Biscayne Bay Watershed Management Advisory Board

December 6, 2021

Land Acknowledgement

Our proceedings and the natural resources we will be discussing occur on the ancestral and traditional lands of the Seminole, Miccosukee, and Tequesta people.

Video still from Houston Cypress, … what endures… 2021, digital video. Institute of Contemporary Art, Miami Digital Commission. Supported by the Knight Foundation.

Biscayne Bay Watershed Management Advisory Board

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MIAMI-DADE COUNTY

1. Agenda

AGENDA

MIAMI-DADE COUNTY BISCAYNE BAY WATERSHED MANAGEMENT
ADVISORY BOARD (BBWMAB)
INITIAL ORGANIZATIONAL MEETING
DECEMBER 6, 2021 - 9:00 AM – 12:30 PM
LOCATION – Miami-Dade Board County Commissioners Chambers

1. **MAYORS WELCOME** – Miami-Dade County Mayor Daniella Levine Cava (TBD) or Irela Bagué, Chief Bay Officer
   9:00 – 9:10 AM

2. **BOARD INTRODUCTIONS** – Irela Bagué, Chief Bay Officer
   9:10 – 9:30 AM

3. **REVIEW PURPOSE BBWMAB & WATERSHED ACTION PLAN -**
   Irela Bagué, Chief Bay Officer
   9:30 – 9:40 AM

4. **MIAMI-DADE COUNTY COMMISSION ON GOVERNMENT IN THE SUNSHINE -**
   Miami-Dade Commission on Ethics & Public Trust
   9:40 – 10:10 AM

5. **BBWMAB PROCEDURAL ITEMS**:
   a. SELECT CHAIR AND VICE-CHAIR
   b. RULES OF ORDER
   10:10 – 10:40 AM

6. **REVIEW AGENDA** – BBWMAB Chair
   10:40 – 10:50 AM

7. **STATUS OF BISCAYNE BAY RECOMMENDATIONS** – Irela Bagué, Chief Bay Officer
   10:50 – 11:00 AM

8. **STATE OF BISCAYNE BAY – UPDATE ON FISH KILL AND NUTRIENTS** –
   Pamela Sweeney, Senior Manager/Senior Water Scientist, RER-DERM
   11:00 – 11:30 AM

9. **DISCUSSION OF FUTURE MEETING DATES AND AGENDA ITEMS** –
   BBWMAB Chair
   11:30 AM – 12:00 PM

10. **PUBLIC COMMENTS** – BBWMAB Chair
    12:00 PM – 12:30 PM

11. **ADJOURN** – BBWMAB Chair
    12:30 PM

2. Biscayne Bay Watershed Management Advisory Board:

Overview, Ordinance, and State Board

Biscayne Bay Watershed Management Advisory Board Overview

February 2019

The Biscayne Bay Task Force was created to advise this Board and the County Mayor on issues related to Biscayne Bay. The Task Force was tasked to review relevant data and prior studies, reports, and related to Biscayne Bay and prepared a written report with recommendations and an action plan identifying problem areas and prioritizing projects for Biscayne Bay.

June 2020

The Biscayne Bay Task Force report was completed and recommended the Board of County Commissioners create a permanent board - "Biscayne Bay Watershed Management Advisory Board" with a goal to create a permanent and unified approach to the recovery of water quality in Biscayne Bay and future management of the watershed.

June 2021

The Florida legislature passed House Bill 1177, which strengthens coordination efforts to protect Biscayne Bay, a critical ecological, recreational, and economic asset to Southeast Florida. The legislation calls for the creation of a commission dedicated to Biscayne Bay which will be tasked with bringing federal, state, and regional stakeholders to the table to strengthen ongoing efforts to protect the bay. The commission's first order of business will be to review and consolidate existing programs and projects into a strategic plan for bay improvement. The Biscayne Bay Commission is an advisory board to the Florida Department of Environmental Protection (FDEP).

Members include:
Governor's appointment **– Noah Valenstein (former FDEP Secretary)**
FDEP representative – **Adam Blalock (FDEP Deputy Secretary)**
Miami-Dade County Commission – **Comm. Rebeca Sosa, Comm. Jean Monestine, Comm. Danielle Cohen Higgins**
League of Cities – **City of Cutler Bay Mayor Tim Meerbott**
South Florida Water Management District – **Governing Board Member Charlie Martinez**
Florida Fish & Wildlife Conservation Commission – **Tom Reinert**
Florida Inland Navigational District – **T. Spencer Crowley**

Biscayne Bay Watershed Management Advisory Board Overview

July 2021

The Board of County Commissioners creates the Biscayne Bay Watershed Management Advisory Board (BBWMAB) by ordinance. The BBWMAB will provide recommendations and advice to the County Commission and Mayor on a variety of Biscayne Bay-related issues; and would make recommendations for a new Miami-Dade County Biscayne Bay watershed management plan. These recommendations could also be used to update chapter 24 of the Code of Miami-Dade County, to incorporate references to a new management plan and prioritized projects for Biscayne Bay.

The BBWMAB will complement the state's Biscayne Bay Commission and have a Miami-Dade County focus. It is envisioned that FDEP Biscayne Bay Commission will help to coordinate Biscayne Bay efforts with Miami-Dade County and dedicate additional state resources, such as professional expertise and grant funds, to Biscayne Bay restoration and recovery efforts.

October 2021

Miami-Dade County Commissioners appoint members to the Biscayne Bay Watershed Management Advisory Board:

Commissioner Rebeca Sosa - Miami-Dade
Commissioner Jean Monestime - Miami-Dade
Commissioner Danielle Cohen Higgins - Miami-Dade County
Mayor Vince Lago - Coral Gables - League of Cities
Mayor Tim Meerbott - Cutler Bay - League of Cities
Councilmember Crystal Wagar - Miami Shores - League of Cities
Commissioner Rachel Streitfeld - North Bay Village - League of Cities
Brett Bibeau - Miami River Commission
Dr. Todd Alan Crowl - Florida International University - Scientific Representatives
Dr. Diego Lirman - University of Miami - Scientific Representatives
Dr. Joan Browder - National Oceanic and Atmospheric Administration (NOAA) - Scientific Representatives
Dr. Erik Stabenau - Biscayne National Park
Julissa Kepner - Greater Miami Convention and Visitors Bureau
T. Spencer Crowley, III. Esq. - Builders Association of South Florida
Jannek Cederberg. PE - Florida Engineering Society
Gerald C. McGinley, Jr. - Miami Marine Council
John L. Alger - Dade County Farm Bureau
Roberto Torres - The Nature Conservancy - Environmental Representatives
Dave Doebler - Biscayne Bay Marine Health Coalition - Environmental Representatives

*Pending appointments –
Gene Duncan - Miccosukee Tribe | TBD – Greater Miami Chamber of Commerce

MIAMI-DADE COUNTY

ARTICLE CLXVII. - MIAMI-DADE COUNTY BISCAYNE BAY WATERSHED MANAGEMENT ADVISORY BOARD

Footnotes:
*--- (**145**) ---*
***Editor's note—** Ord. No. 21-72, § 1, adopted July 20, 2021, set out provisions intended for use as Art. CLXIV, §§ 2-2420—2-2426. Inasmuch as there were already provisions so designated, said section has been codified herein as Art. CLXVII, §§ 2-2440—2-2446 at the discretion of the editor.*

Sec. 2-2440. - Creation.

There is hereby created and established the Miami-Dade County Biscayne Bay Watershed Management Advisory Board.

(Ord. No. 21-72, § 1, 7-20-21)

Sec. 2-2441. - Composition; membership.

(a) *Composition.*

(i) The Biscayne Bay Watershed Management Advisory Board shall be composed of 21 voting members, all of whom shall have expertise and familiarity with issues related to Biscayne Bay and Miami-Dade County, as follows:

1. Three Miami-Dade County Commissioners;
2. Four representatives from municipalities that border Biscayne Bay, appointed by the Miami-Dade League of Cities;
3. One representative from the Miami River Commission, recommended by the Miami River Commission;
4. Three representatives with scientific expertise from each of, and as recommended by, the following institutions: one from the Florida International University Institute of Environment, one from the University of Miami Rosenstiel School of Marine and Atmospheric Science, and one from the National Oceanic and Atmospheric Administration;
5. One representative from Biscayne National Park, as recommended by the Superintendent of Biscayne National Park;
6. One representative from the Greater Miami Visitors and Convention Bureau, as recommended by the Greater Miami Visitors and Convention Bureau;
7. One representative of the development industry, as recommended by the South Florida Builders Association;
8. One representative who is a coastal engineer working in Miami-Dade County, as recommended by the Florida Engineering Society;
9. One representative who works in banking and finance in Miami-Dade County, as recommended by the Greater Miami Chamber of Commerce;
10. One representative of the marine or boating industry, as recommended by the Miami Marine Council;
11. One representative of the agricultural industry, recommended by the Dade County Farm Bureau;
12. One representative of the Miccosukee Tribe, as recommended by the Miccosukee Tribe; and
13. Two representatives from environmental groups, one recommended by the Nature Conservancy and one

recommended by the Biscayne Bay Marine Health Coalition.

(ii) Approval process.

1. The designated organizations and entities listed above in subsections 3-13 shall recommend at least one nominee from their respective organizations, including (a) the nominee's resume and (b) either the minutes of the meeting approving the nominee or, for entities such as Biscayne National Park, official correspondence from said entity, to the County Mayor, who shall forward the nominee to the Board of County Commissioners in a timely manner.
2. The Board of County Commissioners may then appoint such nominee to the Biscayne Bay Watershed Advisory Board via resolution.
3. Where a designated organization or entity fails to propose a nominee within 45 days of notification of a vacancy, the Biscayne Bay Watershed Advisory Board may recommend a nominee at a meeting of the Board, and the Board shall forward the minutes approving such nominee, together with the nominee's resume, to the County Mayor, who shall forward the nominee to the Board of County Commissioners in a timely manner. The Board of County Commissioners may then appoint such nominee via resolution.

(iii) The three Miami-Dade County Commissioners who serve on the Biscayne Bay Watershed Management Advisory Board shall be as follows: (1) one County Commissioner appointed by the Chair of the Board of County Commissioners; (2) one County Commissioner appointed by a vote of the Board of County Commissioners, which may be by motion; and (3) the Chair of the Commission committee with jurisdiction over Biscayne Bay and resilience matters.

(b) *Qualifications.*

(i) Members of the Biscayne Bay Watershed Management Advisory Board shall have experience and familiarity with issues related to Biscayne Bay and Miami-Dade County.

(ii) Each member of the Biscayne Bay Watershed Management Advisory Board shall be a permanent resident and duly qualified elector of Miami-Dade County, unless the Board of County Commissioners waives the residency requirement by a two-thirds vote of its membership, and shall be of an outstanding reputation of integrity, responsibility, and commitment to serving the community.

(iii) Unless the Board of County Commissioners by a two-thirds vote of its membership waives the residency requirement, any member of the Biscayne Bay Watershed Management Advisory Board who ceases to be a resident of Miami-Dade County during the term of his or her office shall immediately advise the Clerk of the Board of County Commissioners, and upon being advised by the Clerk of such circumstances, the position shall be deemed vacant.

(iv) To ensure that members of the Biscayne Bay Watershed Management Advisory Board are as familiar as possible with Biscayne Bay and Miami-Dade County, every effort shall be made to appoint members who are permanent residents and duly qualified electors of Miami-Dade County.

(c) *Compensation.* Biscayne Bay Watershed Management Advisory Board members shall serve without compensation.

(d) *Vacancies.* Vacancies shall be filled in the same manner by which the original members were appointed.

(e) *Attendance.* Attendance requirements for members shall be in accordance with Section 2-11.39.

(f) *Terms.* Each member shall be appointed for a term of four years. A member may serve until his or her successor has been duly appointed and qualified.

(Ord. No. 21-72, § 1, 7-20-21)

Sec. 2-2442. - Organization.

(a) *Bylaws, Rules, and Regulations.* The Biscayne Bay Watershed Management Advisory Board shall establish, adopt, and amend bylaws, rules, and regulations for its own governance. In the event that the Biscayne Bay Watershed Management Board does not adopt rules or policies, or its adopted rules or policies do not address a particular situation, then the applicable provisions of the Board of County Commissioners' Rules of Procedure, as such may be amended from time to time, shall apply.

(b) *Officers.* The Biscayne Bay Watershed Management Advisory Board shall elect a chairperson and a vice-chairperson from among its members, who shall serve at the will of the Biscayne Bay Watershed Management Advisory Board. The chairperson shall preside at all meetings at which he or she is present. The vice-chairperson shall act as chairperson in the absence of the chairperson.

(c) *Staff Support.* The Biscayne Bay Watershed Management Advisory Board shall have assistance from staff, which may include the Chief Bay Officer, Department of Regulatory and Economic Resources, or such other staff as may be designated by the County Mayor or the County Mayor's designee. The staff shall:

(i) Maintain and keep the records of the Biscayne Bay Watershed Management Advisory Board;

(ii) Prepare, in cooperation with the chairperson, the agenda for each meeting;

(iii) Be responsible for the preparation of such reports, minutes, documents, resolutions, or correspondences as the Biscayne Bay Watershed Management Advisory Board may direct;

(iv) Organize, facilitate, provide critical support for, and actively participate in summits, conferences or other similar events that are open to the public and focused on Biscayne Bay and for which, on at least an annual basis, the following Biscayne Bay topics must be addressed at such events:

1. Technical and science matters;
2. Community awareness, education, and engagement;
3. Nutrient reduction; and

(v) Report to the Biscayne Bay Watershed Management Board as to ideas and concerns discussed and presented at summits, conferences, and other similar events related to Biscayne Bay; and

(vi) Generally administer the business and affairs of the Biscayne Bay Watershed Management Advisory Board, subject to budgetary limitations.

(d) *Quorum.* A quorum shall be required to transact any business or exercise any power vested in the Biscayne Bay Watershed Management Advisory Board. A quorum of the Biscayne Bay Watershed Management Advisory Board shall consist of a majority of those duly appointed to the board, provided that at least half of the full board membership has been appointed.

(Ord. No. 21-72, § 1, 7-20-21)

Sec. 2-2443. - Meetings.

The Biscayne Bay Watershed Management Advisory Board shall hold meetings as it deems necessary. A special meeting may be called by the chairperson or by a written request of the majority of those persons duly appointed to the board.

(Ord. No. 21-72, § 1, 7-20-21)

Sec. 2-2444. - Powers and duties.

The Biscayne Bay Watershed Management Advisory Board shall have the following powers, duties, functions, and responsibilities:

(a) Develop recommendations to the Board of County Commissioners and the County Mayor as to a detailed Watershed Restoration Plan, with the goals of achieving water quality and seagrass restoration and Biscayne Bay health, recovery, and resilience;

(b) Make recommendations to the Board of County Commissioners and the County Mayor as to proposed improvements to infrastructure and operations which may impact or otherwise be related to Biscayne Bay;

(c) Make recommendations to the Board of County Commissioners and the County Mayor as to proposed revisions to County regulations which may impact or otherwise be related to Biscayne Bay;

(d) Make recommendations to the Board of County Commissioners and the County Mayor as to public information campaigns and education; restoration projects; and water quality monitoring and targets;

(e) Make recommendations to the Board of County Commissioners and the County Mayor as to any matter related to the protection and restoration of Biscayne Bay;

(f) Make recommendations to the Board of County Commissioners and the County Mayor as to funding strategies, including water quality projects which should be funded and how to best prioritize water quality restoration in the County's annual budgets;

(g) Consult and communicate with the County's Chief Bay Officer, the Office of Resilience, and the Division of Environmental Resources Management, or other County staff as may be designated by the County Mayor;

(h) Consult and communicate with other governmental entities and agencies, including, as appropriate, municipalities within Miami-Dade County, the South Florida Water Management District, the Florida Department of Environmental Protection, the United States Department of the Interior, the United States Army Corps of Engineers, the National Oceanic and Atmospheric Administration, the Florida Fish and Wildlife Conservation Commission, the Florida Inland Navigational District, the Biscayne Bay Regional Restoration Coordination Team, academic institutions, and relevant non-profit organizations, so that the Biscayne Bay Watershed Management Advisory Board's recommendations build upon and consider the knowledge, strategies, and projects of such governmental entities, agencies, academic institutions, and non-profit organizations;

(i) Participate in summits and conferences related to Biscayne Bay to promote the sharing of information and ideas and to raise community consciousness as to the importance of Biscayne Bay, and where critical support for the creation of these summits and conferences shall be provided by the County's Chief Bay Officer and the Office of Resilience, or other County staff as may be designated by the County Mayor;

(j) Serve as a forum at which individuals and groups can express concerns and provide suggestions related to the protection and restoration Biscayne Bay;

(k) Strengthen communication on Biscayne Bay issues between the County and municipalities and other governmental agencies and entities; and

(l) Perform such other duties as may from time to time be assigned to it by the Board of County Commissioners.

(Ord. No. 21-72, § 1, 7-20-21)

Sec. 2-2445. - Applicability of County rules and procedures.

(a) All proceedings of the Biscayne Bay Watershed Management Advisory Board shall be conducted in accordance with Florida's open government laws, including but not limited to, the Government in the Sunshine Law and the Citizens' Bill of Rights of the Miami-Dade Home Rule Charter.

(b) Members of the public shall be given a reasonable opportunity to be heard on any proposition before the Biscayne Bay Watershed Management Advisory Board.

(c) The Biscayne Bay Watershed Management Advisory Board shall be deemed an "agency" for the purposes of the State's public records laws and shall be governed by all State and County conflict of interest laws, as applicable, including the Miami-Dade County Conflict of Interest and Code of Ethics Ordinance, Section 2-11.1 of this code.

(Ord. No. 21-72, § 1, 7-20-21)

Sec. 2-2446. - Reports.

The chairperson or vice-chairperson shall present to the Board of County Commissioners on an annual basis a written report describing the Biscayne Bay Watershed Management Advisory Board's activities and shall appear as needed before the Board of County Commissioners to present any matters pertinent to the Biscayne Bay Watershed Management Advisory Board. The completed reports required by this section shall be placed on an agenda of the Board of County Commissioners pursuant to Ordinance No. 14-65.

(Ord. No. 21-72, § 1, 7-20-21)

An act relating to Biscayne Bay; creating s. 163.11, F.S.; establishing the Biscayne Bay Commission; providing for commission purpose, membership, duties, and authority; amending s. 403.086, F.S.; prohibiting sewage disposal facilities from disposing of any wastes into Biscayne Bay without providing advanced waste treatment; providing an effective date.

Be It Enacted by the Legislature of the State of Florida:

Section 1. Section 163.11, Florida Statutes, is created to read:

163.11 Biscayne Bay Commission.—

(1) The Biscayne Bay Commission is hereby established as an advisory council, as defined in s. 20.03, within the Department of Environmental Protection. The department shall provide administrative support and service to the commission as requested by the commission and within the available resources of the department. The commission shall comply with the requirements of s. 20.052 except as otherwise provided in this section.

(2) The commission shall serve as the official coordinating clearinghouse for all public policy and projects related to Biscayne Bay to unite all governmental agencies,

businesses, and residents in the area to speak with one voice on bay issues; to develop coordinated plans, priorities, programs, and projects that might substantially improve the bay area; and to act as the principal advocate and watchdog to ensure that bay projects are funded and implemented in a proper and timely manner.

(3)(a) The Biscayne Bay Commission shall be comprised of the following members:

1. One member appointed by the Governor.

2. Three members of the Miami-Dade Board of County Commissioners, appointed by the board.

3. One member of the Miami-Dade County League of Cities who resides within the boundaries of a city that borders Biscayne Bay, nominated by the league and appointed by the Secretary of Environmental Protection. To the extent practicable, the league must nominate a member from each city that borders Biscayne Bay on a rotating basis.

4. One member of the South Florida Water Management District Governing Board who resides in Miami-Dade County, appointed by the board.

5. One representative of the Department of Environmental Protection, appointed by the Secretary of Environmental Protection.

6. One representative of the Fish and Wildlife Conservation Commission, appointed by the commission.

7. One representative of the Florida Inland Navigation District, appointed by the district.

(b) Members shall serve for a term of 4 years; however, for the purpose of providing staggered terms, the initial appointments of representatives of the South Florida Water Management District Governing Board, the Department of Environmental Protection, the Fish and Wildlife Conservation Commission, and the Florida Inland Navigation District shall be for a term of 2 years. A vacancy shall be filled for the remainder of the unexpired term in the same manner as the initial appointment. Notwithstanding s. 20.052, private citizen members of the commission are not required to be confirmed by the Senate.

(c) All members shall be voting members.

(d) Members of the commission shall serve without compensation and are not entitled to reimbursement for per diem and travel expenses pursuant to s. 112.061.

(4) The commission may meet monthly, but shall meet at least quarterly.

(5) The commission shall:

(a) Consolidate existing plans, programs, and proposals, including the recommendations outlined in the June 2020 Biscayne Bay Task Force report, into a coordinated strategic plan for improvement of Biscayne Bay and the surrounding areas, addressing environmental, economic, social, recreational, and

aesthetic issues. The commission shall monitor the progress on each element of such plan and shall revise the plan regularly.

(b) Prepare a consolidated financial plan using the projected financial resources available from the different jurisdictional agencies. The commission shall monitor the progress on each element of such plan and revise the plan regularly.

(c) Provide technical assistance and support as needed to help implement each element of the strategic and financial plans.

(d) Work in consultation with the United States Department of the Interior.

(e) Provide a forum for exchange of information.

(f) Act as a clearinghouse for public information.

(6) The commission may establish subcommittees as necessary to carry out its responsibilities.

(7) The commission shall submit a semiannual report describing the accomplishments of the commission and each member agency, as well as the status of each pending task, to the Miami City Commission, the Miami-Dade County Board of County Commissioners, the Mayor of Miami, the Mayor of Miami-Dade County, the Governor, and the chair of the Miami-Dade County Legislative Delegation. The first report shall be submitted by January 15, 2022. The report shall also be made available on the

Department of Environmental Protection's website and Miami-Dade County's website.

(8) This act does not affect or supersede the regulatory authority of any governmental agency or any local government, and any responsibilities of any governmental entity relating to Biscayne Bay remain with the respective governmental entity.

Section 2. Paragraph (c) of subsection (1) of section 403.086, Florida Statutes, is amended to read:

403.086 Sewage disposal facilities; advanced and secondary waste treatment.—

(1)

(c) Notwithstanding this chapter or chapter 373, sewage disposal facilities may not dispose of any wastes into Old Tampa Bay, Tampa Bay, Hillsborough Bay, Boca Ciega Bay, St. Joseph Sound, Clearwater Bay, Sarasota Bay, Little Sarasota Bay, Roberts Bay, Lemon Bay, Charlotte Harbor Bay, Biscayne Bay, or, beginning July 1, 2025, Indian River Lagoon, or into any river, stream, channel, canal, bay, bayou, sound, or other water tributary thereto, without providing advanced waste treatment, as defined in subsection (4), approved by the department. This paragraph does not apply to facilities which were permitted by February 1, 1987, and which discharge secondary treated effluent, followed by water hyacinth treatment, to tributaries of tributaries of the named waters; or to facilities permitted to discharge to the nontidally influenced portions of the Peace

River.

Section 3. This act shall take effect upon becoming a law.

3. Board Member Bios

Miami-Dade Legislative Item
File Number: 212712

File Number: 212712 **File Type:** Report **Status:** Approved
Version: 0 **Reference:** **Control:** Board of County Commissioners
File Name: APPT COMMRS SOSA, MONESTIME & COHEN HIGGINS TO BISCAYNE BAY **Introduced:** 11/1/2021
Requester: NONE **Cost:** **Final Action:** 10/19/2021
Agenda Date: 10/19/2021 **Agenda Item Number:** 15C8
Notes: **Title:** APPOINTMENTS OF COMMISSIONERS REBECA SOSA, JEAN MONESTIME AND DANIELLE COHEN HIGGINS TO THE BISCAYNE BAY COMMISSION AND COMMISSIONER DANIELLE COHEN HIGGINS TO THE BISCAYNE BAY WATERSHED MANAGEMENT ADVISORY BOARD
Indexes: NONE **Sponsors:** NONE
Sunset Provision: No **Effective Date:** **Expiration Date:**
Registered Lobbyist: None Listed

Legislative History

Acting Body	Date	Agenda Item	Action	Sent To	Due Date	Returned	Pass/Fail
Board of County Commissioners	10/19/2021	15C8	Approved				P

REPORT: Assistant County Attorney Abbie Schwaderer Raurell stated that the Board of County Commissioners could appoint three County Commissioners to the State's Biscayne Bay Commission and one County Commissioner to the County's Biscayne Bay Watershed Management Advisory Board. Assistant County Attorney Schwaderer Raurell read that Chairman Jose "Pepe" Diaz moved to appoint Commissioners Rebeca Sosa, Jean Monestime and Danielle Cohen Higgins to the Biscayne Bay Commission and that Commissioner Cohen Higgins was appointed to the Biscayne Bay Watershed Management Advisory Board. Assistant County Attorney Schwaderer Raurell advised that the Chairman could make a direct appointment to the Biscayne Bay Watershed Management Advisory Board without a vote by the Board. She read that Chairman Diaz appointed Commissioner Monestime to the Biscayne Bay Watershed Management Advisory Board and Commissioner Sosa would serve as a member of the same board.

Legislative Text

There is no text currently available online for this item.

About Commissioner Rebeca Sosa

Share:

Rebeca Sosa has served on the Miami-Dade County Commission as District 6 commissioner since June 2001. She has been re-elected four times - most recently in 2014 without opposition- to represent the residents of the City of Miami, Coral Gables, West Miami, Hialeah and Miami Springs and the unincorporated communities of Schenley Park, Coral Villas, Red Bird, Coral Terrace, Little Gables and Fontainebleau.

On Nov. 20, 2012, she was elected by her colleagues as Chairwoman of the County Commission where she served a two-year term. During her chairmanship, Commissioner Sosa made it a priority to bring government closer to the people and led the effort to hold a County Commission meeting in South Dade at the South Miami-Dade Cultural Arts Center. This would be the first, and only instance to date, of Commissioners holding their official meeting outside of County Hall.

The Miami Herald Editorial Board had the following assessment of Commissioner Sosa's tenure as Chairwoman:

"We give a tip of the hat to Rebeca Sosa, who is ending her stint as chair. She did an excellent job as the commission leader, seeking harmony and bringing decorum and order to board meetings, which in the past had lapsed into late-night imbroglios.

Ms. Sosa led with a firm but friendly hand. She was the epitome of kindness to even the most troublesome public speaker who came in front of the commission. She was never anything but courteous and cognizant that the commission serves at the pleasure of the residents of Miami-Dade. Job well done, Ms. Sosa.

We hope the board will maintain her momentum and work effectively for the welfare and progress of this community — one of the most dynamic in the nation."

As Chairwoman, Commissioner Sosa put environmental concerns at the forefront to tackle the issue of Sea Level Rise. Through her leadership, a Sea Level Rise Taskforce was created and their recommendations were proffered to the Board of County Commissioners for adoption. These recommendations form the foundation for Miami-Dade's response to Sea Level Rise.

Commissioner Sosa was born in Camaguey, Cuba. She received her Bachelor Degree in Secondary Education from the University of Puerto Rico and a Bachelor Degree in Elementary Education from Saint Thomas University where she graduated Summa Cum Laude. She holds certifications both in elementary education and as an instructor for English for Speakers of Other Languages (ESOL). Commissioner Sosa has been an educator for more than 30 years and is currently a teacher-trainer for Miami-Dade County Public Schools.

Prior to joining Miami-Dade County, Commissioner Sosa served as mayor of the City of West Miami from 1994 to 2001 where her leadership resulted in the city's recovery from a 52 percent budget deficit, thus removing it from the Governor's Emergency List. During her tenure, she was able to secure more than $5 million in grants for the City for capital improvement projects as well as improvements to its drainage and parks systems.

Sadly, Commissioner Sosa lost her beloved husband Armando Sosa in 2017 after a difficult a battle with cancer. She is the proud mother of Armando, Jr. and Veronica, and grandmother to Alexander and Giuiliana.

About Commissioner Jean Monestime

Share:

Commissioner Jean Monestime strongly believes that there is no greater gift than the gift of service to others. Throughout his more than 30 years as a resident of Miami-Dade County, Monestime has worked hard to achieve the American Dream, becoming the first Haitian-American to serve on the Board of County Commissioners, where he has worked to expand opportunities for others, thus paving the way for future generations.

Monestime was first elected to represent District 2 on the Miami-Dade Board of County Commissioners on November 2, 2010. District 2 includes portions of the City of Miami, North Miami, North Miami Beach, Opa-locka, and the unincorporated areas of Liberty City, Biscayne Gardens and North Central Dade. He was overwhelmingly re-elected in August 2014 for a second four-year term, and in November 2014 chosen unanimously to serve as Chairman of the Miami-Dade Board of County Commissioners for two years. On February 20, 2015 Commissioner Monestime was selected unanimously by municipal, school board, and commission colleagues to preside over the Miami-Dade Metropolitan Planning Organization (MPO) Governing Board.

Commissioner Monestime exemplifies an active life of service. He is a former City of North Miami Councilman and Vice-Mayor. He was a Delegate to the National Democratic Convention and later selected as a Florida Electoral College member for the 2012 U.S. presidential election, another prestigious and historic appointment!

Additionally, he is the President of JEMO Realty, Inc, a full-service real estate and insurance company, and JEMO Enterprises, LLC, a business consulting agency. Moreover, he is a former Miami-Dade County Public School teacher and worked as an adjunct professor of management at the University of Phoenix, South Florida campus.

As an advocate for equal justice and economic development, Monestime has lectured and presented dozens of seminars. He has been a guest on several radio and TV programs on issues related to community leadership, business and financial matters, as well as local government and civism.

Among his extensive civic involvements, Monestime has served as a member of the NAACP, National Black MBA Association, Haitian-American Grassroots Coalition, the African-American NON-GROUP Coalition, Turner Tech High School Academy of Finance Board, Haitian American Political Action Committee, Little Haiti Optimist Club, the Society of Haitian-American Professionals and Entrepreneurs, the Florida Governor’s Haiti Advisory Group and the University and Community Zone Schools Advisory Committee. Commissioner Monestime has been an active member of Eden SDA Church since 1981, where he's served as Head Elder and currently as Choir Director.

The Commissioner has an MBA from the H. Wayne Huizenga School of Business and Entrepreneurship at Nova Southeastern University and a bachelor’s degree in Finance from Florida International University. Mr. Monestime is also a graduate of the Senior Executives in State and Local Government program at Harvard University's Kennedy School of Government.

He is married to Kettia and they have two adult sons.

About Commissioner Danielle Cohen Higgins

Share:

Danielle Cohen Higgins is a mother of two young children, wife, attorney, and small business owner proudly representing Miami-Dade County's 8th District on the Board of County Commissioners. As a first-generation American, she is the daughter of Jamaican immigrants who came to the United States in search of better opportunities and the American Dream. From extremely humble beginnings, she was born at the County's public hospital, attended all Miami-Dade County Public Schools, and spent the early part of her life in what is now public housing. She graduated high school in the top 2% of her class earning a scholarship to the University of Florida where she became a University Scholar. She is the first in her family to attend and graduate college.

After graduating from the University of Florida in 2003, Danielle attended law school at Florida State University. She earned her Juris Doctorate degree from FSU and was admitted to the practice of law at the age of 24. She began her legal career right away in 2006 at the prestigious law firm of Greenberg Traurig where she focused on Civil Litigation. In 2009, she opened her own civil litigation law firm, Cohen Law, with the mission of providing excellent yet cost-efficient legal services to small businesses and individuals. Cohen Higgins continues to run her law practice in addition to serving as the Miami-Dade County Commissioner for District 8. She also currently serves as a Board Member of The Children’s Trust.

Prior to becoming a County Commissioner, Cohen Higgins sat on the Board of Directors for the South Florida American Heart Association, served as a Young Ambassador to the Miami Children’s Health Foundation, and worked as a mentor and Board Member with Take Stock in Children and was elected to sit on the largest statewide board of trial attorneys, the Florida Justice Association. Her current policy priorities include innovating government to be more proactive than reactive, addressing severe housing affordability challenges, which are pricing families out of Miami-Dade County, supporting common-sense environmental sustainability measures, and bringing effective transit solutions to the residents of District 8.

September 9, 2021

Ms. Bague:

On behalf of President Joseph Corradino, I am pleased to inform you that the following members will be representing the League on the Biscayne Bay Watershed Management Board. Below are their names and contact information:

Mayor Vince Lago
City of Coral Gables
405 Biltmore Way
Coral Gables, FL 33134
Phone: (305) 460-5220
E-mail: vlago@coralgables.com

Mayor Tim Meerbott
Town of Cutler Bay
10720 Caribbean Blvd., Suite 105
Cutler Bay, Florida 33189
Phone: (305) 234-4262
E-mail: tmeerbott@cutlerbay-fl.gov

Councilwoman Crystal Wagar
Village of Miami Shores
10050 NE 2nd Avenue
Miami Shores, FL 33138
Phone: (786) 501-5595
E-mail: crystalwagar@msvfl.gov

Commissioner Rachel Streitfeld
North Bay Village
1666 Kennedy Causeway, 3rd Floor
North Bay Village, Florida 33141
Phone: (305) 978-0376
E-Mail: RStreitfeld@nbvillage.com

Please confirm receipt of this email and feel free to contact me if you have any questions.

Thank you,

Richard Kuper, Esq.
Executive Director
Miami-Dade County League of Cities
Biscayne Building
19 West Flagler Street, Ste. 707
Miami, FL 33130
(305) 416-4155
(305) 416-4157
mdclc@bellsouth.net
www.mdclc.org

Vince C. Lago was elected Mayor of the City of Coral Gables in April 2021 in a decisive victory. Lago, 43 becomes one of the youngest persons to hold that office in the city's history.

Prior to his election, he served as City Commissioner for eight years holding the post of Vice Mayor from 2019 to 2021.

Throughout the years, the Mayor has dedicated his time to South Florida civic and philanthropic causes where he has held leadership roles. A former member of the Coral Gables Planning and Zoning Board, he brings a reasonable and creative approach to land use while remaining committed to preserving Coral Gables' unique character and history and places the interests of residents first. During his tenures, Mayor Lago has spearheaded numerous legislative initiatives and has led the City's sustainability efforts.

Previously, he served on the Board of Directors of the Coral Gables Community Foundation where he worked to promote and enhance the quality of life for residents. He also assisted in raising funds to help the elderly, youth, and disabled population in the community.

A strong proponent of arts and culture, he has served on the board of Locust Projects for more than 10-years, a non-profit contemporary art organization that supports emerging and mid-career artists. He also served on the City of Miami's Arts and Entertainment Council. Additionally, he is on the Board of Directors of the Coral Gables Museum.

He holds a bachelor's in Construction Management from the School of Engineering at Florida International University (FIU) as well as a bachelor's in Business Administration. Committed to advancing higher education, he serves on FIU's President's Council and has raised scholarship funds for his alma mater.

He began his community involvement at an early age when as a college student he was appointed to the board of La Liga Contra el Cancer, a local organization that provides no-cost cancer treatment to those in need.

An advocate of advancing the region's planning and transportation needs and enhancing energy conservation, in 2017 he was appointed to represent Coral Gables on the board of the Miami-Dade Transportation Planning Organization. Since 2019 he has served on the Junior League of Miami Community Advisory Board where he provides insight and expertise on important community advocacy projects.

He is an executive at a renowned management and design firm focused on commercial construction projects specializing in medical and educational facilities.

He resides in Coral Gables with his wife Olga Mari Saizarbitoria and daughters Mirentxu and Catalin.

Mayor

Tim Meerbott

Tim Meerbott has deep roots in the Cutler Bay community, living here since he was a baby. While growing up, his parents, Glenda and Ed, who were very active members in their community, taught him an important lesson: If you want the world to be a better place, you can't wait for someone else to do it.

And that is just what Tim decided to do—work toward making Cutler Bay a better place to live, work and play. He has the honor of being the first Town Council Member of Cutler Bay to have ever been sworn into office, a position he held from 2006-2010. Some of the highlights of his extensive involvement with the Town include being a member of the Town's Charter Committee in 2014 and 2018, a Town Business Liaison from 2006-2010, and Co-Creator and Chair of the South Dade Municipal Coalition, among many other achievements.

Some may say, however, that his greatest achievement was his sponsorship of the green initiative that allowed golf carts to ride through the Town's streets—something that has become a staple of this community.

Tim believes this community is a wonderful place to raise a family. He raised his two sons, Lance and Kyle, now in their 20s, in Cutler Bay—along with his wife of 28 years, Cosette, an elementary school teacher who passed away on September 22, 2015. He understands the character and small-town feel that our community has and works hard to preserve it.

In addition to his heavy involvement with the Town, Tim has also participated in many schools' sports teams and faith-based organizations. He holds a Bachelor of Science Degree in Economics from Florida International University and is currently a Senior Division Manager for Allstate Corporation—where he has worked at for over 30 years.

Crystal M. Wagar

Crystal Wagar is the Mayor of Miami Shores Village and also an accomplished attorney in South Florida. In April of 2019, after having won the most votes and appearing on 68% of all ballots cast in a field of seven, Crystal made history as the first African American ever elected in the Village's 89-year history. Crystal is President of Connor Wagar, LLC and Senior Advisor at LSN Partners, where she currently assists clients with procurement matters, strategic communications, community engagement and outreach and provides assistance with local legislative matters.

In 2013, Crystal moved to Singapore where she spent nearly four years representing the United States of America in her role as spouse to the United States Ambassador.

Crystal has diverse work experience serving as general counsel for the Black Economic Development Coalition, interim city manager for the Village of El Portal, as well as serving as the Chief Policy Aide and Chief of Staff to a former Miami-Dade County Commissioner. Crystal has worked as an attorney with the law firms of Tew Cardenas and Becker and Poliakoff respectively before opening her own boutique government relations and strategic communications firm.

Crystal has been civically active and a visible player in Miami-Dade County for over 20 years. She is an appointed member of the Children's Museum Board of Directors, member of the National African American Mayors Association, member of the Miami-Dade County League of Cities, a member of Miami Country Day School's Board of Trustees and an active member of Jack and Jill of America Miami Chapter.

She has previously served on the executive board of Camillus House and as a board member of the Everglades Trust and the Citizens Transportation Committee of Miami-Dade County.

Crystal is also an alumnus of the Miami Fellows Initiative and the United States German Marshall Fund fellowship program.

She is a graduate of Temple University and received her law degree from William Mitchell College of Law.

RACHEL A. STREITFELD, ESQ.

1455 N. Treasure Drive #7O North Bay Village, FL 33141

(954) 290-8600 • rachel.streitfeld@gmail.com

EXPERIENCE

BRIGHT SIDE LEGAL – NORTH BAY VILLAGE, FL

Chief Advocacy Officer, April 2018 – Present

Bright Side Legal is a boutique land use and zoning law firm securing entitlements for resilient development and protecting the property rights of the client. I represent landowners - whether individual homeowners or developers - in public hearings before land use boards and in their matters with local governments. Specific experience includes site plan approval, variance approval, fee mitigation, tree removal and mitigation, code interpretation, and use licensing in jurisdictions such as the Cities of Hollywood, Miami Beach, Aventura, North Miami Beach, Miami, Port St. Lucie, the Villages of Biscayne Park and North Bay Village, Palm Beach County, and Miami-Dade County.

ERIN L. DEADY, P.A. – DELRAY BEACH, FL

Associate, October 2018 – Present

As an associate at this environmental law firm, I advise private sector and local government clients on sea level rise planning: climate change "adaptation and resilience" is a fast-growing area of expertise and our firm is a vanguard in the space. Practice areas include municipal, environmental, administrative, land use, and zoning law; clients include Monroe, Martin, and St. Lucie Counties and the Cities of Pensacola, Sunrise, and Lighthouse Point. We work with engineers, data scientists, and other environmental and design professionals to assess area vulnerabilities and provide innovations and recommendations, as well as track and influence environmental policy at the state and local levels.

SHUBIN AND BASS, P.A. - MIAMI, FL

Attorney, August 2016 - March 2018

As a first-year associate representing major institutions, private clubs, and luxury malls in real property entitlement proceedings, I successfully advanced client interests in quasi-judicial hearings and before local government staff, prepared winning appeals of quasi-judicial and administrative decisions, and drafted litigation materials. I gained comprehensive experience with Miami 21 and Special Area Plans, and conducted extensive research and writing regarding land development regulations, as well as statutory and constitutional legal questions.

J STREET - PLANTATION, FL/WASHINGTON, DC

Southern Regional Director, December 2011 - July 2013; Government Affairs Associate, April 2009 - January 2012

I opened the first Florida office of this major national advocacy organization and directed its grassroots and political efforts in five states, including extensive public speaking, press and public relations management, public event strategy and organization, and our advocacy programs. I managed Congressional meetings, lobby day visits to Washington DC, media campaigns, and leadership development training. I directed strategic relationships for fundraising and political capital, as well as advised Congressional candidates for PAC endorsement to achieve a 100% winning record in 2012. As a federally-registered lobbyist, I managed a portfolio of more than ninety Congressional offices, educating and advising Members of Congress on American foreign policy regarding Israel, Iran, and the broader Middle East.

U.S. REPRESENTATIVE DEBBIE WASSERMAN SCHULTZ - WASHINGTON, DC

Staff & Research Assistant, June 2007 - April 2009

I ran the Congressional office of one of the most active members of the U.S. House of Representatives, directing in-person constituent relations and all staff coordination on Capitol Hill. I assembled the congresswoman's daily briefing materials, delegated tasks to all staff, and prepared remarks, memoranda, and the congresswoman's schedule. I staffed and advised the congresswoman during meetings and events, as well as researched and briefed staff on the full range of public policy issues. I managed interns, the Capitol Tour and flag request programs, legislative staff meetings, and front office flow. I maintain exceptional relationships with the congresswoman and her staff today.

EDUCATION

University of Miami School of Law - Coral Gables, FL

Juris Doctor, May 2016 (3.44/4.0)

The George Washington University -Washington, DC

Bachelor of Arts in Middle Eastern Studies and Political Science, June 2007 (3.45/4.0)

COMMUNITY LEADERSHIP

Treasure Island Commissioner, North Bay Village (*elected unopposed in November 2020 for a four-year term*)

Vice President, American Civil Liberties Union of Florida - Greater Miami Chapter

Member, The Florida Bar

MEMORANDUM

Agenda Item No. 8(L)(1)

TO:	Honorable Chairman Jose "Pepe" Diaz and Members, Board of County Commissioners	**DATE:**	October 19, 2021
FROM:	Geri Bonzon-Keenan County Attorney	**SUBJECT:**	Resolution waiving, by a two-thirds vote of the full membership of the Board of County Commissioners, the resident elector requirement of section 2-11.38 of the Code and appointing members to the Miami-Dade County Watershed Management Advisory Board; appointing Brett Bibeau; Dr. Todd Crowl; Dr. Diego Lirman; Dr. Joan Bowder; Dr. Erik Stabenau; Julissa Kepner; T. Spencer Crowley III; Jannek Cederberg, P.E.; Gerald C. McGinley, Jr.; John L. Alger; Roberto Torres; and David Doebler, each for a four-year Term

The accompanying resolution was prepared by the Regulatory and Economic Resources Department and placed on the agenda at the request of Prime Sponsor Commissioner Rebeca Sosa.

Geri Bonzon-Keenan
County Attorney

GBK/smm

Memorandum

Date: October 19, 2021

To: Honorable Chairman Jose "Pepe" Diaz
and Members, Board of County Commissioners

From: Daniella Levine Cava
Mayor

Subject: Twelve Appointments to the Miami-Dade County Biscayne Bay Watershed Management Advisory Board; Waiving Requirement that all Board Members be Permanent Residents and Electors of Miami-Dade County

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Recommendation

It is recommended that the Board of County Commissioners waive the resident elector requirement, for one nominee, and appoint twelve individuals to the Miami-Dade County Biscayne Bay Watershed Management Advisory Board (Advisory Board), as detailed herein.

Scope

The recommendations and actions of the Advisory Board have a countywide impact.

Delegation of Authority

The proposed resolution does not delegate authority to the County Mayor or County Mayor's designee.

Fiscal Impact/Funding Source

There is no fiscal impact associated with appointing twelve members to the Advisory Board. The primary cost of creating the Advisory Board would be staff time by the County's Chief Bay Officer and technical and professional staff throughout County departments, who will also provide support as necessary. Additional costs such as hosting of summits and conferences for the purposes of developing the Watershed Recovery Plan will be in the Office of Resilience's annual operating budget.

Track Record/Monitor

The Advisory Board will be staffed by the Chief Bay Officer and support staff from the Department of Regulatory and Economic Resources, Division of Environmental Resources and Management (DERM). Technical and professional staff throughout County departments will provide support as necessary.

Background

The Miami-Dade County Biscayne Bay Watershed Management Advisory Board (Advisory Board) was created by the Board of County Commissioners, through Ordinance No. 21-72, as recommended by the Biscayne Bay Task Force. The Advisory Board was created by newly enacted Article CLXIV of Chapter 2, Sections 2-2420 to 2-2426 of the Code of Miami-Dade County (Code) as a permanent board established to advise the Board of County Commissioners ("BCC") and the County Mayor on issues related to Biscayne Bay, including, but not limited to, (1) the long-term management of Biscayne Bay, (2) health of the marine community, (3) run-off

and other impacts to water quality, (4) marine debris, (5) education and outreach, (6) economic development and vitality related to Biscayne Bay, and (7) how conditions in Biscayne Bay may affect residents and property owners. These recommendations could also be used to update Chapter 24 of the Code to incorporate a new management plan and prioritize projects for Biscayne Bay. In addition, the new board will provide a local perspective on Biscayne Bay problems, issues, and solutions.

The Advisory Board will consist of 21 members. Pursuant to section 2-2421 of the Code, 14 of the members will be representatives from various entities and organizations, as recommended by the respective entity or organization, as follows:

1. One representative from the Miami River Commission, recommended by the Miami River Commission;
2. Three representatives with scientific expertise from each of, and as recommended by, the following institutions: one from the Florida International University Institute of Environment, one from the University of Miami Rosenstiel School of Marine and Atmospheric Science, and one from the National Oceanic and Atmospheric Administration;
3. One representative from Biscayne National Park, as recommended by the Superintendent of Biscayne National Park;
4. One representative from the Greater Miami Visitors and Convention Bureau, as recommended by the Greater Miami Convention and Visitors Bureau;
5. One representative of the development industry, as recommended by the South Florida Builders Association;
6. One representative who is a coastal engineer working in Miami-Dade County, as recommended by the Florida Engineering Society;
7. One representative who works in banking and finance in Miami-Dade County, as recommended by the Greater Miami Chamber of Commerce;
8. One representative of the marine or boating industry, as recommended by the Miami Marine Council;
9. One representative of the agricultural industry, recommended by the Dade County Farm Bureau;
10. One representative of the Miccosukee Tribe, as recommended by the Miccosukee Tribe; and
11. Two representatives from environmental groups, one recommended by the Nature Conservancy and one recommended by the Biscayne Bay Marine Health Coalition.

After the nominees are recommended for appointment pursuant to procedures in Ordinance No. 21-72, such nominees may be appointed to the Advisory Board by the Board of County Commissioners via resolution. The recommendations of the Miccosukee Tribe and the Greater Miami Chamber of Commerce have not been submitted as of the date that this resolution was prepared.

The following 12 nominations were submitted to the County and are recommended for appointment to the Advisory Board.

Miami River Commission
The Miami River Commission has recommended Mr. Brett Bibeau for appointment. Correspondence from the Miami River Commission and the resume of the nominee are attached as Exhibit 1.

Florida International University Institute of Environment
Florida International University (FIU) has recommended Dr. Todd Crowl for appointment. Correspondence from FIU and the resume of the nominee are attached as Exhibit 2.

University of Miami Rosenstiel School of Marine and Atmospheric Science
University of Miami Rosenstiel School of Marine and Atmospheric Science has recommended Dr. Diego Lirman for appointment. Correspondence and the resume of the nominee are attached as Exhibit 3.

National Oceanic and Atmospheric Administration
The National Oceanic and Atmospheric Administration (NOAA) has recommended Dr. Joan Browder for appointment. Correspondence from NOAA and the resume of the nominee are attached as Exhibit 4.

Biscayne National Park
Biscayne National Park has recommended Dr. Erik Stabenau for appointment. Correspondence from the Superintendent of Biscayne National Park and the resume of the nominee are attached as Exhibit 5.

Greater Miami Convention and Visitors Bureau
The Greater Miami Convention and Visitors Bureau (GMCVB) has recommended Ms. Julissa Kepner for appointment. Correspondence from the GMCVB and the resume of the nominee are attached as Exhibit 6.

Builders Association of South Florida
The Builders Association of South Florida has recommended Mr. Spencer Crowley for appointment. Correspondence from the Builders Association and the resume of the nominee are attached as Exhibit 7.

Miami Marine Council
The Miami Marine Council has recommended Mr. Gerald C. McGinley, Jr. for appointment. Correspondence from the Miami Marine Council and the resume of the nominee are attached as Exhibit 8.

Dade County Farm Bureau
The Dade County Farm Bureau has recommended Mr. John L. Alger for appointment. Correspondence from the Dade County Farm Bureau and the resume of the nominee are attached as Exhibit 9.

The Nature Conservancy

The Nature Conservancy has recommended Mr. Roberto Torres for appointment. Correspondence from the Nature Conservancy and the resume of the nominee are attached as Exhibit 10.

Biscayne Bay Marine Health Coalition
The Biscayne Bay Marine Health Coalition has recommended Mr. David Doebler for appointment. Correspondence from the Biscayne Bay Marine Health Coalition and the resume of the nominee are attached as Exhibit 11.

Florida Engineering Society
The Florida Engineering Society has recommended Mr. Jannek Cederberg for appointment. Correspondence from the Florida Engineering Society and the resume from the nominee are attached as Exhibit 12. Please note staff has verified that Mr. Cederberg is a permanent resident but is not an elector of Miami-Dade County. Pursuant to section 2-11.38 of the Code, "[a]ll members of County boards shall be permanent residents and electors of Miami-Dade County unless the Board of County Commissioners, by a two-thirds vote of its membership, waives this requirement."

The attached resolution waives the resident elector requirement in section 2-11.38 of the Code and appoints these 12 members to the Biscayne Bay Watershed Management Advisory Board, each to a term of four years. This waiver is necessary for the appointment of nominee Mr. Jannek Cederberg, as discussed above.

Jimmy Morales
Chief Operations Officer

Miami River Commission

c/o Robert King High
1407 NW 7th Street, Suite 2
Miami, Florida 33125
Office: (305) 644-0544
BrettBibeau@MiamiRiverCommission.org
www.miamirivercommission.org

August 23, 2021

Re: Brett Bibeau on Biscayne Bay Watershed Advisory Board

Dear Chief Bague,

On behalf of the Miami River Commission (MRC), Brett Bibeau is appointed to serve on Miami-Dade County's Biscayne Bay Watershed Advisory Board. MRC Managing Director Brett Bibeau has worked for the MRC for over 21 years, and previously served on Miami-Dade County's Manatee Protection Plan Advisory Board and Palmer Lake Zoning Advisory Board.

Your time and continued strong support for the Miami River are appreciated.

Sincerely,

Horacio Stuart Aguirre

Horacio Stuart Aguirre
Chairman,
Miami River Commission

BRETT BIBEAU

1801 SW 13 Avenue, Miami, FL 33145
(305) 987-4446
brettbibeau@aol.com

EXPERIENCE **:**

Miami River Commission, Miami, FL 2000-Present
Managing Director 2003-Present
Assistant Managing Director 2000-2003
Coordinated Miami River Dredging, Greenways, Stormwater Retrofitting, Urban Development, Grant Writer, Office Manager

Steel, Hector, Davis, Miami, FL 1994-1995
Paralegal
Subject coded documents into computer database.

Governor Bill Clinton's 1992 Presidential Campaign, D.C.
Advance Team
Prepared planned campaign stops.

Akin, Gump, Strauss, Hauer and Feld, D.C. 1990-1991
Receptionist
Operated 24-line phone network

Rep. Bill Grant, ***(R., FL)*** D.C. 1989
Administrative assistant
Tracked Representative opinion polls and fielded constituent calls.

Rep. Bob Michel, IL, House Minority Leader, D.C 1987
Intern
Worked in the Congressional Chambers.

EDUCATION:

Connecticut College, New London, CT 1990-1994
Bachelors of Arts
Major: Government
Minor: History

Georgetown Day High School, Washington D.C. 1986-1990

Ransom Everglades, Coconut Grove, FL 1984-1986

BOARDS:

Chairman of *Metropolitan Planning Organization (MPO), Bicycle Pedestrian Advisory Committee (BPAC)*
Board Member 2001-May 2008 – Elected Chairman May 2008

Chairman of Greater Miami Chamber of Commerce New World Committee's Legislative Task Force
2006 - 2009

Chairman of the Legislative & Grants Subcommittee of the US Coast Guard's Miami River Port Security Committee
2003-2009

Florida Riverwalk Exchange
Board Member 2007 – 2011

Manatee Protection Plan Review Committee
Miami-Dade Appointed Board member 2007 – 2009

Comprehensive Plan Amendments Advisory Committee
City of Miami Appointed Board Member 2007 - 2009

Miami River Fund, Inc.
Board Member 2003 - Present

ACCOLADES: **"Best of Miami 2008 – Providing Infrastructure Award" – Miami Today**

"Best Backstage Leader" – Miami Today – 2007

Miami Image Award – Realtor Association of South Florida – 2007

"The Achiever – Miami River's Renaissance Man" – Miami Today 2007

Award of Merit for the *Miami River Corridor Multi-Modal Transportation Plan* – American Planning Association FL Chapter - 2007

"Community Steward Award" – 1,000 Friends of Florida - 2005

Best Non-for Profit Organization – Miami Today 2004

2004 Positive Development for the Miami River Greenway - Urban Environment League

Award of Excellence – Am. Society of Landscape Architects - 2003

***REFERENCES*:** Robert L. Parks, Esq. (305) 446-5700
Sandy O'Neil (305) 447-3502

FIU | FLORIDA INTERNATIONAL UNIVERSITY

September 21, 2021

Ms. Irela Bagué
Chief Bay Officer
Miami-Dade County
111 NW 1st Street
Miami, FL 33128

Dear Ms. Bagué:

This letter is to inform you that Florida International University's (FIU) official representative to the Miami-Dade County Biscayne Bay Watershed Management Advisory Board will be Dr. Todd Crowl. Dr. Crowl is the Executive Director of FIU's Institute of Environment. Enclosed please find Dr. Crowl's *Curriculum Vitae.* I am confident that Dr. Crowl will be a valuable addition to the Advisory Board.

Should you require additional information, please feel free to contact Dr. Crowl at 305-348-3095.

Sincerely,

Mark B. Rosenberg

CV

NAME: Todd Alan Crowl
ADDRESS: Institute of Environment
&
Department of Biological Sciences
Florida International University
11200 SW 8th St., OE-148
Miami, FL 33199

PHONE: (305) 348-1666

EMAIL: tcrowl@fiu.edu

NATIONALITY: U.S. Citizen

EDUCATION:

1985-1989	University of Oklahoma; PhD. - Ecology
1982-1984	University of Oklahoma; M.S. - Zoology
1978-1982	Ohio State University; B.S. - Zoology

PROFESSIONAL EXPERIENCE:

2019 –Present	Executive Director, Institute of Environment, Florida International University
2016 - Present	Director and PI, NSF Center of Research Excellence in Science and Technology, FIU
2015 - Present	Founder and Director, Institute of Environment, FIU
2014 - Present	Professor, Department of Biological Sciences, Florida International University
2014 – 2018	Director, Southeast Environmental Research Center (SERC), FIU
2015	Founder, Sea Level Solutions Center, FIU
2005 - Present	Graduate Faculty, University of Notre Dame
1994 - Present	Adjunct Professor, University of Puerto Rico
2012 - 2014	Director and PI, Utah EPSCoR Program
2012 - 2014	Utah National Science Foundation EPSCoR Director
2009 - 2011	Director, Long-Term Ecological Research Program, National Science Foundation
2008– 2011	Program Officer, Division of Environmental Biology, National Science Foundation
2007– 2008	Bullard Fellow, Harvard University
2007 - 2008	Distinguished Professor in Environmental Sciences, University of Notre Dame
2003 - 2014	Full Professor, Utah State University
2003 - 2006	Associate Dean and Director of Research and Graduate Education, College of Natural Resources, Utah State University
1996 - 2003	Associate Professor, Utah State University
1991 - 1996	Assistant Professor, Utah State University
1991 - 1994	Adjunct Lecturer, Otago University, New Zealand
1989 - 1993	Associate Scientist, CEER, University of Puerto Rico
1989 - 1991	Post-doctoral Fellow, Otago University, New Zealand (with C. Townsend)
1988 - 1989	ORAU Fellow
1982 - 1989	Graduate research assistant, Department of Zoology and The Oklahoma Biological Survey, University of Oklahoma
1980 - 1982	Research assistant, Department of Zoology and The Ohio Cooperative Fisheries Unit, Ohio State University

TEACHING EXPERIENCE:

Florida International University
Philosophy of Biology,
Philosophy of Interdisciplinary Science and Engineering

University of Notre Dame
Aquatic Field Ecology
The Philosophy of Ecology

Utah State University
Biometry, Experimental Design, Quantitative Methods in Ecology, Sampling Designs for Ecology, Biostatistics, Competition, Philosophy of Science and Management, Ecology for non-majors, Ecology for majors, Conservation Biology, Biodiversity, Honors Integrated Science; Philosophical Approaches to Ecological Statistics

Otago University
Stream Ecology, Summer Science camp for high school students

University of Oklahoma
Lecturer, Honors Program for gifted high school students
Lecturer, Principles of Ecology
Laboratory Instructor, Limnology
Teaching Assistant, Invertebrate Zoology

UNIVERSITY COMMITTEES:

Florida International University

2014-present	Provost's Steering Committee
2015-2016	FIU Strategic Implementation Steering Committee
2014-2017	Department of Biological Sciences Personnel Committee
2014-2015	FIU Strategic Planning Committee – Preeminent Programs Sub-committee
2014-2015	FIU CAS Strategic Planning Committee – Creative Activities and Research

Utah State University

2012-2014	Faculty Senate Executive Council
2012-2014	President's Advisory Council
2012-present	Athletic Council
2011-present	Sustainability Council
2010-present	Faculty Senate
2009-present	Research Council
2003-present	Millville Advisory Board (chair)
2003-present	Biotech Research Advisory Committee
2003 -2006	CNR EPC and Graduate Education Committee (chair)
2003-2006	Curriculum Committee (chair)
2003-2006	Center For Integrative Biology Advisory Committee
2001-2006	Academic Standards Committee
2000-2006	Educational Policy Committee
1998-2006	Graduate Council
2000	CNR restructuring leadership
1998	CNR core course committee
1997-1998	Ecology Center Advisory Committee
1995-1999	CNR undergraduate education committee
1997-2001	Graduate Academic Review Committee (chair)
various yrs	Seminar Committee
various yrs	Undergraduate Advisory Committee

Professional Committees:

American Institute of Biological Sciences Advisory Board
Florida Department of Environmental Protection Statewide Ecosystem Assessment of Coastal and Aquatic Resources Committee
Luquillo LTER Science Council
Klamath Basin Recovery Team
STREON Steering Committee Member
Center for Embedded Network Sensing (CENS), UCLA, Advisory Committee
Long-Term Ecological Research Information Management committee member
Long-Term Ecological Research, LTEArts Advisory Board
University of Puerto Rico- IGERT Advisory Board
North American Benthological Society – Program Chair (2008)
Consortium of Regional Ecological Observatories (Co-chair)
Intermountain Regional Observatory Network (Co-chair)
June Sucker Recovery Team
Bonneville Basin Recovery Team
Ecological Society of America - Program Committee

AWARDS:

2021 Department of Interior Recognition (for Science to down list an endangered species)
2016 InWE Designated as a Preeminent Program
2010 Distinguished Service Award – Division of Environmental Biology, National Science Foundation
2009 Distinguished Service Award – Division of Environmental Biology, National Science Foundation
2009 Directors Award for Collaboration – National Science Foundation
2008 Harvard University Bullard Fellow
2007 University of Notre Dame Environmental Sciences Visiting Fellow
1999 Research recognition award – Mexican Government
1997 Research Paper of the Year - Mexico
1995 Researcher of the Year - American Fisheries Society
1994 finalist - NSF Presidential Young Scholar Award - Utah State
1990 UNESCO Young Scientist Fellow - New Zealand
1990 Best Dissertation - University of Oklahoma
1989 Presidential Post-Doctoral Fellow – Otago University
1988 Best student presentation - North American Benthological Society meeting, Tuscaloosa, Alabama
1986 Best poster in Arts and Sciences - University of Oklahoma, Graduate College Research Competition

PROFESSIONAL SOCIETIES:

American Institute of Biological Sciences
American Fisheries Society
American Society of Limnology and Oceanography
American Society of Naturalists
Ecological Society of America
North American Benthological Society
Conservation Biology
Society of Restoration Ecology

REVIEWER FOR:

Proposals: DIVERSITAS
European Union
National Science Foundation

National Institute of Health
Environmental Protection Agency
U.S.D.A. Competitive Grants Program
Cal-Fed program

Manuscripts:

Ecology
Ecology Letters
Restoration Ecology
Transactions for the American Fisheries Society
Journal of the North American Benthological Society
Oikos
Freshwater Biology
North American Fisheries
Freshwater Ecology Evolution
Copeia
American Naturalist
Conservation Biology
Oecologia
Science
Nature
BioScience
Limnology and Oceanography
Fundamental and Applied Limnology
Trends in Ecology and Evolution
Functional Ecology
Hydrobiologia
Crustacean Biology

STUDENTS FINISHING UNDER MY SUPERVISION:

Otago University (with C. Townsend)

1990 Angus McIntosh, B.Sc. Honours
1991 Kerri-Anne Edge, B.Sc. Honours
1991 Kathy Shave, B.Sc. Honours
1991 Tania King, B.Sc. Honours
1992 Brent Evans, M.Sc.
1994 Angus McIntosh, PhD

Utah State University

1992 Kathy Coghill, M.S.
1994 Robert Black, PhD
1995 Laura Hartt, M.S.
1996 Matt Petersen, M.S.
1996 Pete Cavalli, M.S.
1996 Heather Thomas, M.S.
1997 Craig Schaugaard, M.S.
1998 Bert Lewis, M.S.
1998 Heather Thomas, PhD
1999 Nick Bouwes, PhD
2000 Jessica Gourley, M.S.
2001 Eric Archer, M.S
2002 Matt Townsend, M.S.
2002 Paul Badame, MNR
2003 Josh Mace, MNR
2004 Stephanie Rohan, M.S.
2005 Leah Rigsby, M.S.
2005 Eric Billman, M.S.
2005 Tamara Heartsill-Scalley, PhD

2006 Kris Buelow, M.S.
2006 David Kikkert, M.S.
2006 Praveena Pepalla, MNR
2008 Catherine Hein, PhD
2009 Stephanie Kraft, M.S.
2009 Kevin Landom, M.S.
2010 Brian Hines, M.S.
2014 David Cole, Ph.D.
2014 Omar Perez-Reyez, Ph.D.
2014 Kit Wheeler, Ph.D.

University of Puerto Rico
2014 Maria Ocasio-Torres, Ph.D.

Florida International University
2019 Tiffany Yanez, M.S.

Research Experience for Undergraduates

2002 Summmer Kartchner, USU
2003 Alejandro Barberena, U. Puerto Rico
2003 Vanessa Welsch, USU
2003 Christine Mingione, Notre Dame
2006 Sara Redd, USU
2007 Maria Ocasio Torres, Univ. Puerto Rico
2012 Tyler Nelson, Utah State University
2012 Kristina Krone, Williams College
2019 Harrison Mancke, Florida International University
2019 Jonathon Chapman, University of Hawaii

Post-docs Normand Bergeron, Utah State University (with J. Schmidt)
Liz Bergey, Utah State University
Phaedra Budy, Utah State University
Felipe Blanco, Utah State University
Jacob Parnell, Utah State University
Samuel Rivera, Utah State University
Maria Ocasio-Torres, Florida International University
Jennifer Vieleux, Florida International University
Omar Perez-Reyes, Florida International University
Daniel Ogurgak, Florida International University
Rolando Santos Corujo, Florida International University
Marta D'Elia, Florida International University
Jesus Gomez, Florida International University

INVITED LECTURES:

2021 Great Miami Chamber of Commerce – Water and Energy Nexus
2021 Greater Everglades Ecosystem Restoration Conference – 100 Years of Degraded Solitude: How Do We Restore Biscayne Bay
2020 Coral Gables Commission – The Greater Biscayne Bay Watershed
2020 Florida Water & Climate Alliance – Water Quality and Climate Change
2020 French Embassy – 5th Anniversary of the Paris Accord: Nature-based Solutions
2020 Miami Beach Chamber of Commerce – Biscayne Bay – Our Health, Wealth and Happiness
2020 National Science Foundation CoPe Workshop – Welcome and Keynote: A Vision of Observations and Models in Physical, Social and Economic Systems in Coastlines
2020 American Institute of Biological Sciences – The Role of Ecosystems as Economic Drivers
2019 University of Notre Dame – Puerto Rico's Tropical Forest Tapestry
2019 Association of Ecosystem Research Centers – Coastal Resilience

2018 University of Notre Dame – The Legacy of the Florida Everglades
2017 University of South Florida – Environmental Stressors on South Florida Aquatic Ecosystems.
2017 Society of Wetland Sciences - Florida Everglades Restoration: The Thrill of Victory and Agonies of Defeat.
2017 U.S. Forest Service - Climate Change and Sea-Level Rise: A View from Down-under - S. Florida
2016 University of Notre Dame, Environmental Research Center – Florida Coastal Everglades LTER Program (FCE): The Grand Challenges
2015 Association of Ecosystem Research Centers and AIBS – Effects of Everglades Restoration on Sea Level Rise Resilience in Urban Miami.
2015 Florida Atlantic University – Biotechnological Approaches to Water Resource Research.
2015 University of Notre Dame, Environmental Research Center – Florida Coastal Everglades LTER Program (FCE): The Grand Challenges
2015 Florida International University, GSS Department – River, Roads People and Shrimp: Oh What a Tangled Network We Weave
2014 Pontificia Universidad Javeriana, Bogota, Columbia – Using Statistics (& Models) to Untangle the Complexities of Aquatic Communities and Ecosystems
2014 Water Institute, Dominican Republic – Watershed Management Strategies and Practices
2013 Florida International University, Southeast Environmental Research Center – Theory-driven, Place-based, Long Term Research: Past, Present and Future.
2013 University of Maryland, Center for the Environment – From Genes to Human-dominated Landscapes: Theory Driven, Place-based, Long Term Research
2013 Washington State University – Overlapping River-Road Networks: Understanding the Complexity of Physical, Ecological and Human Interactions
2012 University of Utah - Stream restoration: bringing back ecological function.
2010 Society of International Limnology, Salzburg University, Austria – Plenary Talk - Rivers, Trees and Shrimp: A View of a Complex System After Twenty Years of Observation
2010 University of Georgia, Institute of Ecology - The Complexity of Overlapping River-road Networks: It's an Uphill Battle
2010 President's Council on Science and Technology – The role of long-term environmental observatories for understanding ecological and evolutionary change
2009 University of Notre Dame – Integrating Social and Ecological Science
2009 University of Maryland Baltimore County – Biocomplexity: integrating ecological research into a social sciences framework
2008 University of Puerto Rico – The complexity of overlapping river and road networks
2008 University of Louisiana-Lafayette – Oh the places you'll go: Long-term ecological research opportunities
2008 University of Vermont – NSF funding opportunities in the aquatic sciences.
2008 Harvard Forest, Harvard University – Using Hydrological connectivity as a framework for integration across disciplines
2008 NSF, LTER mini-symposium – Hydrologic connectivity as a framework for integrating socio-ecological systems
2007 University of Louisville – The biocomplexity of river-road networks in the tropics
2007 University of New Hampshire – The complexity of river-road networks and human behavior.
2007 Harvard University – Of fish and men: the saga of an endangered fish and the imperiled ecosystem whence it came.
2006 Colorado State University, Dept. of Civil and Environmental Engineering – Seeking analyses for complex, non-linear dynamics of aquatic systems: The Puerto Rico Biocomplexity Example
2006 National Science Foundation and HBCU - Interdisciplinary research opportunities for graduate students
2006 North American Benthological Association Symposium – Comparing Temperate and Tropical Stream Ecology
2005 National Science Foundation – River-road networks and the complexity of foodwebs
2005 Northern Arizona University – The role of species in ecosystem function
2003 University of Notre Dame – Species diversity and ecosystem function
2003 University of Puerto Rico – The importance of shredders in tropical streams
2003 Colorado State University – Biocomplexity: What is it?
2003 North American Benthological Association Symposium – Tropical Stream Ecology 2002 Panama – Organization of Tropical Studies – What can ecologists learn from tropical

stream ecologists?

2002 University of Puerto Rico – The role of biodiversity in Puerto Rican stream food webs. 2002 Utah State University Sustainability Conference – Water Development in the neo-tropics. 2001 Brigham Young University – Linking species to ecosystems: Puerto Rican stream foodwebs.

2001 Oregon State University – Floodplain restoration in the Colorado River Basin.

1999 Department of Landscape Architecture, Utah State University - What is sustainability?

1998 University of Puerto Rico - Geomorphological control of food web structure

1996 University of Montana, Flathead Lake Biological station - Using Ecological Principles to solve conservation problems

1994 Leon University, France - The role of introduced brown trout on the Taieri River Community.

1994 Leon University, France - Patch dynamics and The River Continuum Concept: can hierarchical organization save a dying concept?

1994 Austrian Freshwater Institute - The role of nonnative fish predators on the Colorado River Fish Community

1994 University of Prague - Assessing non-native fish effects in large rivers: a physical habitat template approach. (in conjunction with the Regulated Rivers Conference)

1994 University of Prague - Planning Reservoir Releases to enhance endangered fish habitat availability in the Colorado River Basin: Geomorphic interactions with non-native species effects. (in conjunction with the Regulated Rivers Conference).

1994 Desert Fishes Council, Symposium on the Upper Colorado River Program - Upper Colorado Recovery Implementation Program: directions for management of nonnative and native fish interactions.

1994 Desert Fishes Council, Symposium on the Upper Colorado River Program - Upper Colorado Recovery Implementation Program: Investigations and management directions for bonytail reintroductions.

1993 Association of Tropical Biology - Symposium on Island vs mainland ecology - Community structure on tropical islands and mainlands: Mechanistic explanations or biogeography?

1993 North American Benthological Society - Symposium on Chemical cues in aquatic systems - Responses of a freshwater shrimp to chemical and tactile stimuli from a large decapod predator

1993 Annual meeting of the Society of Range Management, Albuquerque, New Mexico - Stream habitat restoration and its effects on native and introduced trout: An abiotic and biotic evaluation (with R. Black and J. Kershner)

1993 Annual meeting of the North American Benthological Society, Calgary, Alberta, Canada - The response of native and introduced trout to coarse woody debris: An abiotic and biotic evaluation (with R. Black and J. Kershner)

1992 Lincoln University, New Zealand - Long-term ecological research in the Taieri River Drainage, Otago

1992 Christchurch University, New Zealand - Understanding stream community structure: The need for hierarchical analyses through time and space

1991 Utah Department of Wildlife Resources, Non-game section annual meeting -Experimental approaches for determining the impacts of introduced species on natives

1991 University of Oklahoma - Impacts of exotic species on New Zealand stream ecosystem dynamics

1991 Otago University - They shall not pass: A tale of the wily brown trout and some insignificant little tiddlers

1991 New Zealand Department of Conservation - Land-use changes and introduced fish species: How natural are New Zealand Stream communities?

1991 Symposium on geomorphology and stream ecology - North American Benthological Society - Flow variability and the dominance of deleatidium in two contrasting New Zealand streams (with M. Scarsbrook and C. Townsend)

1991 Utah State University - Hierarchical analyses for understanding stream community dynamics: The New Zealand Experience

1991 University of Puerto Rico - The relative importance of land use practices and introduced species on New Zealand stream community dynamics

1990 International Symposium on Spatial Information and Research-Hierarchical design and the use of geographic information systems to bridge the gap between river science and management

1990 Ecological Society of America Symposium - A vector algebraic approach to understanding

cumulative effects in disturbed watersheds (with A. Covich)

1990 University of Otago - Predator-induced life-history shifts in a freshwater snail

1990 Woods Hole - jointly sponsored by the American Malacological Society - The role of chemical cues in antipredation strategies in freshwater snails

1990 Dartmouth - Hierarchical designs for understanding stream dynamics

1990 Dartmouth - Life history responses of snails to crayfish predators: Coevolved response? 1989 University of Otago Graduate Student Symposium - Long-term ecological research in a tropical forest

1989 Symposium sponsored by The Ecological Society of America and the Organization for Tropical Students - Effects of highly variable flow on detrital processing by decapod crustaceans in rainforest streams (with A. Covich)

1989 Symposium sponsored by the Institute of Tropical Forestry - Spatial and temporal analysis of woody debris and benthic invertebrates in two Puerto Rican streams (with A. Covich and D. Certain)

1989 Utah State University - Direct and indirect effects of crayfish predation on snail population dynamics: Is bigger really better?

1988 University of Oklahoma - Crayfish predation on snail community and population dynamics: Evaluating direct and indirect effects

REGIONAL, NATIONAL AND INTERNATIONAL SEMINARS:

I have presented 155 lectures/seminars at scientific conferences in addition to the invited seminars above

PEER-REVIEWED PUBLICATIONS:

McGee, S**., T.A. Crowl** and R. McGee-Tekula. 2021. Becoming through Being: Dewey's Relevance to Educating for the Future of Work. In: *John Dewey and Teacher Education: Accountability, Standardization, and Assessment.*

Heartsill-Scalley, T. and **T.A. Crowl**. 2021. Tropical forest understorey riparian and upland composition, structure, and function in areas with different past land use. Applied Vegetation Science. DOI:10:1111/avsc.12603.

Pena, F., F. Nardi, A. Melesse, J. Obeysekera, F. Castelli, R.M. Price, **T.A. Crowl**, N. Gonzalez-Ramirez. 2021. Compound flood modelling framework for rainfall-groundwater interactions. Natural Hazards and Earth System Sciences. DOI 10.5194/nhess-2021-259.

Ocasio-Torres, M.E., **Crowl, T.A.** and A.M. Sabat. 2021. Effect of multimodal cues from a predatory fish in refuge use and foraging on an amphidromous shrimp. PEERJ 9. DOI 10.7717/peerj.11011.

D'Elia, M., R. Campo, R. Garcia, K. Boswell, J. Rehage, **T.A. Crowl**. 2020. Evaluation of an imaging sonar system (Didson) as a fisheries-monitoring tool for complex habitats. Bulletin of Marine Science 96:544.

Hogan, J.A. et al. 2020. A research Framework to integrate cross-ecosystem responses to tropical cyclones. BioSciences (2020) 70:477-489. DOI:10.1093/biosci/biaa034.

Gutierrez-Fonseca, P.E., Ramirez, A., Pringle, C.M., Torres, P.J., McDowell, W.H., Covich, A. **Crowl, T.A**. and O. Perez-Reyes. 2020. When the rainforest dries: Drought effects o a montane tropical stream ecosystem in Puerto Rico. Freshwater Science (2020) 39:197-212. DOI:10.1086/708808.

Teutonico, R., Chiappa-Carrara, X., Garcia, M. and **T.A. Crowl.** 2019, "Climate change & the: coastal resilience", *Research OUTREACH* (109). DOI:10.32907/RO-109-2225.

Tank, J., et al. (18 other authors). 2018. Partitioning assimilatory nitrogen uptake in streams: an analysis of stable isotope tracer additions across continents. Ecological Monographs (2018)

88:120-138. DOI:1002/ecm.1280.

Wheeler, K., S.W. Miller and **T.A. Crowl**. 2018. Adfluvial salmonids have engineering but not fertilization impacts in tributaries of a central Utah reservoir. Canadian Journal of Fisheries and Aquaitic Sciences (2018) 75:389-401. DOI:10.1139/cjfas-2016-0462.

Strohm, D.D., P. Budy and **T.A. Crowl**. 2017. Matching watershed and otolith chemistry to establish natal origin of an endangered desert lake sucker. Transactions of the American Fisheries Society (2017) 146:732-743. DOI:10.1080/00028487.2017.13011994.

Perez-Reyes, O., **T.A. Crowl** and A.P. Covich. 2016. Comparison of decapod communities across an urban-forest land use gradient in Puerto Rican streams. Urban Ecosystems (2016) 19:181-203. DOI 10.1007/s11252-015-0490-4.

Ocasio-Torres, M., **T.A. Crowl** and A.M. Sabat. 2015. Allometric differences between two phonotypes of the amphidromous shrimp *Xiphocaris Elongata*. Journal of Crustacean Biology (2015) 35:747-752. DOI:10.1163/1937240X-00002372.

Ocasio-Torres, M., T. Giray, **T.A. Crowl** and A.M. Sabat. 2015. Antipredator defence mechanism in the amphidromous shrimp Xiphocaris elongate (Decapoda: Xiphocarididae): rostrum length. Journal of Natural History. DOI: 10.1080/00222933.2015.1005716.

Ocasio-Torres, M., **T.A. Crowl** and A.M. Sabat. 2015. Effects of the presence of a predatory fish and the phenotype of its prey (a shredding shrimp) on leaf litter decomposition. Freshwater Biology 60:2286-2296.

Perez-Reyes, O., **T.A. Crowl** and A.P. Covich. 2015. Effects of food supplies and water temperature on growth rates of two species of freshwater tropical shrimps. Freshwater Biology (2015).

Wheeler, K., S.W. Miller and **T.A. Crowl**. 2015. Migratory fish excretion as a nutrient subsidy to recipient stream ecosystems. Freshwater Biology (2015) Freshwater Biology 60:537-550.

Dodds, W. K., Collins, S.M., Hamilton, S.K.,Tank, J. L., Johnson, S. ,Webster, J. R.,Simon, K. S.,Whiles, M. R., Rantala, H. M, McDowell, W. H., Peterson, S.D., Riis, T, Crenshaw, C. L., Thomas, S. A., Kristensen, P. B., Cheever, B. M., Flecker, A. S., Griffiths, N.A., **Crowl, T**., Rosi-Marshall, E. J., El-Sabaawi, R., Martí, E. 2014. You are not always what we think you eat: selective assimilation across multiple whole-stream isotopic tracer studies. Ecology. 95:2757–2767.

Archer, S.K. and **T.A. Crowl**. 2014. Retention of learned predator recognition in an endangered Sucker *Chasmistes liorus liorus.* Aquatic Biology Vol 20:195-201. DOI: 10.3354/ab00558.

Ocasio-Torres, M.E., **T.A. Crowl** and A.M. Sabat. 2014. Long rostrum in an amphidromous shrimp induced by chemical signals from a predatory fish. Freshwater Science 33:451-458.

Perez-Reyes, O., **Crowl, T.A**., Hernandez-Garcia, P.J. Ledesma-Fuse, R., Villar-Fornes, F.A. and Covich, A.P. 2013. Freshwater decapods of Puerto Rico: a checklist and reports of new localities. Zootaxa 3713:329-344.

Rivera, S., P. Martinez de Aguita, R.D. Ramsey and **T.A. Crowl**. 2013. Spatial modeling of tropical deforestation using socioeconomic and biophysical data. Small Scale Forestry. DOI 10.10007/s11842-012-9214-2

Garner, J., A.L. Porter, N.C. Newman and **T.A. Crowl**. 2012. Assessing Research Networks and Disciplinary Engagement Changes Induced by an NSF Program. Journal of Research Evaluation.

Choat, D., C. Prather, M. Michel, M. Barnes, D. Hoekman, C. Patrick, J. Ruegg and **T.A. Crowl**. 2012. Integrating theoretical components: A graphical model for graduate students and researchers. BioScience 62:594-602.

Brokaw, N., **T.A. Crowl**, A.E. Lugo, W.H. McDowell, F.N. Scatena, R.B. Waide and M.R. Willig (eds.). 2012. A Caribbean Forest Tapestry: The Multidimensional Nature of Disturbance and Response. Oxford University Press, Oxford, U.K

Lugo, A.E., R.B. Waide, M.R. Willig, **T.A. Crowl**, F.N. Scatena, J.Thompson, W.L. Silver, W.H. McDowell and N. Brokaw. 2012. Ecological Paradigms for the Tropics, in: A Caribbean Forest Tapestry, N. Brokaw, **T.A. Crowl**, A.E. Lugo, W.H. McDowell, F.N. Scatena, RB. Waide and M.R. Willig, eds. Oxford University Press, Oxford, U.K.

McDowell, W.H., **T.A. Crowl** and 22 authors. 2012. Geographic and Ecological Setting of the Luquillo Mountains, in: A Caribbean Forest Tapestry, N. Brokaw, **T.A. Crowl**, A.E. Lugo, W.H. McDowell, F.N. Scatena, RB. Waide and M.R. Willig, eds. Oxford University Press, Oxford, U.K.

Brokaw, N. **T.A. Crowl** and 23 authors. 2012. Response to Disturbance, in: A Caribbean Forest Tapestry, N. Brokaw, **T.A. Crowl**, A.E. Lugo, W.H. McDowell, F.N. Scatena, RB. Waide and M.R. Willig, eds. Oxford University Press, Oxford, U.K.

Crowl, T.A. and 11 authors. 2012, When and Where Biota Matter, in:.A Caribbean Forest Tapestry, N. Brokaw, **T.A. Crowl**, A.E. Lugo, W.H. McDowell, F.N. Scatena, RB. Waide and M.R. Willig, eds. Oxford University Press, Oxford, U.K.

Porter, A.L., J. Garner and **T.A. Crowl**. 2012. The RCN (Research Coordination Network) experiment: Evidence of the relationship between funded interdisciplinary networking and scholarly impact. BioScience 62:282-288.

Parnell, J. J., G. Rompato, **T. A. Crowl**, B.C Weimer and M.E. Pfrender. 2011. Phylogenetic distance in Great Salt Lake microbial communities. Aquatic Microbial Ecology 6:267-273.

Latta, L.C., M. Baker, **T.A. Crowl**, J.J. Parnell, B. Weimer, D.B. DeWald and M.E. Pfrender. 2011. Species and genotype diversity drive community and ecosystem properties in experimental microcosms. Evolutionary Ecology 25:1107-1125.

Hein, C.L., A.S. Pike, J.F. Blanco, A.P. Covich, F.N. Scatena, C.P. Hawkins and **T.A. Crowl**. 2011. Effects of coupled natural and anthropogenic factors on the community structure of diadromous fish and shrimp species in tropical island streams. Freshwater Biology 56:1002-1015

Perez-Reyes, O. and **T.A. Crowl**. 2010. Comparisons of the decapod community structure in urban and natural streams in Puerto Rico. Integrative and Comparative Biology 50:E280.

Hein, C.L. and **T.A. Crowl**. 2010. Running the predator gauntlet: do freshwater shrimp (*Atya lanipes*) migrate above waterfalls to avoid fish predation? Journal of the North American Benthological Society 29(2):431-443.

Crowl, T.A. 2009. Putting philosophy back in the PHd: faculty response. Frontiers in Ecology and the Environment. 7:390-391.

Heartsill-Scalley, T., **T.A. Crowl** and J. Thompson. 2009. Tree species distributions in relation to stream distance in mid-montane wet forest, Puerto Rico. Caribbean Journal of Science 45: 52-63.

Parnell, J. J., **T. A. Crowl**, et al. 2009. Biodiversity in microbial communities: system scale patterns and mechanisms. Molecular Ecology **18**(7): 1455-1462.

Kikkert, D. A., **T. A. Crowl**, and A.P. Covich. 2009. Upstream migration of amphidromous shrimps in the Luquillo Experimental Forest, Puerto Rico: temporal patterns and environmental cues. Journal of the North American Benthological Society **28**(1): 233-246.

Covich, A.P., **T.A. Crowl**, C.L. Hein, M.J. Townsend and W.H. McDowell. 2009. Predator-prey interactions in river networks: A drainage basin comparison of shrimp spatial refugia. Freshwater Biology 54:450-465.

Cross, W.F., A.P. Covich, **T.A. Crowl**, J.P. Benstead and A. Ramirez. 2008. Secondary production, longevity and consumption rates of freshwater shrimps in two tropical streams of contrasting geomorphology and food web structure. Freshwater Biology 53:2504-2519.

Cole, D.D., K.E. Mock, B.L. Cardall and **T.A. Crowl**. 2008. Morphological and genetic structuring in the Utah Lake sucker complex. Molecular Ecology 17:5189-5204.

Crowl, T.A., T.O. Crist, R.R. Parmenter, G. Belovsky and A.E. Lugo. 2008. The spread of invasive species and infectious disease as drivers of ecosystem change in an increasingly connected world. Frontiers in Ecology and the Environment. 6:238-246.

Billman, E.J. and **T.A. Crowl**. 2007. Population dynamics of a June Sucker refuge population. Transactions of the American Fisheries Society 136:959-965.

Miller, S.A. and T.A. Crowl. 2006. Effects of common carp (*Cyprinus carpio*) on macrophytes and invertebrate communities in a shallow lake Freshwater Biology 51: 85-94.

Covich, A.P., **T.A. Crowl**, and T. Heartsill-Scalley. 2006. Effects of drought and hurricane disturbance on headwater distributions of palaemonid river shrimp (*Macrobrachium* spp.) in the Luquillo Mountains, Puerto Rico. Journal of the North American Benthological Society 25:99-107.

Crowl, T.A., V. Welsh, T. Heartsill-Scalley and A.P. Covich. 2006. Effects of different types of conditioning on rates of leaf-litter shredding by *Xiphocaris elongata*, a neotropical freshwater shrimp. Journal of the North American Benthological Society 25:198-208.

Beard, K.H., K.A. Vogt, D.J. Vogt, F.N. Scatena, A. P. Covich, R. Sigurdardottir, T.C. Siccama, and **T.A. Crowl**. 2005. The response of structural and functional characteristics of a tropical forested ecosystem to multiple, natural disturbances in legacy environments. Ecological Monographs. 75:345-361.

Belovsky, G. E., D. B. Botkin, **T.A. Crowl**, K. Cummins, J. Franklin, Malcolm Hunter, A. Joern, D. B. Lindenmayer, J. MacMahon, C. Margules, and M. Scott. 2004. Ten Suggestions to Strengthen Ecology. BioScience 54:345-351.

Covich, A.P., **T.A. Crowl** and F.N. Scatena. 2003. Effects of extreme low flows on freshwater shrimps in a perennial tropical stream. Freshwater Biology 2003 48:1199-1206.

Covich, A.P., **T.A. Crowl** and F.N. Scatena. 2002. Defining Effects of Drought on Shrimp in Neotropical Headwater Streams, Puerto Rico. Verhandlungen Internationale Vereinigung Limnologie. 28:

Crowl, T.A., A.P. Covich, F.N. Scatena, R. Phillips, M.J. Townsend and D.K. Vinson. 2002. Particulate organic matter dynamics in tropical headwater streams: a comparison of biotic and abiotic factors. Verhandlungen Internationale Vereinigung Limnologie. 28:1-5.

Townsend, M.J., **T.A. Crowl**, R. Phillips, A.P. Covich and F.N. Scatena. 2002. Indirect and direct abiotic controls on a species-poor stream insect assemblage. Verhandlungen Internationale Vereinigung Limnologie. 28:101-104.

Crowl, T.A., W.H. McDowell, A.P. Covich, and S.L. Johnson. 2001. Freshwater shrimp effects on detrital processing and nutrients in a tropical headwater stream. Ecology 82:775-783.

Horan, D.L., J.L. Kershner, C.P. Hawkins and **T.A. Crowl**. 2000. Effects of habitat area and complexity on Colorado River cutthroat trout density in Uinta Mountain streams. Transactions of the American Fisheries Society 129:1250-1263.

Crowl, T.A., N. Bouwes, M.J. Townsend, A.P. Covich, and F.N. Scatena. 2000. Estimating the potential role of freshwater shrimp on an aquatic insect assemblage in a tropical headwater stream: A bioenenergetics approach. Verhandlungen Internationale vereinigung fur Theoretische und Angewandte Limnologie. 27:6-2403-2407.

Covich, A.P., **T.A. Crowl**, and F.N. Scatena. 2000. Linking habitat stability to floods and droughts: Effects on decapods in montane streams. Verhandlungen Internationale vereinigung fur Theoretische und Angewandte Limnologie. 27:1-5.

Covich, A.P., M.A. Palmer, and **T.A. Crowl**. 1999. The role of benthic invertebrate species in Freshwater Ecosystems. BioScience 49:119-128.

Johnson, S.L., A.P. Covich, **T.A. Crowl**, A. Estrada-Pinto, J. Bithorn and W. Wurtsbaugh. 1998. Do seasonality and disturbance influence reproduction in freshwater atyid shrimp in headwater streams, Puerto Rico? Verhandlungen Internationale Vereinigung Limnologie 26:2076-2081.

Ibarra-Flores, F., J.R. Cox, M. Martin-Rivera, **T.A. Crowl**, B.E. Norton, R.E. Banner, and R.W. Miller. 1999. Soil Physicochemical changes following buffelgrass establishment in Mexico. Arid Soil Research and Rehabilitation 13:39-52.

Covich, A.P., **T.A. Crowl**, S.L. Johnson, and F.N. Scatena. 1998. Drought effects on pool morphology and neoptropical stream benthos. Pages 91-96. In: Segarra-García, R.I., editor. Tropical hydrology and Caribbean Water Resources, Proceedings of the Third International Symposium on Water Resources. American Water Resources Association 98-2.

Crowl, T.A., C.R. Townsend, N. Bouwes, and H. Thomas. 1997. Scales and causes of patchiness in stream invertebrate communities: top down predator effects? Journal of North American Benthological Society 16:277-285.

Townsend, C.R., **T.A. Crowl**, C.J. Arbuckle and M.R. Scarsbook. 1997. The relationship between land use and physiochemistry, food resources and macroinvertebrate communities in tributaries of the Taieri River, New Zealand: a hierarchically scaled approach. Freshwater Biology 37:177-191.

Covich, A.P., **T.A. Crowl**, S.L. Johnson, and M. Pyron. 1996. Distribution and abundance of tropical freshwater shrimp along a stream corridor: Response to disturbance. Biotropica 28:484-492.

Ibarra-Flores, F., J.R. Cox, M. Martin-Rivera, **T.A. Crowl**, D.F. Post, R.W. Miller, and G.A. Rasmussen. 1995. Relationship between buffelgrass survival, organic carbon, and soil color in Mexico. Soil Sci. Soc. Am. J. 60:1120-1125.

Allibone, R.M., **T.A. Crowl**, J.M. Holmes, J.M. King, R.M. McDowall, C.R. Townsend and G.P. Wallis. Isozyme analysis of Galaxias species (Teleostei: Galaxiidae) from the Taieri River, South Island, New Zealand: A species complex revealed. Biological Journal of the Linnaean Society 57:107-127.

Ibarra-Flores, F., J.R. Cox, M. Martin-Rivera, **T.A. Crowl**, D.F. Post, R.W. Miller, and G.A. Rasmussen. 1995. Relationship between buffelgrass survival, organic carbon, and soil color in Mexico. Soil Sci. Soc. Am. J. 59:1120-1125.

Ibarra-Flores, F., J.R. Cox, M. Martin-Rivera, **T.A. Crowl**, and C.A. Call. 1995. Predicting buffelgrass survival across a geographic al and environmental gradient. J. Range Manage. 48:53-59.

McIntosh, A.R., **T.A. Crowl** and C.R. Townsend. 1994. Size-related impacts of introduced brown trout on the distribution of native, common river galaxias. New Zealand Journal of Marine and Freshwater Research 28:135-144.

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Dodson, S., **T.A. Crowl**, B.L. Peckarsky, L.B. Katz, A.P. Covich and J.M. Culp. 1994. Non-visual communication in freshwater benthos and plankton. Journal of the North American Benthological Society 13:268-282.

Shave, C., C.R. Townsend and **T.A. Crowl**. 1993. Predator-prey interactions among freshwater crayfish, trout and eels in New Zealand Streams. New Zealand Journal of Ecology 18:1-10.

Edge, K.A., C.R. Townsend and **T.A. Crowl**. 1993. An investigation of anti-predator behaviour in three genetically differentiated populations of non-migratory galaxiid fishes in a New Zealand river. New Zealand Journal of Marine and Freshwater Research, 27:357-363.

Evans, B.F., C.R. Townsend and **T.A. Crowl**. 1993. Distribution and abundance of coarse woody debris in some southern New Zealand streams from contrasting forest catchments. New Zealand Journal of Marine and Freshwater Research, 27:227-239.

McIntosh, A.R., C.R. Townsend and **T.A. Crowl.** 1992. Competition for space between introduced brown trout (Salmo trutta L.) and a native galaxiid (Galaxias vulgaris Stokell) in a New Zealand stream. Journal of Fish Biology, 41:63-81.

Crowl, T.A., C.R. Townsend and A. McIntosh. 1992. The effects of introduced trout on Austral-Asian fish communities. Reviews in Fish Biology and Fisheries, 2:217-241.

Covich, A.P., **T.A. Crowl**, S.L. Johnson, D. Varza and D.L. Certain. 1991. Post-Hurricane Hugo increases in Atyid shrimp abundances in a Puerto Rican Montane Stream. Biotropica, 23:448-454.

Townsend, C.R. and **T.A. Crowl**. 1991. Fragmented population structure in native New Zealand fish: An effect of introduced brown trout? Oikos, 61:347-354.

Covich, A.P. and **T.A. Crowl** 1990. Effects of hurricane stormflow on transport of woody debris in a rain forest stream (Luquillo, Puerto Rico), Proceedings of the International Symposium on Tropical Hydrology, 1990:197-205.

Crowl, T.A. and A.P. Covich. 1990. Predator-induced life-history shifts in a freshwater snail: A chemical mediated and phenotypically plastic response. Science, 247:949-951.

Crowl, T.A. 1990. Life-history strategies of a freshwater snail as a result of stream permanence and predation: Balancing conflicting demands. Oecologia, 84:238-243.

Crowl, T.A., C.R. Townsend and A.P. Covich 1990. Hierarchical design and the use of geographic information systems to bridge the gap between river science and management. Proceedings of the International Symposium of the Spatial Information Research Centre, 2:27-35.

Crowl, T.A. and G.D. Schnell 1990. Factors determining population density and size distributions of a freshwater snail in streams: Effects of spatial scale. Oikos, 59:359-367.

Crowl, T.A. 1989. Effects of crayfish size, orientation and movement on the reactive distance of largemouth bass foraging in clear and turbid water. Hydrobiologia, 183:133-140.

Crowl, T.A. and J.E. Alexander, Jr. 1989. Parental care and foraging ability in male water bugs (Belostoma flumineum). Canadian Journal Zoology, 67:513-515.

Crowl, T.A. and J. Boxrucker 1989. Competitive effects of two introduced planktivores (threadfin Shad and inland silversides) on white crappie in Lake Thunderbird, Oklahoma. Proceedings of the Annual conference of Southeastern Association of Fish and Wildlife Agencies, 41:348-360.

NON-PEER REVIEWED PUBLICATIONS:

My students and I have written over 80 Federal and State Agency reports.

RESEARCH SUPPORT:

2016-2018	National Park Service, Stabilize and Protect South Florida Archeological Sites ($80,000)
2016-2021	National Science Foundation, Center for Excellence in Science and Technology: Aquatic Chemistry and the Environment ($5,000,000)
2016-2017	Department of Interior, Everglades Restoration; $965,851
2016-2018	Department of Energy, Next Generation Ecosystem Experiment in the Tropics ($102,000)
2016-2018	National Science Foundation, long-Term-Ecological-Research: Luquillo Experimental Forest ($75,000); Total NSF award – $2.8 million
2015	Department of Interior, Everglades Restoration; $410,000
2015-2017	National Science Foundation, Critical Zone Observatory: Hot Spots and Hot Moments ($210,000); Total NSF award – $6.5 million
2014	National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental Forest ($75,000)
2013	Utah Lake Restoration Program (CUP) - $155,000
2012-2017	National Science Foundation EPSCoR Track 1; iUTAH - $20,000,000
2012-2017	Utah Science, Technology and Research Program (USTAR); Supporting funds for iUTAH - $200,000
2012-2014	National Science Foundation: A Drupal Approach to Collecting, Coalating and disseminating Jurisdiction-Specific Data - $170,787
2012	Utah Lake Restoration Program (CUP) - $278,000
2012-2014	National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental forest ($90,000); Total NSF award – $2.8 million
2011	National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental forest ($45,000); Total NSF award – $6.8 million
2011	Utah Lake Restoration Program ($238,000).
2007 - 2010	Utah Lake Restoration Program ($1,279,000)
2006 - 2010	National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental forest ($125,000); Total NSF award – $6.8 million
2006 - 2008	Center for Integrative Biology, Below Species diversity effects on Ecosystem Function ($108,000); Mike Pfrender, Co-PI.
2003 - 2008	National Science Foundation, Biocomplexity in the Environment: Dynamics of coupled river and road networks ($340,807). Total NSF award - $ 4.7 million
2006	Utah Lake Restoration Program ($245,000)
2005	Utah Lake Restoration Program ($225,000)
2004	June Sucker Recovery Program: Ecosystems Ecology of Utah Lake ($282,000)
2003	June Sucker Recovery Program: Various research topics for the recovery of June Sucker ($269,000)
2002	June Sucker Recovery Program: Various research topics for the recovery of June Sucker ($162,000)
2001-2006	National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental forest ($125,000); Total NSF award - $6.2 million
2000	National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental Forest ($15,660)
2000	U.S. Fisheries and Wildlife Service - Upper Colorado River Research ($56,000.)
1999	National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental Forest ($15,660)
1999	U.S. Fisheries and Wildlife Service - Upper Colorado River Research ($290,568)
1998	National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental Forest ($15,660)
1998	U.S. Fisheries and Wildlife Service - Upper Colorado River Research ($231,160)
1997	National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental Forest ($15,660)

1997 U.S. Fisheries and Wildlife Service - Upper Colorado River Research ($73,110.) 1996 National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental Forest ($15,660)

1996 U.S. Fisheries and Wildlife Service - Upper Colorado River Research ($337,987.)

1995 National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental Forest ($15,660)

1995 U.S. Fisheries and Wildlife Service - Upper Colorado River Research ($311,500)

1994 National Science Foundation, Long-Term-Ecological-Research: Luquillo Experimental Forest ($98,660 over 6 years)

1994 U.S. Fisheries and Wildlife Service - Upper Colorado River Research ($210,000.)

1994 U.S. Forest Service - Habitat restoration as a template for restoring native trout populations in high-mountain streams $25,400.

1994 Department of Interior, Bureau of Reclamation - Development of an endangered fish experiment station ($100,000)

1994 Utah Division of Wildlife Resources - Food web interactions in intermountain west lakes and reservoirs ($46,000)

1994 IAFWA - Foodweb stability: the role of exotic species. $41,000 (D. Beachamp, Co-Pi)

1993 Department of Interior, U.S. Fish and Wildlife Service - Upper Colorado River Research ($246,781; J. Schmidt, Co-PI)

1993 Dept. of Interior (through BOR) - Development of an endangered fish experiment station. $90,000

1993 Utah Division of Wildlife Resources - Investigation of trophic competition and vulnerability to predation of gizzard shad and June sucker. $61,334

1993 U.S. Forest Service - Colorado cutthroat trout restoration. $24,600

1992 Dept. of Interior (through UDWR) - Upper Colorado River Research I. (J. Schmidt, Co-PI). $50,660

1992 Dept. of Interior (through UDWR) - Upper Colorado River Research II. (J. Schmidt, Co-PI). $54,810

1992 U.S. Forest Service - Historical importance of coarse woody debris in stream ecosystem function (J. Kershner, Co-PI). $30,000

1992 U.S. Forest Service - Hierarchical analysis for stream ecosystems. $17,000 1992 U. S. Forest Service - Habitat restoration as a template for restoring native trout populations in high-mountain Uinta streams (J. Kershner and R. Black, Co-PIs). $25,000

1991 Utah Division of Wildlife Resources - Investigation of trophic competition and vulnerability to predation of gizzard shad and June sucker (T. Modde, Co-PI). $65,954

1991 Utah State University, New Faculty Grant - On the use of chemically-mediated anti-predation behaviors for determining phylogenetic and ecological relationships in freshwater pulmonate snails. $19,097

1991 Ministry of Research, New Zealand - Land-use impacts on the Taieri River Ecosystem. NZ $72,000

1991 Department of Conservation (DOC), New Zealand - Determination of native fish distributions with emphasis on determining the 'gene pool' in the Taieri River. NZ $56,000

1990 U.S. Forest Service - Using hierarchical models to predict trout abundances and distributions on small streams (J. Kershner, Co-PI). $42,000

1990 Department of Conservation - National Office - Genetic differentiation of native galaxiids: Effects of introduced predators. NZ $18,000

1989 Otago Research Council - Land-use effects on Otago Stream community dynamics (C. Townsend, Co-PI). NZ $65,000

1989 DSIR - Hydrology Group - Land-use effects on Otago stream community dynamics (C. Townsend, Co-PI). NZ $5,000

1989 Otago Regional Council - Land-use effects on Otago stream community dynamics (C. Townsend, Co-PI). NZ $17,000

1989 Otago Fish and Game Council - Land-use effects on Otago stream community dynamics (C. Townsend, Co-PI). NZ $9,000

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August 27, 2021

Irela Bague
Chief Bay Officer
Irela.bague@miamidade.gov
via email

Dear Ms. Bague:

I enthusiastically support the nomination of Dr. Diego Lirman, to the Miami-Dade County Biscayne Bay Watershed Management Advisory Board. Dr. Lirman has over 25 years of research experience in Biscayne Bay ecosystems and will be a very valuable member of your board.

Regards,

Roni Avissar, Ph.D.
Dean

CURRICULUM VITAE

Name: DIEGO LIRMAN, Ph.D.

Position: Associate Professor

Address: University of Miami
Rosenstiel School of Marine and Atmospheric Science
Department of Marine Biology and Ecology
4600 Rickenbacker Cswy., Miami, FL 33149
Tel: 305-421-4168; Fax: 305-421-4600
Email: dlirman@rsmas.miami.edu

EDUCATION

- Ph.D. Marine Biology. 1997. Rosenstiel School of Marine and Atmospheric Science, Miami
- M.S. Marine Biology. 1992. California State University, Long Beach
- B.S. Biology. 1988. University of California, Los Angeles

EMPLOYMENT

2011-	Associate Professor, University of Miami
2005-2011	Research Assistant Professor, University of Miami
1997-2005	Assistant Scientist, University of Miami

AREAS OF EXPERTISE

Coral Reef Ecology and Restoration, Seagrass Ecology, Disturbance Ecology, Science Education and Outreach

RESEARCH STATEMENT

Dr. Lirman's research focuses on the disturbance ecology and active restoration of coastal ecosystems including both coral reefs and seagrass ecosystems. He has been a member of the Florida Reef Restoration program since its inception in 2007 and runs coral nurseries in Miami-Dade County and Biscayne National Park. His lab has been instrumental in developing science-based restoration and monitoring practices now used widely in Florida and the Caribbean. His lab has planted 10,000s of corals onto degraded reefs in Florida and the Dominican Republic. Dr. Lirman also created the Rescue a Reef citizen science program where members of the public contribute to reef restoration by joining expeditions alongside restoration practitioners.

Dr. Lirman has been conducting research on Submerged Aquatic Vegetation in Biscayne Bay, Miami, Florida for > 20 years focused on the impacts of salinity and other factors on the abundance and distribution of seagrasses and macroalgae in habitats highly impacted by the Comprehensive Everglades Restoration Plan.

Dr. Lirman has received >$7M in funding from NPS, Army Corps of Engineers, NSF, NOAA, TNC, Miami-Dade County, Mote, and corporate sponsors to complete his research activities in the past 10 years.

PUBLICATIONS

Rivas, N., D. Hesley, M. Kaufman, J. Unsworth, M. D'Alessandro, and **D. Lirman**. 2021. Developing best practices for the restoration of massive corals and the mitigation of predation impacts: influences of physical protection, colony size, and genotype on outplant mortality. Corals Reefs, https://doi.org/10.1007/s00338-021-02127-5.

Drury, C. and **D. Lirman**. 2021. Genotype by environment interactions in the coral bleaching response. Proceedings of the Royal Society B. 288: 20210177 https://doi.org/10.1098/rspb.2021.0177.

Serafy, J., I. Zink, G. Shielder, G. Liehr, J. Browder, H. Jobert, and **D. Lirman.** 2021. Evaluating the rainwater killifish (*Lucania parva*) as an indicator of Everglades restoration. Restoration Ecology 29:el3344. https://doi.org/10.1111/rec.13344.

Carrick, J., C. Lustic, **D. Lirman**, et al. 2021. Hurricane Impacts on Reef Restoration: The Good, the Bad, and the Ugly. In: D. Vaughn (Ed.), Active Coral restoration: Techniques for a Changing Planet, J. Ross Publishers, Ch 19.

Kaufman, M., E. Watkins, R. van Hooidonk, A. Baker, and **D. Lirman**. 2021. Thermal history influences lesion recovery of the threatened Caribbean coral *Acropora cervicornis* under heat stress. Coral Reefs 40:289-293.

Ghiasian, M., J. Carrick, L. Rhodes-Barbarigos, B. Haus, A. Baker, and **D. Lirman**. 2020. Dissipation of wave energy by a hybrid artificial reef in a wave simulator: implications for coastal resilience and shoreline protection. Limnology and Oceanography: Methods, doi.org/10.1002/lom3.10400.

van Woesik, R., R. Banister, E. Bartels, D. Gilliam, E. Goergen, C. Lustic, K. Maxwell, A. Moura, E. Muller, S. Schopemeyer, R. S. Winters, and **D. Lirman**. 2020. Differential survival of nursery reared *Acropora cervicornis* outplants along the Florida Reef Tract. Restoration Ecology 29: e13302. doi.org/10.1111/rec.13302.

Unsworth, J., D. Hesley, M. D'Alessandro, and **D. Lirman**. 2020. Outplanting optimized: developing a more efficient coral attachment technique using Portland cement. Restoration Ecology 29: e13299. https://doi.org/10.1111/rec.13299.

Koval G., N. Rivas, M. D'Alessandro, D. Hesley, R. Santos, and **D. Lirman**. 2020. Fish predation hinders the success of coral restoration efforts using fragmented massive corals. PeerJ 8:e9978 https://doi.org/10.7717/peerj.9978.

Stipek, C., R. Santos, E. Babcock, and **D. Lirman**. 2020. Modelling the resilience of seagrass communities exposed to pulsed freshwater discharges: A seascape approach. PLoS ONE, doi.org/10.1371/journal.pone.0229147.

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Patterson, J.T. and **D. Lirman**. 2020. Species Profile: Stony Corals. SCRA Publication No.7214. Unites States Department of Agriculture, 7 pp.

Drury C., J. Greer, I. Baums, B. Gintert, and **D. Lirman**. 2019. Clonal diversity impacts coral cover in *Acropora cervicornis* thickets: potential relationships between density, growth and polymorphisms. Ecology and Evolution 9:4518-4531. doi: 10.1002/ece3.5035.

Santos, R., G. Varona, C. Avila, **D. Lirman**, and L. Collado-Vides. 2019. Implications of macroalgae blooms to the spatial structure of seagrass seascapes: The case of the

Anadyomene spp. (Chlorophyta) bloom in Biscayne Bay, Florida. Marine Pollution Bulletin, doi.org/10.1016/j.marpolbul.2019.110742.

Zink I, J. Browder, **D. Lirman**, and J. Serafy. 2018. Pink shrimp *Farfantepenaeus duorarum* spatiotemporal abundance trends along an urban, subtropical shoreline slated for restoration. PLoS ONE, doi.org/10.1371/journal.pone.0198539.

Lirman, D., J. Ault, J. Fourqueran, and J. Lorenz. 2018. The Coastal Marine Ecosystem of South Florida, United States. In: C. Sheppard (ed.), World Seas: An Environmental Evaluation, AP Press, Vol 1, 427-444.

Lirman, D. and J. Mate. 2018. Status of coastal habitats of Bocas del Toro, Panama: Coral reefs and seagrass meadows. In: D. Suman and A. Spalding (eds.), Coastal Resources of Bocas del Toro, Panama: Tourism and Development Pressures and the Quest for Sustainability. Geminis Press. p. 159-181.

Enochs, I., D. Manzello, P. Jones, C. Aguilar, K. Cohen, L. Valentino, S. Schopmeyer, G. Kolodziej, M. Jankulak, and **D. Lirman**. 2018. The influence of diel carbonate chemistry fluctuations on the calcification rate of *Acropora cervicornis* under present day and future acidification conditions. Journal of Experimental Marine Biology and Ecology 506:135-143.

Drury, C., C.B. Paris, V.H. Kourafalou, and **D. Lirman**. 2018. Dispersal capacity and genetic relatedness in *Acropora cervicornis* on the Florida Reef Tract. Coral Reefs, 37:585-596.

Santos, R., **D. Lirman**, S. Pittman, and J. Serafy. 2018. Spatial patterns of seagrass and salinity regimes interact to structure marine faunal assemblages in a subtropical bay. Marine Ecology Progress Series Marine Ecology Progress Series, 594:21-38.

Merselis, D.G, **D. Lirman**, and M. Rodriguez-Lanetty. 2018. Symbiotic immuno-suppression: is disease susceptibility the price of bleaching resistance? PeerJ, 10.7717/peerj.4494.

Parkinson, J., E. Bartels, M. Durante, C. Lustic, K. Nedymier, S. Schopmeyer, **D. Lirman**, T. LaJeunesse, and I. Baums. 2018. Extensive transcriptional variation poses a challenge to thermal stress biomarker development for endangered corals. Molecular Ecology, DOI: 10.1111/mec.14517.

Hesley, D, Burdeno, C. Drury, S. Schopmeyer, and **D. Lirman**. 2017. The benefits of incorporating a citizen science program into coral reef restoration activities. Journal for Nature Conservation, DOI 10.1016/j.jnc.2017.09.001.

Zink, I., J. Browder, **D. Lirman**, and J. Serafy. 2017. Review of salinity effects on abundance, growth, and survival of nearshore life stages of pink shrimp (*Farfantepenaeus duorarum*). Ecological Indicators, 81:1-17.

Schopmeyer S., **D. Lirman**, E. Bartels, D. S. Gilliam, E. A. Goergen, S. P. Griffin, M. E. Johnson, C. Lustic, K. Maxwell, C. S. Walter. 2017. Regional restoration benchmarks for *Acropora cervicornis*. Coral Reefs, DOI 10.1007/s00338-017-1596-3.

Drury C., S. Schopmeyer, E. Larson, E. Bartels, K. Nedimeyer, M. Johnson, K. Maxwell, V. Galvan, C. Manfrino, and **D. Lirman**. 2017. Genomic patterns in *Acropora cervicornis* show extensive population structure and variable genetic diversity. Ecology and Evolution, DOI: 10.1002/ece3.3184.

Drury, C and **D. Lirman**. 2017. Making biodiversity work for coral reef restoration. Biodiversity, doi.org/10.1080/14888386.2017.1318094.

Drury, C, D. Manzello, and **D. Lirman**. 2017. Genotype and local environment dynamically influence growth, disturbance response and survivorship in the threatened coral *Acropora cervicornis*. PloS ONE, doi.org/10.1371/journal.pone.0174000.

Lirman, D. and S. Schopmeyer. 2016. Ecological solutions to reef degradation: optimizing coral restoration in the Caribbean and Western Atlantic. PeerJ 4:e2597, DOI 10.7717/peerj.2597.

Drury, C. K. Dale, J. Panlilo, S. Miller, **D. Lirman**, L. Larson, E. Bartels, D. Crawford, M. Oleksiak. 2016. Genomic variation among populations of threatened coral: *Acropora cervicornis*. BMC Genomics 17:286, doi/10.1186/s12864-016-2583-8.

Santos, R., **D. Lirman**, and S. Pittman. 2016. Long-term spatial dynamics in vegetated seascapes: fragmentation and habitat loss in a human-impacted subtropical lagoon. Marine Ecology, doi/10.1111/maec.12259.

Schopmeyer, S., and **D. Lirman**. 2015. Occupation dynamics and impacts of damselfish territoriality on recovering populations of the threatened staghorn coral, *Acropora cervicornis.* PLoS ONE, doi/10.1371/journal.pone.0141302.

Lohr, K., S. Bejarano, **D. Lirman**, S. Schopmeyer, and C. Manfrino. 2015. Optimizing the productivity of a coral nursery focused on staghorn coral *Acropora cervicornis*. Endangered Species Research 27:243-250.

Lirman, D., S. Schopmeyer, V. Galvan, C. Drury, A. Baker, and I. Baums. 2014. Growth dynamics of the threatened Caribbean staghorn coral *Acropora cervicornis*: influence of host genotype, symbiont identity, colony size, and environmental setting. PloS ONE, dx.plos.org/10.1371/journal.pone.0107253.

Lirman, **D.**, N. Formel, S. Schopmeyer, J. Ault, S. Smith, D. Gilliam, and B. Riegl. 2014. Percent recent mortality as an ecological indicator of disturbance impacts and reef condition. Ecological Indicators 44:120-127.

Lirman, **D.**, T. Thyberg, R. Santos, S. Schopmeyer, C. Drury, L. Collado-Vides, S. Bellmund, and J. Serafy. 2014. SAV communities of western Biscayne Bay, Miami, Florida, USA: Human and natural drivers of seagrass and macroalgae abundance and distribution along a continuous shoreline. Estuaries and Coasts 37:1243-1255.

Cooper, W.T., **D. Lirman**, M. Porter VanGroningen, J.E. Parkinson, J. Herlan, and J.W. McManus. 2014. Assessing techniques to enhance early post-settlement survival of corals *in situ* for reef restoration. Bulletin of Marine Science 90:651-664.

Enochs, I.C., D.P. Manzello, R. Carlton, S. Schopmeyer, R. van Hooidonk, and **D. Lirman**. 2014. Effects of light and elevated pCO_2 on the growth and photochemical efficiency of *Acropora cervicornis.* Coral Reefs 33:477-485.

Collado-Vides, L. C. Avila, S. Blair, D. Rodríguez, T. Thyberg, S. Schneider, J. Rojas, P. Sweeney, C. Drury, and **D. Lirman**. 2013. A persistent bloom of *Anadyomene Lamouroux* species (Anadyomenaceae, Chlorophyta) in Biscayne Bay, Florida. Aquatic Botany 111:95-103.

Serafy, J.E., P. Gillette, M.W. Miller, **D. Lirman**, and T.R. Capo. 2013. Incorporating herbivorous sea urchins in ramet culture of staghorn coral, *Acropora cervicornis*. Endangered Species Research 22:183-189.

Schopmeyer, S., **D. Lirman**, E. Bartels, J. Byrne, D. Gilliam, J. Hunt, M. Johnson, E. Larson, K. Maxwell, K. Nedimyer, and C. Walter. 2012. *In-situ* coral nurseries serve as genetic repositories for coral reef restoration after an extreme cold-water event. Restoration Ecology 20:696-703.

Santos, R. and **D. Lirman**. 2012. Using habitat suitability models to predict changes in seagrass niche distribution caused by water management practices. Canadian Journal of Fisheries and Aquatic Sciences 69:1380-1388.

Huntington, B.E. and **D. Lirman**. 2012. Coral species richness estimates are sensitive to differences in reef size and regional diversity. Limnology and Oceanography: Methods 10:110-116.

Huntington, B.E. and **D. Lirman**. 2012. Species-area relationships in coral communities evaluating mechanisms for a commonly observed pattern. Coral Reefs 31:929-938.

Young, C., S. Schopmeyer, and **D. Lirman**. 2012. A review of reef restoration and coral propagation using the threatened genus *Acropora* in the Caribbean and Western Atlantic. Bulletin of Marine Science 84:1075-1098.

Lirman, **D.,** S. Schopmeyer, D. Manzello, L. J. Gramer, W. F. Precht, F. Muller-Karger, K. Banks, B. Barnes, E. Bartels, A. Bourque, J. Byrne, S. Donahue, J. Duquesnel, L. Fisher, D. Gilliam, J. Hendee, M. Johnson, K. Maxwell, E. McDevitt, J. Monty, D. Rueda, R. Ruzicka, and S. Thanner. 2011. Severe 2010 cold-water event caused unprecedented mortality to corals of the Florida Reef Tract and reversed previous survivorship patterns. PloS ONE 10.1371/journal.pone.0023047.

Santos, R., **D. Lirman**, and J. Serafy. 2011. Quantifying freshwater induced fragmentation of submerged aquatic vegetation communities using a multi-scale landscape ecology approach. Marine Ecology Progress Series 427:233-246.

Teece, M.A., B. Estes, E. Gelsleichter, and **D. Lirman**. 2011. Heterotrophic and autotrophic assimilation of fatty acids by two Scleractinian corals, *Montastraea faveolata* and *Porites astreoides*. Limnology and Oceanography 56:1285-1296.

Karnauskas, M., B.E. Huntington, E. Babcock, and **D. Lirman**. 2011. Pre-existing spatial patterns in fish abundances influence species-specific responses in a Caribbean marine reserve. Marine Ecology Progress Series 432:235-246.

Avellaneda, P., J. Englehardt, J. Olascoaga, E. Babcock, L. Brand, **D. Lirman**, W. Rogge, H. Solo-Gabriele, and G. Tchobanoglous. 2011. Relative risk assessment of cruise ships biosolids disposal alternatives. Marine Pollution Bulletin 62:2157-2169.

Collado-Vides, L., V. Mazzei, T. Thyberg, and **D. Lirman**. 2011. Spatio-temporal patterns and nutrient status of macroalgae in a strongly managed region of Biscayne Bay, Florida, USA. Botanica Marina 54:377-390.

Huntington, B.E., Karnauskas, M., and **D. Lirman**. 2011. Coral declines at a Caribbean marine reserve despite ten years of reserve designation. Coral Reefs 30:1077-1085.

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Proposal Reviews: Reviewed proposals for the National Science Foundation, NOAA, USAID, SeaGrant, National Coral Reef Institute, COLCIENCIAS (Colombian Office of Science).

Education and Outreach: Created the University of Miami's **Rescue a Reef** Citizen Science and Education Program where members of the public participate in reef restoration expeditions and educational activities designed around Coastal Resilience and Reef Restoration.

EXHIBIT 4

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Fisheries Science Center
75 Virginia Beach Dr.
Miami, FL 33149

August 26, 2021

Office of the Mayor
Miami-Dade County

Honorable Mayor Daniella Levine Cava:

Subject: NOAA seat on Biscayne Bay Watershed Advisory Board

Thank you for encouraging establishment of a NOAA seat on the new Biscayne Bay Watershed Management Advisory Board and for giving the Miami Office of the Southeast Fisheries Science Center an opportunity to nominate a representative to that position.

We nominate Dr. Joan Browder, a senior scientist on our Miami staff, whose resume, providing her credentials as they relate to this position, is attached.

Thank you again for this opportunity. We hope for the best for Miami-Dade County and Biscayne Bay with the establishment of this new advisory entity.

Sincerely,

Joseph E. Serafy

Joseph E. Serafy, Ph.D.
Research Fishery Biologist
NOAA/NMFS/SEFSC
75 Virginia Beach Drive, Miami FL 33149 USA.
305.361.4255 (office), 305.361.4562 (fax)

Cc: Irela Bague, Chief Bay Officer

RESUME

Joan A. Browder, Ph.D.
Southeast Fisheries Science Center
NOAA National Marine Fisheries Service
75 Virginia Beach Drive
Miami, Florida 33149

August 26, 2021

Joan Browder is a senior scientist and fishery research biologist at the Southeast Fisheries Science Center. She received her B.S. and M.S. in Biology at the University of Miami and her Ph.D. at the University of Florida, where she worked in the systems ecology program of H.T. Odum. She spent the first half of her career working on issues related to anthropogenic changes in freshwater flow to estuaries and the most recent part of her career applying the knowledge gained to monitoring coastal ecosystems in support of the Comprehensive Everglades Restoration Plan (CERP). She has worked in most of South Florida's estuaries, including Florida Bay, Biscayne Bay, Fakahatchee, Faka Union, and Pumpkin Bays, and the St. Lucie Estuary. In Biscayne Bay, she has published studies about morphological abnormalities in fish; fishing industries for pink shrimp; a common prey fish, rainwater killifish; and a conceptual model recommending ecological indicators for CERP. Presently she is assisting in the development of performance measures and ecological indicators for the Biscayne Bay and Southeast Everglades Restoration Project (BBSEER), as well as monitoring the shallow-water seagrass-associated habitat of nearshore Biscayne Bay to assess effects of CERP components already implemented. She has served for several years as co-leader of the NOAA Biscayne Bay Habitat Focus Area, which was one of the first 10 dedicated NOAA focus areas in the U.S. and its territories. NOAA's HFA designation opened new doors for the Bay to attention, appreciation, and assistance.

EXHIBIT 5

United States Department of the Interior

NATIONAL PARK SERVICE
BISCAYNE NATIONAL PARK
9700 SW 328th Street
Homestead, FL 33033

IN REPLY REFER TO:

14 September 2021

Irela Bague
Chief Bay Officer
Miami-Dade County

Re: Appointing representative for Biscayne National Park on the Biscayne Bay Water Management Advisory Board

Dear Irela Bague,

I am writing to respectfully submit the appointment of Erik Stabenau, Ph.D., Physical Resources Branch Chief of the South Florida Natural Resources Center, National Park Service to represent Biscayne National Park on the Biscayne Bay Water Management Advisory Board (BBWMAB). We expect that Erik would be a strong addition to the Board, bringing deep technical skill and personal experience that would assist the County in meeting its mission while continuing to represent the best interests of the Biscayne National Park.

Erik has two decades of experience at both the technical and leadership level within the South Florida scientific and Everglades Restoration community. On the technical front, he is a graduate of the University of Miami (Ph.D. 2004, Marine & Atmospheric Chemistry), and has completed post-doctoral work through the National Academies of Sciences' National Research Council posting at NOAA. After that, he came to the National Park Service, working his way up through the scientific fields by first managing the monitoring program, then developing and using oceanographic models to improve management actions, and now onto leading groups involved in restoration projects and policy issues. His work has touched all four south Florida National Park units.

Locally, he is known on a first name basis by many of the key players within the county at both governmental and non-governmental organizations, is familiar in management circles and readily bridges the divide between the technical realms and public policy. He has developed positions on controversial water management issues in support of improving conditions in Biscayne Bay and Biscayne National Park and made direct requests to the South Florida Water Management District Governing Board on the same. In his career, he has met conflict and controversy by seeking agreement, carefully listening and appreciating the competing interest in freshwater management in South Florida while seeking a balanced solution that supports our mission.

In short, he has the skills and connections necessary to make a strong contribution to the BBWMAB and he has our full support. If you have any further questions concerning this request, reach out to me directly.

Thank you for your consideration.

Sincerely,

Penelope Del Bene
Superintendent, Biscayne National Park

Enclosures: Stabenau-Erik_CV_BISC-representative_2021-09-03.pdf

Erik Stabenau, Ph.D.

Miami, FL 33186 | 305.972.3640 | Erik_Stabenau@nps.gov

Branch Chief, Physical Resources, National Park Service | Applied natural resource management | Project alternatives evaluation | Climate compatibility analysis | Hydrodynamic modeling | Database design and implementation | Real-time automated data acquisition and validation | Expert systems forecasting

- Experienced environmental analyst, prioritizing management actions based on combinations of data-based inquiry, hydrodynamic modeling, and thorough professional knowledge of regional and global climatic drivers and dependencies.
- Leader in multiple interagency professional advisory boards, guiding state and federal actions on topics including Ecosystem Restoration, water resource management, coral reef disease response and reef restoration, and regional ecological issues
- Respected developer of hydrodynamic models, databases, data sharing protocols, and performance metrics for the selection and evaluation of specific project features, including development of systems to track quantifiable outcomes.
- Frequently invited public speaker where I make the science behind technical projects understood, helping to guide opinion and drive agency positions.

PROFESSIONAL AND ACADEMIC TIMELINE

Branch Chief - Physical Sciences, GS-14 (GS-1315-14) **10/2019 – Present**
National Park Service, Everglades National Park
South Florida Natural Resources Center
Homestead, FL
Supervisor: G. Melodie Naja

Description: Position includes leadership of 15 - 20 scientists at the South Florida Natural Resources Center (SFNRC) through development of in-park science and resources management to support four South Florida Park units including Everglades, Biscayne and Dry Tortugas National Park and the Big Cypress National Preserve. I serve as the National Park Service (NPS) lead in water resources investigations and projects for the South Florida Ecosystem Restoration effort, holding a position on the Science Coordination Group that reports directly to the Restoration Task Force, a federal congressionally mandated leadership body for the Comprehensive Everglades Restoration Program. I also serve on multiple interagency forums where I bring the expertise of the scientists of the SFNRC to develop positions and provide guidance on high value projects with multi-decade impacts on the South Florida environment.

On the technical front, I continue to provide hands-on expertise in database development, data management, development, evaluation and application of hydrodynamic models. I have the privilege of working with published experts in various analytical fields, including the development of novel analytical techniques to deal with non-stationary large-scale datasets with the end result of providing simple actionable products to develop and support potentially controversial and complex positions. My focus has been to create products that interpret data in natural language, expressing complex information in manageable and decision-oriented terms, making it easier to differentiate between random outliers and significant early indicators of change.

Branch management involves developing multi-year budgets, strategic planning including decisions about the return on investment and considerations of long-term needs when selecting between accomplishing tasks through contracts, agreements, or direct hire. I am primarily responsible for personnel on my team, handling performance planning and development in areas including water quality, hydrodynamic modeling, technical capacity building, hydrology, and field programs in both

marine and freshwater environments. I maintain supervisory authority over staff and equipment including boats, airboats, and have a supervisory role in our aviation program.

Oceanographer-Coastal Ocean Modeler, GS-13 (GS-1360-13) 1/2009 – 10/2019

National Park Service, Everglades National Park, Homestead, FL
Supervisor: Robert Johnson

Description: Duties include; modifying and running physical models for optimizing the impact of freshwater discharge on salinity within Biscayne National Park and Everglades National Parks, developing programs to monitor environmental conditions and respond to critical events such as mass fish mortality or algal blooms along the coast, and enhancing data management and sharing across multiple state and federal agencies. As an oceanographer and resource manager, I review projects proposed by the US Army Corps of Engineers and the South Florida Water Management District related to Everglades Restoration for potential impact on salinity and other environmental conditions in both of these national parks. These reviews include running models representing Biscayne Bay and Florida Bay, writing computer programs to manage data and process results. Several peer-review publications have resulted from this work. I act as a member of several interdisciplinary teams, organizing or participating in workshops where we developed solutions to complex multi-jurisdictional environmental issues. In addition, I provide scientific assessments and guidance documents that are shared through committees and in public venues and develop position statements on environmental issues.

Facilitating data sharing between organizations is a key area of personal interest for me and an important part of my daily activities. I have expanded our data sharing ability by automating data delivery to both the USGS Everglades Depth Estimation Program and NOAA's National Data Buoy Center as part of our efforts to collaborate with regional, national and international Ocean Observing Systems. At the national level, I have represented the Everglades National Park on the Integrated Ocean Observing System Data Management and Acquisition Steering Team and was involved in making the final recommendations from that team on the adoption of national data sharing standards.

My other duties have included being an agreements technical representative in the park where I typically manage projects conducted by universities that provide information to improve resource management while serving the public purpose of developing our next generation of scientists. As an agreements representative, I have had the opportunity to guide research by being involved in several developmental and field projects, enlisting the assistance of the Natural Resources Stewardship and Science directorate in the National Park Service headquarters and through agreement with university professors at Florida International University, the University of Miami, and Cornell University to develop research programs in estuarine monitoring, algal bloom detection, and the use of passive acoustics for monitoring ecosystem response to restoration efforts. In order to achieve success both in the funding and implementation of these projects, I've had to develop methods to explain the strategic value of the project and to propose several alternatives on how to best achieve the objectives while controlling costs and providing appropriate management for personnel.

Within the South Florida Natural Resources Center and through collaboration with the superintendent at Biscayne National Park, I helped to establish a scientific support team that engages in issues of freshwater management to meet the goals Biscayne National Park. I frequently serve as the technical lead on water management issues for the Park where they intersect with the interests to private corporations and other federal entities. In this role, I routinely need to interpret scientific literature for non-technical audiences in order to provide clear scientific message on NPS resource needs and NPS policy requirements.

The 4th South Florida park that I have assisted is Dry Tortugas National Park. At that site, I installed a water level and meteorological monitoring station in order to track the impact of storms as well as seasonal or longer-term variations in water level on cultural resources. The station produces data that is shared via satellite, stored in our database system, and delivered through our partners at NOAA to the public. As part of the installation project, I also worked with science communications branch to develop a tri-fold brochure to explain the monitoring project to the public. The data itself

has since been used in a peer-review publication I co-authored with other scientists from the South Florida Natural Resources Center.

Collateral duty: I was the Department of Interior Technical Lead for the Florida Peninsula Command Post during the Deepwater Horizon/BP oil spill in 2010, providing daily technical briefings to command staff about the location and potential impacts of the spill on Florida's coastline. Post-spill, I continued to be active in emergency management and planning, including providing input to the NOAA Gulf of Mexico offshore restoration planning effort and acting as an advisor to the USCG and NOAA with respect to protecting NPS resources from the potential of oil drilling related impacts related to oil exploration efforts in Cuba.

Adjunct Professor, Chemistry, Physics, and Oceanography **8/2004 – 7/2018**

Miami Dade College, Miami, FL
Supervisor: John Barimo

Description: Maintained adjunct status teaching oceanography, introductory physics, and chemistry undergraduate courses at a rate of 1 or 2 per semester, including laboratories and lectures.

Supervisory Hydrologist, GS-12 (GS-1315-12) **12/2005 – 12/2008**

National Park Service, Everglades National Park, Homestead, FL
Supervisor: Kevin Kotun Office phone: 305.224.4229

Description: Duties included supervising a team of hydrologist in the expansion and maintenance of a hydrologic data collection network of 100 stations within Everglades National Park. I developed automated data sharing processes, prescreening data for outliers prior to storing and delivering data to partners. I also implemented systems that identify stations in need of service when showing any variety of unexpected behavior. I was responsible for all aspects of the program, including multi-year budget management, project planning and implementation, personnel management, data collection, final data review and reporting, and database development and management. I produced annual data reports and periodic data summaries. I was responsible for my team's use of helicopters, boats and airboats to access remote areas of the park, including maintaining training and tracking related equipment. In this position, I also developed new projects and programs to address park management needs such as instituting a program to monitor algal bloom frequency and intensity in Florida Bay or investigating the relationship between stage and flow within the park and managed freshwater levels in neighboring canals. I routinely presented our work at national level meetings, at interagency forums, and with researchers from outside the Federal Government. This position provided a training ground for me with respect to personnel management, providing experience with high performers as well as recognizing limitations and developing opportunities for improvement.

NRC Post-doctoral Scientists: Research Coordinator **3/2004 – 12/2005**

National Research Council post-doctoral appointment
NOAA, Atlantic Oceanographic and Meteorological Laboratory, Miami, FL
Supervisor: James C. Hendee, Ph.D.

Description: Duties include investigating new instrumentation and managing programmers and station construction personnel to meet deployment deadlines, improving the data processing functions related to underwater light data near coral reef ecosystems, and development of new collaborations with university researchers involved in research at or near Coral Reef Early Warning System (CREWS) research sites. The heart of this program was the development of Expert System processing, a mechanism to translate terms expressing best professional judgement of conditions (ex.: extremely hot, unusually salty) into numeric algorithms that allow for early detection of change and identify approaching critical thresholds before they occur. This work involved collaboration between NOAA and the EPA and culminated in several publications on issues related to water clarity, water temperature, and coral bleaching.

Research and Teaching Assistant **7/1998 – 12/2003**

Rosenstiel School of Marine and Atmospheric Science,

University of Miami, Miami, FL.
Supervisor: Rod Zika, Ph.D.

Description: This position was in support of my Ph.D. program at the University of Miami. I conducted basic research into the chemical basis for coastal ocean optical properties and developed novel techniques for the analysis of environmental macromolecules. A focal region for this study was in Everglades National Park and along the west Florida shelf, where I studied marine and terrestrial sources of organic material that impact coastal water quality. I also spent a significant portion of my time involved in atmospheric chemistry studies that looked at air quality in the eastern U.S. including a study on photochemical smog within Shenandoah National Park. I spent several semesters teaching or assisting in teaching marine and atmospheric chemistry courses and also had the pleasure of serving on multiple research cruises in coastal Florida waters.

Assistant Oceanographer/Limnologist (GS-7) **4/1997 – 7/1998**

NOAA, Great Lakes Environmental Research Laboratory, Ann Arbor, MI.
Supervisor: Nathan Hawlee, Ph.D.

Description: Assisted in field research and associated data processing and programming activities associated with research on the source and fate of environmental contaminants in sediments in southern Lake Michigan.

DEVELOPMENTAL PATH

The following **Details** were performed under the guidance of senior management at the South Florida Parks and Preserve as part of a developmental process. My primary position, responsibilities, and duties were either briefly paused or carried over, to some extent, while performing these assignments.

DETAIL: Branch Chief, GS-14 (GS-0301-14) **12/2018 – 3/2019**

National Park Service, South Florida Natural Resources Center
Everglades National Park, Homestead, FL
Supervisor: Robert Johnson

During this detail I performed the duties of Branch Chief (Supervisory Hydrologist) while the South Florida Natural Resources Center sought to fill the position permanently. In this role, I provided guidance to a group of 16 employees that manage all aspects of physical sciences related to ecological restoration for 3 South Florida park units; Everglades, Biscayne, and Dry Tortugas National Parks. The primary duties included maintaining staffing, funding, database activity, tracking contracts, supporting UNIX systems in our high-performance computing center, and generally keeping the branch on track through a transition period.

DETAIL: Supervisory Program Specialist, GS-13 (GS-0301-13) **7/2018 – 10/2018**

National Park Service, Biscayne National Park, Homestead, FL
Supervisor: Margaret Goodro

Developmental detail to support the superintendent of Biscayne National Park as her senior advisor, working on multiple sensitive issues related to workforce management while also supporting the day-to-day operations of the park. In this role also represented the park at meetings with the South Florida National Parks Trust and the Florida National Parks Association, sharing information on the park's identified priority areas and learning about the activities of these organizations and their support for the park.

DETAIL: Senior Advisor and Legislative Liaison, GS-14 (GS-1301-14) **6/2015 – 9/2015**

National Park Service, Natural Resources Stewardship and Science (NRSS) Directorate
Department of Interior, Washington DC
Supervisor: Ray Sauvajot

I served on a development detail to the NRSS Directorate at the Washington Office (WASO) as a senior advisor and legislative liaison as part of a year-long leadership development program. Primary tasks included responding to congressional requests on natural resources issues within

National Park units and coordinating responses across agencies within the Department of Interior. Highlights included editing and assisting with the final release of Director's Order 12 which provided guidance on completing environmental reviews under the National Environmental Protection Act.

DEVELOPMENT: US Army Corps of Engineers South Atlantic Division Regional Leadership Development Program

For this highly selective program, I was honored with being one of four representatives from outside of USACE as part of their effort to bring together partner agencies for more efficient and effective government across the region. The primary focus of this training program was to create leaders that are sensitive to relationship building, firm in their management approach, aware of the critical path to developing high performing teams, well educated in conflict resolution, and to create an overall culture of continuous improvement to be cast through the agencies from the graduates of this program.

EDUCATION

Higher Education

January 2004 to December 2005 **Level: Post-doctoral**

National Academy of Science
National Research Council Post-Doctoral Associate
Program: Coral Reef Early Warning System (CREWS) science coordinator
Advisors: Dr. Rik Wanninkohf and Dr. James Hendee
NOAA - Atlantic Oceanographic and Meteorological Laboratory, Miami, FL

- Developed data processing under an Expert System approach that converts the best professional judgement of conditions in common language into dynamic numeric ranges and then interprets those values with the goal of identifying critical thresholds before they occur.
- Developed light transfer equations to predict light intensity and spectra at coral surface within monitored coral reef zone from near surface light measurements
- Applied fluorescent techniques for remote real-time monitoring of coral fluorescent efficiency – a measure of coral health that was used in producing real-time environmental alerts
- Coordinated field studies with associated researchers during several projects including the deployment of a pCO_2 sensor and automated sampling device near Lee Stocking Island, Bahamas
- Chaired session and subsequently managed peer review of manuscripts submitted about coral reefs and global change at the 10th International Coral Reef Symposium in Okinawa, Japan.

July 1998 to December 2003 Level: Graduate **Degree: Ph.D**.

Doctoral Degree in Marine and Atmospheric Chemistry
Dissertation Title: *Photochemistry and Structure of Environmental Macromolecules*
Advisor: Dr. Rod G. Zika
Department of Marine and Atmospheric Chemistry
Rosenstiel School of Marine and Atmospheric Sciences
University of Miami, Miami, FL

- Developed analytical and computational methods to understand sources and sinks for chemicals in South Florida coastal waters and Florida Bay
- Developed new techniques using Ion Trap Mass Spectroscopy for analysis of environmental macromolecules and processing techniques for relatively large scale datasets.
- Analyzed photochemical and structural properties of natural organic materials and complex organic mixtures

August 1989 to December 1992 Level: Undergraduate **Degree: B.A.-Chemistry**

Bachelor's Degree in Chemistry
Wayne State University, Detroit, MI

- Conducted research on anti-metastatic cancer drug treatment protocols for the Radiation Oncology Division of a NIH funded Cancer Research Center

Professional Interests

Resource management and environmental sustainability
Integrated data management standards and communication protocols
Computational techniques to identify environmental change and critical thresholds
Ecological monitoring systems for extreme events and routine management
Developing passive ocean acoustic data processing methods for restoration management
Coastal ecosystem connectivity
Climate change detection
Managing the social environment of high performance teams
Professional workforce development and mentoring

Memberships & Committees

2020 - Present	National Park Service representative on the Science Coordination Group, an interagency technical team that provides guidance on the overall implementation of the comprehensive Everglades Restoration Program.
2019 – Present	National Park Service Executive Coordination Team member for the interagency Stony Coral Tissue Loss Disease Response effort
2011 – 2014	Integrated Ocean Observing System (IOOS) Data Management & Communication Steering Team member
2010	Department of Interior Technical Lead for the Environment at the Florida Peninsula Command Post response to the Deepwater Horizon/BP Gulf Oil Spill Incident.
2008 – 2011	Gulf Coast Ocean Observing System (GCOOS) Data Management & Communication Committee Member

Honors and Awards

Multiple awards for exceptional service with the National Park Service, 2006 – 2020.
United States Coast Guard Award for exceptional service during Deepwater Horizon/BP Gulf Oil Spill Incident Response 2010
Environmental Protection Agency Level 2 Science and Technological Achievement Award for published optical research 2009
National Oceanic and Atmospheric Administration Bronze Award for work with the Coral Reef Early Warning System, 2004 – 2005.

Publications

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Stabenau, Erik and Kevin Kotun, *Status and Trends in Marine and Estuarine Conditions, Florida Bay, 1992 – 2010*, Greater Everglades Ecosystem Restoration (GEER) conference, 2010.

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Zepp, R.G., C. Shank, E. Bartells, E. Stabenau, W. Fisher, and C. Fichot, *Dynamic Changes in Colored Dissolved Organic Matter and Total Suspended Matter Control UV Exposure in Coral Reefs in the Florida Keys.,* Eos.Trans. AGU, Ocean Sciences Meet. Suppl., 2006.

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EXHIBIT 6

GREATER MIAMI CONVENTION & VISITORS BUREAU

The Official Accredited Destination Marketing Organization for Greater Miami and the Beaches

August 31, 2021

Ms. Irela Bague
Chief Bay Officer
Miami-Dade County
111 N.W. 1st Street
Miami, FL 33128

RE: GMCVB Nomination to the Miami-Dade County Biscayne Bay Watershed Management Advisory Board

Dear Ms. Bague,

The Greater Miami Convention & Visitors Bureau (GMCVB) is delighted to be part of the Biscayne Bay recovery efforts and welcomes the opportunity to provide feedback on this worthwhile project.

We are nominating Ms. Julissa Kepner to be the GMCVB representative for the Miami-Dade County Biscayne Bay Watershed Management Advisory Board. Ms. Julissa Kepner is the General Manager of the Miami Marriott Biscayne Bay and is a member of the GMCVB Executive Committee where she serves as the Chair of the Convention Sales Committee. Attached is her impressive resume for your perusal.

Ms. Kepner's contact information is as follows:

Ms. Julissa Kepner, General Manager
Miami Marriott Biscayne Bay
1633 N. Bayshore Drive, Miami, FL 33132
Office: (305) 536-6374 / Mobile: (305) 781-5350
Email: Julissa.Kepner@marriott.com

Let me know if you need anything else.

Sincerely,

David Whitaker
President & CEO

cc: Ms. Julissa Kepner

JULISSA KEPNER

GENERAL MANAGER

OBJECTIVE

Leader in senior roles with 20 years of experience with Marriott International and several roles with Hilton and Radisson prior to Marriott.

LEADERSHIP

Chair AOHT- NAF Miami

Chair of Convention Sales GMCVB

Executive Board Member GMCVB

Chair of Government Affairs South Florida Marriott Business Council

Executive Board GMBHA

EXPERIENCE

GENERAL MANAGER
MIAMI MARRIOTT BISCAYNE BAY
APR 2019 – Present

- Manage and embrace owner relations successfully and securing $48M investment on the asset beginning projects July 2021 to 2022.
- Provide strategic direction in balanced score card of financial results, associate engagement, owners satisfaction, customer satisfaction and sales performance.
- Delivered positive results in EBITDA for owners during a pandemic year and yielding positive results post pandemic 2021
- Restructure hotel after pandemic and rebuilding the team post pandemic
- Increased ROIs for the hotel creating value in the asset
- Collaborate with stake holders in sales, revenue management, marketing, regional team and operations leaders

DUAL GENERAL MANAGER
COURTYARD & RESIDENCE INN MIAMI AIRPORT
JAN 2014-MAR 2019

- Provide strategic direction in financial results. Courtyard increased ADR with daily review of comp set in rates and occupancy to maximize our opportunities. Maintaining GOP margins of 50.6% at Courtyard and 58.2% at Residence Inn.
- Manage and embrace owner relations successfully by having a proactive approach and communication. Previous ownership groups Host, Thayer-Brookfield, North Star and Colony Capital with open line of communication.
- Develop and mentor managers and supervisors, promoted AGM to GM role, managers to senior manager roles and supervisor.
- Increased Associate Engagement Scores YOY: Courtyard 2018 87% and Residence Inn 2018 90%.
- Increased Guest Voice scores at Courtyard 2018 ITR 64.2% up 0.6 pts to brand in a renovation year. Residence Inn ITR 72.9% up 3.8 pts to brand.

KEPNER, JULISSA

GENERAL MANAGER

- Collaborates with different stake holders such as owners, area sales, group sales, marketing, revenue, operations leaders.
- Experience managing complex renovations projects with Courtyard by finishing before dateline. Conducting daily meetings for accountability and communication process with project manager and contractor to complete renovation on time.
- Delivered return on the investment successfully to ownership and Marriott, Courtyard $4M and Residence Inn $3M with combined revenues of $22.
- Collaborates with different stake holders such as owners, area sales, group sales, marketing, revenue, operations leaders.
- Actively communicates with owners the property performance creating value for the asset.
- Provide strategic direction in financial results. Achieving growth in ADR, Occ. and RevPAR.
    - Courtyard increased ADR by 16% YOY
    - Residence Inn ADR increased by 17% YOY
- Knowledgeable of Miami market, seasons, competitors. Review of competition strategy daily to maximize hotel opportunities.
- Increasing Associate Engagement scores YOY.
    - Courtyard 2018 AE 87% up 5 points to LY
    - Residence Inn 2018 AE 90% up 6 points to LY
- BLT Champion for both hotels, BLT AE score increased YOY allowing us to grow in GSS.
    - Courtyard BLT AE 97%
    - Residence Inn BLT AE 95%
- Manages a collaboration relationships with different stakeholders, owners, revenue management, area sales, and sales group team, and marketing and campus leaders.
- Provides analytical support with Guest Voice, Problem elimination and processes to drive Guest Satisfaction.
    - Courtyard ITR 2018: 64.2% up 0.6 to brand average in renovation year
    - Residence Inn ITR 2018: 72.9% up 3.8 to brand average with a tired product (last Reno 2009)
- Experience managing complex renovations projects with Courtyard by finishing before dateline. Conducting daily meetings for accountability and communication process with project manager and contractor to complete renovation on time.

KEPNER, JULISSA

GENERAL MANAGER

DIRECTOR OF HOTEL OPERATIONS
BISCAYNE BAY MARRIOTT
SEP 2010- DEC 2013

- Responsible for Rooms, Food and Beverage, Event Management, Culinary, Banquets, Loss Prevention, Valet/Self-Parking, Business Center.
- Associate relations focus and maintain a positive environment by fostering diverse work force resulting in 89% AES, 12 points above the region.
- Active participation in Sales Strategy with great results earning YTD RevPAR index change of 5.1% and 8.6% growth in 2013.
- Mentor leaders to become strong managers resulting in 5 managers promoted.
- Successful execution on time and on budget of Brand Re-investment, New Restaurant, Additional Meeting Space, Rooms Renovation. A total owner investment of 31M.
- Partnered with CLS Food and Beverage Team to successfully open a new restaurant concept “Catch Grill and Bar”.
- Increase sales YOY in all Food and Beverage Outlets by 5% YTD.

RESIDENT MANAGER
BISCAYNE BAY MARRIOTT 2008-2010
FRONT OFFICE MANAGER 2007-2008
MIAMI AIRPORT MARRIOTT, FL
FRONT OFFICE MANAGER 2005-2007
RENAISSANCE AGOURA HILLS, CA
DIRECTOR OF SERVICES 2002-2005
RENAISSANCE AGOURA HILLS, CA

AWARDS/RECOGNITION

- 2018 Top 3 hotel McCluskey region GSS ITR Award, Residence Inn Miami Airport(72.9% + 3.8 points to brand)
- 2018 hotel inspector app award for room cleanliness.
- Room Advisory Board member CLS FS hotels 2013
- Eastern Region Talent Leadership Award 2012
- Breakthrough Leadership Award 2012
- Operations Excellence Awards 2011
- Project Zenith- Rooms subject matter expert
- EDGE award recipient 2010
- EDGE award recipient 2008
- Manager of the year 2007, 2005, 2003, 2001.
- MVP 2002 Davidson Hotels Award.

EDUCATION/TRAINING

- Access Sales Edge, Connect U and OY 2.0
- 2006-2007 Miami Dade College/Hotel Management
- 1999-2002 Oxnard College, CA/ Hotel Management

Builders Association
of South Florida
BUILDING GREAT CITIES
SINCE 1944

www.basfonline.org
111 NW 183rd Street, Suite 111
Miami Gardens, FL 33169

Honorable Mayor Levine-Cava
Miami-Dade County
Metro Dade Center
111 NW First Street, 29th Floor
Miami, FL 33131

August 11, 2021

Re: Appointment of Mr. T. Spencer Crowley to Biscayne Bay Watershed Management Advisory Board

Dear Mayor Levine-Cava:

I am writing to advise your office of the choice made by the Builders Association of South Florida's (BASF) Executive Committee as to the appointment to the above-referenced Advisory Board. They have selected and approved Mr. T. Spencer Crowley, III, Esq., to be their representative to this important Advisory Board. His resume is attached, along with minutes of the BASF's Executive Committee as additional reference.

Mr. Crowley has an extensive background in the environmental law and issues relating to Biscayne Bay, having served on several waterfront boards. He has been asked to provide comment on the County's Manatee Protection Plan and has served on the prestigious Florida Inland Navigational District, among other bay-related boards and efforts.

Mr. Crowley is extremely well-qualified to sit on this Board and his contributions would make an important difference to the community's on-going efforts to protect and enhance our unique resource in Biscayne Bay. Please call if you have questions or need additional information.

Sincerely,

Truly Burton
Executive Vice President

cc: Miami-Dade County Commission Chair and County Commissioners
Spencer Crowley, III
Jose Gonzalez, BASF President
Nelson Stabile, BASF Incoming President
Joseph G. Goldstein, BASF Legislative Chair
Howard E. Nelson, Esq., BASF Environmental Code Review Committee

Encs: Resume, T. Spencer Crowley, III
BASF Executive Committee Minutes

T. Spencer Crowley III

Partner, Real Estate

Miami
T: +1 305 982 5549

spencer.crowley@akerman.com
vCard

Connect With Me

Spencer Crowley's practice focuses on large scale land use and environmental permitting matters, including zoning, growth management, urban development, transportation, sovereignty submerged lands, coastal regulation, marina permitting, wetlands, and water resources. He has worked with the Governor's Commission for a Sustainable South Florida, the South Florida Water Management District, and Duke University's Wetlands Center in the Florida Everglades. He has assisted clients in the land use permitting of major projects such as the Babcock Ranch, Midtown Miami, Village at Gulfstream Park, Miami World Center and Brickell City Centre.

In addition to his private practice, Spencer has served on several waterfront boards. In 2008, County Commissioner Carlos Gimenez appointed Spencer to the committee charged with reviewing and recommending changes to Miami-Dade County's Manatee Protection Plan. In 2007, Spencer was appointed to serve as Miami-Dade County Commissioner for the Florida Inland Navigational District, and he was reappointed for an additional 4-year term by Governor Rick Scott in 2012. In 2005, Miami Mayor Manny Diaz appointed Spencer to the City of Miami's Waterfront Advisory Board where he served as chair.

Spencer holds an undergraduate degree from Duke University, a Masters degree from the University of Miami's Rosenstiel School of Marine and Atmospheric Sciences, and JD and MBA from the University of Florida where he served on the Florida Law Review and the Environmental Moot Court team.

Notable Work

Marina and Coastal Permitting

Mega Yacht Arena: Representing client in permitting of 50 slip mega yacht marina. Project involves negotiation of submerged land lease with the city, waiver of public purpose restriction by the Board of Trustees of the Internal Improvement trust Fund, permitting managed mooring field as seagrass mitigation for the project

Areas of Experience

Real Estate
Economic Development and Incentives
Environment and Natural Resources
Environment and Natural Resources Policy and Regulation
Florida Land Use and Entitlements
State Legislative and Executive Lobbying
Land Use and Development
Local Government Advocacy
Public-Private Partnerships
Water Task Force
Hospitality
Hospitality Regulatory Compliance
Hospitality Acquisition and Development
Real Estate and Construction

Education

J.D., University of Florida Levin College of Law, 2001, Certificate in Environmental and Land Use Law
M.B.A., University of Florida, 2001, Specialization in Real Estate and Urban Analysis
M.A., University of Miami Rosenstiel School of Marine and Atmospheric Sciences, 1998
A.B., Duke University, Environmental Science and Policy, Geology, 1996

Admissions

Bars

Florida

Related Content

Akerman Sponsors the Environmental Permitting Summer School
July 20, 2021

Akerman Recognized in *Chambers USA* 2021 Guide
May 24, 2021

Akerman Sponsors the Environmental Permitting Summer School
July 21, 2020

Builders Association
of South Florida
BUILDING GREAT CITIES
SINCE 1944

www.basfonline.org
111 NW 183rd Street, Suite 111
Miami Gardens, FL 33169

BASF Special Executive Committee Meeting Minutes
prepared by Susan Burns, BASF Deputy Director

Meeting Purpose, Date, Time: Minutes of the BASF Special Executive Committee Meeting via Conference Call, Tuesday, August 10, 2021, 2:15 pm

Conference Call Attendees: BASF President Jose Gonzalez, BASF 2022 Incoming President Nelson Stabile, Treasurer/Finance Chair Jim Werle, Executive Vice President Truly Burton

Staff: **Susan Burns, Lilia Morales**

President Jose Gonzalez welcomed everyone, confirmed the presence of a quorum, and called the special meeting to order.

New Business: Executive Vice President Truly Burton gave a brief update on the Miami-Dade County's Biscayne Bay Watershed Management Advisory Board.

Mr. T. Spencer Crowley, III, Esq. is a partner in the Law Firm of Akerman, LLC, one of the BASF Industry Leaders members in good standing. He has an extensive background in environmental law and is extremely qualified to sit on this Advisory Board.

Motion was made and approved to appoint Mr. T. Spencer Crowley, III, Esq. to be the BASF Representative on this Advisory Board.

Hearing no further discussions, the meeting was adjourned.

The Marine Council

Guardian of the marine community for 53 years!

September 17, 2021

Dear Ms. Bague,

On behalf of the Miami Marine Council, we would like to nominate Gerald C. McGinley, Jr. of Admiral Oil as our representative on the Biscayne Bay Watershed Management Advisory Board.

Gerald is a native to Miami and has been involved as both a maritime business owner, as well as, a conservationist for more than 30 years. He has served on the many boards including the Miami Marine Council, the Miami Billfish Tournament, Miami- Dade Coastal Conservation Association of Florida, Florida Sea Grant and many more.

His unique knowledge of Biscayne Bay as a businessman, conservationist, recreational boater, diver and fisherman make him a valuable asset to this advisory board. He is extremely familiar with the mission of the Miami Marine Council and will represent us with a professionalism we have come to expect from him.

We have included a copy of his bio for your review. If you need anything additionally on behalf of the Miami Marine Council, please do not hesitate to let us know.

Warmest regards,

Kitty McGowan, Executive Director
Miami Marine Council

Gerald C McGinley Jr is President of Admiral Oil Inc, providing marine vessel fuel for over 25 years. They deliver high-quality fuels throughout Miami-Dade County and Broward County. Admiral Oil carries and delivers gasoline, ultra-low sulfur diesel, and lubricants specializing in marine vessels, construction sites, generators, and equipment.

A native Miamian, he has been an active member in the Miami-Dade community through participation in many marine charities, conservation efforts and associations.

An active fisherman, he has participated in multiple fishing tournaments and was a Director on the Miami Billfish Tournament raising funds for marine conservation for 30 years.

His conservation efforts also led him to be President of the Miami Dade Chapter of the Coastal Conservation Association of Florida, as well as, an Advisory Board Member of Florida Sea Grant.

For the past four years, he has served on the Board of the Miami Marine Council and is an active member and sponsor advocating on behalf of recreational boaters in Miami-Dade County.

He is an experienced boater, fisherman and diver and is extremely familiar with all aspects of Biscayne Bay.

EXHIBIT 9

DADE COUNTY FARM BUREAU

1850 Old Dixie Hwy., Homestead, FL 33033 • Tel. 305-246-5514 • Fax 305-245-9170

August 30, 2021

Irela Bague

Chief Bay Officer

Irela.bague@miamidade.gov

This is to inform you that Dade County Farm Bureau has selected John Alger as our nominee for the newly established Miami-Dade County Biscayne Bay Water Shed Management Advisory Board (BBWMAB).

Attached is the resume for John L. Alger and the minutes of the business meeting approving John L. Alger as our nominee.

Thank You for including Dade County Farm Bureau in this very important iniative.

If I can be of further assistance, please feel free to contact me.

Sincerely

James R. Pierce, Jr Executive Director

Dade County Farm Bureau

Cell #305-345-9734

Alger Farms, Inc.

PO Box 1253
950 NW 8th Street
Homestead, Fl. 33030
305-342-2505
Jlalgerfarms@gmail.com

Resume: John Leighton Alger, 8.28.21
Education:
Palmer prep class '77
Cornell University class '81 BS Agricultural economics/ study of plant science

Professional experience:
1969-1981: summers spent working on Alger blueberry farm, West Bridgewater, Massachusetts
1969-1977: spring breaks working pack house sweet corn/potatoes
1974: eight weeks working on Alger seed potato farm Chateaugay, NY
1980: two weeks as Farm Credit Fellow interning in Auburn, Maine
1981-1982: general farm labor
1982 to present: assume responsibilities of Alger Farms sweet corn operation, Homestead, Fl. 800-1400 acres
1982-2004: assume responsibilities of Alger Farms potato operations, Homestead, Fl. 450-650 acres
1982 to present: start, run and now oversee Alger Farms tree farm operation 20-250 acres
1987-2009: Fifty percent owner of Alger Farms Inc.
2010 to present: start and assume responsibilities of Alger Farms snap bean operation 400-750 acres
2009: purchase balance of Alger Farm's interest from Richard T Alger
1990 to present: assume all roles at Alger Farms Inc.
2003 to present: purchase interest and managing partner of SM Jones and Co., Belle Glade, Fla.
2011 to present: oversee and manage through 4th generation of Alger Farm's running day to day operations

Community and professional involvement:
1982-1985: Cornell university ambassador interviewing university applicants
1987-2012: Dade County Farm Bureau board member, Vice President and PAC chairman
2000 to present: Director at Florida Fruit and Vegetable Association
1994-2011 First National Bank of South Florida advisory committee
2011-2014: Director, First National Bank of South Florida, audit committee
1995-2007: Farm Credit of South Florida nominating committee
2007 to present: Director Farm Credit of Florida Bank, audit and credit lending committee
2002-2004: Citizens advisory committee for the agricultural and rural land retention study (ARAS)
1994-1998: Methodist Day School board of directors
1972-2007:Member First United Methodist church Homestead, Fl
2008 to present: Member Christ Fellowship church, Palmetto Bay
2015 to present: Baptist Hospital Founders club
2015 to present: UHealth Champions Club

Personal:
February 22, 1959 to present: alive (☺)
1984 to present: Married to Carla Jean Waldon Alger
Children: Kristy, John, Amanda (Wes) and Lizzie
Grandchildren: Mason, Emily, Wyatt and Carrie.
Dogs: Suzie and Prissey(☺)
Hobbies: Family time, hunting, salt water fishing, health

DADE COUNTY FARM BUREAU
1850 Old Dixie Hwy., Homestead, FL 33033 • Tel. 305-246-5514 • Fax 305-245-9170

Election August 27, 2021

An official meeting by the Dade County Farm Bureau Board of Directors was duly called by President Sal Finocchiaro on August 27, 2021. For the sole purpose electing our representative for Dade County Farm Bureau, Miami Dade County Biscayne Bay Watershed Management Advisory Board (BBWMAB) ordinance.

Mr. John Alger was duly elected by a majority vote by the Dade County Farm Bureau Board of Directors.

Sincerely,

James R. Pierce Jr.

Executive Director

The Nature Conservancy
Protecting nature. Preserving life.

September 13, 2021

Mayor Daniella Levine Cava
111 NW 1st Street, 29th Floor
Miami, FL 33128-1930

Dear Mayor Levine Cava,

I am pleased to nominate Roberto Torres, Field Representative with The Nature Conservancy (TNC) in Florida, to the Miami-Dade County Biscayne Bay Watershed Management Advisory Board (BBWMAB). Roberto is highly qualified to serve the BBWMAB given his strong background in serving the Governor's Commission for a Sustainable South Florida/Everglades, as a commercial fisher and more recently working for TNC to assist the County's Environmentally Endangered Land Program. I have included Roberto's resume for reference.

The Nature Conservancy looks forward to partnering with Miami-Dade County on Biscayne Bay's recovery, especially on nature-based solutions that can strengthen community resilience to climate change impacts. Please feel free to contact Rod Braun, Climate Program Manager, at 561-351-1210 or rod.braun@tnc.org with any questions.

Sincerely,

Temperince Morgan
Executive Director

cc: Irela Bagué, Chief Bay Officer

Enclosure: Roberto Torres Resume

Roberto Torres

8300 SW 184th Terrace Miami, FL 33157 | 305-338-7370
rtorres@tnc.org | www.nature.org

WORK EXPERIENCE

Field Representative
The Nature Conservancy
August 2001 - Present
· Currently assigned as lead staff assisting Miami-Dade County's Environmentally Endangered Land Program with all aspects of land acquisition within its project areas. Duties include identification of target parcels, contacting landowners, negotiating with willing sellers, preparing maps in GIS, assisting TNC and County staff with contract preparation, and provide any support needed to close on acquisitions.
· Assisted with ecoregional planning and threats assessments for Florida habitats and species at risk
· Assisted with TNC's contribution to Florida's Comprehensive Wildlife Conservation Strategy
· Duties consisted of collection of data on Florida's habitats and species of greatest conservation need, data analysis and compilation into usable formats, selecting target habitats and species, collecting and/or preparing spatial data in GIS format, assessing threats to selected targets, and preparation of reports.
· Originally hired to develop and implement and outreach and education program aimed at raising awareness of the threats from invasive species in South Florida.

Senior Management Analyst
Governor's Commission for a Sustainable South Florida / Everglades
June 1997 - June 2001
· Provided staffing support at Commission meetings
· Aided in development of Commission documents
· Served as liaison with government/community groups
· Served as lead staff for several subcommittees including Sustainable Agriculture and Economy
· Monitored and reported on important South Dade issues such at Modified Waters Deliveries Project, C-111, Homestead Air Reserved Base, and 8.5 Square Mile Area.

Commercial Fisherman
Self Employed
June 1980 - May 1997
· Participated full-time and part-time in multiple fisheries in the waters off Broward, Miami-Dade and Monroe counties, including Swordfish, King and Spanish Mackerel, Snapper-Grouper, Shrimp, Lobster, and Stone Crab

EDUCATIONAL BACKGROUND

University of Miami Rosenstiel School of Marine and Atmospheric Science
Miami, FL
Master's of Art in Marine Biology
1997

University of Miami
Miami, FL
Bachelor's of Art in Marine Affairs
Minor in Business Administration
1995

SKILLS & PROFICIENCIES

- Fluent in Spanish and English
- Proficient in ArcGIS
- Licensed Captain/Master to 50 tons

AFFILIATIONS

Board of Directors
Southern Cross Astronomical Society
2006 to Present
Collaborate with Board of Directors to complete mission of bringing astronomy to the public.

Member
Cutler Bay Parks Parks and Recreation Advisory Committee
2011-2019
Advise on decisions regarding parks and open spaces in the town of Cutler Bay, Florida.

EXHIBIT 11

The Honorable Daniella Levine Cava
Mayor, Miami Dade County
111 NW 1st Street, 29th Floor
Miami, Florida 33128

Re: Biscayne Bay Marine Health Coalition Recommendation to serve on the Biscayne Bay Watershed Management Advisory Board

Dear Mayor Levine Cava:

On behalf of the Biscayne Bay Marine Health Coalition, we are pleased to recommend David Doebler to serve on the new Biscayne Bay Watershed Management Advisory Board in accordance with the ordinance creating the new board.

David has been an active member of our grass roots Coalition since its earliest days, and played key roles in the Biscayne Bay Marine Health Summits we hosted in 2017 and 2019. He currently serves as an active member of our Steering Committee. His resume is attached.

Mr. Doebler is a consummate citizen activist who founded and operates a hugely successful non-profit organization called VolunteerCleanup.Org which regularly sponsors and conducts cleanups of marine debris in Biscayne Bay. He is intimately familiar with the issues affecting the decline of the ecological health of the bay, and would bring to the new board a profound understanding of the impact of marine debris in the bay and around the world.

Having called for the establishment of a statutorily organized body to develop a comprehensive restoration plan even before our first summit, we are delighted that our vision is now being brought into reality. Please don't hesitate to call on us for assistance. We are in the earliest states of planning a third summit next Spring and look forward to collaborating with you and your team to expeditiously move forward to restore stainable health of our treasured Biscayne Bay.

With warm regards,

Camila Quaresma-Sharp

Camila Quaresma-Sharp
Chair, Biscayne Bay Marine Health Steering Committee
Biscayne Bay Marine Health Coalition
camila@sharpdentistry.com

Dave Doebler

800 West Ave, 212 • Miami Beach, FL 33139 • 954-415-7434 cell
dave.doebler@gmail.com
www.linkedin.com/pub/david-doebler/4/90/1b3/
www.slideshare.net/davedoebler

As a Miami native and environmental activist, I am a strong advocate for reasonable solutions to real problems and see strong social and economic opportunities within environmental protection. I have been working on marine debris issues in Biscayne Bay and Miami Beach since 2012 and have led numerous action-oriented campaigns to address the problem at the source. I believe that we can implement logical and fiscally responsible strategies to create a more sustainable city for residents, visitors, and the business community to enjoy.

Experience

- **Biscayne Bay Marine Health Summit – Steering Committee Member; "State of the Bay" opening presenter 2016-Present**
  - Held 3 summits which led to the creation of the official Miami-Dade County Biscayne Bay Task Force, with a comprehensive plan to restore a healthy Biscayne Bay.

- **Founder – VolunteerCleanup.Org 501(c)3 2014-Present**
  - Website platform that "Connects those leading shoreline cleanups with the volunteers looking for one to join"
  - Over 1,600 cleanups in Miami Dade County, 14,900 registered volunteers, 328,600 pounds of debris
  - Coordinator for annual 'International Coastal Cleanup Day' which organizes the Miami-Dade effort with 45+ cleanup events across the county each led by different community organizations, local businesses, and partners
  - Launched 'Zero Waste Guide' in partnership with Surfrider Foundation and Debris Free Oceans to engage and assist businesses and large events in reducing single use plastics. Success stories with Wynwood Yard ('skip the straw' and reusable cup program), 2018 Art Deco Weekend ('skip the straw', reusable cup program, biodegradable food packaging), North Beach Bandshell (managed by The Rhythm Foundation) diversion of landfill waste by 70%

- **Chair, City of Miami Beach Sustainability Committee 2012-2020**
  - Led working group on Solutions to Trash in Miami Beach waterways based on my personal 8-week kayak survey which quantified the issue and determined sources (https://goo.gl/7dhijK)
  - Led the effort to enhance storm drain system maintenance from once every 7 years to once every year to reduce street flooding and marine debris input into the bay
  - Led the effort to enhance waterway cleanup and island maintenance frequency and improvements
  - Led legislative effort to eliminate unencapsulated foam docks and boating supplies in private and public waters
  - Led effort to require contractors to stencil their company information on water-based Construction Booms / turbidity curtains to identify the owner of derelict and damaged booms
  - Led effort for storm drain 'grating' pilot project to determine viability of solutions to keep trash out of storm drains
  - Led the effort for 'Can on Every Corner' campaign to deploy a garbage cans at every street intersection, yielding over 300 new garbage cans strategically placed throughout City of Miami Beach
  - Contributed to the city-wide polystyrene (aka Styrofoam) ban
  - Led effort for 'Unified Wastehauler Container Messaging' to clearly differentiate landfill and recycling containers to increase recycling rates and decrease recycling contamination https://goo.gl/LbbBMi

- **Personal Activism Accomplishments**
  - Successfully lobbied for significant pollution control improvements to new Storm Water Pump Stations
  - Successfully forced Yachts Miami Beach to switch 6 miles of unencapsulated foam docks that were littering Indian Creek and Biscayne Bay (as well as waterways in 5 other shows across the state) to encapsulated docks
  - Successfully lobbied for formula modification of Miami Beach branded Sun Screen to require the use of Bio-Degradable 'Reef Safe' formula to prevent coral damaging chemicals and enhance the image of the cities brand
  - Successfully lobbied for a County-wide ban on unencapsulated foam docks in all Miami-Dade County waterways
  - Supported efforts for City of Coral Gables foam and plastic bag ban, and Miami Dade County foam ban from county property and parks

Dave Doebler - continued

Awards and Recognitions

- Publicly commended by Commissioner Jerry Libbin for setting the example of good activism and action
- Awarded 'Key to the City of Miami Beach' by Mayor Philip Levine for action in cleaning the waterways and activism for better storm drain maintenance – 2013
- Award for "Excellence in Environmental and Civic Activism" at Miami Beach Community Resiliency Summit - 2015
- New Times Magazine – 2017 "Citizen of the Year"
- Awarded second 'Key to the City of Miami Beach' by Mayor Philip Levine for my success in leading the Sustainability Committee, engaging the community in volunteerism, and action with improving overall sustainability - 2017
- Honored with Resolution naming October 31, 2017 as 'Dave Doebler Day' for City of Miami Beach

Published Articles

- Miami Herald "Miami Beach kayaker is on a mission to clean up city's waterways and help alleviate backed-up drains" March 15, 2014
- Al Jazeera America – "Miami's plastic vice: Bagging the ban on bag bans" – Jun 30, 2014
- The New Tropic – "Our Plastic Paradise" – Sep 29, 2015
- Miami New Times – "Yachts Miami Beach Event Leaves Styrofoam Mess in Water, Environmentalists Say" – Feb 16. 2016
- Broward New Times – "Palm Beach Boat Show Pollutes Water With Styrofoam" – Mar 25, 2016
- Miami New Times – "Yachts Miami Beach Show Promises to Stop Using Styrofoam Docks That Leave Mess in Bay" – May, 11 2016
- NBC6 Miami – "Miami Beach Styrofoam Ban Looks to Protect Ocean and Bay" – Sept 18, 2016
- Miami New Times – "Video: Styrofoam Docks Pollute Biscayne Bay Near Venetian Causeway, Environmentalists Say" – Oct 3, 2016
- Miami New Times – "County Removes Styrofoam Docks From Biscayne Bay, Says It Will Change Policies" – Oct 13, 2016
- Miami New Times – "Miami Beach Might Ban Styrofoam From Its Waterways" – Nov 11, 2016
- Miami New Times – "Miami's Best Citizen" – June 15, 2017
- WLRN – "Let's Keep It Beautiful': Biscayne Bay Summit Brings Together Stakeholders To Develop Cleanup Plan" – Jun 2017
- Planted in Miami – "The Dirty Truth About Trash with Dave Doebler + Dara Schoenwald" 1 hour podcast – Aug 14, 2017
- Miami New Times – "There's So Much Trash in Miami Canals, You Can See It From Space" – Oct 20, 2017
- Weather.com – "Massive Amounts of Trash Trapped In Miami Canal Booms Can Be Seen From Space" – Oct 24, 2017
- Video Interview with The Weather Channel – "Trash Clogs South Florida Waterways" – Oct 30, 2017
- Miami New Times – "Sprinkles at Museum of Ice Cream Deemed "Environmental Hazard" by City of Miami Beach – Jan 2018

Professional Experience

2006 – Present **Mission Critical Systems, Director of Sales**
Cyber Security provider for Enterprise corporations, critical infrastructure, healthcare, and governments

1994 – 2006 **Aladdin Knowledge Systems, Regional Sales Manager**
Anti-Virus and 2 factor authentication manufacturer for Medium and Enterprise Companies

1990 – 1994 **Florida International University**
BA Business Management and BA International Business

EXHIBIT 12

Florida Engineering Society

MIAMI CHAPTER

Florida Engineering Society
Miami Chapter

September 17, 2021

Ms. Irela Bague
Chief Bay Officer
Miami-Dade County
111 NW 1st Street
Miami, FL 33128

Re: Appointment of the Florida Engineering Society – Miami Chapter Representative to the Biscayne Bay Watershed Management Advisory Board

Dear Ms. Bague:

Miami-Dade County on July 20, 2021, passed Ordinance No. 21-72 creating the Biscayne Bay Watershed Management Advisory Board (Board) to serve and advise the Board of County Commissioners and the County Mayor on a variety of Biscayne Bay-related issues, and to make recommendations to develop a new Miami-Dade County Biscayne Bay Watershed Management plan. The Florida Engineering Society (Miami Chapter) has been assigned a seat for a member to serve on the recently created Board.

Between September 3 and September 13, 2021, the FES Miami Chapter conducted a search to identify a suitable representative. Upon careful review of the applications received and based on the qualifications criteria, the following candidate was selected and confirmed by the FES Board of Directors during the September 15, 2021 board meeting.

- Mr. Jannek Cederberg, P.E.

I have attached Mr. Cederberg's application and resume for your reference. The meeting minutes will be forwarded once they are approved at the October board of directors meeting, which is scheduled for the 13th.

The FES Miami Chapter would like to thank the Biscayne Bay Office and Miami Dade County for allowing us to participate in such an important initiative.

Please let me know of any questions you may have and, or any additional information you may need.

Sincerely,

Joanne Prince, P.E.
President- FES Miami Chapter

Enclosures (2)

CUMMINS | CEDERBERG
Coastal & Marine Engineering

September 12, 2021

Florida Engineering Society
Sent via email: past.president@fesmiami.org
president@fesmiami.org
president.elect@fesmiami.org

RE: FES Representative
To the Biscayne Bay Watershed Management Advisory Board

Dear FES Voting Members:

As a Miami-Dade County resident for almost 20 years, I am thrilled to submit this application to serve as the FES Representative to the Biscayne Watershed Management Advisory Board. I am a licensed Professional Engineering in Florida and cofounder of Cummins Cederberg, Inc., which is Miami-Dade County's largest coastal engineering firm with 5 offices throughout the state. I have spent most of my professional career in Miami working on various types of coastal and marine engineering projects. These projects include complex analyses and numerical modeling of the coastal dynamics in Biscayne Bay as well as design of waterfront infrastructure. Analyses include modeling of tidal dynamics, wave propagation and sediment transport as well as water exchange (flushing) of various locations relative to potential pollutants, e.g., from stormwater. As part of the design, I have processed numerous environmental permits through Miami-Dade RER, Florida Department of Environmental Protection (DEP) and US Army Corps Engineers (USACE). I have been active in designing and promoting nature-based solutions for shoreline stabilization and environmental restoration in suitable areas along the shoreline of Biscayne Bay as well as leading sea level rise adaptation plans for seven (7) of Miami-Dade County's largest waterfront parks (e.g.., Haulover Park, Crandon Park, Matheson Hammock Park, etc.) fronting Biscayne Bay. As a resident and professional, I truly have a vested interest in the health of Biscayne Bay. Should you have any questions, please do not hesitate to contact me at 305-741-6155 or jcederberg@CumminsCederberg.com.

Sincerely,
CUMMINS CEDERBERG, INC.

Jannek Cederberg, M. Sc., PE
Principal

Name of Applicant: Jannek Cederberg, M. Sc., PE

Question	Yes	No
Are you an FES Member and are your dues current?	✓	
Are you a Resident of Miami Dade County?	✓	
Are you a Professional Engineer licensed in the State of Florida?	✓	
Are you a Coastal Engineer familiar with Biscayne Bay and Miami Dade County?	✓	
Do you have experience with Stormwater discharges and nutrient levels?	✓	
Do you have experience with Seawalls? (If so, pls show in resume)	✓	
Do you have experience with Shorelines? (If so, pls show in resume)	✓	
Do you have experience working with FDEP? (If so, pls show in resume)	✓	
FES Representative will act as unpaid public servant to the County. Are you willing to take that responsibility? (please refer to attached opinion from the Miami Dade County Commission on Ethics regarding conflicts of interest)	✓	
The member commitment is for 4 years. Approximately 4 meetings per year. Are you able to commit to this dedication?	✓	

CUMMINS | CEDERBERG
Coastal & Marine Engineering

Jannek Cederberg, PE

Principal Engineer

As Principal Engineer, Jannek Cederberg is responsible for all engineering production including scheduling, resource allocation, and quality management. He is formally trained as a coastal and marine engineer from the Technical University of Denmark. He has more than twenty years of experience in coastal and marine engineering. Jannek is a registered professional Engineer in the United States, and he has completed engineering analyses, designs and permitting for a variety of shore protection, beach nourishment, river, cruise ship, marina and waterfront projects throughout Florida, the Caribbean and Central America.

YEARS OF EXPERIENCE

- 20

EDUCATION

- M.Sc. Coastal Engineering, Technical University of Denmark

LICENSES

- Florida PE No. 69839

PROFESSIONAL AFFILIATIONS

- Permanent International Association of Navigation Congress (PIANC)
- Member of PIANC Working group Design and Operational Guidelines for "Superyacht Facilities"
- Danish Society of Hydraulic Engineering
- Florida Association of Environmental Professionals
- Port Everglades Association
- Florida Engineering Society Miami Chapter

RELEVANT PROJECT EXPERIENCE

Waterfront Adaptation at Jose Marti Park, *City of Miami, Florida*. The adaptive redesign of this 13-acre, multi-use recreational space on the Miami River explores ways in which the park can minimize tidal flood impacts to the surrounding neighborhood, adapt to sea-level rise, and enhance waterfront access to residents. Given its physically and socially vulnerable location between the River and Little Havana, a low-lying, low-income Hispanic community, a participatory design process emphasizing community goals is critical for success. The Jose Marti Park Redesign will serve as a model for resilient waterfront parks that can adapt to current and future flood risks associated with Climate Change and Sea-Level Rise. Jannek is leading the inundation modeling, and waterfront engineering design, while the Cummins Cederberg team is also leading the environmental permitting, coordination with FIND, and grant management.

Matheson Hammock Park Sea Level Rise Flood Mitigation Study, *Coral Gables, Florida.* Served as Senior Project Manager to prepare a Sea Level Rise Flood Mitigation Study to analyze the impacts of sea level rise on the park's infrastructure and operations, as well as develop flood mitigation concepts for planning and budgeting. Compiled existing survey data within the Park and LiDAR data for the area to prepare a general topographic map for the Park; assessed the condition of existing infrastructure to understand conditions, remaining service life and adaption feasibility relative to sea level rise; performed an assessment of the environmental conditions on site to generally understand and document current conditions, as it would relate to environmental permitting; conducted an engineering analysis to provide extreme tide water levels; developed flood mitigation concepts and preliminary cost estimates; coordinated stakeholder involvement; developed an implementation strategy; and presented the results and findings into a report.

Crandon Park Marina, *Key Biscayne, Florida.* Field investigations including bathymetric surveying, tide and current measurements, marine resource survey, and sediment sampling. Tidal hydrodynamic modeling along with wave and sediment transport analyses conducted to determine source and magnitude of marina sedimentation problem. Alternatives assessment of potential coastal structures to inhibit sedimentation and need for periodic dredging.

Town of Bay Harbor Islands Resiliency and Seawall Condition Assessment, *Bay Harbor Islands, Florida.* Shoreline assessment and island resiliency study for the entire Town of Bay Harbor Islands. The shoreline assessment included 20,000 feet of shoreline, including seawalls, rock revetment, residential areas, bridges, and the causeway that connects the town to the mainland. LiDAR survey data was processed to provide 3D elevation map, and an analysis of the water levels to predict sea level rise, along with tidal data analysis.

Vizcaya Museum & Gardens, *Miami, Florida.* Site plan for storm surge protection wall, environmental wetland restoration and public space. Grant application, regulatory permitting, and engineering design for marine works. Wall design for reinforced concrete able to withstand storm surge and high wave loads associated with tropical storm event

Regional Sediment Transport Study, *Miami, Florida.* Shoreline and sediment transport studies performed on the coast of Miami-Dade County between Bakers Haulover Inlet and Government Cut. Numerical modeling conducted utilizing Danish Hydraulics Institute (DHI) MIKE 21 and LITPACK software to simulate waves and nearshore coastal processes.

Dade Boulevard Seawall Replacement, *Miami Beach, Florida.* Marine engineering and construction drawings for 2,670 linear feet of seawall replacement with steel sheet pile and reinforced concrete cap. Structural design of barrier wall connection to cap, and utility crossover detail for FPL 69KV oil-filled transmission line. Pre-construction seawall inspection of opposite shoreline, and vibration monitoring during pile driving activity.

Winston Tower 700, *Sunny Isles Beach, Florida.* Construction of 240 feet of seawall and repair of 800 feet seawall for shoreline stabilization at large condominium. Above/below water condition inspection, seawall replacement and repair design, permit application and processing (DERM/USACE/DEP), construction administration.

One Miami Condominium, *Miami, Florida.* Above and below water structural inspection of more than 900 feet or bulkhead consisting of steel sheet piles, reinforced concrete cap, and concrete mat scour protection. Prepared engineering report to document investigation, including specific deficiencies, conditions rating and cost estimate for recommended repairs.

FDEP Bahia Honda Road Improvements, Big Pine Key, Florida. Coastal engineering consulting services for resilient road improvements at Bahia Honda State Park. Improvements include the existing 0.2-mile road to employee housing on the Gul side of Big Pine Key by raising the elevation of the unpaved road to mitigate the impacts of sea level rise and reduce the frequency of flooding events.

FDEP Pennekamp Dock Replacement, *Key Largo, Florida.* Marine engineering and environmental consulting services for partial dock replacement and boat ramp repairs at John Pennekamp Coral Reef State Park. The improvements consist of replacement of the dock structure fronting the Pennekamp Dive Shop and repairs to the boat ramp and associated staging docks. The new dock structure will include replacement of approximately 2,600 sq. ft. of wood dock framing and associated timber piles. The improvements to the boat ramp and docks will consist of repairs to the ramp surface and isolated framing repairs to the staging socks, as well as concrete spall and erosion repair to the upper ribbed portion of the boat ramp.

FDEP Florida Bay/Gulf of Mexico Tidal Connections, *Long Point Key, Florida.* Engineering and environmental consulting services for the tidal connection's restoration project on either side of Long Point Key. These historical tidal connections were filled during the construction of Flagler's railroad and are located of FDEP and FDOT property.

FDEP Living Shoreline Database, *Statewide, Florida.* Providing consulting services for the establishment of a Living Shoreline Database cataloging living shoreline efforts through Florida. Details will be recorded for a comprehensive database that coordinates with the USACE and FWX for federal permitting information. This databased is hosted on a public website where living shoreline information can be easily accessed.

Costa Brava Marina, *Miami Beach, Florida.* Costa Brava Condominium Association. Environmental permitting for reconstruction of a 30- slip marina in Biscayne Bay through local, State, and Federal Agencies Such as Miami-Dade County Regulatory, Economical Resources Department (DERM), Florida, Department of Environmental Protection (FDEP) and US Army Corps of Engineers (USACE). Engineering support through construction bid process, including bid evaluation, contractor selection and construction administration.

Vertical Yacht Club at Marina Mile, *Fort Lauderdale, Florida.* Prepared design of bulkhead and docks for boats up to 70 feet for the redevelopment of the Vertical Yacht Club marina facility located on the New River in Fort Lauderdale. Prepared engineering studies and communicated with environmental agencies relative to project approval. Conducted a site-specific flushing analysis to assess potential impacts of dredging on water circulation and quality.

Sunset Harbour Yacht Club, *Miami Beach, Florida.* The project included repairs of concrete slabs, caps and piles for 125-slip marina located in Biscayne Bay Aquatic Preserve, which has strict environmental guidelines. A marine resource assessment was conducted to assess potential impacts. Pre-application meetings were conducted with environmental agencies to understand primary concerns and potential impacts on schedule. Environmental permit applications were prepared and processed with DERM, FDEP, and USACE. Building permit was obtained with City of Miami Beach. Detailed repair drawings were prepared with specific criteria to minimize impacts to marine resources and water quality.

Coco Plum Beach Erosion Study and Beach Design, *Marathon, Florida.* Prepared an erosion study for the City of Marathon in Monroe County. Design and permitting of truck haul project for placement of sand above the mean high-water line. Coordinate with environmental agencies for approval of design and sand source.

FDOT Manatee Bridge Repair, *Pinellas County.* Review of hurricane and storm surge analysis completed to determine peak water level and extreme wave conditions for proposed bridge repair project. Comparison of calculated values with historical observations. Evaluated the potential impacts of dredging on wave conditions.

North District Wastewater Treatment Plant, *Miami, Florida.* Assessment of coastal resiliency of important infrastructure components relative to flooding and sea level rise. Analyzed storm surge impacts from historical hurricane events as well as assessed potential and magnitude of future impacts. Evaluated risk and probability of various events.

Miami Beach Emergency Truck Haul, *Miami Beach, Florida.* Performed surveying, data collection, volumetric and equilibrium toe of fill analysis based on available historical beach profiles for four segments of beach. This information was utilized in designing the expansion of beach segments for maintenance nourishment

Aquazul Condominium Risk Mapping, *Lauderdale-by-the-Sea, Florida.* Longshore and cross-shore erosion assessment based on existing beach conditions and potential 100-year storm event. Evaluation of dune volume and consistency over 10,000 feet of shoreline north and south of subject property. Numerical modeling of wave propagation, storm surge and potential wave run up impacts. Revised flood risk mapping, processing, and approval through FEMA.

Aquazul Condominium Dune Project, *Lauderdale-by-the-Sea, Florida.* Design of dune project based on FDEP approved sand hauled to the site by trucks in a densely developed area. Coordination of access and placement with contractor and client. Processed and obtained FDEP CCCL permit. Vegetation plan developed for further stabilizing dune.

Bayshore Landing Marina, *Coconut Grove, Florida.* Above and below water structural inspection of concrete and timber dock structures, as well as utilities of a 100+ slip marina. Compiled inventory of structure elements (i.e. caps, deck slabs, piles, etc.) with condition rating and repair recommendation. Prepared engineering report to document investigation along with cost estimate for recommended repairs.

Rybovich Spencer Boatyard, *West Palm Beach, Florida.* Coastal design criteria for fixed and floating dock structures, including an integrated wave attenuator. Numerical wave and hydrodynamic modeling. Evaluation of flushing characteristics and water quality for proposed marina design. Simulation of current velocities at the entrance and evaluate navigation.

Hillsboro Club Dune Project, *Hillsboro, Florida.* Design and permitting of dune projects for almost 2,000 cy along eroding shoreline. Sand from nearby dredging projects was used based on discussions with and approval from FDEP. Coordinated geotechnical analyses, stock piling and placement.

Fort Zachary Taylor State Park Truck Haul Beach Project, *Key West, Florida.* Truck haul beach project along heavily eroded area. Prepared beach design and coordinated with environmental agencies. The project was unique as it was one of Florida's first larger truck haul beach project with sand from inland mines, thus required extensive discussions and analyses of sand source. Construction administration was provided as well.

Hollywood/Hallandale Beach Restoration, *Hollywood, Florida.* Coastal engineering and environmental permit processing for a 400,000 cubic yard truck haul beach fill project. Engineering design of beach fill template. Cross-shore sediment transport modeling. Geotechnical investigations. Coastal engineering analysis including extreme waves and storm surge. (

FDOT A1A Vulnerability Study and Roadway Stabilization Design, *Indian River County.* Scour and wave load analysis for proposed seawall from almost 2 miles of shoreline that experienced significant erosion during Hurricane Matthew. A hydrodynamic MIKE21 model was established to simulate tidal and storm surge flow. The model was calibrated relative to site specific current measurements obtained. A MIKE21 wave model was developed to stimulate the wave conditions during extreme events. The scour associated with a 100-year event was determined and proper scour protection was designed. Wave loads were calculated for the proposed seawall for extreme event under varying conditions and water levels.

32nd Street Morphological Change Study, *Florida.* GIS analysis of morphological changes related to the construction of three shoreline attached breakwaters at the 32nd street erosional hotspot. GIS database was established, and the morphological changes were reviewed relative to coastal processes. Based on the study, recommendations were provided for short- and long-term beach management.

Sun Power Diesel Marina Facility, *Broward County, Florida.* Dredging design for the proposed marina basin as well as dock and bulkhead design to support a 300-slip dry storage facility. Current and tide measurements were obtained to calibrate a numerical hydrodynamic model, which was then utilized to evaluate the flushing time for the proposed dredged conditions.

FDOT I-275 Seawall Repair, *Pinellas County, Florida.* Review of seawall design and scour protection for a proposed seawall repair and replacement project. Review of storm conditions as well as soil and wave loadings.

INTERNATIONAL PROJECT EXPERIENCE

MSC Cruises Ocean Cay Marine Reserve, *Bimini Islands, The Bahamas.* Topographic and bathymetric surveying rectified aerial photography and mapping for proposed out-island cruise destination. Environmental resource surveys and preparation of Environmental Impact Assessment (EIA) for proposed land and marine works. Detailed coastal engineering analysis, including numerical modeling of hurricane impacts. Engineering design of beach improvements and shoreline stabilization of reshaped island perimeter. Processing of EIA through government regulatory agencies.

CocoCay, *Berry Islands, The Bahamas.* Prepared a coastal engineering analysis for installation of over-water platforms and swimming area along the southern shoreline of CocoCay. An analysis of the coastal processes influencing the stability and potential infilling of the beach profile created for the swimming area was performed. A numerical model was developed to simulate the nearshore wave conditions affecting the swimming area, and a simulation for the created beach profile was conducted to evaluate potential changes within a 5-year period.

Great Stirrup Cay Development, *Berry Islands, The Bahamas.* Site investigations and planning support for coastal and marine improvements to cruise ship private island destination improvements to accommodate 5,000 passenger cruise ships. Numerical modeling of hurricanes and storm surge, evaluation of resiliency and proposed coastal protection measures. Engineering design of beach expansion using coastal structures, and reinforcement of existing iron-shore.

Port Development Feasibility, *Panama.* Conducted feasibility study for the development of a port facility, including the potential for cruise operations and ship repair facility. Evaluated coastal design criteria, including wind, waves, water levels and currents. Reviewed existing water depths, navigational requirements and potential dredging. Prepared conceptual layouts of proposed facilities, and cost estimates for construction and operational equipment.

Port of Roatan Cruise Terminal, *Roatan, Honduras.* Design of reclamation and shore protection for cruise terminal expansion. Numerical modeling of hurricane, storm surge, and wave propagation. Site inspections and surveying.

Sporting Club at Ambergris Cay, *Turks & Caicos.* Engineering design of coastal works including entrance channel, dredging, 150-slip marina, and RoRo platform for shipments to remote island. Performed hydrodynamic numerical modeling of flushing characteristics for a proposed marina basin.

Cap Cana Marine Works, *Punta Cana, Dominican Republic.* Coastal engineering design for the dredging of 1.25-mile canal to create basin for 500+ slip marina. Design of shoreline stabilization, beaches, entrance channel jetties, numerical modeling of coastal processes and hydrographic surveying. Water circulation analysis of marina and canal layout.

Cap Juluca Beach Restoration, *Anguilla.* Evaluate sediment transport and storm impacts. Perform hydrographic and beach profile surveys. Subsurface investigations of nearshore borrow area. Design of dredge plan and beach fill template. Provided construction administration for emergency beach restoration.

Sediment Study, *Turks & Caicos.* Field investigations to collect sediment core samples from the seabed in multiple locations. Collected samples were tested for grain size and composition. Conducted coastal study to evaluated wind, wave and tidal forcing mechanisms relating to sediment transport.

Starfish Resort, *Panama.* Extreme offshore wind and wave conditions were determined along with analysis of coastal processes at the project site. Conducted numerical modeling of wave propagation and localized currents. Review of masterplan and design of shoreline stabilization.

Goldeneye, *Jamaica.* Hydrographic survey and tidal study of Oracabessa Bay for proposed coastal development. Statistical analysis of historical wave data from satellite measurements to develop deep-water wave conditions. Wave and hydrodynamic numerical modeling. Design of coastal structures and piers.

Troumassee Development, *St. Lucia, British West Indies.* Field investigations, surveying and coastal engineering for 1,200-acre development on the southeast coast of St. Lucia. Numerical modeling of tidal hydraulics for the proposed lagoon and river discharge analysis for flood study. Hurricane numerical modeling for storm surge and coastal development planning. Conducted a feasibility study of the coastal processes with regards to the proposed Troumassee Development project located on the island of St. Lucia, BWI, as well as storm surge analysis, flushing analysis, river and coastal stabilization design and a project comparability study. The 1,200-acre proposed development includes a hotel, golf course, in-water bungalows, lagoon and beaches.

Pelican Island Development Project, *Pelican Island, Antigua.* Wave and storm surge analysis, modeling, and sediment transport for $100M development project. Engineering design of beach expansion and shoreline stabilization structures.

South Cay Development, *South Cat Cay, The Bahamas.* Design of land reclamation, beach improvements and 150-slip marina for 80-acre private island development. Extreme wind and wave conditions were determined along with preparation of a preliminary flood map.

Starfish Resort, *Panama.* Extreme offshore wind and wave conditions were determined along with analysis of coastal processes at the project site. Conducted numerical modeling of wave propagation and localized currents. Review of masterplan and design of shoreline stabilization.

Papagayo Mega-Yacht Marina, *Costa Rica.* Inspection of 180-slip marina with yachts up to 240 feet following passing Hurricane Nate. The marina suffered significant damage, as large waves were generated causing failure of the floating breakwater leaving the marina exposed. The marina is in deeper water requiring a specialized anchoring system. The anchoring system was inspected relative to hurricane damage and normal wear. Connections between docks were inspected and components were assessed for potential reuse.

Leeward Mega-Yacht Marina, *Turks & Caicos.* Inspection of mega-yacht marina following impacts from Hurricane Maria. The marina is located in 25 feet of water within an existing tidal channel connected ocean side to the shallower sand banks resulting in extreme currents. An inspection was conducted of all floating docks and pile to understand if components had ben overstressed during the extreme conditions.

El Portillo Development Project, *Samana, Dominican Republic.* Site investigations and feasibility study of creating lagoon feature from existing stream flow within Project site. Obtained flow measurements and performed hydrodynamic modeling of lagoon layout alternatives. Lagoon design construction drawings of feasible alternative. Construction administration.

MEMORANDUM
(Revised)

TO: Honorable Chairman Jose "Pepe" Diaz
and Members, Board of County Commissioners

DATE: October 19, 2021

FROM: Geri Bonzon-Keenan
County Attorney

SUBJECT: Agenda Item No. 8(L)(1)

Please note any items checked.

_____	**"3-Day Rule" for committees applicable if raised**
_____	**6 weeks required between first reading and public hearing**
_____	**4 weeks notification to municipal officials required prior to public hearing**
_____	**Decreases revenues or increases expenditures without balancing budget**
_____	**Budget required**
_____	**Statement of fiscal impact required**
_____	**Statement of social equity required**
_____	**Ordinance creating a new board requires detailed County Mayor's report for public hearing**
✓	**No committee review**
✓	**Applicable legislation requires more than a majority vote (i.e., 2/3's present ____, 2/3 membership ✓, 3/5's ____, unanimous ____, CDMP 7 vote requirement per 2-116.1(3)(h) or (4)(c) ____, CDMP 2/3 vote requirement per 2-116.1(3)(h) or (4)(c) ____, or CDMP 9 vote requirement per 2-116.1(4)(c)(2) ____) to approve**
_____	**Current information regarding funding source, index code and available balance, and available capacity (if debt is contemplated) required**

Approved _____ Mayor
Veto _____
Override _____

Agenda Item No. 8(L)(1)
10-19-21

RESOLUTION NO. _____

RESOLUTION WAIVING, BY A TWO-THIRDS VOTE OF THE FULL MEMBERSHIP OF THE BOARD OF COUNTY COMMISSIONERS, THE RESIDENT ELECTOR REQUIREMENT OF SECTION 2-11.38 OF THE CODE OF MIAMI-DADE COUNTY AND APPOINTING MEMBERS TO THE MIAMI-DADE COUNTY WATERSHED MANAGEMENT ADVISORY BOARD; APPOINTING BRETT BIBEAU; DR. TODD CROWL; DR. DIEGO LIRMAN; DR. JOAN BOWDER; DR. ERIK STABENAU; JULISSA KEPNER; T. SPENCER CROWLEY III; JANNEK CEDERBERG, P.E.; GERALD C. MCGINLEY, JR.; JOHN L. ALGER; ROBERTO TORRES; AND DAVID DOEBLER, EACH FOR A FOUR-YEAR TERM

WHEREAS, this Board desires to accomplish the purposes outlined in the accompanying memorandum, a copy of which is incorporated herein by reference,

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF MIAMI-DADE COUNTY, FLORIDA, that: that this Board, by a two-thirds vote of its membership, hereby waives the resident elector requirement of section 2-11.38 of the Code of Miami-Dade County and appoints the following 12 individuals to the Miami-Dade County Biscayne Bay Watershed Management Advisory Board: (1) Brett Bibeau; (2) Dr. Todd Crowl; (3) Dr. Diego Lirman; (4) Dr. Joan Browder; (5) Dr. Erik Stabenau; (6) Julissa Kepner; (7) T. Spencer Crowley, III; (8) Jannek Cederberg, P.E.; (9) Gerald C. McGinley, Jr.; (10) John L. Alger; (11) Roberto Torres; and (12) David Doebler. Each of the above-mentioned individuals has been recommended by a particular organization or entity, as outlined in the County Mayor's memorandum, which has been incorporated herein by reference. Each of the above-mentioned

individuals is hereby appointed to the particular seat on the Miami-Dade County Biscayne Bay Watershed Management Advisory Board for said respective organization or entity, to serve a four-year term beginning with the effective date of this resolution. ,

The foregoing resolution was offered by Commissioner
who moved its adoption. The motion was seconded by Commissioner
and upon being put to a vote, the vote was as follows:

Jose "Pepe" Diaz, Chairman
Oliver G. Gilbert, III, Vice-Chairman

Sen. René García	Keon Hardemon
Sally A. Heyman	Danielle Cohen Higgins
Eileen Higgins	Joe A. Martinez
Kionne L. McGhee	Jean Monestime
Raquel A. Regalado	Rebeca Sosa
Sen. Javier D. Souto	

The Chairperson thereupon declared this resolution duly passed and adopted this 19th day of October, 2021. This resolution shall become effective upon the earlier of (1) 10 days after the date of its adoption unless vetoed by the County Mayor, and if vetoed, shall become effective only upon an override by this Board, or (2) approval by the County Mayor of this resolution and the filing of this approval with the Clerk of the Board.

MIAMI-DADE COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

HARVEY RUVIN, CLERK

By:_____
Deputy Clerk

Approved by County Attorney as
to form and legal sufficiency.

Abbie Schwaderer-Raurell

4. Biscayne Bay Task Force (BBTF) Report

A Unified Approach to Recovery for a Healthy & Resilient Biscayne Bay

Biscayne Bay Task Force Report and Recommendations

June 2020

Biscayne Bay Task Force Members

Irela Bagué, Task Force Chairperson, President, Bagué Group
David Martin, Task Force Vice Chairperson, President, Terra Group
Lynette Cardoch, Ph.D., Director of Resilience & Adaptation, Moffatt & Nichol
Lee Hefty, Director, Division of Environmental Resources Management, Miami-Dade County
James Murley, Chief Resilience Officer, Office of Resilience, Miami-Dade County
John Pistorino, P.E., Principal, Pistorino and Alam
Alyce Robertson, Executive Director, Downtown Development Authority
Steve Sauls, Biscayne Bay Marine Health Summit Steering Committee Member
Tiffany Troxler, Ph.D., Director of Science, Sea Level Solutions Center, Florida International University

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Acknowledgements

The Biscayne Bay Task Force wishes to thank local, state, and federal agencies, academic institutions and community-based organizations, industry professionals, and members of the public who attended and shared their knowledge, support, and recommendations. The Task Force also appreciates the expertise and support provided by the staff of the Miami-Dade County Department of Regulatory and Economic Resources. Thanks to the Florida Department of Environmental Protection Biscayne Bay Aquatic Preserves for select photographs.

Biscayne Bay Task Force Mission and Activities

On February 5, 2019, the Miami-Dade Board of County Commissioners (BCC) adopted Resolution No. R-165-19 (Appendix A), establishing the Biscayne Bay Task Force (Task Force). The Task Force was established as a nine-member advisory board consisting of appointed professionals representing civil engineers, coastal real estate developers, water quality and ecology experts, coastal managers, environmental regulators, resilience experts, and the community at-large. The Task Force was charged to meet at least four times over a six-month period to review prior studies, relevant data, and evaluations, and management planning and policy documents related to Biscayne Bay (Bay) as well as to receive recommendations related to the health and management of the Bay (Appendices B-H). The Task Force met 18 times and received approximately 35 presentations related to the health and management of Biscayne Bay from local and state regulatory agencies, municipalities, academia, community-based organizations, and other key stakeholders (Appendix I).

Land Acknowledgement

Our proceedings took place and these natural resources occur on the ancestral and traditional lands of the Seminole, Miccosukee, and Tequesta people.

Letter from the Chair

"Whatever the universe is, I believe it is all one. And this fragile shoreline, with its mangroves, coastal hammocks and ancient reef, is a precious part of very little that still survives of our unique environment."
- Marjory Stoneman Douglas

When the members of the Biscayne Bay Task Force convened in June 2019, we had no idea that our final report would coincide with the impacts of the worst global pandemic in recent history. Curiously, due to Miami-Dade County's "stay at home" order, the temporary closings of our beaches and marinas, and the practice of social distancing, Biscayne Bay received a much-needed respite from human activity. Despite the unusual break, the damage to the Bay was already present before the crisis. The health of Biscayne Bay remains in a state of emergency and at a tipping point toward irreversible ecological collapse.

There have been many efforts undertaken in the past to protect and restore Biscayne Bay. In 1974, the Florida Legislature passed the Biscayne Bay Aquatic Preserve Act. Later, in 1981, Miami-Dade County approved the Biscayne Bay Management Plan. The Florida Legislature included Biscayne Bay in the Surface Water Improvement and Management Act 1997, followed by the creation of the Biscayne Bay Partnership Initiative in 1999. In 2019, the Greater Miami and the Beaches Resilient305 Strategy listed restoration of the Bay as a principle action. These past plans have helped to protect and restore parts of Biscayne Bay but they have been sporadic and disjointed. Meanwhile, the watershed continues to be threatened by a lack of fresh water, nutrient pollution from storm-water runoff, sewage pipe breaks, compromised septic tanks, plastic pollution, and other contaminants.

The problems facing Biscayne Bay are serious and complex: Most will require financial investments and a unified and collaborative approach to restoration and recovery. Within this report, the Task Force recommends an overarching governing and administrative structure to implement recommendations under seven policy themes: water quality, governance, infrastructure, watershed habitat restoration and natural infrastructure, marine debris, education and outreach, and funding. These themes are to be inclusive of and prioritize environmental justice and human health.

The Task Force acknowledges that some policies and projects can be implemented immediately to address the areas within the watershed with the most significant water quality issues based on the currently available water quality data, resources, and existing funding sources. It is also important to highlight the infrastructure recommendations that will not only help restore the watershed but can provide a path toward economic recovery and help us get back to work post-pandemic.

Biscayne Bay is Miami-Dade County's most vital quality of life asset and the mainstay of our economy. This report is an urgent and final call to make Biscayne Bay and the protection of the Biscayne Aquifer a county and state priority. We call for a unified and committed effort by Miami-Dade County to work with all municipalities, state and federal agencies, and the public to chart a long-term course towards a healthy and resilient Biscayne Bay.

The members of the Biscayne Bay Task Force are grateful for the opportunity to present this report. We are confident that the Board of County Commissioners and the Mayor will take the bold and necessary actions to restore and protect Biscayne Bay for all and forever.

- Irela Bagué, Task Force Chair

State of the Bay

Of local, regional, national, and international importance, Biscayne Bay is a sub-tropical shallow estuary that is home to two state aquatic preserves, a critical wildlife area, a national park and national marine sanctuary. Due to its unique habitat, Biscayne Bay is designated an aquatic park and conservation area by Miami-Dade County. Cradled by the mainland to the west and barrier islands to the east, its 428 square miles continue to be a source of sustenance and economic vitality, while also providing for countless recreational opportunities enjoyed by residents and visitors alike. Its spectacular natural beauty is widely recognized and enjoyed by nearly 2.8 million residents and millions of visitors every year.

Despite its many layers of county, state, and federal protection for water quality, habitat, and wildlife, Biscayne Bay is at a tipping point. Historically, Biscayne Bay received freshwater along its shoreline as water traveled south and east, mixing with water from the Atlantic Ocean. Today, natural freshwater flows have been replaced by pulsed, point source discharges from dredged canals, intended to offer flood protection and move water away from inland areas. Canals can intercept groundwater, and more than half of the freshwater received by the Bay enters via the northernmost canals where the most notable seagrass losses have occurred. Runoff from the land, impacted by the activities taking place on land, degrade the quality of the water entering canals and Biscayne Bay. The timing, source, and quality of freshwater delivered to the Bay can and has influenced the health, diversity, and distribution of the flora and fauna that comprise the Biscayne Bay ecosystem. While there may be a general awareness in South Florida of the importance of the Biscayne Aquifer and the need to protect the quality of the groundwater in this aquifer as our sole source of drinking water, what is less known is the connection of this aquifer to Biscayne Bay and the Bay's dependence on large volumes of clean, fresh water for its ecological health. Hydrological changes, water management practices, upland development, and aged infrastructure have contributed to degraded water quality, seagrass die-offs and algal blooms as determined in part through data collected via the County's surface water quality and benthic habitat monitoring programs and those data from other agencies and institutions.

Biscayne Bay is in trouble. The County's water quality and seagrass survey data, as well as review of scientific literature and academic studies presented as part of the Task Force's work, indicate that chronic, low-level nutrient loading and/or acute, pulsed nutrient loading is likely linked to seagrass loss in Biscayne Bay. Excess nutrients can lead to a shift from a seagrass-dominated habitat with clear water, low turbidity, and low levels of algae in the water column, to an algae-based ecosystem that is turbid and reduces habitat essential for fish, birds, marine mammals, and other marine species. Sources of nutrients can include pet waste, fertilizers, and yard clippings and can be conveyed by stormwater outfalls. Other sources may include leaky sewer infrastructure and septic tank effluent. Unique challenges presented by storms and sea level rise compound and complicate these existing issues.

Seagrass, the foundation of all life in Biscayne Bay, has declined significantly in several basins. Seagrasses provide habitat for ecologically and economically important fisheries such as shrimp,

lobster, and various fish species and provide services such as stabilizing sediments and attenuating wave energy from storms. Within the past decade, the scientific community began to better understand and quantify the role that coastal and submerged plants such as seagrasses, mangroves and other tidal wetlands play in sequestering and storing carbon, surpassing the capacity of their upland tree counterparts. While notable coverage of seagrasses occurs in central and southern Biscayne Bay, seagrass losses identified over the past decade span the north, central, and southern regions of the Bay. In the South, Barnes Sound and Manatee Bay basins have experienced a decrease in seagrass of approximately 93 percent. In the central portion of the Bay, along the eastern shoreline near Coral Gables, there has been a decrease in seagrass of approximately 85 percent. And in the basins north of the Rickenbacker Causeway, seagrass losses range from approximately 66 percent to 89 percent (Appendix Q).

Despite these setbacks, it is important to know that water quality improvement and seagrass recovery are possible. In Tampa Bay, there was a 90 percent decline in seagrass between 1948 and 1982. Decisive measures were taken, including the formation of a technical team to expressly investigate how to reduce nutrient loading. Following a 57 percent reduction in nitrogen loading between the 1980s and 2002, there was a marked decrease in microscopic algae clouding the water column leading to improved water clarity. This success in meeting water quality targets led to Tampa Bay exceeding their established seagrass recovery goal of 38,000 acres, with 41,655 acres restored by 2016. A similar effort was undertaken in Sarasota Bay that led to a 46 percent reduction in nitrogen loading and subsequent resurgence of seagrass habitat. Thinking beyond restoration of Biscayne Bay to building resilience and long-term health is particularly critical in the face of potential impacts from climate change and sea level rise. The long-term health of our local economy also stands to gain.

Scientists have studied Biscayne Bay's fragile ecosystem and the most recent call to action came from the National Oceanic and Atmospheric Administration (NOAA) in 2019, with a warning of a "regime change" occurring in Biscayne Bay's ecosystem. We, the 2.8 million people who live in and call Miami-Dade County home, must answer that call. In taking action, it is important to acknowledge past restoration and management planning efforts (Appendix E) but also to elevate what makes this effort different. Numerous efforts have focused on restoring the health and economic value of Biscayne Bay. Each of these efforts has been united by three common elements. First, the efforts have been collaborative in that their development involved several relevant agencies, organizations, scientific institutions, and community members contributing their knowledge and fervent support for a healthy Biscayne Bay. Second, they tell a story of Biscayne Bay and its watershed's past and set a plan in motion for the future.[1] Third, they are predicated on the same or similar issues over the years that are imperative to address if the issues

[1] *Watershed*: A land area that channels rainfall and snowmelt to creeks, streams, and rivers, and eventually to outflow points such as reservoirs, bays, and the ocean. https://oceanservice.noaa.gov/facts/watershed.html

are to be overcome and restoration and long-term health of Biscayne Bay a reality. But many previously identified threats remain unabated. Biscayne Bay's resilience – its capacity to withstand future changes in land use, climate shocks and stressors, and infrastructure failures – will continue to be at risk without bold action focused on watershed restoration through a permanent, unified and transparent approach to manage its recovery. That is why this unified approach to recovery for a healthy and resilient Bay builds on and expands the knowledge and efforts of the past with bold, brave ideas while centering the following core ideas in order to be successful in bringing Biscayne Bay back from the brink:

Water Quality is the focus of the initiatives laid out in this vision. Municipal, County, State and Federal agencies along with community organizations must commit to this work, the fruits of which may take years to be realized.

Leadership is central to implement the bold changes we need and to hold ourselves accountable over time to bring about the change we are working toward and know we can achieve.

Education is the tool by which our communities and our leaders will remain invested in this work and each other as we gain a clearer understanding of what projects and initiatives must be accomplished to restore Biscayne Bay.

Improving upon the past and empowering our communities to participate in this work also requires that this process uphold the tenets of environmental justice. These tenets demand, among other things, "...that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias" as well as "...the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for...[all] living things."[2] The process of restoring and recovering Biscayne Bay's resources and continuing to work to ensure the Bay is visually and physically accessible for all people is in service of these ideals and in doing so is in service to the people and natural resources of Miami-Dade County. Furthermore, restoration and recovery of the Bay's resources through the infrastructure and technology improvements that stem from the recommendations in this report will help get our community back to work following the economic hardship imposed by the COVID-19 pandemic.

It is the hope and the mission of the Task Force that this unified and collaborative vision, overseen by a body of agencies and stakeholders, will be effective in bringing about tangible and lasting change for the health of our Bay, for the quality of life of our residents and visitors, and the future of our region's economy.

[2] As drafted and adopted at the First National People of Color Environmental Leadership Summit in 1991 in Washington, DC, 1991. http://lvejo.org/wp-content/uploads/2015/04/ej-jemez-principles.pdf

Recommendations

The following section outlines recommendations the County should take to restore water quality in Biscayne Bay. The Task Force recommends the establishment of an overarching administrative structure to implement recommendations under seven policy themes.

Overarching Recommendation

A unified and collaborative approach to watershed restoration is urgently needed. To improve the water quality and the health of Biscayne Bay, the Task Force recommends:

- Miami-Dade County's Board of County Commissioners (BCC) should create a new intergovernmental body called the Biscayne Bay Watershed Management Board (WMB).

- The WMB should be supported by the creation of a new position called the Chief Bay Officer (CBO) in the Office of the Mayor. The WMB and the CBO should be supported by County staff, appropriate technical experts and community input to improve water quality in the Biscayne Bay watershed.

- The WMB will be responsible to develop and, upon approval by the BCC, implement the Biscayne Bay Watershed Restoration Plan (WRP). The WMB, working with the CBO, should ensure that the following recommendations by the Task Force are implemented.

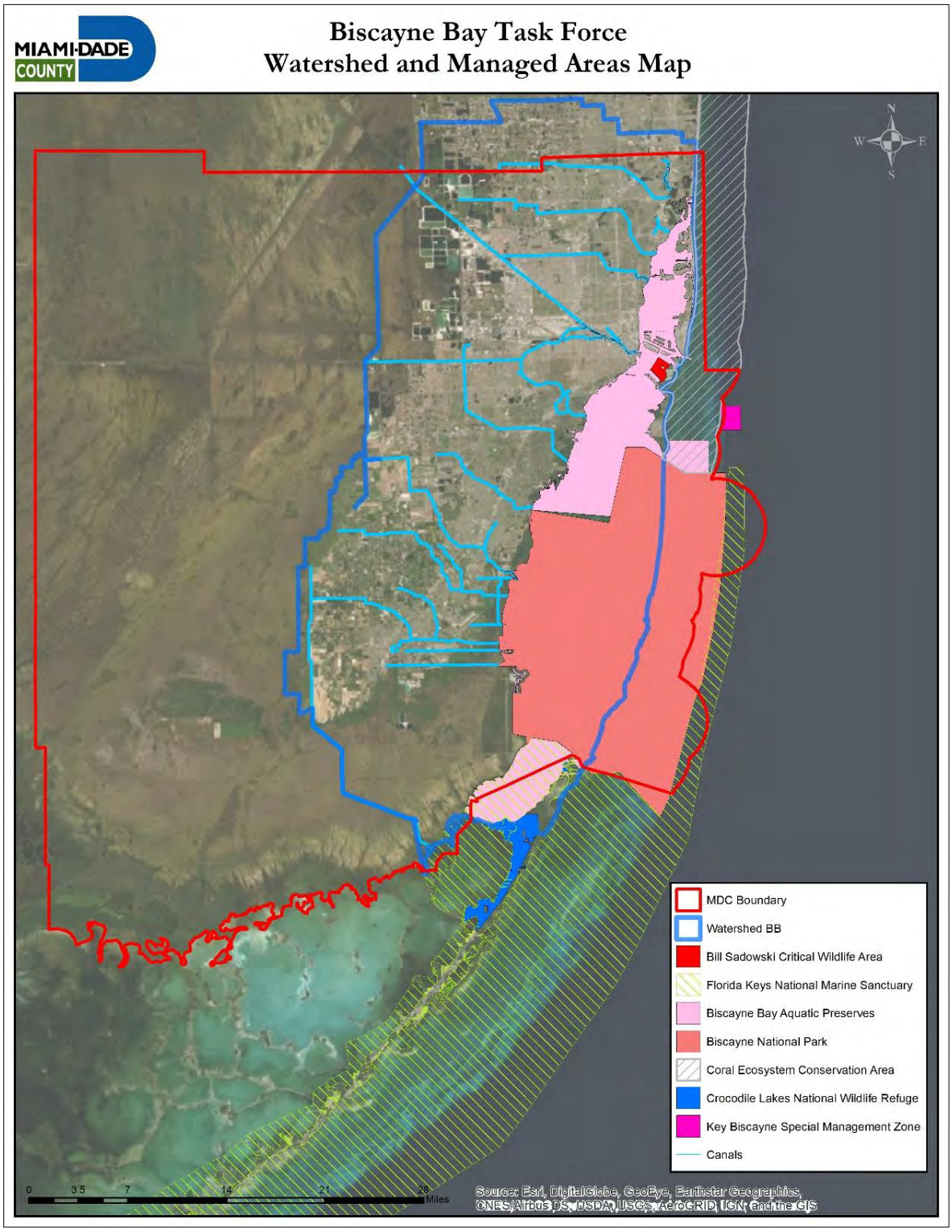
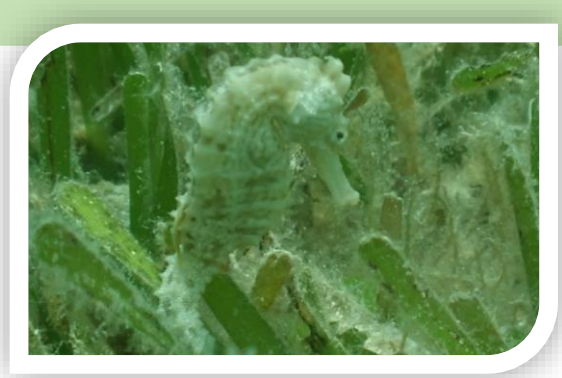


Figure 1. Map of the Biscayne Bay watershed and managed areas within and adjacent to the watershed. NOTE: Watershed layer obtained from SFWMD. These subwatersheds are the smallest units classified in AHED (Arc Hydro Enhanced Database). They were formerly known at the District as Subbasins.

1. Water Quality



Improving Biscayne Bay's water quality will require significant reductions in the levels of pollutants within its watershed. Significant improvements must be made to waters received by the Bay and canals through outfalls and sheetflow. Groundwater quality within the Biscayne Aquifer must also be improved given that the aquifer is the Bay's watershed. Fresh water flows through this highly transmissive aquifer carry pollutants directly into the surface waters of canals and Biscayne Bay. Many actions are urgently needed to restore the Biscayne Bay watershed and protect the Biscayne Aquifer as it is our sole source of drinking water and a carrier of pollutants to the Bay. These actions include pollutant load reduction goals; additional monitoring to measure progress against those goals; leveraging the County's role as a local authority; an open, centralized information data repository; demonstration projects – implemented and monitored; integrated flood risk reduction and water quality planning, policies, and management; a climate change vulnerability assessment; specific studies that fill key knowledge gaps; fertilizer ordinance; and capitalizing on existing County entities to make improvements to the regulatory review process to focus on Biscayne Bay and increase enforcement.

The Task Force recommends that the County:

1A. **Establish science-based, pollutant load reduction goals and interim targets to improve quality of surface water and groundwater and codify these limits in Chapter 24 to achieve deep reduction in pollutant loads for restoration of seagrass meadows to historic coverages consistent with a healthy Biscayne Bay ecosystem as part of a Biscayne Bay Watershed Restoration Plan (WRP)**. Pollutant load reduction goals and interim targets should consider future scenarios of land-use, population, existing and future development, local and South Florida water management infrastructure, and climate shocks and stressors. Nutrient load reduction targets established for surface water and groundwater entering the aquifer and canals should be based on meeting, at a minimum, the chlorophyll-a based criteria, or "protective" criteria for total nitrogen (TN) and total phosphorus (TP) at the point groundwater enters the Bay as well as the locations where groundwater enters canals connected to the Bay. The County should implement similar strategies for other pollutants of concern, including fecal indicator bacteria (FIB), metals, and petroleum-based pollutants, where impairments and other hotspots have been identified to ensure consistent standards that protect public health and our economy.

1B. Develop, implement and continuously monitor and demonstrate progress toward meeting 1A's pollutant load reduction goals and interim targets for surface and groundwater and linked

biological recovery. Updates should be reported to and reviewed by the WMB on a regular basis. Pollutant load reduction and biological recovery targets and goals toward meeting targets should be updated on a regular basis, every two to three years. Targets and goals should be updated based on actual land-use, population, development, local and South Florida water management infrastructure and the Comprehensive Everglades Restoration Plan, and climate shocks and stressors. Monitoring should leverage coastal information and observation system approaches with remote monitoring as necessary, to demonstrate progress toward meeting interim targets and goals. Progress should also be assessed based on measurements made at individual stations or subsets of stations based on their proximity to the shoreline.

1C. Leverage the Department of Regulatory and Economic Resources' (RER) role as regulatory agency to activate additional resource management functions. Permits requested from and authorized by County divisions (all divisions in RER and the Water and Sewer Department (WASD)) should be coordinated, rigorously documented and archived for continuous review and evaluation to ensure they meet pollutant load reduction goals (1A). This should include:

i) Evaluation of permit applications including but not limited to water control and coastal and freshwater wetland dredge and fill projects. This information should be quantitative, quality-assured, transparent, documented, archived, and made publicly accessible (1E; data library).

ii) Required water quality monitoring associated with permitted activities to ensure water quality specifications are maintained and Best Management Practices (BMP) are performed as specified to verify that pollutant load reductions goals are being met. Update Chapter 24 as needed to ensure tracking and monitoring of these activities.

iii) Exercising of role as municipal separate stormwater sewer system (MS4) permit-holder to collect MS4 co-permittee information on types and implementation of all forms of BMPs, including a County-wide atlas of stormwater infrastructure systems, with maps of locations and details related to the sizing of stormwater infrastructure, and additional information as needed, to evaluate MS4 activities and compliance with pollutant load reduction goals and biological recovery targets. When reviewing applications related to stormwater, the County should consider the information produced and documented by other MS4 permit-holders and the SFWMD to assess compliance with pollutant load reduction goals.

1D. The County should use the information collected per 1C to conduct an immediate assessment of land-based hotspot areas prioritized based on existing, known impairments. Additionally, each municipality shall evaluate the water quality of each of its outfalls and report outcomes. This information should be employed to support the creation of an ordinance to be

created that requires outfalls not meeting standards to be corrected or eliminated within a certain time period.

1E. **Review, develop (as needed), implement and enforce local ordinances and policies to attain pollution load reduction goals set forth in the Watershed Restoration Plan (WRP)**. Policies and enforcement should emphasize known and emerging sources of pollution to surface waters and groundwater including septic systems, exfiltration trenches, and other sources of stormwater pollution regulated through permits and managed via Best Management Practices (BMPs). The County should seek support as needed, and review, utilize and strengthen enforcement of Chapter 24 to enforce these pollution load reduction goals and measures of the Watershed Restoration Plan with emphasis on pollutant load reductions in the Biscayne Aquifer and through stormwater outfalls.

1F. **Coordinate, staff and provide an annual budget for comprehensive, centralized Biscayne Bay Watershed data and research collaboration and data management infrastructure** (e.g., searchable data library), including a GIS-based repository integrating groundwater, surface water, external agency datasets, and documentation required from MS4 co-permittees following recommendation 1C. Include information about ongoing city, agency, and university ongoing research and monitoring activities, existing and planned BMPs, watershed restoration, natural infrastructure projects, and infrastructure projects. Update regularly.

1G. **Undertake and secure funding for new pilot projects and research projects focused on reducing pollutant loads**. Projects should include specific, focused *in-situ* monitoring of areas that implement: conversions of septic to sewer and alternative decentralized wastewater systems, stormwater systems based on alternative design criteria and features, living shorelines and seawalls, stormwater easements (e.g. bioswales), and retention ponds to generate the project-specific information needed to implement and improve effectiveness of pollutant load reduction strategies, assess water quality-based performance, and track reductions in pollutant loads. This should include a new program of monitoring the effectiveness of BMPs to improve surface water, groundwater, and stormwater quality before waters enter canals and the Bay and for monitoring of significant stormwater outfalls. Funding sources should be identified and secured.

1H. **Elevate and further amend the Comprehensive Develop Master Plan (CDMP) to further include Biscayne Bay watershed management planning elements**, including Adaptation Action Area planning and other sea level rise planning efforts. Planning efforts should consider alternative design and development criteria in sensitive areas in order to reduce discharge, reduce pollutant loads including loads from the Biscayne Bay watershed and increase watershed pollutant treatment efficiency. The WRP produced by the WMB should include recommended criteria to improve water quality, with a focus on pollutant load reduction, to incorporate into the CDMP and other related planning efforts. Examples include higher standards for projects in the County, such as requiring more stormwater retention through installation of permeable

surfaces, green infrastructure, or other appropriate strategies to allow less pollutants to runoff into the Bay.

1I. **Conduct a climate change vulnerability assessment for Biscayne Bay**. The WMB, working with the BCC and County departments, should determine the scope and the issues that would go into a vulnerability assessment for Biscayne Bay, including land use and population, local and regional water management systems scenarios, and CERP scenarios. Federal, state, and local funds should be leveraged to conduct this assessment.

1J. Initiate and fund studies that illuminate specific knowledge gaps for application toward watershed restoration. Specific studies include:

- Re-assess the north to south and source (canal, stormwater and groundwater) distribution of discharge entering Biscayne Bay and work with SFWMD and other agencies to identify strategies for implementing wetland rehydration projects (e.g. Deering Estate) in other areas of the watershed to improve distribution, timing and magnitude of flows
- Re-generate the circulation modeling output for the Bay, analyze gap-fill monitoring data for robust calibration and validation, and expand domain to northern Biscayne Bay
- Institute source tracking in hot spot areas (bacteria, pharmaceuticals, nutrients, petroleum-based pollutants)
- Update and apportion pollutant loading of primary watershed and Bay sources, incorporating contributions from episodic loadings from natural hazards and infrastructure failures to develop phosphorus and nitrogen budgets that support Biscayne Bay recovery and resilience
- Apply *in-situ* studies to evaluate the following: a) water quality-based performance of alternative decentralized wastewater and stormwater infrastructure treatment approaches over traditional approaches and b) influence on load contributions to stormwater and groundwater
- Re-evaluate "protective" nutrient criteria based on pollutant loads and load reduction goals
- Increase the number of permanent seagrass monitoring sites and allocate additional funding as needed
- Increase the spatial and temporal frequency of water quality sampling in hot spot areas, areas that have experienced significant increase in pollutant loads, including areas defined as impaired waters, and areas that improve the management of benthic resources
- Evaluate the relationship between recreational and commercial fishing activities, food web structure, and Biscayne Bay water quality
- Evaluate facility-level pollutant loading contributions against existing permitted discharges

1K. Pass a county-wide ordinance to prevent the negative secondary and cumulative effects of excess nutrients caused by fertilizer runoff entering Biscayne Bay through groundwater and stormwater entering surface water bodies such as canals. The ordinance should include: public, commercial and noncommercial property; a mandate that fertilizer can only be applied to actively-growing turf; a mandate that fertilizer cannot be applied during the rainy season; a

designation of a fertilizer-free zone of 15 feet from waterways; a focus on the regulation of nitrogen-releasing fertilizer in most forms; and a more rigorous regulation of phosphorus. Additional model ordinances should be developed and codified to reduce use and application of pesticides and herbicides. The County should work with municipalities to adopt the same ordinances.

1L. Increase inspections of all marinas and commercial operations along waterways. Such operations must have containment structures to eliminate direct runoff into waterways. Such containment structures must have treatment equipment especially for oils, grease, and wash water from boat maintenance operations. Impose fines and shutdowns if non-compliance is discovered.

1M. Continue to monitor the progress of the October 7th, 2015 Consent Agreement between FP&L and Miami-Dade County to address impacts associated with the plant, including addressing the hypersaline groundwater plume and elevated levels of chlorides found outside property boundaries including within the L-31E canal. The County should continue to monitor water quality in the areas surrounding the Turkey Point facility including elevated levels of chlorides, as well as nutrients such as ammonia, and take appropriate actions to ensure the environment is protected and that pollutant load reduction goals are met.

2. Governance

In order to establish a permanent and unified approach to the recovery of water quality in Biscayne Bay and future management of the watershed, the Task Force recommends that the County:

2A. **Establish by ordinance or other comparable process that establishes the Biscayne Bay Watershed Management Board (WMB) as a permanent organization.** The Task Force recommends the selection and invitation of participants with diverse backgrounds to the WMB and its committees. It is recommended that the WMB shall be comprised of a total of (11) members as follows:

- (3) members of the Board of County Commissioners (BCC);
- (3) designees of the Miami-Dade County League of Cities;
- South Florida Water Management District Governing Board (member who resides in Miami-Dade County);
- Florida Department of Environmental Protection;
- U.S. Department of Interior;
- Florida Fish and Wildlife Conservation Commission; and
- Florida Inland Navigational District.

Members will have experience with issues related to Biscayne Bay and are expected to leverage the professional and financial resources of their respective organizations to achieve goals of the Watershed Restoration Plan.

2B. **The Mayor should appoint a Chief Bay Officer (CBO) and request funding for the position**. The CBO will advise the Miami-Dade County Mayor and the BCC and manage the WMB and its committees. The CBO will act as liaison with County departments, County boards, external agencies, stakeholder groups, and local, state, and federal governments on water quality issues, policies and appropriations related to the health and recovery of Biscayne Bay.

2C. The WMB will, with technical and community recommendations, review, recommend funding for and implement the Watershed Restoration Plan (WRP) to send to the BCC in order to achieve time-bound and measurable progress toward WRP goals to achieve water quality and seagrass restoration and meet its mandate of Bay health, recovery, and resilience. The WRP should be developed by the end of 2021. While developing the plan, the WMB can concurrently work to implement recommendations in this report. The WMB will be responsible for making recommendations to Miami-Dade County departments and to the Office of Management and Budget to prioritize water quality restoration in the annual budget cycle.

The WMB will work to make recommendations and develop funding strategies for projects to be reviewed and approved by the BCC, incorporate relevant policies in Senate Bill 712 (SB 712) Clean Waterways Act (Appendix K), develop and execute the Biscayne Bay Watershed Restoration Plan, inform the BCC on a regular basis, secure funding for meeting the timeline for pollutant load reduction goals, and update the Biscayne Bay SWIM Plan, as mandated by the SWIM Act per Chapter 87-97 Florida Statutes (Appendix E). The WMB shall collaborate in organizing a biannual Biscayne Bay Marine Health Summit.

The WMB should establish and appoint committees to address specific Bay issues to advise and make recommendations on policies, restoration projects, public information campaigns and water quality monitoring and targets. The Task Force recommends establishing the following committees: Technical Advisory Committee, the Community Advisory Committee, and the Nutrient Reduction Committee.

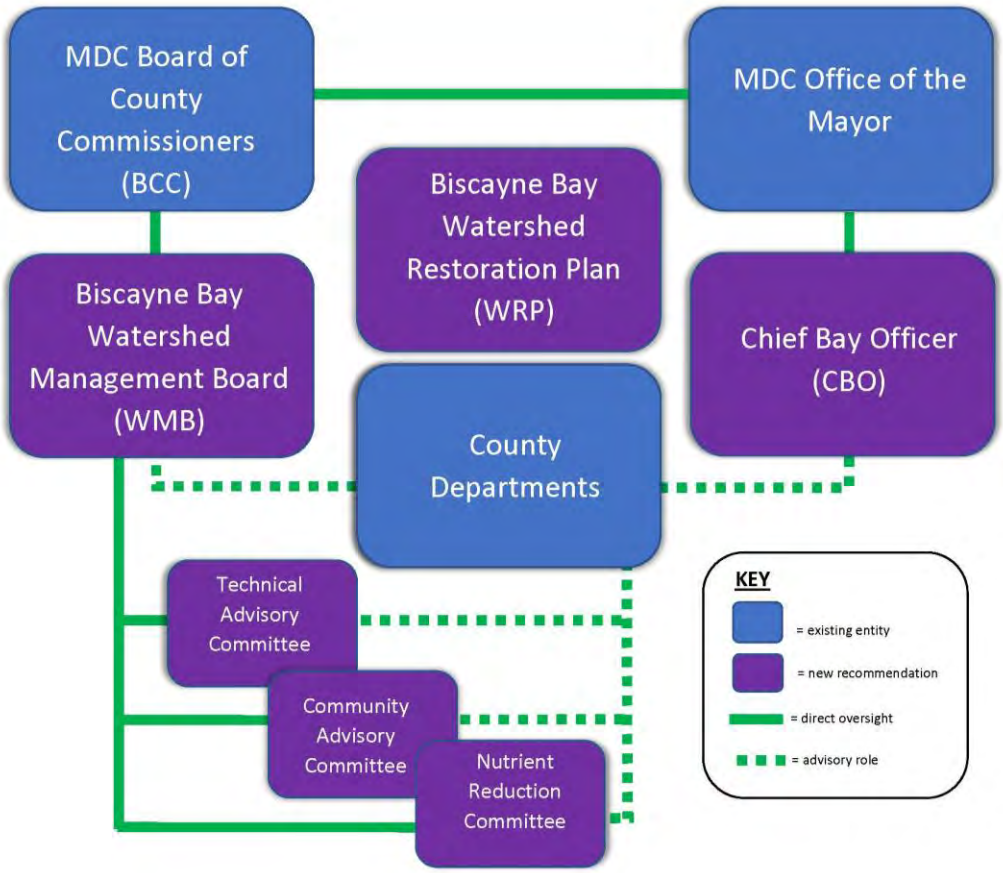


Figure 2. The proposed organizational structure above highlights the working relationship between the BCC, CBO, Office of the Mayor, WMB, and the committees. The description in Appendix J further defines the roles of the entities and Watershed Restoration Plan. Existing entities are shown in blue boxes while new recommendations by this Task Force are shown in purple boxes. Solid green lines mean an entity has direct oversight over a connecting entity. Dotted green lines mean an entity plays an advisory role to another entity.

2D. **Develop a formal partnership in the form of a Memorandum of Understanding (MOU) with the SFWMD to create an internal staff working group in addition to their participation on the WMB.** The CBO will lead this effort. The group will work collaboratively to implement the WRP and manage and fund activities to meet pollutant load reduction goals; determine redundancies and data gaps; focus on canals that show high nutrient loads, and trash pollution and study pollutant loads originating outside the watershed, including agricultural sources; develop BMPs and Outstanding Waters standards and regulations, and enhance adaptation efforts to improve the resilience of the regional water management system to manage saltwater intrusion.

2E. **Enable the alignment and coordination of County departments to ensure a holistic, comprehensive approach is taken for Biscayne Bay recovery and resilience.** Resilient305 directs Greater Miami and the Beaches to Restore and Preserve Biscayne Bay (Action 1), Employ a One Water Approach (Action 54), and Share Bold Integrated Water Models (Action 53) to align County departments in their work on issues that must be dealt with for the Bay's long-term health.[3] Direct departments to prioritize Biscayne Bay recovery and resilience in their budgets and develop performance metrics to assess the effectiveness of this effort and identify funding. Report progress in quarterly updates to the Science/Technical Advisory committee and, as needed, to the full WMB.

2F. Develop a formal partnership in the form of a Memorandum of Understanding (MOU) with the Miami River Commission (MRC) to ensure that the advice and expertise of the MRC is available to the CBO and the WMB. The MRC has 20 years of experience advising public and private interests along the Miami River that will be invaluable in the development of the WRP and in the implementation of many other recommendations.

[3] Greater Miami and the Beaches, Resilient305 Strategy. 31 May 2019. <https://resilient305.com/>

3. Infrastructure

As we grapple with the economic impacts of the global pandemic, turning to infrastructure investments is one strategy to lift our economy. During past national downturns, infrastructure stimulus spending has boosted near-term economic activity. Likewise, improvements to our septic, sewer, and stormwater systems are critical investments that will advance the health of the Bay and prove to be the economic stimulus that our County needs. There is no better time to invest in our County than now. For some of the regulatory driven investments, such as the Consent Decree to fix leaky sewer lines, managing assets and making sure these programs are fully funded and implemented is a priority.

Therefore, creating design standards, establishing construction inspection requirements, and setting operation and maintenance regulations for wastewater collection, including septic systems, water and wastewater, and stormwater collection and drainage system are to be reviewed and updated in Chapter 24 of the Miami-Dade County Code as needed in order to ensure countywide infrastructure is working as intended and not contributing pollution to the Bay.

For Septic Systems:

The State's Blue-Green Algae Task Force Consensus Document[4] recommended "a septic system inspection and monitoring program" to identify "improperly functioning and/or failing systems so that corrective action can be taken to reduce nutrient pollution, negative environmental impacts and preserve human health." The Task Force also noted that "current regulations prohibit permitting of new septic systems on lots of one acre or less…within an Outstanding Florida Spring watershed unless the system includes enhanced treatment." The County drafted a report, Septic Systems Vulnerable to Sea Level Rise, in November 2018, noting the occurrence of improperly functioning and/or failing systems based on current and future groundwater levels (Appendix L).

Florida Senate Bill 712 (Appendix K) takes effect July 1, 2020 and transfers duties and powers from the Department of Health to the Department of Environmental Protection, including to "develop a comprehensive program to ensure that onsite sewage treatment and disposal systems regulated by the department are sized, designed, constructed, installed, sited, repaired, modified, abandoned, used, operated, and maintained in compliance with this section and rules

[4] Blue-Green Algae Task Force Consensus Document #1. 11 October 2019. <https://floridadep.gov/sites/default/files/Final%20Consensus%20%231_0.pdf>

adopted under this section to prevent groundwater contamination, including impacts from nutrient pollution, and surface water contamination and to preserve the public health."

The Task Force recommends that the County:

3A. **Increase compliance with existing laws to result in the immediate connection of ~12,000 properties to the sewer system** and reduction in the number of new septic systems in coastal/waterfront areas.

3B. Develop and enforce septic system design criteria with design parameters, including proximity to canals and Biscayne Bay, elevation relative to groundwater level, sea level rise, sizing, materials, individual and cumulative loading, and basin-specific criteria. Basin-specific criteria should be based on existing (or lack of) infrastructure, land use, loading parameters and other criteria to ensure pollutant load reduction goals are met.

3C. Initiate a mandatory septic system registration and inspection program that will first prioritize those systems identified as vulnerable to shallow groundwater levels, those near (within 1000 feet of) Biscayne Bay and canals, and those for new and substantially improved (50% of market value) developments. The program should then be expanded county-wide. In addition, utilize alternative treatment technologies or conversion to sewer, and identify, create and secure new funding sources. Efforts should build on the State's Task Force recommendations and SB 712 - Clean Waterways Act provisions (Appendix K). All data and records pertaining to such recommendations should reviewed by County staff, and WMB advisory committees, then presented for review by WMB.

For Water and Wastewater Systems:

One Sanitary Sewer Overflow (SSO) is one too many; these are preventable with appropriate policies and enforcement. The County must be proactive and have reliable information on all its underground assets. For water and wastewater systems in Miami-Dade County, the County is the primary system for all jurisdictions. Though some municipalities own and operate their own infrastructure, the main system receiving the effluent is managed by the County. Additionally, all design, operation, and maintenance requirements must include effluent standards for pollutants.

The Task Force recommends that the County:

3D. **Undertake immediate efforts to identify and eliminate all root causes of Sanitary Sewer Overflows (SSO) including inflow and infiltration. Accelerate sewer infrastructure maintenance and upgrades**, with an emphasis on addressing all wastewater sewers that are located within 2,000 linear feet from Biscayne Bay shorelines and further West (inland) near Canals, Creeks, Rivers and Lakes to reduce the potential for and impacts of SSOs, should they occur. All plans are to be certified by letter/report, that is signed, and sealed by a Florida Registered Professional

Engineer. Ensure the County institutes its authority to implement proactive management and have reliable information on all underground assets. Ensure adequate funding is authorized to accelerate these activities. Use the County's authority to institute stiffer penalties for SSOs, understanding that SSOs harm the economic prosperity, health and quality of life of its residents and businesses – referencing SB 712 (Appendix K) and increasing fines for unpermitted activities over SB 712 (sanitary sewers, maintenance, etc.).

3E. **Develop and expedite a Condition Assessment and Asset Management Action Plan to document the condition of the County's wastewater system assets and certify all historical "As Builts" and/or those not already certified with a focus on identifying horizontal and vertical locations of main wastewater transmission lines**. As-builts must be certified, signed and sealed by a Florida Professional Surveyor and Mapper qualified and registered to do work in Miami-Dade County. In addition, a Florida Professional Engineer, qualified and registered to do work in Miami-Dade County shall inspect and document the condition of these assets, to prioritize their condition based on risk of failure and expedite rehabilitation and/or replacement or lining following mandates in the WASD consent decree.

For Stormwater Systems:

Actions to improve stormwater systems should leverage cost- and maintenance-effectiveness of technologies and should be holistic in order to address stormwater quality concerns at all levels, both for public and private systems countywide. It is important to note that stormwater systems in Miami-Dade County are controlled by jurisdictions. The County only has control over the stormwater system in the Unincorporated Municipal Service Area (UMSA), so working with municipalities to coordinate improvements is critical.

The Task Force recommends that the County:

3F. Enforce the existing code and update the stormwater design criteria to improve effectiveness and include advances in stormwater treatment technologies such as stormwater catch basins, stormwater filtering systems and smart stormwater system technology that can also take into account future hydrologic conditions related to CERP and climate change. Existing Code should be updated to establish an annual operating permit for all municipal and private stormwater systems to include regular inspections and monitoring to address performance such as during heavy rainfall events. Stormwater design criteria should be updated for science-based effectiveness of water quality treatment and consider the multitude of impacts that sediment erosion, leaves, litter and other items have on stormwater systems. These can include costs of cleanups, floods caused by clogged stormwater catch basins and pipes, and groundwater and surface water pollution caused by stormwater runoff. Evaluation of technologies should be holistic in order to address stormwater runoff concerns at all points, from the street level through the outfalls. All design, operation, and maintenance requirements must include effluent standards for pollutants. Develop and implement guidelines for stormwater dry retention ponds

and swales that maximize watershed pollutant retention. Allocate funding for pollutant monitoring to improve design of dry and wet retention ponds for Miami-Dade County and areas within the SFWMD regional system.

3G. Develop a plan to prioritize the retrofitting of stormwater infrastructure within basins with the most substantial water quality and/or habitat degradation issues. All stormwater systems should be upgraded to maximize protection of water quality and municipalities should be urged to provide updates of storm water improvements to the County for inventory.

3H. **Eliminate direct and indirect stormwater discharges to Biscayne Bay** through a combination of infrastructure modifications (e.g., treatment technologies) to retain more stormwater at the property-level via increased stormwater management in retention and infiltration and to conduct monitoring to verify, identify and secure funding through community based and/or public private partnerships while leveraging private working capital for implementation. Eliminate discharge of untreated stormwater into canals, creeks, rivers, and lakes, including from the streets. Conduct monitoring to verify, identify and secure funding to implement. Ensure basic design criteria for stormwater system management are met and documented to include : 1) grates to block debris from entering the storm drains and smart water sensors, 2) more regular maintenance of stormwater systems to prevent discharge of debris and sediment, 3) more regular cleaning of storm drainage system, and 4) standards that account for higher groundwater levels and the reduced efficacy of exfiltration systems. Specify a minimum stormwater system management schedule for MS4 co-permittees for stormwater discharged into canals, creeks, rivers, and lakes, conduct monitoring to verify, identify and secure funding to implement. Implement a regular review process to update design criteria to take future conditions into account.

For Design and Construction Methods:

3I. **Set policy that all As-Builts/Record Drawings are done and certified by a Florida Professional Surveyor and Mapper qualified and registered to do work in Miami-Dade County**.

3J. **Set policy to require during the design phase of future construction that all existing utilities are designated and located vertically and horizontally** based on American Society of Civil Engineers (ASCE) Standard 38-02 (Appendix M) utilizing nondestructive subsurface utility engineering methods, such as soft digs and 3-D ground penetrating radar. Survey grade Mobile or Static LIDAR shall be used for mapping above ground features and utilities conducted by a Florida Professional Surveyor and Mapper qualified and registered to do work in Miami-Dade County. During plans review process, Miami-Dade County shall ensure design complies with the policy prior to final approval or issuance of any construction permit.

For Coastal Flood Management Systems:

3K. Ensure that new infrastructure projects to address coastal flooding and storm surge that are cost-shared by the County adhere to the recommendations of this Task Force and prioritize Biscayne Bay health and resilience. This includes such information as USACE Back Bay Coastal Storm Risk Management (CSRM) Feasibility Study and any future flood control projects.

4. Watershed Habitat Restoration and Natural Infrastructure

Biscayne Bay's health is dependent on the activities that happen within its watershed. Improving and restoring habitat countywide has multiple benefits, including diversifying plant and animal species, providing habitat for fisheries, and increasing green spaces that absorb and filter water before it reaches our waterways and the Bay. Depending on the project, natural infrastructure is just as beneficial: It can provide additional water filtration services, can act as habitat for fisheries and other wildlife that help support our economy, and can protect the shoreline from coastal erosion and storm surge. To utilize watershed habitat restoration and natural infrastructure to improve the health of the Bay, the Task Force recommends that the County:

4A. **Develop ecologically acceptable living shoreline design options that are consistent with the existing Biscayne Bay Aquatic Preserve Act**. The County shall create "A Living Shoreline Guide" and conduct workshops with municipalities, developers, coastal engineers, and other industry experts to provide the appropriate guidance on design and regulations. The County should develop incentives for living shoreline installation.

4B. **Raise awareness of the value of mangroves through a homeowner education campaign.** Mangroves are the first line of coastal defense and a natural barrier protecting coastal communities from storm surge, flooding, and sea level rise. Mangroves provide carbon storage which helps lower carbon emissions.

4C. **Increase enforcement of existing rules for protecting existing mangroves and mangrove shorelines** to improve their future health and maintain the appropriate amount of canopy. Existing culverts that provide water to existing mangroves must be inspected and repaired.

4D. Identify vulnerable properties along the coastline and partner with municipalities to focus on public properties and private property owners to create a voluntary Mangrove Protection and Restoration Zone Program (e.g., mangrove planter box initiative) in flood-prone coastal communities to designate protection zones, plant mangroves based on the "A Living Shoreline Guide," and monitor and report progress after storm events. In this effort, the County should include: data collection, review and consideration of opportunities for converting flood-damaged properties from willing sellers participating in current and future buy-out programs; and increasing buffer areas via vegetated easements or as projects for listing in the Miami-Dade County Local Mitigation Strategy (LMS).

4E. **Prioritize existing and identify new green and blue infrastructure approaches and restoration projects**, including projects identified in existing plans like the Miami-Dade County Department of Parks, Recreation, and Open Spaces *Parks and Open Space System Master Plan,* using data to help inform projects with significant potential for improving water quality. Retain a pool of environmental engineering firms with qualifications that include green infrastructure projects to assist staff in designing and implementing these projects. Create mechanisms for expanding research and monitoring capacity by local universities to include adequate studying and tracking of funds as a proportion of project financing to ensure water quality improvements. Increase incentives for green infrastructure, such as green walls and roofs, for new development, substantially improved/damaged structures, and retrofitting projects to decrease pollutant runoff. In addition, each new seawall permit application should be evaluated for natural and hybrid alternatives. Review existing County regulatory process and policies as necessary to promote the installation of natural shorelines and green infrastructure consistent with protection and enhancement of Biscayne Bay.

4F. Continue to work with SFWMD and to have the State of Florida allocate the funds necessary to ensure the timely commencement of construction of the Cutler Flow Way in accordance with the project timeline in the Integrated Delivery Schedule. The County has been a significant investor of funding and resources for the Comprehensive Everglades Restoration Plan (CERP) Biscayne Bay Coastal Wetlands (BBCW) Project by providing land acquisition, staff resources, data sharing, and directly funding a portion of the costs for the redesign of the Cutler Flow Way for Phase 1 of BBCW. Funds must be allocated from the State of Florida in a timely manner to ensure commencement of construction of the Cutler Flow Way and to allow for completion and operation under the current Integrated Delivery Schedule without further delays.

4G. **Continue to advocate for funding to support the Biscayne Bay Southern Everglades Ecosystem Restoration (BBSEER) project (also known as the BBCW / C-111).** The County should continue to actively participate and coordinate as part of the Project Delivery Team during the planning process with the USACE and SFWMD and other agencies of the Program Delivery Team (PDT) to ensure that the quantity, quality, timing and distribution of water are adequate for the complete, full scale salinity restoration of the portions of the Bay proposed for restoration under the BBCW and BBSEER projects.

4H. **Establish seagrass growth and maintenance requirements** based on pollutant loading and reduction targets (nutrients, sediments/turbidity), influence of temperature and dissolved oxygen, carbon dioxide, changes in food web structure, Bay recreational use, and resulting influence on water clarity and seagrass health.

4I. **Accelerate green infrastructure solutions for flooding, resiliency and water quality** that include a review of watershed habitat restoration opportunities in repetitive loss areas and future flood hazard areas. Evaluate and allocate cost savings of Community Rating Systems (CRS) benefits into the Biscayne Bay watershed water quality restoration plan.

5. Marine Debris

Marine debris is one of the most widespread problems stressing the world's oceans, waterways, and coastlines. It can travel long distances and traverse territorial borders, and there are many difficulties in identifying its sources. There are two common sources of marine debris: the actions that take place on land (land-based sources), and the actions that take place in waterways and the marine environment (water-based sources). It is estimated that 80% of marine debris is from land-based sources. To reduce marine debris and its impacts to the stormwater system, the Task Force recommends that the County:

5A. **Create a comprehensive marine debris prevention, reduction, and removal program within DERM and adequately fund and staff the program**. The primary goal of the program would be to prevent, reduce, and remove the amount of marine debris entering Biscayne Bay and its tidal tributaries, thereby reducing the impact of marine debris on the Bay's flora and fauna while enhancing the quality of life for the County's residents and visitors. To accomplish this goal, program activities should include, at a minimum, marine debris related project planning, implementation and obtaining funding; public outreach and education; and enforcement action when necessary and appropriate. The program should establish annual targets for the prevention, reduction, and removal of marine debris entering the Bay.

5B. **Establish a marine debris working group to promote collaboration on ways to reduce marine debris**. The working group may include, but not necessarily be limited to, representatives of County, state and municipal resource agencies, including the SFWMD, law enforcement agencies, stormwater utilities, solid waste and public works departments, recreational and commercial boaters and fishers, and NGOs. Among the purposes of the working group should be to share information, coordinate efforts, and develop a plan to prevent, reduce, and remove marine debris. The plan should address marine debris emergency response and define annual targets for the prevention, reduction, and removal of marine debris entering the Bay. The marine debris working group could also make recommendations to the County and municipalities regarding policy and legislation for the prevention and reduction of marine debris.

5C. Through the Miami-Dade County Police Department, direct the Marine Patrol Unit to prioritize its commitment to the enforcement of all applicable laws having a nexus to the environmental health of the Bay and its tributaries, including but not limited to those related to fisheries, derelict and at-risk vessels, vessel marine sanitation devices, vessel speed zones, vessel groundings and mooring restrictions. The BCC should urge state and municipal marine law enforcement agencies to do the same.

5D. Conduct an analysis of marine debris in Biscayne Bay to identify primary sources of marine debris, the routes by which it is introduced into the Bay, and the areas of most significant accumulations, including within stormwater catchment basins, to guide prevention efforts and target removal.

5E. **Adopt a target maximum input level policy for trash**. Work with municipalities to decrease the amount of trash pollution entering Biscayne Bay from land-based trash sources and stormwater systems.

5F. **Evaluate the various existing stormwater outfall systems throughout the County to determine their effectiveness at preventing debris from entering Biscayne Bay**. This evaluation should include any recommendations for alternative designs and maintenance as well as any changes in policy or regulations regarding installation of stormwater outfall systems.

5G. **Identify and establish dedicated and recurring funding sources to pay for marine debris prevention and removal activities** and to use as matching funds for supplemental grant opportunities. Such sources may include, but not be limited to, vessel registration fees and stormwater utility fees.

6. Education and Outreach

Every citizen and visitor must be informed and educated about water quality impacts related to littering and pollution. They must be given ample opportunities to create a personal connection to, and responsibility for, the health of Biscayne Bay. To educate citizens and visitors, the Task Force recommends the County:

6A. **Create a multilingual, multimedia campaign and educational outreach program** to promote and improve awareness of the economic, commercial, and recreational opportunities of Biscayne Bay.

6B. **Leverage the funding in the Community Based Organization grant program to create a special focus on Biscayne Bay education**. Encourage greater coordination with local environmental education organizations, including the Environmental Education Providers, and work together with related NGOs, municipalities, agencies, public/private schools, academic institutions, environmental organizations, business organizations, and marine and tourism industry organizations to increase impact and avoid duplication of efforts.

6C. Conduct an educational campaign to inform the public on the proper and improper ways to dispose of trash and the impacts of littering and marine debris to the health and management of Biscayne Bay as recommended by the Grand Jury Report dated August 8th 2019 (Appendix D), and instructed by Resolution R-1260-19 adopted on November 11th, 2019 (Appendix O). Include promoting native landscapes and xeriscapes and education on the vulnerability of the Biscayne Aquifer and watershed to pollutants among other key topics. As part of the campaign, increase signage in public areas and include storm drain signage as adopted in Resolution R-1335-19 (Appendix P).

6D. Implement policies to reduce the amount of locally generated plastic marine debris by restricting or banning the use and/or sale of single-use plastic items at County buildings, parks, beaches, and other facilities, and at County-sponsored events.

6E. **Build upon and increase volunteer clean-up activities county-wide** to support the "Keep Miami-Dade County Beautiful" initiative with the Departments of Solid Waste Management and Parks, Recreation and Open Spaces, through "Neat Streets Miami."

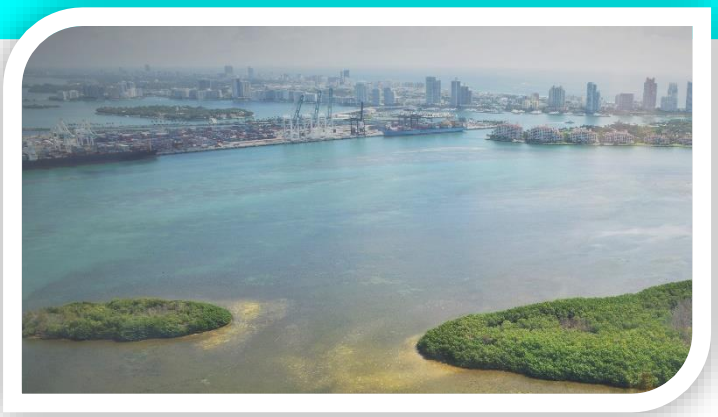
6F. **Develop environmental sustainability and "plastic free" best practices** for commercial businesses and all public events and county-owned properties. Incorporate "Leave No Trace" principles in public education campaign.

6G. **Support a "Living Laboratory for Bay Health"** in conjunction with local universities, NGOs, and private sector partners to train and inspire the next generation of scientists, eco-engineers and environmental stewards through sustainable and resilient policies and business practices. Develop partnerships with academic, business and industry associations.

6H. **Develop and implement a contractor and lawn care industry training program** for contractors that do business with the County and all MS4 co-permittees, including County and city staff. Include an educational campaign specific to the landscaping industry about proper disposal of yard waste and the detrimental water quality impacts resulting from fertilizer use.

6I. **Expand the scope of Baynanza to add year-round activities and collaborate on Biscayne Bay Marine Health Summit activities**

7. Funding



Since all governmental levels have a role in the management of the Bay, funding needs to come from all levels: federal, state, and local as well as public private partnerships. Adequate external funding will be necessary to preserve, protect and revitalize the habitat and watershed for long-term, meaningful results. To ensure funding for projects and programs, the Task Force recommends the County make water quality restoration of Biscayne Bay an annual budget priority. The Task Force also recommends that the County:

7A. Collaborate with the Miami-Dade Legislative Delegation and the Congressional Delegation to secure annually appropriated funds to support Biscayne Bay watershed restoration, possibly through mechanisms such as legislative budget requests that may include support for a National Estuary Program and other programs that support the Biscayne Bay-based economy and quality of life in Southeast Florida.

7B. Immediately engage in the legislative process to designate a Biscayne Bay License Plate drawing from regional examples of related, successful specialty plates for Indian River Lagoon and the Tampa Bay Estuary. Funds from the sale of the license plate should benefit habitat restoration, pollution prevention and environmental education initiatives.

7C. Immediately enter into a cost-share partnership with SFWMD which has allocated funds to update the 2005 Biscayne Bay Economic Study. The purpose of the Biscayne Bay Economic Study 2019 Update is to estimate the economic contribution of the Bay from 2005 to 2019 as it is used for real estate development, recreation, shipping, cruising, commercial fishing and to update the recreational uses and intensity of use of Biscayne Bay. The study will employ the same methodology as was used in the original 2005 Biscayne Bay Economic Study that evaluated the Bay's economic contribution from 1980 to 2004 so that comparisons may be made.

7D. Collaborate with Florida Inland Navigational District (FIND) to immediately identify projects that will improve water quality and restoration of the Biscayne Bay watershed.

7E. **Leverage municipal financial resources through interlocal agreements to supplement County funds** in order to accelerate projects that improve the water quality of Biscayne Bay.

7F. Develop a mechanism to collaborate with municipalities and work with the development community to enhance development rights in exchange for substantial capital investments in protecting Biscayne Bay.

7G. Direct the preparation of a report of potential funding sources by the Office of Management and Budget and the Office of Intergovernmental Affairs that would potentially be used for long-term support of the restoration of Biscayne Bay. The report should include a review of the following~~:~~

- All Stormwater utilities - fees for stormwater infrastructure. The County should consider working with the cities to agree to adopt the BBMP;
- Evaluate existing revenues to determine if they are adequate to update their stormwater infrastructure to improve water quality;
- Evaluate and engage in community-based partnerships and public-private partnerships
- Senate Bill 712 (Appendix K)– analyze the matching grant program to upgrade septic systems or hook a septic tank to a municipal sewage system;
- Evaluate potential of a voluntary contribution on WASD or municipal stormwater bills would be revenue positive, and add a voluntary contribution to fund priority septic conversions and elimination of direct stormwater outfalls
- Explore other grant programs to help upgrade outdated municipal sewage treatment plants;
- NOAA marine debris grant funding;
- Bond program for Biscayne Bay funding;
- EPA urban water program;
- Future FDEP funding for septic system upgrades and/or conversion to sewer;
- PACE program funding;
- Water quality trading;
- Mitigation credits

The Future of the Bay

The decline of the Biscayne Bay ecosystem will persist long after our community recovers from the crisis brought on by the COVID-19 pandemic. The Bay faces a multitude of complex problems impacting water quality throughout the watershed. As water quality declines and we lose seagrasses and document degradation of other habitats, the health and resilience of the Bay and our beaches will continue to decline, impacting tourism, recreational and commercial fishing, and boating. Losing the jewel that is Biscayne Bay could severely affect our tourism-driven economy and depreciate waterfront property values.

Local and regional canals drain into Biscayne Bay, bringing pollution from stormwater runoff, sewage pipe breaks, compromised septic tanks, plastic, marine debris, and other contaminants. Furthermore, the channelization of our waterways has led to a lack of historic freshwater flows that have contributed to changes in the Bay ecosystem.

As our region grows and welcomes new residents and visitors, pollution prevention will be critical to improving water quality in the watershed and Biscayne Bay. However, through a unified, coordinated approach to improving water quality in the short and long-term, we can ensure the recovery and preservation of Biscayne Bay for its ecological functions, economic importance, and natural splendor.

The Task Force believes many long-term solutions to improve and manage water quality resides in the upland watershed and will require collaboration and partnership with the State of Florida,

Miami-Dade County, municipalities, and the private sector. Many of the solutions provide opportunities for stimulating our economy post-pandemic.

Land-use changes, behavioral changes, and infrastructure improvements can prevent pollution from reaching our waterways and the Bay. Locally, we must re-examine our County budget and municipal budgets to prioritize projects to advance our pollution reduction goals. At the same time, we must continue to advocate for funding at the state and federal levels. Sustained funding sources at every level will be critical to implement the recommendations in this report and to advance future guidance from the Water Management Board.

The creation of a permanent governing entity and the appointment of a Chief Bay Officer by the Mayor will provide the coordination and needed oversight of the Bay and act as the mechanism for addressing the short and long-term issues that lie ahead. Making the Bay's health a priority now and providing additional staff, resources, and expertise will bolster our economy and increase the long-term resilience of Biscayne Bay for our families, visitors, and future generations living, working, and playing in Miami-Dade County.

Appendices

Appendix A- Resolution R-165-19 creating the Biscayne Bay Task Force

Appendix B - Miami-Dade County Report on the Decline of Seagrasses and Hardbottom (February 2019)

Appendix C – NOAA Report on Trends in Chlorophyll and Biscayne Bay Increasing in Nutrients

Appendix D- Miami-Dade State Attorney Grand Jury Report on the Health of Biscayne Bay

Appendix E- Historical Biscayne Bay Management Planning Documents

Appendix F- Additional Submissions to Biscayne Bay Task Force

Appendix G- Biscayne Bay is dying, Miami's economy will die with it if we don't come to the rescue, Op-Ed by Irela Bagué, Miami Herald

Appendix H- Biscayne Bay-related Resolutions of the Miami-Dade County Commission

Appendix I- Presentations and Speakers received by Biscayne Bay Task Force

Biscayne Bay Task Force Presentations				
Meeting	***BBTF Meeting Date***	***Title/Subject***	***Presenter(s) Name and Title***	***Affiliation***
#1	Monday, June 15, 2019	*Miami-Dade County Commission on Ethics*	Robert Thompson, Community Affairs Specialist	Miami-Dade County COE
#2	Monday, July 15, 2019	DERM-RER Natural Resources Programs Overview	Lisa Spadafina, Chief, RER-DERM Natural Resources Division	Miami-Dade County RER-DERM
		Biscayne Bay Water Quality and Seagrass Report Summary	Pamela Sweeney, Manager, RER_DERM Restoration and Enhancement Section	Miami-Dade County RER-DERM
		Biscayne Bay Habitat Restoration and Enhancement Program	Josh Mahoney, ERPS, RER-DERM Restoration and Enhancement Section	Miami-Dade County RER-DERM
		Septic Tank Vulnerability to Sea Level Rise Report	Virginia Walsh,P.G., Ph.D., Chief Hydrology Section	Miami-Dade County Water and Sewer Department
#3	Monday, July 29, 2019	Resilience and Sea Level Rise Strategy	James Murley, Chief Resilience Officer	Miami-Dade County RER- Office of Resilience
		Stormwater Regulatory- DERM Water Control Section	Maria Molina, P.E. RER-DERM Water Control Section	Miami-Dade County RER-DERM
		Managing Stormwater…The Miami-Dade County Experience	Marina Blanco-Pape. P.E., Chief, RER-DERM Water Management Division	Miami-Dade County RER-DERM
		Marine Debris Removal: DERM Coastal Resources Section	John Ricisak, ERPS, RER-DERM	Miami-Dade County RER-DERM
		Volunteer Clean Up Organization	Dave Doebler , Co-founder	VolunteerCleanup .org
#4	Monday, August 12, 2019	RER-DERM Water and Wastewater	Carlos Hernandez, P.E. Chief, RER-DERM Water and Waster Water Division	Miami-Dade County RER-DERM
#5	Monday, August 26, 2019	Miami-Dade County Land Use Changes	Kimberly Brown, AICP, Supervisor Planning Section,	Miami-Dade County RER-Planning Division
		Miami-Dade WASD Consent Decree Program	Lynnette Ramirez, P.E. Senior Advisor Capital Projects and Compliance	Miami-Dade County Water and Sewer Department
		Miami-Dade WASD Capital Improvements and Operations	Dr. Douglas Yoder, Deputy Director for Operations	Miami-Dade County Water and Sewer Department
#6	Monday, September 9, 2019	The Role of Municipalities in Protecting Biscayne Bay: Miami Beach Rising Above	Susanne Torriente, Assistant City Manager, Margarita Kruyff, Assistant Director, Environment & Sustainability Department, Roy Coley, Public Works Director, Eric Carpenter, Assistant City Manager	City of Miami Beach
#7	Wednesday, October 2, 2019	Water Management in the City of Miami	Alan Dodd, P.E. Director Resilience and Public Works	City of Miami
		Biscayne Bay Task Force: What's Killing the Bay?	Rachel Silverstein, Ph.D., Executive Director	Miami Waterkeeper
#8	Tuesday, October 15, 2019	RER-DERM Environmental Monitoring & Restoration Division	Wilbur Mayorga, P.E., Senior Division Chief	Miami-Dade County RER-DERM
		Macroalgae in Biscayne Bay Different Issues, Causes, and Challenges	Dr. Ligia Collado-Vides, Senior Lecturer, Florida International University	Florida International University
		Water Quality of Biscayne Bay	Dr. Henry O. Briceno, Professor, Florida International University	Institute of Water and Environment, Southeast Environmental Research Center, FIU.
#9	Monday, October 28, 2019	Restoration Alternatives to TMDLs	Julie Espy, Program Administrator	Florida Department of Environmental Protection
		Biscayne Bay Aquatic Preserves	Laura Eldredge, Manager, BBAP	Florida Department of Environmental Protection
#10	Monday, November 18, 2019	The Formation of the Tampa Bay Estuary Program & Recovery of Tampa Bay	Ed Sherwood, Executive Director	Tampa Bay Estuary Program
		Biscayne Bay Habitat Focus Area	Joan Browder, Ph. D.	NOAA National Marine Fisheries Science Center

Appendix I- Presentations and Speakers received by Biscayne Bay Task Force, con't.

#11	Monday, December 2, 2019	Biscayne Bay Marine Health Summit	Luiz Rodrigues, Founder and Coordinator	Biscayne Bay Marine Health Summit
#12	Monday, January 13, 2020	SFWMD: Operations of C&SF Water Control Structures Discharging to Biscayne Bay	Matahel Ansar, Ph.D., P.E. Section Chief	SFWMD Applied Hydraulics Section, Hydrology & Hydraulics Bureau
		Biscayne Bay Water Quality: SWIM Plan to CERP	Lawrence Glenn, Director	SFWMD Water Resources Division
		Port Of Miami	Becky Hope, Chief of Planning and Property Development	Port of Miami
#13	Monday, January 27, 2020	WASD Sanitary Sewer System Performance & Asset Management	Jose Cueto, Assistant Director	Miami-Dade County Water & Sewer Department
		Coral Gables: Sustainability & Resiliency	Matt Anderson, Senior Sustainability Analyst and Jorge Acevedo, P.E. Utilities & ROW Division Chief	City of Coral Gables
		Coral Gables Tidal, Wetland and Water Quality Monitoring Project	Tiffany Troxler, Ph.D.	FIU Center for Aquatic Chemistry and Environment
		NOAA Biscayne Bay Water Quality Trends	Dr. Christopher Kelble, Oceanographer	NOAA Atlantic Oceanographic and Meteorological Laboratory Ocean Chemistry & Ecosystems Division
#14	Monday, February 10, 2020	FPL- Turley Point	Wilbur Mayorga, P.E. Senior Division Chief, Environmental Monitoring & Restoration Division	Miami-Dade County RER-DERM
		Biscayne Bay Shoreline Development Review Committee	Gilbert Blanco, Supervisor-LEED AP, and Maria Cedeno, Principle Planner- SDRC Coordinator	Miami-Dade County RER-Development Services Division
#15	Monday, February 24, 2020	FIND- Biscayne Bay Restoration Partnership	T. Spencer Crowley, FIND Miami Commissioner	Florida Inland Navigation District

Appendix J- Proposed Organizational Structure of Water Management Board Illustrating the Relationships Between Entities

- MDC Board of County Commissioners (BCC): Receives reports from WMB for progress updates, requests for funding through contracts, grants and disbursements, requests to collaborate, etc.
- Biscayne Bay Watershed Management Board (WMB): Comprised of 11 members outlined in 2A of the *Governance* section, the WMB will serve as a clearinghouse for the technical and community outreach work. Members will have experience with issues related to Biscayne Bay and are expected to leverage the professional and financial resources of their respective organizations to effect goals of the Watershed Restoration Plan.
- Chief Bay Officer (CBO): The CBO will advise the Miami-Dade County Mayor and the BCC and manage the WMB and its committees. The CBO will also act as liaison with County departments, County boards, external agencies, stakeholder groups, and local, state, and federal governments on water quality issues, policies and appropriations related to the health and recovery of Biscayne Bay.
- Biscayne Bay Watershed Restoration Plan (WRP): WMB will, with technical and community recommendations, review, recommend funding for and implement the Watershed Restoration Plan (WRP) to achieve time-bound and measurable progress towards WRP goals to achieve water quality and seagrass restoration and meet its mandate of Bay health, recovery, and resilience. The WMB should establish and appoint committees to address specific Bay issues to advise and make recommendations on policies, restoration projects, public information campaigns and water quality monitoring and targets:
- Technical Advisory Committee: Will serve as the technical experts to address those issues outlined in the restoration plan and are expected to conduct work that will include but not be limited to engaging with outside experts as needed, design and implement special studies, research and propose innovative designs, standards, and best management practices. Sub-committees may be created and chaired as designated by the Chief Bay Officer or County leadership. This committee communicates with other committees and sub-committees as needed.
- Community Advisory Committee: Will serve to implement the education and outreach restoration goals and objectives and will be comprised of members of the community as designated by the WMB or Chief Bay Officer. This committee communicates with other committees and sub-committees as needed.
- Nutrient Reduction Committee: Will serve as the technical experts whose mission is specific to the identification (i.e., load, fate, and transport) and reduction of pollutant loading into surface waters of the County. This committee communicates with other committees and sub-committees as needed.

Appendix K- Senate Bill 712 – Clean Waterways Act

Appendix L- Miami-Dade County Report on Septic Systems Vulnerable to Sea Level Rise

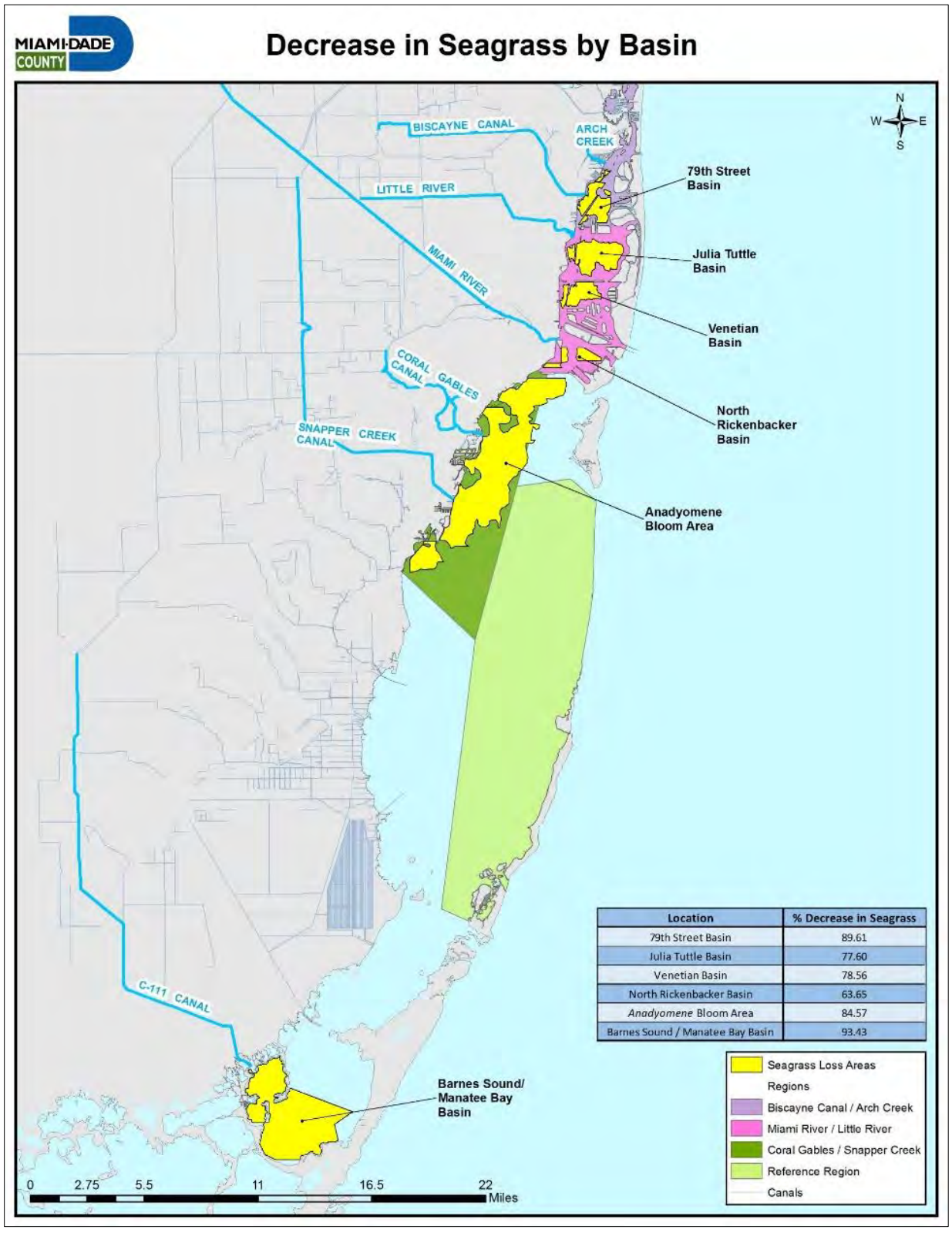
Appendix M- American Society of Civil Engineers (ASCE) Standards 38-02

Appendix N- Miami-Dade County Parks and Open Spaces Master Plan

Appendix O- Resolution R-1260-19 - Creating an Educational Campaign Related to Proper Disposal of Trash

Appendix P- Resolution R-1335-19 - Design and Place Signage to Education the Public about Proper Disposal of Trash and the Impact of Littering on Biscayne Bay

Appendix Q- Seagrass Loss by Basin - 2019



Biscayne Bay Recovery At-a-Glance

Action Type	
	Actions that can be accomplished administratively within the County
	Actions that require additional policy considerations
	Actions that require further collaboration at the municipal, state, or federal level

Benchmark	
Immediate (I)	Less than one year
Short-Term (S)	Between one and three years
Mid-Term (M)	Greater than three years

WATER QUALITY		
1A	Establish science-based, pollutant load reduction goals and interim targets	Short-Term (S)
1B	Develop, implement, and continuously monitor and demonstrate progress toward meeting 1A's pollutant load reduction goals and interim targets	Short-Term (S)
1C	Activate additional Department of Regulatory and Economic Resources' (RER) resource management functions	Immediate (I)
1D	County should conduct an immediate assessment of land-based hotspot areas prioritized based on existing, known impairments	Immediate (I)
1E	Review, develop (as needed), implement and enforce local ordinances and policies to attain pollution load reduction goals set forth in the Watershed Restoration Plan (WRP)	Short-Term (S)
1F	Coordinate, staff and provide an annual budget for comprehensive, centralized Biscayne Bay Watershed data and research coordination and data management infrastructure	Immediate (I)
1G	Undertake and secure funding for new pilot projects and research projects focused on reducing pollutant loads	Immediate (I)
1H	Elevate and further amend the Comprehensive Develop Master Plan (CDMP) to further include Biscayne Bay watershed management planning elements	Mid-Term (M)
1I	Conduct a climate change vulnerability assessment for Biscayne Bay	Short-Term (S)
1J	Initiate and fund studies that illuminate specific knowledge gaps for application toward watershed restoration	Immediate (I)
1K	Pass a county-wide fertilizer ordinance	Short-Term (S)
1L	Increase compliance of all marinas and commercial operations along waterways	Immediate (I)
1M	Continue to monitor the progress of the October 7th, 2015 Consent Agreement between FP&L and Miami-Dade County	Immediate (I)
GOVERNANCE		
2A	Establish by ordinance a Biscayne Bay Watershed Management Board (WMB)	Immediate (I)
2B	The Mayor should appoint a Chief Bay Officer (CBO) and request funding for the position	Immediate (I)
2C	The WMB will, with technical and community recommendations, review, recommend funding for and implement the Watershed Restoration Plan (WRP)	Short-Term (S)
2D	Develop a formal partnership in the form of a Memorandum of Understanding (MOU) with the SFWMD	Immediate (I)
2E	Enable the alignment and coordination of County departments that takes a holistic, comprehensive approach to Biscayne Bay recovery and resilience	Immediate (I)
2F	Develop a formal partnership in the form of a Memorandum of Understanding (MOU) with the Miami River Commission	Immediate (I)
INFRASTRUCTURE		
3A	Increase compliance with existing laws to result in the immediate connection of ~12,000 properties to the sewer system	Short-Term (S)
3B	Develop and enforce septic system design criteria with design parameters	Short-Term (S)
3C	Initiate a mandatory septic system registration and inspection program	Mid-Term (M)
3D	Undertake immediate efforts to identify and eliminate all root causes of Sanitary Sewer Overflows (SSO) including inflow and infiltration. Accelerate sewer infrastructure maintenance and upgrades	Short-Term (S)
3E	Develop and expedite a Condition Assessment and Asset Management Action Plan to document the condition of the County's wastewater system assets and certify all historical "As Builts" and/or those not already certified with a focus on identifying horizontal and vertical locations of main wastewater transmission lines	Short-Term (S)
3F	Enforce the existing code and update the stormwater design criteria to improve effectiveness and include advances in stormwater treatment technologies	Short-Term (S)
3G	Develop a plan to prioritize the retrofitting of stormwater infrastructure within basins with the most substantial water quality and/or habitat degradation issues	Short-Term (S)
3H	Eliminate direct and indirect stormwater discharges to Biscayne Bay	Mid-Term (M)
3I	Set policy that all As-Builts/Record Drawings are done and certified by a Florida Professional Surveyor and Mapper qualified and registered to do work in Miami-Dade County	Short-Term (S)
3J	Set policy to require during the design phase of future construction that all existing utilities are designated and located vertically and horizontally	Short-Term (S)
3K	Ensure that new infrastructure projects to address coastal flooding and storm surge that are cost-shared by the County adhere to the recommendations of this Task Force and prioritize Biscayne Bay health and resilience	Short-Term (S)

Biscayne Bay Recovery At-a-Glance, con't.

WATERSHED HABITAT RESTORATION AND NATURAL INFRASTRUCTURE		
4A	Develop ecologically acceptable living shoreline design options that are consistent with the existing Biscayne Bay Aquatic Preserve Act	Immediate (I)
4B	Raise awareness of the value of mangroves through a homeowner education campaign	Short-Term (S)
4C	Increase enforcement of existing rules for protecting existing mangroves and mangrove shorelines	Short-Term (S)
4D	Identify vulnerable properties along the coastline and partner with municipalities to focus on public properties and private property owners to create a voluntary Mangrove Protection and Restoration Zone Program	Short-Term (S)
4E	Prioritize existing and identify new green and blue infrastructure approaches and restoration projects	Immediate (I)
4F	Continue to work with SFWMD and to have the State of Florida allocate the funds necessary to ensure the timely commencement of construction of the Cutler Flow Way in accordance with the project timeline in the Integrated Delivery Schedule	Immediate (I)
4G	Continue to advocate for funding to support the Biscayne Bay Southern Everglades Ecosystem Restoration (BBSEER) project (also known as the BBCW / C-111)	Mid-Term (M)
4H	Establish seagrass targets and maintenance requirements	Short-Term (S)
4I	Accelerate green infrastructure solutions for flooding, resiliency, and water quality	Short-Term (S)
MARINE DEBRIS		
5A	Create a comprehensive marine debris prevention, reduction, and removal program within DERM and to adequately fund and staff the program	Short-Term (S)
5B	Establish a marine debris working group to promote collaboration on ways to reduce marine debris	Short-Term (S)
5C	Through the Miami-Dade County Police Department, direct the Marine Patrol Unit to prioritize its commitment to the enforcement of all applicable laws having a nexus to the environmental health of the Bay and its tributaries	Short-Term (S)
5D	Conduct an analysis of marine debris in Biscayne Bay	Short-Term (S)
5E	Adopt a target maximum input level policy for trash	Short-Term (S)
5F	Evaluate the various existing stormwater outfall systems throughout the county to determine their effectiveness at preventing debris from entering Biscayne Bay	Mid-Term (M)
5G	Identify and establish dedicated and recurring funding sources to pay for marine debris prevention and removal activities	Immediate (I)
EDUCATION AND OUTREACH		
6A	Create a multi-lingual, multi-media campaign and educational outreach program	Immediate (I)
6B	Leverage the funding in the Community Based Organization grant program to create a special focus on Biscayne Bay education	Short-Term (S)
6C	Conduct an educational campaign to inform the public on the proper and improper ways to dispose of trash and the impacts of littering and marine debris to the health and management of Biscayne Bay	Immediate (I)
6D	Implement policies to reduce the amount of locally generated plastic marine debris	Short-Term (S)
6E	Build upon and increase volunteer clean-up activities county-wide	Immediate (I)
6F	Develop environmental sustainability and "plastic free" best practices	Short-Term (S)
6G	Support a "Living Laboratory for Bay Health"	Short-Term (S)
6H	Develop and implement a contractor and lawn care industry training program	Short-Term (S)
6I	Expand the scope of Baynanza to add year-round activities and collaborate on Biscayne Bay Marine Health Summit activities	Immediate (I)
FUNDING		
7A	Collaborate with the Miami-Dade Legislative Delegation and the Congressional Delegation to secure annually appropriated funds to support Biscayne Bay watershed restoration	Immediate (I)
7B	Immediately engage in the legislative process to designate a Biscayne Bay License Plate	Immediate (I)
7C	Immediately enter into a cost-share partnership with SFWMD	Immediate (I)
7D	Collaborate with Florida Inland Navigational District (FIND) to immediately identify projects that will improve water quality and restoration of the Biscayne Bay watershed	Immediate (I)
7E	Leverage municipal financial resources through interlocal agreements to supplement County funds	Short-Term (S)
7F	Develop a mechanism to collaborate with municipalities and work with the development community	Short-Term (S)
7G	Direct the preparation of a report of potential funding sources by the Office of Management and Budget and the Office of Intergovernmental Affairs	Immediate (I)

5. Biscayne Bay Recovery Plan with BBTF Recommendations

Biscayne Bay Actions Steps to Recovery

Benchmark

Immediate (I)	Short-Term (S)	Mid-Term (M)	
Less than one year	Between one and three years	Greater than three years	Actions highlighted in yellow are completed or in progress

Action Type

Actions that can be accomplished administratively within the County	Actions that require additional policy considerations	Actions that require further collaboration at the municipal, state, or federal level

	WATER QUALITY	BENCHMARK
1A	Establish science-based, pollutant load reduction goals and interim targets	Short-Term (S)
1B	Develop, implement and continuously monitor and demonstrate progress toward meeting 1A's pollutant load reduction goals and interim targets	Short-Term (S)
1C	Activate additional Department of Regulatory and Economic Resources' (RER) resource management functions	Immediate (I)
1D	County should conduct an immediate assessment of land-based hotspot areas prioritized based on existing, known impairments	Immediate (I)
1E	Review, develop (as needed), implement and enforce local ordinances and policies to attain pollution load reduction goals set forth in the Watershed Restoration Plan (WRP)	Short-Term (S)
1F	Coordinate, staff and provide an annual budget for comprehensive, centralized Biscayne Bay Watershed data and research coordination and data management infrastructure	Immediate (I)
1G	Undertake and secure funding for new pilot projects and research projects focused on reducing pollutant loads	Immediate (I)
1H	Elevate and further amend the Comprehensive Develop Master Plan (CDMP) to further include Biscayne Bay watershed management planning elements	Mid-Term (M)
1I	Conduct a climate change vulnerability assessment for Biscayne Bay	Short-Term (S)
1J	Initiate and fund studies that illuminate specific knowledge gaps for application toward watershed restoration	Immediate (I)
1K	Pass a county-wide fertilizer ordinance	Short-Term (S)
1L	Increase compliance of all marinas and commercial operations along waterways	Immediate (I)
1M	Continue to monitor the progress of the October 7th, 2015 Consent Agreement between FP&L and Miami-Dade County	Immediate (I)

	GOVERNANCE	
2A	Establish by ordinance a Biscayne Bay Watershed Management Board (WMB)	Immediate (I)
2B	The Mayor should appoint a Chief Bay Officer (CBO) and request funding for the position	Immediate (I)
2C	The WMB will, with technical and community recommendations, review, recommend funding for and implement the Watershed Restoration Plan (WRP)	Short-Term (S)
2D	Develop a formal partnership in the form of a Memorandum of Understanding (MOU) with the SFWMD	Immediate (I)
2E	Enable the alignment and coordination of County departments that takes a holistic, comprehensive approach to Biscayne Bay recovery and resilience	Immediate (I)
2F	Develop a formal partnership in the form of a Memorandum of Understanding (MOU) with the Miami River Commission	Immediate (I)

INFRASTRUCTURE

		BENCHMARK
3A	Increase compliance with existing laws to result in the immediate connection of ~12,000 properties to the sewer system	Short-Term (S)
3B	Develop and enforce septic system design criteria with design parameters	Short-Term (S)
3C	Initiate a mandatory septic system registration and inspection program	Mid-Term (M)
3D	Undertake immediate efforts to identify and eliminate all root causes of Sanitary Sewer Overflows (SSO) including inflow and infiltration. Accelerate sewer infrastructure maintenance and upgrades	Short-Term (S)
3E	Develop and expedite a Condition Assessment and Asset Management Action Plan to document the condition of the County's wastewater system assets and certify all historical "As Builts" and/or those not already certified with a focus on identifying horizontal and vertical locations of main wastewater transmission lines	Short-Term (S)
3F	Enforce the existing code and update the stormwater design criteria to improve effectiveness and include advances in stormwater treatment technologies	Short-Term (S)
3G	Develop a plan to prioritize the retrofitting of stormwater infrastructure within basins with the most substantial water quality and/or habitat degradation issues	Short-Term (S)
3H	Eliminate direct and indirect stormwater discharges to Biscayne Bay	Mid-Term (M)
3I	Set policy that all As-Builts/Record Drawings are done and certified by a Florida Professional Surveyor and Mapper qualified and registered to do work in Miami-Dade County	Short-Term (S)
3J	Set policy to require during the design phase of future construction that all existing utilities are designated and located vertically and horizontally	Short-Term (S)
3K	Ensure that new infrastructure projects to address coastal flooding and storm surge that are cost-shared by the County adhere to the recommendations of this Task Force and prioritize Biscayne Bay health and resilience	Short-Term (S)

WATERSHED HABITAT RESTORATION AND NATURAL INFRASTRUCTURE

4A	Develop ecologically acceptable living shoreline design options that are consistent with the existing Biscayne Bay Aquatic Preserve Act	Immediate (I)
4B	Raise awareness of the value of mangroves through a homeowner education campaign	Short-Term (S)
4C	Increase enforcement of existing rules for protecting existing mangroves and mangrove shorelines	Short-Term (S)
4D	Identify vulnerable properties along the coastline and partner with municipalities to focus on public properties and private property owners to create a voluntary Mangrove Protection and Restoration Zone Program	Short-Term (S)
4E	Prioritize existing and identify new green and blue infrastructure approaches and restoration projects	Immediate (I)
4F	Continue to work with SFWMD and to have the State of Florida allocate the funds necessary to ensure the timely commencement of construction of the Cutler Flow Way in accordance with the project timeline in the Integrated Delivery Schedule	Immediate (I)
4G	Continue to advocate for funding to support the Biscayne Bay Southern Everglades Ecosystem Restoration (BBSEER) project (also known as the BBCW / C-111)	Mid-Term (M)
4H	Establish seagrass targets and maintenance requirements	Short-Term (S)
4I	Accelerate green infrastructure solutions for flooding, resiliency and water quality	Short-Term (S)

MARINE DEBRIS

5A	Create a comprehensive marine debris prevention, reduction, and removal program within DERM and to adequately fund and staff the program	Short-Term (S)
5B	Establish a marine debris working group to promote collaboration on ways to reduce marine debris	Short-Term (S)
5C	Through the Miami-Dade County Police Department, direct the Marine Patrol Unit to prioritize its commitment to the enforcement of all applicable laws having a nexus to the environmental health of the Bay and its tributaries	Short-Term (S)
5D	Conduct an analysis of marine debris in Biscayne Bay	Short-Term (S)
5E	Adopt a target maximum input level policy for trash	Short-Term (S)
5F	Evaluate the various existing stormwater outfall systems throughout the county to determine their effectiveness at preventing debris from entering Biscayne Bay	Mid-Term (M)
5G	Identify and establish dedicated and recurring funding sources to pay for marine debris prevention and removal activities	Immediate (I)

	EDUCATION AND OUTREACH	BENCHMARK
6A	Create a multi-lingual, multi-media campaign and educational outreach program	Immediate (I)
6B	Leverage the funding in the Community Based Organization grant program to create a special focus on Biscayne Bay education	Short-Term (S)
6C	Conduct an educational campaign to inform the public on the proper and improper ways to dispose of trash and the impacts of littering and marine debris to the health and management of Biscayne Bay	Immediate (I)
6D	Implement policies to reduce the amount of locally generated plastic marine debris	Short-Term (S)
6E	Build upon and increase volunteer clean-up activities county-wide	Immediate (I)
6F	Develop environmental sustainability and "plastic free" best practices	Short-Term (S)
6G	Support a "Living Laboratory for Bay Health"	Short-Term (S)
6H	Develop and implement a contractor and lawn care industry training program	Short-Term (S)
6I	Expand the scope of Baynanza to add year-round activities and collaborate on Biscayne Bay Marine Health Summit activities.	Immediate (I)

	FUNDING	
7A	Collaborate with the Miami-Dade Legislative Delegation and the Congressional Delegation to secure annually appropriated funds to support Biscayne Bay watershed restoration	Immediate (I)
7B	Immediately engage in the legislative process to designate a Biscayne Bay License Plate	Immediate (I)
7C	Immediately enter into a cost-share partnership with SFWMD	Immediate (I)
7D	Collaborate with Florida Inland Navigational District (FIND) to immediately identify projects that will improve water quality and restoration of the Biscayne Bay watershed	Immediate (I)
7E	Leverage municipal financial resources through interlocal agreements to supplement County funds	Short-Term (S)
7F	Develop a mechanism to collaborate with municipalities and work with the development community	Short-Term (S)
7G	Direct the preparation of a report of potential funding sources by the Office of Management and Budget and the Office of Intergovernmental Affairs	Immediate (I)