

Professor of Practice
Environmental Law Program
University of Miami **School of Law**

University of Miami **Leonard and Jayne Abess Center for Ecosystem Science and Policy** (Affiliated Faculty)

---------- Forwarded message ---------
From: **South Florida Water Management District** <SFWMD@public.govdelivery.com>
Date: Wed, Jan 5, 2022 at 10:27 AM
Subject: Reminder: Seeking Public Input on Draft Sea Level Rise and Flood Resiliency Plan

From: wckeller@earthlink.net
To: Resiliency
Subject: Public Input on Draft Sea Level Rise and Flood Resiliency Plan
Date: Thursday, January 20, 2022 10:47:24 AM

[Please remember, this is an external email]

Re: Missing from the plan: climate mitigation, at our peril

Adaptation is as Webster says, "To adjust to environmental conditions. " The UN IPCC says Adaptation is "the process of adjusting to actual or expected climate change." ***Mitigation*** as the dictionary says is "To make less harsh or harmful." The IPCC defines it as "A human intervention to reduce heat-trapping emissions or remove carbon already in the atmosphere." Dr. Jane Lubchenco, U.S. Department of Commerce Under Secretary for Oceans and Atmosphere, speaking to Miami-Dade County said "I like to think of mitigation as avoiding the unmanageable, whereas adaptation is managing the unavoidable. We must do both in order to solve the problem of climate change."

The draft **District Sea Level Rise and Flood Resiliency Plan** is all about adaptation and has no provisions for mitigation. This means we are not going to do anything to avoid the unmanageable. We will invest billions to adapt to something we ultimately cannot manage. Without mitigation, we will, as stated by the IPCC (2018), experience severe economic and humanitarian crises by as early as 2030. The most vulnerable communities will suffer the most, but all in Florida will be impacted negatively.

I hope the resiliency plan will be rewritten and renamed to something like the " resiliency and climate mitigation" plan. It must, in my view, include strategies to reduce heat-trapping emissions and remove carbon already in the atmosphere.

Thank you for your consideration,
Coty Keller

William "Coty" Keller, Ph.D.
16911 O'Hara Drive
Port Charlotte, FL 33949
941 627-8053
Email: wckeller@earthlink.net
Homepage: http://www.ecopapak.org/

From:	psgorman@aol.com
To:	Resiliency
Cc:	cdecastro90@bellsouth.net; csenk@med.miami.edu; cbviola@comcast.net; jimviola1@aol.com; les@cateringbyles.com; hargrove.jt@gmail.com; stacy.hargrove@noaa.gov; jwolfe@pinescharter.net; brettfwolfe@gmail.com; decastro.cristobal@gmail.com; anthonygorman@aggorman.com; Vilaboy, Armando; jabteach@yahoo.com; evans07@msn.com; vance.aloupis@myfloridahouse.gov; Goss, Chauncey; Wagner, Scott; Martinez, Charlie; Meads, Cheryl; Charlette Roman; Steinle, Jay; Thurlow-Lippisch, Jacqui; Bergeron, Ron; daniella.cava@miamidade.gov; sean.mccrackine@miamidade.gov; maria.levrant@miamidade.gov; ryan.fernandez@myfloridahouse.gov; Butler, Ben; bobby.bracy@miamidade.gov; district8@miamidade.gov
Subject:	Rising Sea Levels
Date:	Wednesday, January 12, 2022 11:08:16 AM

[Please remember, this is an external email]

Good afternoon SFWMD,

It is with much interest, we wish to share our opinion regarding SFWMD public input on Draft Sea Level Rise and Flood Resiliency Plan. We have worked directly with SFWMD Board Member Charlie Martinez, SFWMD Regional Representative Armando Viliboy, State Representative Vance Aloupis and current Miami-Dade Mayor Daniella Levine Cava regarding canal bank erosion in our neighborhood, dating back to June 12, 2019. Additionally, current D8 Commissioner, Danielle Cohen Higgins, is now on board with our efforts. We appreciated all responses received from some of the SFWMD Board Members. However, no action has been taken to date or have we received any communication if we are now scheduled for restoration. The communication sent on June 12, 2019 is below.

Hello SFWMD Board Members,

SFWMD Phase IV, Vegetation Removal Project, was completed earlier this year on Canal 100A. Residents impacted by the loss of their trees, have concerns regarding accelerated erosion to our canal banks due to this loss. The rooting system of native live oaks, banyan and various other trees provided a natural protection to reduce erosion stabilizing the canal bank. We understand water conveyance during heavy storms is necessary to prevent flooding, but no other alternative was considered, specifically maintenance of trees rather than complete removal along the canal bank. Governing Board Member, Charlie Martinez, thankfully met with neighbors on site at my home to see the situation firsthand.

Since Phase IV project has been completed, we, the residents of C-100, respectfully ask the Governing Board to consider budgeting sufficient funding for C-100 canal bank restoration in 2019-2020. Erosion is severe and close enough to some homes to cause foundation damage should the supporting ground become unstable. We need SFWMD to help property owners with canal bank restoration in addition to planned projects to restore wetlands in our area. Erosion has become a serious issue in many area's on C-100 partially due to the wake of speeding boats.

On the county level, Miami-Dade County Commissioner Daniella Levine Cava has legislation to be approved in the near future to address safety and other canal issues, *including erosion due to speeding boats*. The Ordinance relating to boating and waterways has been referred to the Infrastructure and Capital Improvements Committee. A public hearing on this Ordinance is scheduled July 15th at 2:00 PM in the County Commission Chambers at 111 NW 1st Street, 2nd. Floor, Miami, Florida. This is the opportunity to speak on the Ordinance. Residents will attend this hearing, I respectfully request SFWMD plan to have a representative speak in support of Commissioner Cava's ordinance as well. I've attached a copy of the Ordinance for your convenience.

Thank you so much for reading my email and looking forward for positive results.

Best regards,
Pam Gorman

We are pleased SFWMD is addressing sea level rise that will positively impact our homes on C100 and worsen the erosion situation. We believe several actions could help, restore the canal bank as requested in 2019, and install a new elevated pump station located near the dam on Old Cutler Road in Palmetto Bay. SFWMD did an excellent job restoring wetlands near or on the Deering Estate, but it appears the funding for the pump station that protects all homes on C100 was not budgeted. Although this communication is specific to our neighborhood, all of south Florida could benefit from similar actions. Currently, a very costly Miami Beach Replenishment project to address sea level rise will be completed in approximately 20 months if all goes as scheduled.

Respectfully,

Pamela and Anthony Gorman
14140 SW 72nd Avenue
Palmetto Bay, FL 33158

From: Slew1969
To: Resiliency
Subject: Sea Level Rise And Flood Resiliency Plan
Date: Thursday, January 6, 2022 4:17:20 PM

[Please remember, this is an external email]

To whom it may concern:

I have lived in south Miami Dade County for over fifty years and have seen the weather changes over this time. I have also seen the effects of development on the ability of the nature to mitigate the sea and weather. The SLRAFTP as proposed by the Water Management Program has many good adjustments and should be put into place. The professionals who study water management should be allowed to implement these improvements without political involvement. It is in the citizens' interest to find ways to pay for future plans.

Sincerely,
Susan Lewis
20738 SW 86TH COURT
CUTLER BAY, FL 33189

Sent from the all new AOL app for Android