Inaugural Biscayne Bay Marine Health Summit Report

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Acknowledgements

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Foreword by
Steve Sauls

The sold-out Biscayne Bay Marine Health Summit yesterday @FIU’s Biscayne Bay Campus was a great success. Over 200 registered participants gained greater awareness of the bay as an ecological system and the challenges it’s experiencing today including inundation of marine debris, other pollutants, and massive die off of sea grasses which will take years to recover.

The diverse group of environmental advocates, governmental officials and private sector participants pledged to collaborate to support healthy bay initiatives including the Biscayne Bay Restoration Initiative (BBRI), and implementation of NOAA’s Florida Marine Debris Reduction Guidance Plan as part of a new 10-year action plan. The Summit also began the process of formulating a rigorous research agenda, called for a more comprehensive water quality monitoring and assessment plan, and need for greater communication and public outreach.

The highlight of the morning was Harvey Ruvin who pioneered the first bay recovery initiative and called for renewed efforts to address the current crisis, and remarks by Miami-Dade County Commissioner Daniella Levine-Cava, who sponsored the commission resolution supporting the Summit.

The Summit awarded Commissioner Daniella Levine Cava the first Harvey Award in honor of Clerk of the Courts Harvey Ruvin for Biscayne Bay leadership. Now the hard work begins.

The best part for me in addition to working toward real improvements in the bay was getting to know so many good and knowledgeable people committed to our community. Thank you Luiz Rodrigues for your inspiration for the Summit and commitment to the environment, and too many others to thank in this post.
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I. Summary Recommendations

• Develop a new 10-Year Action Plan

• Integrate, more actively support and implement activities of the Biscayne Bay Restoration Initiative at the county level and NOAA’s Florida Marine Debris Reduction Guidance Plan as part of a new 10-Year Action Plan;

• Develop a research agenda to assess outcomes and support adaptive management of 10-Year Action Plan, including more comprehensive water quality monitoring and assessment;

• Develop and implement communication and public outreach campaigns as part of a new 10-Year Action Plan, including sustained coordination and information exchange through the implementation of annual summits;

• Improve the health of the Bay and experience for visitors, tourists and residents alike through the implementation of important tools such as ecosystem restoration and coastal ecosystem management. Ecotechnological remediation also shows great promise to manage stormwater and minimize potential for pollutants released into Bay. i.e. identify problem areas and apply eco-technological remediation at pilot scale;

• Develop policies and incentives to sustain the health of the Bay and develop a report card for key indicators of Bay health, including economic benefits (Medium to long-term)
## II. Agenda

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<th>SCHEDULE</th>
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| 8:00am – 9:00am | Welcome Remarks by Organizers & Mayor / Elected Officials | Luiz Rodrigues – Biological Oceanographer, Director of Sustainable Ventures & Summit’s Founder  
Steve Sauls – Former FIU VP for Governmental Relations & Consultant for FIU Strategic Issues & Summit Steering Committee Member  
Evelyn E. Gaiser, Ph.D. – FIU Executive Director, School of Environment, Arts and Society, Professor, Department of Biological Sciences and Southeast Environmental Research Center & Institute of Water and Environment Lead Principal Investigator, Florida Coastal Everglades Long Term Ecological Research Program  
Daniella Levine Cava – Miami-Dade County Commissioner, District 8 |
| 9:00am – 9:15am | Summit Kick-Off Remarks & Stakeholders Introductions | Hon. Harvey Ruvin – Clerk of the Courts, Miami-Dade County  
Dave Doebler – Founder of VolunteerCleanup.org, Chair of the City of Miami Beach Sustainability Committee, Environmental Activist, & Summit Steering Committee Member  
Jamie Mosty – MDC Restoration & Enhancement Section Manager for DERM  
Captain Dan Kojis – Serves on the Biscayne Bay Regional Restoration Coordination Team and is Chair of the MB Marine Authority. Past member of the State of FL Marine Fisheries Commission, Biscayne Bay Management Committee, and City of Miami Waterfront Bound |
| 9:15am – 9:30am | State of the Bay: Introduction to Biscayne Bay ecology, economic importance and challenges | MODERATOR: Dr. Rene Price – Professor and Chair of the Department of Earth and Environment, FIU  
Charles Grisafi – NOAA’s Marine Debris Program Regional Coordinator for Florida & Caribbean |
| 9:30am – 10:30am | Pollution - Sources and Solutions: Types of pollution threatening the bay and best practices to keep it out of the water | Patrick Shearer – Project Engineer and Lead Stormwater Design / Ecological System Restoration Engineer at ESRIences Incorporated  
Dr. James Fourqurean – Professor of Biological Sciences and Director of the Marine Education and Research Center, FIU  
Tiffany G. Truex, Ph.D. – Director, FIU Sea Level Solutions Center, Research Associate Professor, Southeast Environmental Research Center – Urban Resilience to Extremes Sustainability Research Network |
| 10:30am – 10:45am | Break - Refreshments | |
| 10:45am – 11:00am | NOAA’s Florida Marine Debris Reduction Guidance Plan | MODERATOR: Dr. Rene Price – Professor and Chair of the Department of Earth and Environment, FIU  
Charles Grisafi – NOAA’s Marine Debris Program Regional Coordinator for Florida & Caribbean |
| 11:00am – 12:00pm | Success Stories  
- Stormwater Solutions  
- Community Activism and Engagement  
- Legislation and Policy  
- Living Shorelines & Wetlands Restoration | MODERATOR: Dave Doebler – Founder of VolunteerCleanup.org, Chair of the City of Miami Beach Sustainability Committee, Environmental Activist, & Summit Steering Committee Member  
Stormwater  
Margaret Wells – City of Miami Beach’s Acting Environment and Sustainability Director  
Engagement Activism  
Dara Schoenwald – Executive Director, VolunteerCleanup.org and Business Development for Woori Water  
Policy Wins  
Matt Anderson – City of Coral Gables Sustainability Specialist @ the Transportation & Sustainability Division  
Cleaning a Dirty Bay  
Dr. Walter Meyer – Adjunct professor at Parsons The New School for Design, founding Principal of Local Office Landscape Architecture, and designer for ‘Parque del Litoral’ in Mayaguez, Puerto Rico |
| 12:00pm – 1:00pm | Lunch & Vendor Exhibit | Special Presentation by Dr. William C. Dennison, Vice President for Science Applications, University of Maryland Center for Environmental Sciences: The Chesapeake Bay Success Story |
| 1:00pm – 2:00pm | BREAKOUT WORKING GROUPS:  
Group 1 - Governmental Policy & Responsibility  
Facilitator: State Senator Jose Javier Rodriguez & Steve Sauls – Former FIU VP for Governmental Relations & Consultant for FIU Strategic Issues  
Group 2 - Infrastructure and Public Works  
Facilitator: Jane Gilbert – City of Miami Chief Resiliency Officer & Dave Doebler – Founder of VolunteerCleanup.org, Sustainability Committee Chair for the City of Miami Beach & Environmental Activist  
Group 3 - Education & Outreach (NGO, City Comms, Educators)  
Facilitator: Dara Schoenwald – Cultural Anthropologist, & VolunteerCleanup.org Executive Director  
Group 4 - Researchers and Research Needs  
Facilitator: Dr. Joel Truex – Director of Marine Science, Dept. of Biological Sciences at Florida International University | MODERATOR: Dave Doebler – Founder of VolunteerCleanup.org, Chair of the City of Miami Beach Sustainability Committee, Environmental Activist, & Summit Steering Committee Member  
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| 2:00pm – 3:00pm | Recap: Recommendations and Goals Report  
Group 1 | Group 2 | Group 3 | Group 4 |
| 3:15pm – 4:15pm | What's Next & Goal Setting: Design and Implementation of a 10 Year Action Plan | Irela Baguì – public affairs consultant and President & CEO of Baguì Group  
Steve Sauls – Former FIU VP for Governmental Relations & Consultant for FIU Strategic Issues – Summit’s Steering Committee Member |
| 4:15pm – 5:00pm | Closing Remarks | Jim Murley – Miami-Dade County Chief Resiliency Officer |
| 5:00pm – 6:00pm | Networking / Exhibitor Visit | Networking / Exhibitor Visit |
III. Presentation Summaries

The first annual Biscayne Bay Marine Health Summit (BBMHS) consisted of eight presentations by expert scientists, prominent regional political figures, and leaders of relevant non-profits and NGOs. Below are short summaries of each presentation.

The “Marine Debris” presentation by Dave Doebler explained that each cleanup event collects 300-500 pounds of trash. Trash from the Bay is 80% land derived and 20% ocean derived. Land trash consists of street litter, garbage blown out of trash cans and poor storm drain maintenance. While there has been progress (unencapsulated foam has been banned in many cases around the Bay area), marine debris may still threaten integral economic activities in Biscayne Bay if not addressed.

In her presentation, “Biscayne Bay: Past, Present, and Future,” Jamie Monty explained that Miami-Dade County operates many Bay maintenance activities. She illustrated that North Bay is most affected by urban runoff and canal discharge and South/Central Bay is variable with a high percentage of natural ecosystem. Threatened species within the Biscayne Bay area include manatees, crocodiles, Johnson’s seagrasses, and wood storks. Jamie also identified nine bodies of water that are out of fecal coliform compliance. All of these issues are consequences of a threatened and polluted Biscayne Bay.

“Seagrass Dieoff in Biscayne Bay”, Captain Dan Kipnis illustrated major challenges for the Bay including uncertainties of the effects of increased stormwater runoff associated with flood mitigation efforts. Captain Dan also showed satellite images showing 75% of the seagrass has died off over the past 2 years (see Appendix 10 for images).

“Our City, Our Water” by Kelly Cox (unscheduled presentation) explained the Miami Waterkeeper Alliance’s goal, which is to protect Miami residents’ rights to clean water and promote thriving South Florida marine environments. Kelly touched on the raw sewage leak that occurred on June 20, 2017 into the Bay, the sorts of detrimental effects to the Bay that the Miami Waterkeeper Alliance hopes to address.

The “NOAA Marine Debris Program” presentation by Charles Grisafi touched on the history of and work being done by the NOAA Marine Debris Program (MDP). The MDP was developed in 2006 as the federal lead to address marine debris issues. Charles explained that the NOAA MDP works to determine sources of, assess, prevent, reduce, and remove marine debris through 5 program pillars: removal, prevention, research, emergency response and regional coordination. Charles also discussed the development and implementation of the Florida Marine Debris Reduction Guidance Plan. Charles explained how the plan is a compilation of recommended strategies and actions toward reducing the impacts and amount of marine debris in Florida.

“Miami Beach Stormwater Solutions” by Margarita Wells focused on how Miami Beach is responding to stormwater issues. She says that “dealing with stormwater is an ancient issue that is especially important in the low-lying Biscayne Bay area”. She identified that Miami Beach accounts for 4% of discharge into the Bay. The region’s new stormwater systems are designed to address rising sea levels with pump stations to prevent flooding with the added benefit of debris removal before discharge. Miami Beach has succeeded in preventing 1,308,000 pounds of trash from entering the Bay thanks to these initiatives.

Dara Schoenwald’s presentation “VolunteerCleanup” explained the organization’s successes and future initiatives. Dara stressed the use of social media for Bay protection awareness, including Facebook and Twitter. She explained that VolunteerCleanup has advocated for a successful Styrofoam ban and has organized thousands of hours of community service around the length of Biscayne Bay. The organization’s future focus will be on stopping trash before it enters the Bay (implementing a preemptive solution to Bay pollution), as well as reducing single use plastics, like highly inefficient and wasteful plastic grocery bags.

In the “City of Coral Gables: Sustainability Initiatives” presentation, Matthew Anderson explained the City’s goals and initiatives for addressing threats to Biscayne Bay. He said that the City of Coral Gables has set goals to lower waste by 2020-2025, including replacing the work car fleet with electric models (lowering emissions by 22,000 pounds) and improving and expanding bike lanes (in order to lower emissions by motorized transport). Additionally, Coral Gables has a famous tree canopy that removes carbon dioxide from the atmosphere and is the first city in Florida to ban single use plastic bags.

Dr. Walter Meyer, in his presentation “Local Office: Landscape and Urban Design,” focused on nature-based infrastructure. He explained that he contributed to building the largest solar array at 10 stories in Puerto Rico, providing 50% of neighborhood food. He also remediated historical Puerto Rican wetlands preventing improper drainage. Walter is in the process of planning drainage infrastructure to account for rising sea levels (>7 inches of rain/hour) in Miracle Mile. He is also developing a CSO-to-go, a wetland landscape on a barge, to treat water before discharge and has had successes with this project in New York City.
The “Harvey Award” is awarded to Miami-Dade County Commissioner Daniella Levine-Cava (holding the award). The Harvey Award was created in honor of Harvey Ruvin (standing next to Ms. Levine-Cava), Clerk of Courts for Miami-Dade County and one of the strongest supporters of Biscayne Bay. The award itself was a sculpted piece of a man rigging together a boat of some kind. The sculpture was created from plastic marine debris by Keith Clougherty.

Drs. Tiffany Troxler (left) and Jim Fourqurean (right) speak on a panel of experts about the state of Biscayne Bay at the first inaugural Biscayne Bay Marine Health Summit (B&MHS).
BREAKOUT GROUP #1: Infrastructure

- **Purpose:** Discuss infrastructure ideas to keep pollution out of the Bay
- **Objective:** Identify specific and actionable goals to improve infrastructure design and maintenance to be implemented in the 10 year plan
- **Activities:** Brainstorm ideas and prioritize actions
- **Deliverables (see below for a list of selected ideas):** Short-term (<2 years), Medium-term (5 year), Long-term (10 year) goals
  1) **Short-term:** Enforce existing environmental laws, regular cleaning of storm drains, more renewable energy for all new infrastructure, education funding to teach eco-friendly lifestyles in school, parks should have water bottle refill stations, etc.
  2) **Medium-term:** Clean up existing nutrient “hotspots” by updating technology, ban plastic bags in all of Miami-Dade County, address canals as large sources of pollution, host public awareness campaigns about waste, increase regular water quality sampling, implement storm drain pollution technology, etc.
  3) **Long-term:** Eliminate septic tanks and connect to sewer, establish regional water quality goals and pollution reduction targets, tax violators and polluters, develop recycling plant with capacity to process South Florida recyclables, do water treatment plant and commercial and residential upgrades to reduce pollution, etc.

BREAKOUT GROUP #2: Government and Government Policy

- **Bay Harbor Island Mayor Leonard,** chair-elect of the Miami-Dade League of Cities, gave a brief presentation of what one city can do and is doing.
- **Four “Consensus Priorities” were discussed** at the end of the breakout session (these priorities were presented at the concluding session of the Summit and received overwhelming support):
  1) Support for Biscayne Bay Restoration Initiative (BBRI)
  2) Support for NOAA’s Florida Marine Debris Reduction Guidance Plan (FMDRGP)
  3) Address pollution sources to change outcomes of current policies/practices
  4) Support for a consumer education campaign.
- **Timeline for implementing recommendations** was discussed:
  1) **One-year plan**
     a) Update the Biscayne Bay Economic Impact Study; commit to a source of funding for permanent updates
  2) **Five-year plan**
     a) Implement the NOAA Florida Marine Debris Guidelines
     b) Re-engineer Miami-Dade Water/Sewer System
     c) Institute comprehensive monitoring and assessment program
     d) Implement pro-active enforcement of a fertilizer ordinance
  3) **Ten-year plan**
     a) Inspire the youth/the next generation to support environmental stewardship
     b) Actual, physical improvement in the health/water quality of Biscayne Bay

- At the beginning of the Government break-out session, participants were asked to prioritize various ideas. Those specific ideas receiving the most support (not in priority order) included:
  1. Increase solid waste fee and designate specific ally for street maintenance and storm drainage cleaning
  2. Ban plastic, specifically plastic bags
  3. Utilize Parks Dept. to manage spoil islands
  4. Establish a citizen-led sustainability committee
  5. Implement Septic tank inspections
  6. Close the FPL cooling canals; install cooling tower instead
BREAKOUT GROUP #3: Research Needs

- The ideas developed during this breakout session were separated into **four main areas**: research, monitoring and remediation. Priority ideas are listed below:

  1) **Research Needs**:  
      a) Toxic algae tie to human diseases  
      b) Water circulation (e.g., flushing time, residential time)  
      c) Real time monitoring stations for temperature, salinity, nutrients, oxygen, pesticides, bacteria  
      d) Ground water monitoring (water flow and chemistry)  
      e) Data mining of existing dataset  
  
  2) **Monitoring**:  
      a) Seagrass loss  
      b) Microplastic pollution  
      c) Restoration goals  
      d) Fishery and nursery habitat monitoring  
      e) Impact of pollutants on marine life  
  
  3) **Remediation**:  
      a) Look for existing filter in the market

BREAKOUT GROUP #4: NGOs, Non-Profits, and Educators

- **Purpose**: Determine the ways NGOs can help prevent or reduce marine debris from entering into and harming Biscayne Bay, or participate in cleanup activities
- **Objective**: Generate a set of short, medium, long-term goals to inform a comprehensive 10-year Action Plan
- **Activities**: Discuss, Brainstorm goals, vote to prioritize, and then categorize goals according to the timeframe in which they can be completed
- **Deliverables** (see below for a list of prioritized ideas):
  1) Focus on engaging diverse communities, not just the environmental groups,  
  2) Need for broad PSA, awareness, marketing campaigns  
      a) Target visitors at coastal, public parks with brochures/literature that speak to these specific issues (marine debris, pollutants, dumping)  
      b) Billboards, viral pictures (liter shaming) on social media  
  3) Declare State of Emergency to restore Biscayne Bay  
  4) Find ways to integrate environmental education into schools  
      a) As part of community service requirements  
      b) Make curriculum meet STEM requirements  
      c) More funding for field trips  
  5) Garner support for policy decision to reduce nutrient loading into the bay

**NOTE**: For additional notes on the breakout group session, see the Appendices at the end of this document.
A published literature search produced nearly 100 articles on Biscayne Bay, with topics primarily focused on water quality (suspended particles, pollutants (agrochemicals, fish biology, industrial sustainability and use of historic data (Table 1)). A bibliography of these published articles is provided in the following section. More information is provided by unpublished research (“gray” literature) and those presentations and handouts provided as part of Biscayne Bay Restoration Regional Coordination Team meetings in the last 3 years.

Specific continuous work on water quality is conducted as part of the Department of Environmental Resource Management’s National Pollution Discharge Elimination System (NPDES) monitoring program. This program provides water quality monitoring of nutrients, chlorophyll and fecal coliform monthly at 87 designated sampling sites around Biscayne Bay and drainage creeks/canals entering it (Figure 1), and annual sampling for potential contamination associated with pesticides and organic contaminants among them. According to the County’s website, “water quality and supported habitats in some portions of the Bay, canals and rivers exhibit signs of human impact. Portions of a number of canals in urbanized areas do not meet one of more water quality criteria and are designated by the State of Florida as “impaired”.

The County also cites several ways in which water quality can be improved including “development and use of best practices, improvements in pollution prevention technology, air and water quality treatment, land-use and stormwater regulations and environmental remediation and restoration.” Protection of natural resources was also cited “to prevent or reduce the occurrence or magnitude of pollution that can enter surface water:“
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Table 1. Web of Science keyword search on Biscayne Bay
Figure 1. The Department of Environmental Resource Management’s (DERM) National Pollution Discharge Elimination System (NPDES) Monitoring Plan. The map above identifies the monitoring program’s sampling stations.
## VI. Biscayne Bay Bibliographies

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47. Waugh, l. Biscayne Bay coastal wetlands SFVMD project update. SFVMD.

For presentation links, please visit: https://evergladesrestoration.gov/bbrrctm/
VII. Appendices

1. Press Coverage

Achei Newspaper - May 2017

Circulando - A Coluna da Comunidade

Grosso e o presidente

O carismático colombiano Jorge Grosso, que assina chaves e caricaturas no AcheiUSA, foi recebido em visita de representantes da comunidade devido ao encontro.

Peruano: Jorge Grosso a sua chegada ao escritório de Grosso.

Paris em Miami Beach

Mais nova sensação gastronômica de Miami Beach, o restaurante Paris 6 agora oferece um presente para os leitores do AcheiUSA. É só apresentar o cupom publicado no nosso Guia Gastronômico (página 33) para ganhar um desconto de 20% na conta. Quem se esquecer de recortar o cupom pode acessar o jornal e mostrar a página, que também está valendo. Inaugurado há menos de um ano, o Paris é já um dos pontos mais charmosos de Miami Beach, com sua decoração e cardápio fortemente francês. A casa de Miami Beach é a sexta da rede de restaurantes fundada por Isaac Azar no mesmo arranha-céus, em Paris, e o nome, entre as delícias da casa, a sorprensa Grand Gateau não pode faltar.

Paris en Miami Beach

Encontro de Titãs

O CRBB (Conselho de Representantes da Brasil na Estrelar) esteve reunido em Miami, buscando outro momento de encontros e projetos de desenvolvimento, e o CRBB é formado por indivíduos constantemente activos no mundo. O que foi disponibilizado no encontro é uma importante experiência que não houve necessidade de sublinhar a importância do encontro. A ideia de falar sobre a colaboração entre os países envolvidos, é que seja isso a partir da coexistência das culturas e manifestações artísticas em todos os lugares.

Actuamos a Chris

O AcheiUSA tem o prazer de receber a partir desta edição de novo seu escritório Chris Selten, que realiza espaço de escritório de Miami (Miami Beach), com uma reprodução nas nossas páginas e no site web deste assessor. Chris, que também participou de discussões com os principais atores da comunidade, ficou satisfeito com a iniciativa e concordou em colaborar com o AcheiUSA na divulgação da notícia.
Is Biscayne Bay in Crisis? A lot of people want to know!

The Coconut Grove Chamber of Commerce and The Biscayne Bay Marine Health Inaugural Summit (BBMHS) Steering Committee invite all Biscayne Bay stakeholders to join us at the Summit on June 28th and, together, work towards a Healthier Biscayne Bay!

Creating Solutions Through Collaboration, Education, and Innovation

Miami, Florida, June 9, 2017 – Biscayne Bay is one of Miami-Dade County’s most significant natural resources, with two Lagoons in North Miami Beach that result in the bay being visible, particularly in the area near the Biscayne National Park. The Bay is suffering from an array of complex issues, including ongoing shoreline degradation and the effects of pollution.

Over the past few years, a group of over 30 South Florida-based environmental NGOs and government agencies came together to coordinate a stakeholders’ conversation to address the ongoing problems of the Bay. The Bay is still suffering from a lack of community involvement. Advise and improve include: 

- Invasive species like mangrove, etc.
- Nutrient run-off from residential & industrial waste and other chemical pollutants.
- Other water pollutants like diesel & other run-off and industrial waste.

After a year of planning, the Biscayne Bay Marine Health Inaugural Summit (BBMHS) will be held June 28th at FIU’s Biscayne Bay Campus, hosted by the Biscayne Bay Coalition and FIU’s Institute for Water and Environment.

The Summit focuses on the following:

- FIU Biscayne Bay Campus: Biscayne Bay Campus, School of Hospitality, 1000 N.E. 117th Street, North Miami, FL 33161
- June 28th, 2017 – 8:00 am to 6:00 pm | REGISTRATION via Eventbrite – search for BBMHS2017

The Inaugural Summit is scheduled as a full-day "action-oriented" event, centered around expected 200 attendees who will take part in the following activities:

- June 28th at FIU Biscayne Bay Campus, School of Hospitality, in North Miami.

The purpose of the 2017 Biscayne Bay Marine Health Inaugural Summit (BBMHS) is to establish collaboration amongst diverse stakeholders, in order to create an effective 10-Year Action Plan for reducing the pollutants in Biscayne Bay as well as in Miami-Dade’s canals and rivers.

The conference’s main goals are to share the ideas, expertise, and resources of Summit participants in order to design creative solutions through 1) Prevention and education, 2) Engineering, and 3) Environmental improvement. All of these efforts are intended to improve water quality in the Biscayne Bay area.

The Summit aims to include all Miami-Dade County municipalities surrounding Biscayne Bay, including but not limited to the canals and Miami River.

Coconut Grove Chamber of Commerce’s Sustainability and Resilience Committee supports this Inaugural Conference and is working with our Chamber and local community groups to educate and support conservation efforts.

For more information contact:

Liz Rodriguez
Phone: 786-855-1855
liz@ecologicisland.com

Steve Saul
stevesaul@ao.com
South Florida comes together to help save Biscayne Bay

A 63-inch sewer line broke, sending waste into Miami-Dade County’s Biscayne Canal and Intracoastal Waterway. Although the “no contact with water” advisory for swimmers has since been lifted by the Florida Department of Health, this incident is one of many disturbances impacting Biscayne Bay.

Members of the community, including FIU researchers, alumni and students, came together for the 2017 Biscayne Bay Marine Health Inaugural Summit. It was hosted June 28 at FIU’s Biscayne Bay Campus in North Miami Beach.

Nearly 200 people representing local businesses, colleges and universities, governmental agencies and environmental nongovernmental organizations were in attendance. Their goal was to create and launch a 10-year action plan to reduce debris and pollutants in Biscayne Bay and local canals, lagoons and beaches.

FIU’s Institute of Water and Environment was one of the summit’s supporting partners. Institute researchers gave presentations and led workshops, including marine ecologist James Fourqurean; aquatic ecologist Evelyn Gaiser; geologist Rene Price; ecologist Joel Treadler; and wetland ecologist Tiffany Troxler.

The talks were designed to help stakeholders understand the ecological importance of and challenges to Biscayne Bay, identify its main sources of pollution, identify prevention efforts, establish collaboration among stakeholders, and share ideas, expertise, resources and solutions to support the creation and launch of the action plan.

"Biscayne Bay is where we live, where our children swim and play. We should prioritize understanding and correcting the problems the bay faces in order to preserve it for current and future generations," said Todd Crowl, director of FIU’s Institute of Water and Environment. "The summit was a first step in advancing that understanding. It was a collaboration of stakeholders who, together, bring the energy and ingenuity needed to restore and manage the bay and ensure our quality of life."

The water was launched in 2016 to address water and environmental issues. It brings together some of FIU’s top centers and programs to expand research and community engagement opportunities in the face of growing environmental threats, including the Center for Aquatic Chemistry and Technology, Marine Education and Research Institute, Sea Level Solutions Center and Biscayne Environmental Research Center, as well as Everglades programs and international water programs.

Stretching 35 miles along South Florida’s Atlantic coast, Biscayne Bay is home to diverse marine plants and animals, including the threatened Florida manatee. Debris, fertilizers, pesticides, pollutants, sewer and storm water and other man-made disturbances impact its health.

For Ross Boucek, Florida Keys Initiative Manager of Bonefish & Tarpon Trust, the summit was an opportunity to learn how to improve the health of Biscayne Bay, a lagoon that is home to ecologically and economically important bonefish, permit and tarpon.

"There is a lot of environmental problems with Biscayne Bay, but there is such a diversity of people working to improve the bay. If FIU researchers to municipalities and volunteers, something positive will get done. It’s exciting to see everyone communicating and working together," Boucek said.

Boucek earned a Ph.D. in Environmental Science from FIU. He has conducted extensive research on some of the South Florida’s most valuable recreational fisheries.

The 2017 Biscayne Bay Marine Health Inaugural Summit was spearheaded by Luiz Rodrigues, founder and owner of Eco-Logical Solutions. It was also organized by Steve Sather, former vice president for governmental relations at FIU; Dave Deodier; co-founder of Volunteer Clean Up, Inc.; Albert Gomez, vice president and co-owner of Industrial Components; and Irisia Bague, president and CEO of Bague Group.

If you’re new here, you may want to subscribe to our newsletter! Thanks for visiting!
The Everglades is the largest wetland of its kind in North America, but it's been under assault for generations by residential development, water diversion, and specialpurpose ranching. A massive proposal is on tap sooner to putting more fresh-water bush into the Everglades that covers more than 2,000 square miles of south Florida. SERC researcher Dr. Tiffany Thorne discusses why this is important for the Everglades even, how toxic it is, and the solutions.

Progress continues, restoring the Everglades - The Threatened Everglades (6/10)

Southeast Environmental Research Center
School of Environment, Arts and Society

Latest News [instrumental]
World Oceans Day: How do we save our coral reefs in Everglades waters? By heading for the depths

Upcoming Events [instrumental]
South Florida Regional Planning Council Board Meeting [6/5/2017]

Opportunities [instrumental]
Director, Sea Level Solutions Center
Florida International University

Postdoctoral Position in Rain Modeling

The United States Fish and Wildlife Service's Eastern Panhandle (EPS) and USGS Carbon and Co-Management Programs and Everglades Research Unit (ERUS) are seeking a new researcher with research techniques in modeling and assessing risks. This successful candidate will pursue management-based research initiatives that are successful in improving model predictions dynamic models. See here for more information.

Robert Administration for Coastal Ecosystems

Funded by the National Science Foundation

The South Florida Water Management District is recruiting the position of Section Administrator for the Coastal Ecosystem Section within the Applied Sciences Division. The Coastal Ecosystem Section is composed of 16 dedicated biologists and managers. This goal of their work is to quantify the responses of estuarine ecosystems to changes in the quantity and quality of freshwater inputs. See here for more information.
June 28 summit will focus on the health of the Biscayne Bay environment

Paul Coffin (March 25, 2017)

In what amounts a comprehensive environmental checkup on the local lagoon, the Biscayne Bay Marine Health Summit will convene June 28 at Florida International University to share ideas and solutions to maintain and improve Biscayne Bay.

The event, hosted by the Biscayne Coalition, is designed to bring together experts and people concerned about the health surrounding the lagoon. It’s hoped of addressing issues they feel are pressing.

EBMUD founder and coordinator Luis Rodriguez said the summit has been in the planning stage for more than a year, and the timing is right to bring the issue even further to the forefront. "The summit is about bringing together all the business organizations, government entities and elected officials," he said. "We want to address the very big and ongoing problem happening with Biscayne Bay and try to attract the health of the bay," Rodriguez explained.

More than 200 experts and officials are expected to attend the summit.

Biscayne Bay is approximately 35 miles long and 8 miles wide. Its area is 428 square miles, with a drainage basin that covers an expansive 958 square miles.

In 1973, the bay was designated as a state aquatic preserve.

Meanwhile, a seemingly never-ending stream of controversy surrounds Biscayne Bay and the diverse group of entities that use the lagoon for their own purposes, many of which have a negative impact on the physical body of the lagoon and the wildlife that live within. The fallout from having an unhealthy bay could eventually have a myriad of harmful effects on people in and around South Florida, including those on Key Biscayne.

"The bay is an important and delicate ecosystem and our tourist based industry depends on a healthy bay," Rodriguez said. "Number two, the bay is a very important estuary for many specific of economical value for the whole Miami-Dade County region, so there are many very important elements. Everything is really connected to the bay."

Rodriguez went on to explain that important fish species use Biscayne Bay as a safe harbor.

"They depend on the calm waters of the bay, and they have their young and eventually they are ready to go back into the ocean. It's an important ecosystem," he said.

The local preservationists emphasized the need to preserve the seagrass beds that surround the area as well. "The seagrass is really important for small fish and manatees," he said. "As the seagrass diminishes, they no longer provide a food source, and it affects manatees, for example, and they are a protected species."

These issues and more will be addressed at the all-day summit where some of the goals outlined by Rodriguez include preservation and education, engineering and design improvements, enhanced research, enforcement of existing laws and creation of laws, maintenance, and waste recycling removal processes, including community cleanups.
Miami's Community Newspapers - June 2017

Summit to address marine debris and water pollutants in Biscayne Bay, June 28 at FIU Biscayne Bay Campus

From date:

Due to the tremendous population growth of the cities surrounding it, Biscayne Bay is being impacted by a staggering amount of marine debris and water pollutants, as well as ocean acidification, overfishing, pollution, red tides, and other activities. Government agencies, community organizations, businesses and thousands of community volunteers have, for years, organized cleanups of the Bay shoreline to remove marine debris and move it from the Bay's environment back to land. These efforts, however, are not enough.

Now, in addition to a coordinated, systematic approach to removing debris, a group of about 30 Florida-based environmental NGOs, government entities, universities, and others are coming together to conduct a summit to address these growing concerns.

Held at the 2017 Biscayne Bay Marine Health Summit at Miami (BBHS), June 28-29, a full day, the participants will share and learn about 10-year action plans to reduce pollutants in Biscayne Bay as well as in Miami-Dade County, and what the Heron Island coral reef at the University of Miami’s Rosenstiel School of Marine and Atmospheric Science will be done to help.

The Summit will present an overview of the current state of Biscayne Bay, including the results of recent and historical studies. The mission of Biscayne Bay is designed to be a public, shared natural resource.

Confirmed key speakers include:

- Nancy Base, MOC Clerk of the Courts
- Maritza Leon-Costa, Miami-Dade County Environment
- Ken Lumadue, City of Miami Commissioner
- Jim Krach, NOAA Chief Executive Officer
- Steven E. Gorter, Ph.D., FIU Executive Director, School of Environment, Arts & Society
- Mike Hollohan, Professor, FIU Dean of College of Arts & Sciences
- Marine Sciences Program
- Charles Crabb, Florida and Caribbean Regional Coordinator for NOAA’s Marine Debris Program

This Summit is a half-day “sustainable” event, with no scheduled activities beyond the event. It begins at 8 a.m. and is intended to be presented for future generations as a public, shared natural resource.

General Information:
The 2017 Biscayne Bay Marine Health Summit (BBHS), held June 28-29, at the Florida International University’s Biscayne Bay Campus, School of Environment, Arts & Society, South Miami, FL 33134.

For registration and more information, visit: http://baysummit.fiu.edu
MEDIA ALERT SUMMIT TO ADDRESS MARINE DEBRIS
AND WATER POLLUTANTS IN BISCAYNE BAY – JUNE 28TH, FIU BISCAYNE BAY CAMPUS

June 28 @ 8:00 am – 6:00 pm

A group of over 36 Florida-based environmental NGOs, government entities, universities, amongst others, have come together to coordinate a summit to address the ongoing problem of floating marine debris and other water pollutants (Storm Drains & Surfing Water Runoff, Residential & Industrial Wastewaters and other Chemical Pollutants) in Biscayne Bay, the Biscayne Bay Marine Health Inaugural Summit (BMMHS).

The purpose of the 2017 Biscayne Bay Marine Health Inaugural Summit (BMMHS) is to establish collaboration amongst diverse stakeholders, in order to create an effective 10-Year Action Plan for reducing these pollutants in Biscayne Bay as well as in Miami-Dade’s canals and rivers.

The Summit’s main goals are to share ideas, expertise and resources of Summit participants in order to develop creative solutions through: 1) Prevention and education; 2) Engineering and design improvements; 3) Enhanced research; 4) Enforcement of existing laws or creation of new ones; 5) Maintenance, and 6) Waste/cycling removal processes – including community cleanups.

The Summit also aims to include all Miami-Dade County municipalities surrounding Biscayne Bay, including inland communities along canals and Miami River.

Biscayne Bay and its adjoining waters are among Miami-Dade’s most outstanding natural resources. Shallow, clear water, seagrass meadows and various wetlands provide habitat and nurseries for key fish species and wildlife, buffer our coast against storms, support human and water-related recreational activities, and provide over $6 billion annual revenue to our local economy.

Most of Biscayne Bay is designated as a State Aquatic Preserve or is part of Biscayne National Park, and is intended to be preserved for future generations as a public shared natural resource.

However, due to the tremendous population growth Miami-Dade has experienced during the last few decades, the bay is being impacted by a staggering amount of marine debris, as well as sewage, storm water pollutants, fertilizers, pesticides and herbicides. Government agencies, community organizations, universities and thousands of community volunteers have, for years, organized cleanups of the bay’s shoreline to remove marine debris and litter from the bay’s delicate ecosystem. However, these efforts are not enough.

CONFIRMED KEY SPEAKERS

* Hon. Harvey Ruvin, MDC Clerk of the Courts
* Jim Murray, MDC Chief Resiliency Officer
* Mike Holthus, Professor, FIU Dean of College of Arts & Sciences, Marine Sciences Program
* Charles Grisafi, Florida and Caribbean Regional Coordinator for NOAA’s Marine Debris Program

Format: This Inaugural Summit is presently scheduled as a full-day “sustainability” event, catered to an expected 250 attendees. In addition, a Summit Vendor’s Exhibit is being offered.

Steering Committee

Luiz Rodrigues – Eco-Logical Solutions, Founder | Steve Sauls – FIU VP for Governmental Relations | Ivan Bague – Bague Group | Albert Gomez – South Florida Resilience Systems/Miami Sea Level Rise Committee Coordinator | Dave Dobler – Director, Volunteer Clean Up

About Eco-Logical Solutions

Eco-Logical Solutions is a Miami-based sustainable operator and LEED consulting business, which assists businesses, homes and events on how to cut carbon emissions with solutions that will help them save money and the Earth’s future. Eco-Logical Solutions evaluates, recommends and implements affordable green changes for hotels, offices, restaurants, homes, etc.

For additional information or interview purposes, please contact Luiz Rodrigues at 763.275.1305 or Steve Sauls at 763.275.1305 @ steve@ecologi.com or Luiz@ecologi.com

CLICK HERE FOR

More Info & to Register

Midtown Miami Magazine - July 2017

[Image 36x375 to 288x696]
[Image 36x43 to 288x364]
[Image 314x105 to 566x583]
Source Molecular - July 2017

Source Molecular Supports Biscayne Bay Summit

Source Molecular Corporation attended the 2017 Biscayne Bay Marine Health Inaugural Summit (BBMHS) on June 29, 2017. The event was held at the Florida International University Biscayne Bay Campus. Source Molecular was one of the exhibitors.

Representatives from various Florida-based environmental NGOs, government entities, municipalities, universities, and businesses attended. The stakeholders are working to create an effective 10 Year Action Plan. They seek to reduce marine/estuarine debris and other water pollutants in Biscayne Bay as well as in Miami-Dade’s canals, marinas, and coastal beaches.

The full-day Summit consisted of presentations, workshops, a small trade show and Bay tour. Speakers at the Summit discussed the current status of the health of the Bay, major sources of debris, and other different water pollutants. Pollutant sources include pesticides, herbicides, fertilizers, storm drains, runoff, sewer, etc. They also explored strategies that may effectively reduce the impact of these pollutants.

Identifying and understanding Biscayne Bay’s main sources of pollutants is one of the objectives that Source Molecular can play a role in. Accordingly, Source Molecular’s Haley Cashmire met with attendees and explained genetic testing services that could help solve the problem.

With close to 15 years of experience, Source Molecular has helped various stakeholders address fecal pollution in water systems through advanced molecular source tracking methods. Source Molecular can assist organizers to dig deeper into the sources of contamination, providing a streamlined approach to identifying the exact source of fecal contamination.

With its laboratory capabilites, Source Molecular can conduct fecal source tracking from DNA-based markers, which can solve modern environmental issues. The laboratory is equipped with advanced infrastructure and state-of-the-art equipment.

Source Molecular supports various initiatives that focus on improving water quality and preserving marine habitats. By working with organizations and stakeholders, they can make a significant impact on the health of Biscayne Bay and other coastal areas.

Source Molecular - Supporting Better Water Quality
'Let's Keep It Beautiful': Biscayne Bay Summit Brings Together Stakeholders To Develop Cleanup Plan

BY JASON HERNANDEZ - JUNE 2017

Biscayne Bay is a shallow estuary with diverse marine habitats, making it a vital ecosystem for South Florida's marine and coastal communities. The Biscayne Bay Summit aims to bring together stakeholders to develop a comprehensive plan to clean up the bay and restore its health.

Local officials, business owners, and activists gathered for the summit to discuss the challenges and opportunities facing Biscayne Bay. The event featured several speakers sharing their perspectives on the bay's health and the steps needed to improve it.

Jason Gilbert, CEO of MaimiGreen, spoke about the importance of protecting the bay and its surrounding areas. He stressed the need for a collaborative approach to address the issues facing Biscayne Bay and called for a sustained commitment to cleaning up the bay.

Some of the key points discussed at the summit included:

1. **Economic Implications**: Biscayne Bay is crucial for the local economy, supporting a range of industries from fishing to tourism. The summit highlighted the need for a coordinated effort to ensure the bay's health and protect its economic value.

2. **Environmental Concerns**: Biscayne Bay is facing several environmental challenges, including pollution, invasive species, and habitat loss. The summit aimed to identify solutions to address these issues and protect the bay's biodiversity.

3. **Public Engagement**: The summit emphasized the importance of involving the public in the cleanup efforts. It was agreed that community engagement and education are essential to gaining public support and ensuring the sustainability of the cleanup initiatives.

4. **Policy Framework**: There was a call for stronger policies and regulations to protect Biscayne Bay. The summit discussed the need for robust enforcement of existing laws and the development of new policies to address emerging threats.

5. **Technology and Innovation**: The potential of technology and innovation in tackling environmental challenges was also highlighted. The summit explored how advances in technology could be leveraged to clean up the bay more effectively.

The participants at the Biscayne Bay Summit were optimistic about the prospects for improvement, with a shared commitment to working together to achieve a cleaner, healthier Biscayne Bay.

For more information, visit [BiscayneBaySummit.org](http://www.biscaynebaysummit.org)
2. City of Miami Resolution

City of Miami
Legislation
Resolution

File Number: 2485

A RESOLUTION OF THE MIAMI CITY COMMISSION SUPPORTING THE 2017 BISCAYNE BAY MARINE HEALTH INAUGURAL SUMMIT ("2017 SUMMIT") IN CONCEPT; DIRECTING THE CITY MANAGER TO PARTICIPATE IN THE 2017 SUMMIT AS APPROPRIATE AND FEASIBLE.

WHEREAS, the City of Miami’s ("City") entire coastline is bordered by Biscayne Bay; and

WHEREAS, the health of Biscayne Bay is intrinsically linked to the economic well-being of the City through nature-based tourism and commercial and recreational boating, watersports, and fishing; and

WHEREAS, a study cited by the National Sea Grant College Program of the United States Department of Commerce’s National Oceanic and Atmospheric Administration found that the economic activities related to Biscayne Bay-related uses contributed to approximately 10.2% of Miami-Dade County’s total economy; and

WHEREAS, the Environmental Protection Agency’s Science Advisory Board has indicated that ecosystems provide basic life support for human and animal populations and are a source of spiritual, aesthetic, and other human experiences that are valued in many ways by many people; and

WHEREAS, the Miami City Commission demonstrated its commitment to Biscayne Bay when it adopted Resolution No. 16-0502 where it urged the United States Army Corps of Engineers, the Florida Department of Environmental Protection, and the South Florida Water Management District to take all steps necessary to expedite and complete the construction of Phase I of the Biscayne Bay Coastal Waters ("BBCW") project, to expedite the planning of Phase II of the BBCW project, and adding the BBCW project to the City’s legislative priorities; and

WHEREAS, the 2017 Biscayne Bay Marine Health Inaugural Summit ("2017 Summit") is the result of a joint effort of over thirty (30) Florida-based environmental NGOs, government entities, elected officials, universities, businesses, and other parties; and

WHEREAS, the purpose of the 2017 Summit is to establish collaboration amongst diverse stakeholders, in order to create an effective ten (10) year action plan for reducing marine/estuarine debris and other water pollutants in Biscayne Bay as well as in Miami-Dade’s canals, rivers and oceanic beaches; and

WHEREAS, the 2017 Summit’s main goals are to:

- Understand the ecological importance of and challenges to Biscayne Bay;
- Identify and understand the main sources of pollutants in Biscayne Bay;
- Identify existing studies and prevention efforts for Biscayne Bay;
- Identify and establish a collaboration with Biscayne Bay’s main stakeholders; and
- Coordinate and share the creative solutions, ideas, expertise, and resources of 2017 Summit stakeholders in order to support the future creation of a comprehensive ten (10) year action plan; and

WHEREAS, the Miami City Commission is dedicated to the health, protection, and improvement of Biscayne Bay;

NOW, THEREFORE, BE IT RESOLVED BY THE COMMISSION OF THE CITY OF MIAMI, FLORIDA:

Section 1. The recitals and findings contained in the Preamble to this Resolution are adopted by reference and incorporated as if fully set forth in this Section.

Section 2. The City Commission supports the 2017 Summit in concept.

Section 3. The City Manager is directed to participate in the 2017 Summit as appropriate and feasible.

Section 4. This Resolution shall become effective immediately upon its adoption and signature of the Mayor.1

APPROVED AS TO FORM AND CORRECTNESS:

[Signature]

6/13/2017

Attorney

1 If the Mayor does not sign this Resolution, it shall become effective at the end of ten (10) calendar days from the date it was passed and adopted. If the Mayor vetoes this Resolution, it shall become effective immediately upon override of the veto by the City Commission.
MEMORANDUM

TO: Honorable Chairman Esteban L. Bovo, Jr. and Members, Board of County Commissioners

FROM: Abigail Price-Williams
County Attorney

DATE: June 6, 2017

SUBJECT: Resolution supporting the Biscayne Bay Marine Health Summit in concept and directing the Mayor to provide speakers for the summit, as appropriate and feasible

This item was amended at the 5-10-17 Parks and Cultural Affairs Committee to change a reference from a “25-year plan” to a “10-year plan.” This plan was listed as one of the goals of the Biscayne Bay Marine Health Summit.

The accompanying resolution was prepared and placed on the agenda at the request of Prime Sponsor Commissioner Daniella Levine Cava, and Co-Sponsors Commissioner Jean Monestime and Senator Javier D. Souto.

Abigail Price-Williams
County Attorney

APW/ssm
MEMORANDUM
(Revised)

TO: Honorable Chairman Esteban L. Bovo, Jr. and Members, Board of County Commissioners

DATE: June 6, 2017

FROM: Abigail Price-Williams
County Attorney

SUBJECT: Agenda Item No. 11(A)(6)

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 ____, 3/5’s ____, unanimous ____ ) to approve

_____ Current information regarding funding source, index code and available balance, and available capacity (if debt is contemplated) required

2
RESOLUTION NO. ______________________

RESOLUTION SUPPORTING THE BISCAYNE BAY MARINE HEALTH SUMMIT IN CONCEPT AND DIRECTING THE MAYOR OR MAYOR’S DESIGNEE TO PROVIDE SPEAKERS FOR THE SUMMIT, AS APPROPRIATE AND FEASIBLE

WHEREAS, Biscayne Bay is located in Miami-Dade County and has immense value to the community because of its natural beauty, recreational opportunities, and environmental significance; and

WHEREAS, Biscayne Bay provides habitat and nursery grounds for important commercial and recreational fish, shellfish, and crustaceans, in addition to providing refuge to threatened and endangered species; and

WHEREAS, Biscayne Bay is contained in part within Biscayne National Park, which protects part of the third-largest coral reef system in the world and the longest remaining stretch of mangrove forest on the east coast of Florida; and

WHEREAS, the State of Florida has also recognized that Biscayne Bay deserves special protection, and parts of Biscayne Bay are protected as State of Florida Aquatic Preserves and Outstanding Florida Waters; and

WHEREAS, the water quality and ecological balance of Biscayne Bay are important issues that may have effects on human health, the health of the environment, and the local economy; and

WHEREAS, chemical and nutrient pollution, as well as marine debris in Biscayne Bay, poses a threat to aquatic life in Biscayne Bay and in the oceans in general; and
WHEREAS, as such, it is essential to address the various important issues related to Biscayne Bay in order to assure the future health of Biscayne Bay and protect valuable environmental resources so that future generations may enjoy the health, recreational, environmental, and economic benefits that can result from a healthy and debris-free Biscayne Bay; and

WHEREAS, Miami-Dade County has a long record of accomplishments through programs like spoil island restoration, bay bottom restoration, shoreline erosion control, and public education and participation events like Baynanza, which celebrates its 35th anniversary this year; and

WHEREAS, many of these successful programs came from community collaborations, starting with the Biscayne Bay Committee and Management Plan in the 1970s and the Biscayne Bay Partnership Initiative in the 2000s; and

WHEREAS, these previous community collaborations led to significant progress in reversing the decline of Biscayne Bay through innovative programs to restore and stabilize shoreline habitat and through comprehensive reports like the Biscayne Bay Partnership’s 2001 report “One Bright, Great Bay”; and

WHEREAS, the Biscayne Bay Coalition Partners are following on this important work by gathering a broad coalition of academic, government, and civic organizations and individuals, and are currently organizing a Biscayne Bay Marine Health Summit, to be held in June 2017; and
WHEREAS, the goals of this Biscayne Bay Marine Health Summit may include promoting Biscayne Bay health-related initiatives; encouraging partnerships to support the health of Biscayne Bay; involving all stakeholders; and developing a 1-year plan to ensure the sustainable health of Biscayne Bay; and

WHEREAS, this Board wishes to support this Biscayne Bay Marine Health Summit in concept and directs the Mayor or Mayor’s designee to provide speakers from Miami-Dade County for the Summit, as appropriate and feasible,

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD OF COUNTY COMMISSIONERS OF MIAMI-DADE COUNTY, FLORIDA, that this Board hereby expresses its support in concept for the Biscayne Bay Marine Health Summit, which is planned to be held in June 2017, and directs the Mayor or Mayor’s designee to provide speakers from Miami-Dade County for the Summit, as appropriate and feasible.

The Prime Sponsor of the foregoing resolution is Commissioner Daniella Levine Cava, and the Co-Sponsors are Commissioner Jean Monestime and Senator Javier D. Souto. It 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:

Esteban L. Bovo, Jr., Chairman
Audrey M. Edmonson, Vice Chairwoman

Bruno A. Barreiro                Daniella Levine Cava
Jose "Pepe" Diaz                Sally A. Heyman
Barbara J. Jordan               Joe A. Martinez
Jean Monestime                  Dennis C. Moss
Rebeca Sosa                     Sen. Javier D. Souto
Xavier L. Suarez

1 Committee amendments are indicated as follows: Words stricken through and/or [[double bracketed]] are deleted, words underscored and/or >>double arrowed<< are added.
The Chairperson thereupon declared the resolution duly passed and adopted this 6th day of June, 2017. 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.

MIA M I - D A D E COUNTY, FLORIDA
BY ITS BOARD OF
COUNTY COMMISSIONERS

HARVEY RUVIN, CLERK

By: ________________________
Deputy Clerk

Approved by County Attorney as to form and legal sufficiency.  [Signature]

Abbie Schwaderer-Raurell
Biscayne Bay National Park during a sunset.

Photo by: Steve Souls
4. List of Participants

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5. Dr. Bill Dennison’s Blog Entry on the BBMHS

Biscayne Bay Marine Health Inaugural Summit

The Biscayne Bay Marine Health Inaugural Summit was held at the Florida International University Biscayne Bay campus. I flew down at the invitation of Jim Fourqurean, my long-term friend and assistant, who provided a very nice introduction. There were around two hundred people in attendance, and my role was to provide a lunch-time talk to relate some lessons from other locations that were relevant to Biscayne Bay. I chose to focus on lessons from Moreton Bay, Australia and Chesapeake Bay and to not use slides, but rather talk. I have provided the text of my speech in this blog.

Biscayne Bay Marine Health Inaugural Summit poster and logo. Image credit: Bill Dennison

Biscayne Bay is a shallow barrier island lagoon, some 35 miles long. It contains many islands and historically supported seagrasses, sea turtles and manatees. It is experiencing some very serious environmental degradation, with 2.7 million people in the small but crowded watershed. It was surprising to learn that many homes, even ones close to the Bay, use septic systems. I also learned that the shallow flow of water over the Everglades used to pass through the Biscayne Bay watershed. Seagrass loss, algal blooms and increasing turbidity are being observed in the bay. However, the bay does have a very solid monitoring program, including 83 water quality monitoring stations and seagrass monitoring for the entire Bay.

I appreciated that the conference, held in the building where the Florida International University students learn about hospitality, was a truly sustainable and eco-friendly event. The food and drinks were superb.

The Harvey statue made out of marine debris, designed by Keith Chaugherty. Image credit: Bill Dennison

Dave Drabik called himself just a “Daniel in the Lion’s Den,” but he had initiated some impressive plastic marine litter clean ups. Jamie Monfort from Miami-Dade County spoke about the monitoring and restoration initiatives supported by the county. Captain Dan Kamin provided some impressive photographs and underwater video and spoke about his passion for the Bay. Charles Griswold from FGCU told us about the marine debris project. Renee Pecis led a panel that included Tiffany Troccoli, Jim Fourqurean, Porter Simonds and Charles Griswold. Tiffany emphasized the issue of sea level rise adaptation, and expertly emphasized stormwater runoff issues. Jim addressed the issue of phosphorus over-enrichment in the phosphorus-limited carbonate system. He also brought up the issue of contaminants like aromatic carboxylics and heavy metals. In the afternoon, we heard impressive local initiatives from Margarita Wells, City of Miami, Dave Schwab, Volunteer Cleanup.org, Matt Anderson, City of Coral Gables and Walter Meyer, Parsons The New School. We also had breakout sessions to discuss priorities for government policies, infrastructure and public works, education and outreach, and research needs. I was in the research needs session, which Joel Trexler from FWRI facilitated. Jim Hurley from Miami-Dade County provided closing remarks with a historical perspective.

My fundamental remarks were as follows:

Lessons from Moreton Bay and Chesapeake Bays for Biscayne Bay

28 JUNE 2017
William C. Dennison

It is great to be with you here. Thanks to my colleague and friend Jim Fourqurean for arranging the invitation. Forty years and a couple of months ago I came to Miami to board a tall ship (S/V Westward) on the Sea Biscuit at Dodge Island near where we are now and sailed out into the Sargasso Sea, up through Chesapeake Bay where I work now and ended up in Woods Hole on Cape Cod where I ended up doing my PhD. Ten years later I came back to town to discuss University of Miami research vessels (S/V Oceanus and S/V Columbia Iselin) to head to the Bahamas with this cute little graduate student (who is now my wife). Go to this place was the beginning of important things in my life.

I am going to tell you two stories: one about Moreton Bay in Australia and one about Chesapeake Bay, and draw 12 lessons relevant to Biscayne Bay from these stories. And then I will make 3 observations about Biscayne Bay as an interacting observer.

Twenty-five years ago I headed off to Brisbane, Australia to take a job at the University of Queensland. The real attraction for me was the proximity to the Great Barrier Reef off the Queensland coast, kind of the coming to the South Florida for the Florida Keys. In fact, I found myself musing around in the Bay adjacent to Broome, a city of 2 million people. That shallow sub-tropical environment is called Moreton Bay and it supports abundant seagrasses, sea turtles and dugongs (the Australian version of manatees). Moreton Bay is not unlike Biscayne Bay and I even had a graduate student who did a comparison study of nitrogen cycling in Moreton Bay vs. Biscayne Bay. My graduate student and I began to realize how special Moreton Bay was, but also appreciated its vulnerability. Like South Florida, Queensland was a popular destination for vacationing Australians and the resident population began to swell. In fact, during the ten years that I was living in Queensland, it was the fourth fastest growing region in the world. So with this crush of a growing population, there were signs that Moreton Bay was suffering just like Biscayne Bay. Seagrass beds began to disappear, algal blooms were causing fishermen’s skin to peel off, and the water was becoming increasingly cloudy. Sound familiar?

Fortunately, the local elected officials turned their concern into action. They pooled their resources and funded the design of an integrated monitoring and research effort. We coined this effort the Healthy Waterways Campaign. Our tag line was “Because we are all in the same boat.” One of the first things we did was to create a dashboard using color graphics, with maps, photographs, diagrams and graphs. We printed 300 copies, since we had 15 people in our technical group and thought a few extra copies would be good to have. After a week, all 15 people requested additional copies, so we printed a hundred copies. After another week, we were out of copies, so we printed 300. Figuring that we would have a lifetime supply. After two more weeks, we printed a thousand copies, and that became our minimum print run going forward.

LESSON 1: There is a public appetite for synthesized information, presented clearly and attractively.
So our next step was to produce a short, colorful book which we called the Crew Members Guide to Healthy Waterways, which was an invitation to join the crew. I was interviewed and asked to provide a ranking for the different regions of Moreton Bay. We called this the report card of the bay, and it was the first time that the public had ever had enough information about Moreton Bay out there, in fact the Bay had its own monthly newsletter. We don’t need your color graphics newsletter anymore, why are you even here? We set out to see what was happening and after some very good hard days, I learnt to pick up my own feeding hand back to Australia. But then the local newspaper, the Washington Post, published an expose’ on the over-reliance on the modelling/forecast page above the fold, and things began to change.

LESSON 9. Don’t underestimate the power of getting the message out.

Since the U.S. Congress reads the Washington Post, they launched a Government Accountability Office investigation, and the Office of Management and Budget in a with the Chesapeake Bay Program and the recommendations featured the need for independent rigorous verification of the model card idea was not yet in the cards. Eleven years ago we produced our first Chesapeake Bay report card. The biggest surprise was that the area around Baltimore had degraded—is it an old city right on the Bay—yet that some of the rural areas around Washington showed improvement. This highlighted what was happening and it became apparent that even though the human population is now the Eastern Shore, the chicken population is huge—almost 600 million chickens produced every year. So the initiative used to grow the chicken food (corn and soy) and the chicken manure from 600 million birds was causing water quality degradation. When the Eastern Shore counties found out that they were in almost as bad a shape as Baltimore, they were shocked into action. Back to LESSON 7, as pressure is indeed a powerful motivator. Baltimore did not want to continue to be the worst, so local business leaders have banded together and created the Waterfront Partnership. They bring Baltimore City and Baltimore County into their meetings and they ask how can we accelerate the clean up of the harbor? They have robots that can suck up wastewater streams to clean out areas which are illegal to levee sewage, and they work to make the sewer system more efficient. They build boats to pick up floating trash and even make giant water wheels that are used to clean up trash from the major rivers. They are really making a difference. They also build more plants on land, they build more plants on land, and they are not as concerned about water quality issues. For instance, they are actually doing up asphalt playgrounds and planting grass to decrease impervious surfaces and reduce flux for carrying urban eutrophication into the wastewater. An interesting aspect of this is that if you see kids playing on hard surfaces, the stronger kids become dominant, but if you observe kids playing in nature, the smarter kids become dominant.

LESSON 10. There are co-benefits to improving ecosystem health.

We had a Republican governor Bob Ehrlich in Maryland who instituted a “Flush Fee” (being a Republican) which was used to fund sewage treatment upgrades. Upgrading large urban sewage treatment resulted in some dramatic rapid improvements. We had a Democratic governor, Martin O’Malley, and they were spending a lot more money on sewage system upgrades and agricultural incentives, in particular cover crops. This funding has been used to reverse some of the degradation of agricultural areas. The current Maryland governor, Larry Hogan, is fully funding both programs stipulated by his predecessors and is actively pursuing Chesapeake Bay restoration, serving currently as chair of the multi-state Chesapeake Bay Program executive committee.

LESSON 11. Ecosystem restoration can and should be bipartisan.

The Chesapeake Bay restoration effort started in 1990 but it was entirely voluntary until 1999 when the EPA created the Total Maximum Daily Load (TMDL) which is a mandatory nutrient diet. The other important thing that happened was instead of lofty, but distant, clean up goals that stretched beyond the political life of elected officials, two years milestones were created to monitor the progress. This nutrient diet, with its tracking system, is starting to show real benefits. In addition to the federal and state monitoring programs, we are increasingly recruiting citizen scientists to aid in the monitoring efforts.

LESSON 12. Both carrots and sticks are important, but you need public accountability.

This year’s report card in which the Bay is subdivided into 15 reporting regions, shows that 7/15 regions are significantly improving. This is great news for our沿岸 communities, because it shows that the Chesapeake Bay report card our media reach was over 120 million people—that is half the population of the US. We still have a long way to go, and we are not declaring “Mission Accomplished”, we are only on the right track.

How do the Maryland Bay and Chesapeake Bay story relate to Biscay Bay?

First, in scope of population pressures, it is possible to reverse the negative trajectories, even though it will take time and sustained effort. From all accounts, Biscay Bay is suffering and is hopefully in the wrong directions, but there are signs that it can be reversed. Biscay Bay would benefit from publicly released report cards to track progress.

Second, the world is looking for leadership. There are many tropical coastal megacities cropping up around the world, and Miami and Biscay Bay can become a global model for sustainability. Biscay Bay has been the forerunner of urban, adaptive, no-dam, no-morning city. The world famous Biscay beach,瓷 unanswered call to some Planning, followed by the global famous Biscay, Honda Keys and Florida bay, it is time to allow the world to discover Biscay Bay.

Third, the most important thing to do is what you are starting here today. Gathering elected officials, news, scientists, elected officials, and others to publicly declare “we care about the health of Biscay Bay, which means we care about the city and the community as well”. The people, coupled with growing community knowledge, can activate positive environmental change.

Coming to Biscay Bay was the beginning of some great things in my life, and I sincerely hope that this day, 28 June 2017, will be remembered as the beginning of something lasting, something positive and something pretty great for all of you. Good luck on your journey.
BISCAYNE BAY MARINE HEALTH SUMMIT
PARTNER RESOLUTION

RESOLUTION JOINING THE "BISCAYNE BAY MARINE HEALTH SUMMIT COALITION" IN SUPPORT OF ITS EFFORTS TO PROTECT AND PRESERVE THE ECOLOGICAL HEALTH OF BISCAYNE BAY

WHEREAS, the water quality and ecological balance of Biscayne Bay are essential for human health and safety, the health of the environment and our local economy; and

WHEREAS, marine debris poses a great threat to aquatic life in our Oceans and Biscayne Bay; and

WHEREAS, the Biscayne Bay is an important nursery ground for commercial and recreational fisheries vital to Miami-Dade’s economy; and

WHEREAS, Biscayne Bay is protected as an aquatic preserve and protects 70,000 acres of submerged lands; and

WHEREAS, Biscayne Bay is an important natural estuary in need of ongoing monitoring and restoration; and

WHEREAS, Biscayne Bay supports endangered and threatened species;

Now, therefore, be it resolved that our organization, Bagué Group, fully supports the efforts of the Biscayne Bay Marine Health Summit Coalition as well as the implementation of the Inaugural Summit to take place on the last week of June 2017.

This Resolution shall become effective upon the date of its passage and adoption herein.

[Signature]
NAME (SIGNATURE)

President
TITLE

May 8, 2017
DATE

Irela M. Bagué
NAME (TYPE)

Bague Group
ORGANIZATION

Biscayne Bay Marine Health Summit Steering Committee
Luiz Rodrigues, Steve Sauls, Albert Gomez, Chelle King, Dave Doebler
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[Signature]
NAME (SIGNATURE)

Group Leader
TITLE

10 May 2017
DATE

Gregory Hamra
NAME (TYPE)

[CCL Miami Chapter]
ORGANIZATION

Biscayne Bay Marine Health Summit Steering Committee
Luiz Rodrigues, Steve Sauls, Albert Gomez, Chelle King, Dave Doebler
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NAME (SIGNATURE)  CANELL QUAREJAS
NAME (TYPE)  CANELL QUAREJAS-SHAPP
TITLE  BOB CHAIR, SUSTAINABILITY & RESILIENCE COMMITTEE
ORGANIZATION  COCONUT GROVE CHAMBER
DATE  05/08/17

Biscayne Bay Marine Health Summit Steering Committee
Luiz Rodrigues, Steve Sauls, Albert Gomez, Chelle King, Dave Doebler
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[Signature]
NAME (SIGNATURE)

[Signature]
NAME (SIGNATURE)

NAME (TYPE)

[Title]
TITLE

[Date]
DATE

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________________________________________________________________________
Name (Signature)                                                  Hugh Gladwin
________________________________________________________________________
Assoc Professor                                                  Florida International University
________________________________________________________________________
Title                                                             Organization
________________________________________________________________________
May 8, 2017                                                      Date

Biscayne Bay Marine Health Summit Steering Committee
Luiz Rodrigues, Steve Sauls, Albert Gomez, Chelle King, Dave Doebler
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[Signature] Name (Signature) [Signature] Name (Type)

[Title] National Director of Sales  [Organization] Freeland Miami

[Date] April 8, 2017

Biscayne Bay Marine Health Summit Steering Committee
Luiz Rodrigues, Steve Sauls, Albert Gomez, Chelle King, Dave Doebler
BISCAYNE BAY MARINE HEALTH SUMMIT
PARTNER RESOLUTION

RESOLUTION JOINING THE “BISCAYNE BAY MARINE HEALTH SUMMIT COALITION” IN SUPPORT OF ITS EFFORTS TO PROTECT AND PRESERVE THE ECOLOGICAL HEALTH OF BISCAYNE BAY

WHEREAS, the water quality and ecological balance of Biscayne Bay are essential for human health and safety, the health of the environment and our local economy; and

WHEREAS, marine debris poses a great threat to aquatic life in our Oceans and Biscayne Bay; and

WHEREAS, the Biscayne Bay is an important nursery ground for commercial and recreational fisheries vital to Miami-Dade’s economy; and

WHEREAS, Biscayne Bay is protected as an aquatic preserve and protects 70,000 acres of submerged lands; and

WHEREAS, Biscayne Bay is an important natural estuary in need of ongoing monitoring and restoration; and

WHEREAS, Biscayne Bay supports endangered and threatened species;

Now, therefore, be it resolved that our organization, South Florida Resilience System

fully supports the efforts of the Biscayne Bay Marine Health Summit Coalition as well as the implementation of the Summit on a date to be determined by the Coalition during its upcoming meeting in February 2017.

This Resolution shall become effective upon the date of its passage and adoption herein.

____________________________________________________________________________________
NAME (SIGNATURE)

Coordinator

TITLE

3-2-2017

DATE

South Florida Resilience System

Albert Gomez

NAME (TYPE)

ORGANIZATION

Biscayne Bay Marine Health Summit Steering Committee

Luiz Rodrigues, Steve Sauls, Albert Gomez, Chelle King
BISCAYNE BAY MARINE HEALTH SUMMIT
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Now, therefore, be it resolved that our organization, ECOncrete,
fully supports the efforts of the Biscayne Bay Marine Health Summit Coalition as well as the implementation of the Summit on a date to be determined by the Coalition during its upcoming meeting in February 2017.

This Resolution shall become effective upon the date of its passage and adoption herein.

Albert Gomez
NAME (SIGNATURE)
Development Manager

ECOncrete
NAME (TYPE)

Biscayne Bay Marine Health Summit Steering Committee
Luiz Rodrigues, Steve Sauls, Albert Gomez, Chelle King
BISCAYNE BAY MARINE HEALTH SUMMIT PARTNER RESOLUTION

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Now, therefore, be it resolved that our organization, TROPICAL AUDUBON SOCIETY fully supports the efforts of the Biscayne Bay Marine Health Summit Coalition as well as the implementation of the Summit on a date to be determined by the Coalition during its upcoming meeting in February 2017.

This Resolution shall become effective upon the date of its passage and adoption herein.

NAME (SIGNATURE) ERIN CLANCY

NAME (TYPE) TROPICAL AUDUBON SOCIETY

CONSERVATION DIRECTOR ORGANIZATION

TITLE

DATE 2/19/17

Biscayne Bay Marine Health Summit Steering Committee
Luiz Rodrigues, Steve Sauls, Albert Gomez, Chelle King
RESOLUTION JOINING THE “BISCAYNE BAY MARINE HEALTH SUMMIT COALITION” IN SUPPORT OF ITS EFFORTS TO PROTECT AND PRESERVE THE ECOLOGICAL HEALTH OF BISCAYNE BAY

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Now, therefore, be it resolved that our organization, VolunteerCleanup.Org, fully supports the efforts of the Biscayne Bay Marine Health Summit Coalition as well as the implementation of the Inaugural Summit to take place on the last week of June 2017.

This Resolution shall become effective upon the date of its passage and adoption herein.

NAME (SIGNATURE)  
NAME (TYPE)  
TITLE  
ORGANIZATION  
DATE

Biscayne Bay Marine Health Summit Steering Committee
Luiz Rodrigues, Steve Sauls, Albert Gomez, Chelle King, Dave Doebler
7. Marine Debris Facts

Marine Debris Facts

Every year, up to 8 million metric tons of plastics enter our ocean on top of the estimated 150 million metric tons that currently circulate our marine environments. The majority is coming from rapidly developing countries in Asia that lack waste management.

Plastic has been found in more than 60% of all seabirds and in 100% of sea turtle species, which mistake plastic for food.

Plastic production and consumption are predicted to double over the next 10 years.

So much consumed plastic is ending up in the ocean that in just a few years, we could end up with a pound of plastic for every three pounds of fish in the sea.

Marine debris is not only an environmental issue, but also a health and economic one. Marine debris can also impact beach tourism and the commercial and recreational fishing industry.

What to Do? Improve Waste Management

- Transform the role that plastic plays in the worldwide economy. With plastic production expected to double over the next 10 years, we need to develop better waste management and recycling systems both here and abroad. This includes ensuring that policy recommendations on recycling also address resource efficiency and other lifecycle impacts.

- Support the development of fundamental waste collection and management in countries with rapidly growing economies and increasing use of disposable plastic. Support policy environments, particularly in emerging economies, that incentivize investment in integrated waste management systems. This can keep plastics out of the ocean and support economic development.

- Implement waste collection and recycling globally, which can not only address the issue of ocean plastic pollution, but also improve public health by preventing the spread of infectious disease, reduce respiratory illnesses from open air burning of waste, and prevent food chain contamination of both livestock and fish and shellfish.

- Support coordination between plastic producers and waste management systems to make sure plastics being produced are recyclable and identify which areas in the lifecycle of a plastic product are vulnerable to improper disposal.

- Support public-private partnerships to promote innovation by the business community to address plastic input into the oceans.
8. Biscayne Bay Spoil Islands
9. Seagrass Dieoff in Biscayne Bay - Images
Purpose – Discuss Infrastructure ideas to keep pollution out of the bay

Objective – Identify specific and actionable goals to improve infrastructure design and maintenance to be implemented in the 10 year plan

Activities – Brainstorm ideas and prioritize actions

Deliverables – Short Term (<2 years), Medium Term (5 year), Long Term (10 Year) goals

What do we know?
- There is a problem
- We aren’t stopping Pollution early enough
- Too much input

What we need to know?
- What is coming out of creeks / canals? Canal best practices
- Economic value of Bay & Impact
- Report Card
- Connecting the dots
- Accessibility to data
- Monitoring of what is going in / out?
- Lack of collaboration

What’s going well?
- Mangrove planting
- Volunteer efforts
- Partnerships
- We’ve identified there is a problem
- City & County infrastructure is on board
- Pilot Programs to eliminate septic tanks / Septic Tank Matching Funds
- Academic interest
- Necessity of sea level rise requires new infrastructure investments
- Appetite to try new things
- Collaboration between cities (Business, NGO, Public Works)
- Talks about a Miami-Dade Green Committee
- Public Awareness of Algae blooms

What’s NOT going Well
- Seagrass / Coral die offs
- Water Temperature/ Viruses/ Tridium/Nutrients /Salinity
- Data gaps
- Aging / Lack of infrastructure
- Knowing where infrastructure is
- Can’t quantify monetarily
- Funding / Building the case to sell
- Political will
- Business as usual
- Skyrocketing population growth
- NIMB (Not In My Backyard)

Why is pollution getting through
- Public litter / Fertilizer
- Increased impervious surfaces
- We aren’t keeping it out of the system
- We aren’t cleaning enough
- We aren’t budgeting for Cleaning / Maintenance ‘One size fits all’ cleaning
- Not integrated monitoring for baselines
- Sewage overflow into storm drains / illicit connections
- Trash not specifically mandated under clean water act

Short Term (Immediate – 1 Year):
- Enforce existing environmental rules & laws
- Biscayne Bay Coalition modeled after former Biscayne Bay Resoration / Establish a policy and finance working group to evaluate models
- Implement more scavenger decontamination vessels for surface debris, destroy viruses, inject O2
- Import fertilizer and herbicide bans for residential and commercial
- More solar panels and renewable energy in all new infrastructure
- Regular cleaning of storm drains (more VacTrucks) & community outreach of no trash / dumping
- Map all systems 100% MSSW
- Declare a public emergency of Biscayne Bay
- Evaluate every new hard infrastructure project against hybrid & green proposals and conduct CBA, sustainability, environmental, and societal factors
- Education Funding to teach eco-friendly lifestyles at schools
- City should lead monthly neighborhood cleanups & use volunteers
- Widespread ashcans in public spaces
- Do not pass UDB – build within it
- Making more greenspace and plant more tree canopies
- Reengineer stormwater overflow with coastal wetland solutions
- Incentivize businesses to replace impervious surface with planters for stormwater
- More street sweeping
- Require Landscape Best Practices for all Contractors or Licenses
- All new parks and retrofits should have water bottle refill stations
- Consolidate available data in a central location so it can inform decision making
- Trash Can on Every Corner in Downtown, Edgewater, Wynwood, Midtown, Etc
- Monitoring stations to sense chemicals or physical debris to find sources of pollution
- Full audit and reporting of sewage infrastructure and stormwater systems (not sure it exists)/ Survey drainage systems
### Breakout Group #1: Infrastructure (cont.)

#### Short Term (Immediate – 1 Year) (cont.):
- Prioritize surface water quality monitoring in Biscayne Bay as foundation of MD Charter and Budget
- Start a home water harvesting program to reduce water flowing off of land surface
- Increase and enforce litter fines
- Trash Can on Every Corner in Downtown, Edgewater, Wynwood, Midtown, Etc.
- Catch device / sock / net / booms at storm drain outfalls to capture trash until long term solutions can be implemented
- Rainwater irrigation is pH neutral avoids need for fertilizer
- Zero waste goal for the bay
- Better signage about recycling / trash disposal
- Devices to prevent pollution on the street from getting into storm drains
- Garner public and elected official support for non-visible pollutions (go beyond litter)
- Create a citizen coalition to maintain drains and other pervious structures
- Work on making all new development LEED certified
- Monitor and maintain existing infrastructure

#### Medium Term (Immediate – 2-5 Years) (cont.):
- Bond Tax so we can accelerate Biscayne Bay Action
- Use canals as ‘water scrubbers’ using mangroves and natural filters - Pump flood water in, filter, clean water comes out
- Storm Drain Grates to keep trash out of the drains
- Clean up existing ‘Nutrient’ hotspots by updating technology
- Create North Biscayne Special District to create habitat restoration, and provide incentives for coastal construction with funding for maintenance
- Fund sewer infrastructure rebates for homeowners to switch from septic to sewer
- Address canals as large sources of pollution
- Ban plastic bags in all of Miami Dade County
- Dredge contaminated sediment from existing canals and bay
- Better Wastewater treatment - no more leaks and spills
- Public awareness campaigns about waste
- Debris capture devices at storm drain outfalls to capture / collect pollution and debris
- Increased regular water quality sampling of Bay
- Mandates at state level with dedicated funding
- Fund sewer infrastructure rebates for homeowners to switch from septic to sewer
- Distributed demand reduction for wastewater - private subsidy
- Develop a cooperative effort to foster research that documents the effectiveness of stormwater solutions with every possible opportunity

#### Medium Term (Immediate – 2-5 Years):
- Create ‘smart stormwater’ system using sensors, analysis and data (determine when pollution controls are getting full)
- Debris capture devices and cleanup in canals (ie, Mr. Waterwheel)
- More trains and public transit
- Create a report card of progress including Miami Coalition
- Promote living shorelines for seawall repair
- Make preferred permitting alternative, remove living shoreline implementation barriers
- Living shorelines with oyster reefs
- Seagrass and mangrove restoration
- Collectively request state and federal funding to implement solutions
- Establish Biscayne Bay Restoration alliance / council like Indian Lagoon to fund and coordinate
- Re-write construction code, go veg policy, and tax benefits to foresee and prevent future issues
- Work with private sector and academics to develop and test new infrastructure designs
- Implement an ecosystem and economic value formula to define budget guidelines and appropriation
- Evaluate how frequently storm drains should be cleaned (some need more frequent cleaning than others)
- Prioritize retrofit schedule
- Conduct a study to quantify the cost of marine debris to the local economy
- Algal Turf Scrubbers for canals to remove nutrients from waters before they go to the bay
- Biscayne Bay monitoring and observing
- More catch basins to keep debris from entering the bay
- Tax on carbon pollution
- Map all Stormwater infrastructure and outfalls

#### Long Term (Immediate – 10 Years)
- Implement living shorelines mandate for all SLR and outfalls of stormwater
- Eliminate septic tanks and connect to sewer
- Sanctuary Oyster Reefs (not living shorelines) for nitrogen reduction, water quality improvement, phosphorus sequestration, and habitat creation
- Draining infrastructure improvements with water quality treatment
- Water treatment plant upgrades so not doing deep well injections
- 10 year specific and measurable targets to reduce debris and chemical pollution in the bay
- Establish regional water quality goals and pollutant reduction targets
- Work on making old infrastructure greener and environmentally friendly
- NGO / P3 buyouts and land swaps for vulnerable corridors
- Tax violators and polluter
Long Term (Immediate – 10 Years) (cont.):

- Implement stormwater, wastewater, solid waste strategies
- A recycling plant with capacity to process South Floridas recyclables
- Use technology to improve water quality of storm water discharge
- “Save our Biscayne Bay” plan - Remove pollutants, reduce pollutant loading, restore ecosystem, monitor results and adjust
- Smart devices to monitor / control systems

Bay Harbor Island Mayor Leonard, chair-elect of the Miami-Dade League of Cities, gave a brief presentation of what one city can do and is doing.

Consensus Priorities at the Conclusion of the Discussion:
1. Support for Biscayne Bay Restoration Initiative (BBRI)
   a) greater municipal involvement
   b) participation in BBRI working groups
2. Support NOAA’s Florida Marine Debris Reduction Guidance Plan (FMDRGP)
3. Address Pollution Sources to change outcomes of current policies/practices
   a) Call for governmental policies review
   b) Review standards for bay pollution and develop standards as needed.
   c) Support greater enforcement
4. Support consumer education campaign

These priorities were presented at the concluding session of the Summit and received overwhelming support including:
1. Greater recognition of the problems in Biscayne Bay
2. A commitment to do something about them
3. Support for on-going Summit Coalition efforts.

Looking at a timeline for implementing recommendations, the group identified the following:

1. **One Year**
   a) Update the Biscayne Bay Economic Impact Study; commit to a source of funding for permanent up dates

2. **Five Years**
   a) Implement the NOAA Florida Marine Debris Guidelines
   b) Re-engineer Miami-Dade Water/Sewer System
   c) Institute comprehensive monitoring and assessment program
   d) Implement pro-active enforcement of a fertilizer ordinance

3. **Ten Years**
   a) Inspire the Youth/the next generation to support environmental stewardship
   b) Actual, physical improvement in the health/water quality of Biscayne Bay

Figure 1. Some results from the Infrastructure Breakout Group post-it note interactive exercise

Breakout Group #2: Government and Governmental Policy
The “Big Ideas” discussed included:

1. Sources of Pollution
2. Awareness of the Problems
3. Collaboration among stakeholders
4. Development of a 10 year action plan
5. Fund infrastructure cleaning (storm drains)
6. Develop nature-based living shorelines at water front parks instead of seawalls

Priority Setting Exercise
During lunch, prior to the break-out, attendees were asked to post stick-em notes on the sheets for the four break-out sessions identifying important issues. At the beginning of the Government break-out session, participants were asked to place up to five stickers to vote on/prioritize the various ideas.

Those specific ideas receiving the most support (not in priority order) included:

1. Increase solid waste fee and designate specific for street maintenance and storm drainage cleaning
2. Ban plastic, specifically plastic bags
3. Utilize Parks Dept. to manage spoil islands
4. Establish a citizen-led sustainability committee
5. Implement Septic tank inspections
6. Close the FPL cooling canals; install cooling tower instead

Other specific ideas which received the next level of support included:

1. Restore funding for Biscayne Bay long-term water quality monitoring
2. Ban plastic bags in Florida
3. Investigate Nashville’s Adopt-A-Storm-Drain program deploying volunteers to adopt various storm drains to facilitate regular cleaning.

Breakout Group #3: Research Needs

The ideas developed during the meeting were separated into four main areas: research needs, remediation, monitoring, parking lot.

List of Research Needs:

- Toxic algae tie to human diseases
- Water circulation (e.g. flushing time, residential time)
- Real time monitoring stations for temperature, salinity, nitrogen, oxygen
- Surface chemistry data
- Ground water monitoring (water flow and chemistry)
- Emergent contaminant
- Impact on wildlife: physical (e.g. from marine debris), chemical (contamination with toxins and antibiotics)
- Physiological impact and food web structure
- Identify Miami River input and output in order to understand budget
- Identify surface and ground water input
- Weather monitoring stations for wind data
- Non target analysis (to generate a list of contaminants)
- Identify pathogens
- Address inflow offshore (to assess impact on coral reef)
- Data mining of existing dataset

List of Monitoring Ideas:

- Identify biomarkers
- Identify Impact of pollutant on marine life
- Identify markers of ecosystem metabolism
- Identify targets
- Needed social scientist
- Monitoring debris (microplastic)
- Monitoring related to sea level rise: sediments elevation table, tidal cage, flooding variability
- Monitoring fisheries and nursery habitat
- Monitoring seagrass loss
- Monitoring mammals, turtle, birds
- Identify restoration goals

List of Remediation Ideas:

- Look for existing filter in the market

List of Parking Lot Ideas:

- Management plane for Loss of coastal habitat
List of Ideas that were considered priority:

Research Needs:
- Toxic algae
- Water circulation
- Real time monitoring stations for temperature, salinity, nitrogen, oxygen
- Ground water monitoring
- Data mining of existing dataset

Monitoring Ideas:
- Seagrass loss
- Microplastic
- Restoration goals
- Fisheries and nursery habitat
- Impact of pollutant on marine life

Breakout Group #3: Research Needs (cont.)

Breakout Group #4: NGO, Non-Profit and Educator

Purpose - To collaborate in determining the ways NGOs can help prevent or reduce marine debris from entering into and harming Biscayne Bay, or participate in cleanup activities

Objectives - Generate a set of short, medium, long term goals to inform a comprehensive 10-Year Action Plan

Activities - Discuss, Brainstorm Goals, Voting to Prioritize, and then categorize goals according to the timeframe in which they can be completed

Organizations Represented:
- Florida State Department of Environmental Protection (DEP)
- Miami Water Keeper
- State Park/Bill Baggs
- FIU
- Artists
- UF FL Sea Grant, Biscayne Bay Water Watch
- Biscayne Bay Aquatic Preserves
- Mast Academy
- Tropical Audubon

What's going well?
- Artists are getting engaged in the conversation, spreading information, recycling materials (marine debris) as statement pieces
- We are reaching out to certain communities (+) but leaving others out
- Wide range of educational materials available and local events
- Training Programs (teach the teacher)
- Everglades as a teacher program
- Miami Waterkeeper has a Jr. Water Keeper Program
- Grants funding available for new projects

Challenges/Areas of Improvement
- Lack of knowledge in the general public about BBMH issues (especially among new residents, tourists)
- Challenges within the school system to introduce children to the issues
  - Limited opportunities for field trips
  - So much emphasis on testing requirements
  - STEM education
  - Programs that meet these two criteria are prioritized

*Opportunity for us to develop trips, curriculum, presentations, learning opportunities that satisfy STEM requirements or testing skills

Prioritized Initiatives:
- Focus on engaging diverse communities, not just the environmental groups
- Need for broad PSA, awareness, marketing campaigns
  - Target visitors at coastal, public parks with brochures/literature that speak to these specific issues (marine debris, pollutants, dumping)
  - Billboards, viral pictures (liter shaming) on social media
- Declare State of Emergency to restore Biscayne Bay
- Find ways to integrate environmental education into schools
  - As part of community service requirements
  - Make curriculum meet STEM requirements
  - More funding for field trips
- Garner support for policy decision to reduce nutrient loading into the bay
- Many other issues were put on sticky notes, but were not prioritized

We were limited in time and there were other ideas worth exploring in more detail even though they did not get the “most votes.”
11. Memories