Shoreline

FLORIDA SHORE & BEACH PRESERVATION ASSOCIATION
A League of Cities and Counties on Beach and Coastal Issues

About Shoreline

news from the Florida Shore and Beach Preservation Association

November 2023

37th Annual
February 7-9, 2024
Embassy Suites
St. Augustine Beach, FL

National Conference on Beach Preservation Technology

Mark your calendars for the next Tech Conference to be held February 7-9, at the Embassy Suites on the sandy beaches in beautiful St. Augustine. The location has become a fan favorite, and we hope you will join us once again for an outstanding professional conference.

Development of the conference program is underway! The abstract deadline closed, and the Planning Committee is reviewing and scoring this month. This is no small task given the quality of presentation abstracts received for the conference. As conference organizer, FSBPA anticipates the program in early December.

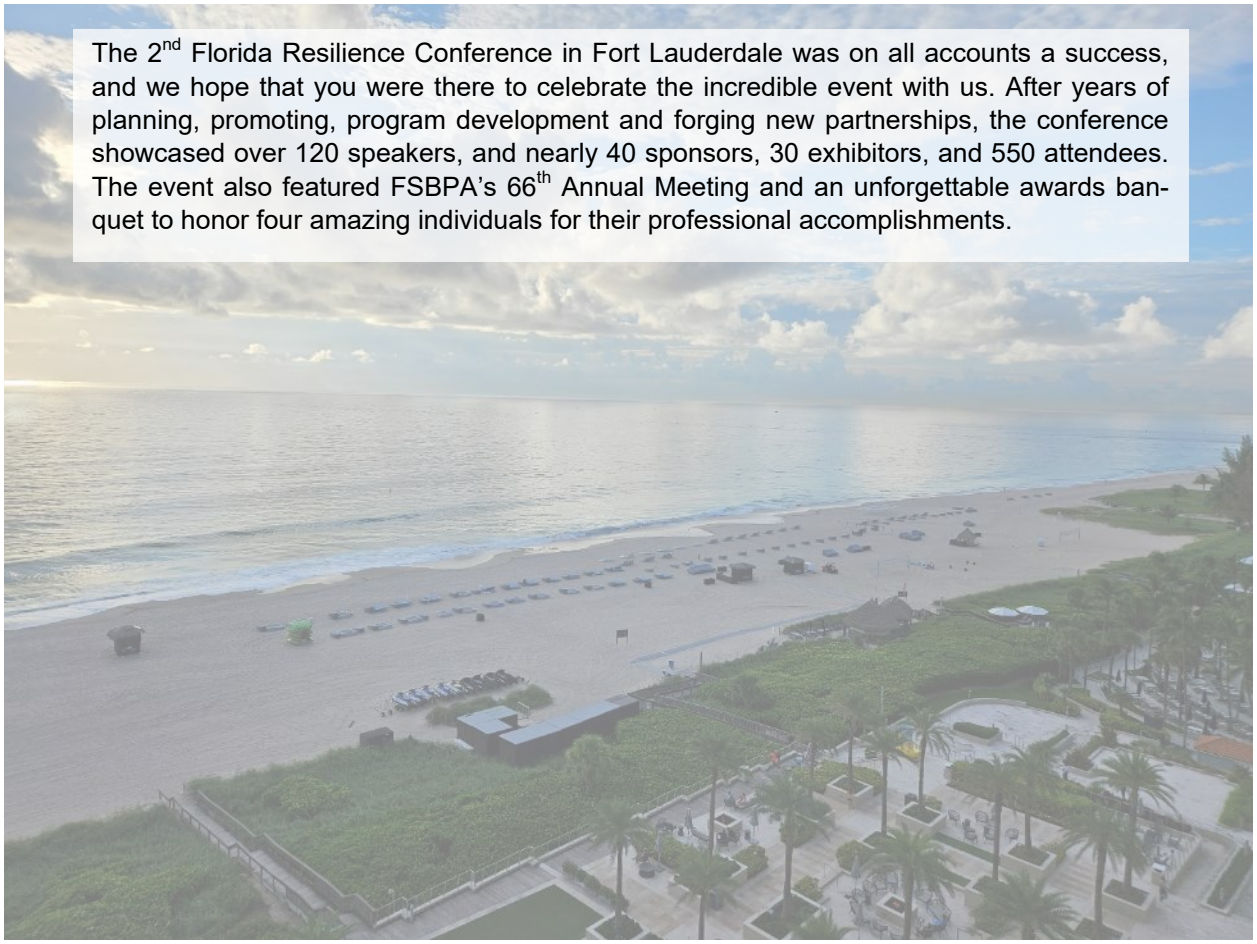
Important conference information and deadlines are available on FSBPA's website. Hotel reservations at the Embassy Suites are available at the group rate of $174 / night and can be made online (Cut-off date is January 8). Cancelled rooms are not returned to the FSBPA room block for others to use, so please only reserve the number of rooms that you can use.

Conference registration and sponsorships will be available on FSBPA's website during the week of November 13th. Stay tuned!

Anastasia State Park - *photo courtesy of St. Augustine Ponte Vedra CVB*

Inside this Edition

Highlights from the 2023 Florida Resilience Conference



The 2nd Florida Resilience Conference in Fort Lauderdale was on all accounts a success, and we hope that you were there to celebrate the incredible event with us. After years of planning, promoting, program development and forging new partnerships, the conference showcased over 120 speakers, and nearly 40 sponsors, 30 exhibitors, and 550 attendees. The event also featured FSBPA's 66th Annual Meeting and an unforgettable awards banquet to honor four amazing individuals for their professional accomplishments.

The FRC kicked off on September 27th with a warm welcome by Broward County's Mayor Lamar Fisher and a video presentation by Florida Senate President Kathleen Passidomo, and then launched into legislative policy presentations on resilience from the Governor's Office, Department of Environmental Protection, and Division of Emergency Management. Breakout sessions followed, where elected officials, agency partners, NGOs, and industry experts took deeper dives into programs and projects in beach management, energy, infrastructure, and smart planning. The enthusiasm from the day shifted into a lively Welcome Reception that evening sponsored by Garcia, Kiewit and Weeks. Hundreds of attendees lined the exhibit hall to network and collaborate.

Did you know that the State of Florida has committed over a billion dollars to the Resilient Florida program and planning initiatives!

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Colonel Booth delivers the Commander's Update

The program themes carried into Thursday and Friday mornings and included discussion by Colonel James Booth, Commander of the Jacksonville District, USACE, and panel presentations by Florida's Water Management Districts, Department of Transportation, and Regional Planning Councils on managing water resources and planning strategies for a resilient future. We also heard informative panel discussions about funding infrastructure projects, managing sand after a hurricane, preparing for the future of grid resilience and power generation, and planning collaboratively in communities. As part of the closing session, we were fortunate to hear Senator Alexis Calatayud, District 38, speak on the Florida Legislature's Environmental Outlook. Feedback on the program has been very positive thanks to the outstanding speakers who shared their insights and experience with us.


Thursday afternoon's luncheon sponsored by Autodesk

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Thursday evening's affair was nothing shy of spectacular. Sponsoring the cocktail hour, Live Wildly brought a ton of smiles and swag to the event, and of course - cocktails. What a generous addition to the program!

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The evening continued with the Awards Banquet sponsored by CPE, Aptim, and Lewis Longman & Walker to celebrate four longtime FSBPA members for their distinguished service to beach preservation. A special thanks to Humiston & Moore for their sponsorship of the Awards. It was a joyous and unforgettable experience. Photos of the Award winners and plaque inscriptions are available on the next page, and candid shots of the evening can be found at FSBPA... Ft. Lauderdale... 9/28/23.

Mark your calendars for the 2024 FRC, September 11-13, 2024, at the Hyatt Coconut Point in Bonita Springs. Planning is already underway and we look forward to receiving ideas for improving the agenda.

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66th FSBPA Annual Conference Awards Banquet
Presented Thursday, September 28
Fort Lauderdale

Congratulations FSBPA Awards winners! We applaud your dedicated commitment to Florida's beaches. A special thanks to everyone who joined the annual awards celebration on Thursday evening. It was a memorable time for all.

Stan Tait & Deborah Flack Award

"In recognition of over 40 years of dedicated service and commitment to the preservation of Manatee County's natural resources and coastlines and for your outstanding contributions to the statewide beach management program and this association"

Presented to
Charlie Hunsicker

Public Service Award

"For your outstanding service and commitment to enhancing Florida's waterways and protecting beaches through effective regional sand management, on behalf of the Florida Inland Navigation District and the twelve counties it serves"

Presented to
Janet Zimmerman

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Local Government Award

"In recognition of your exemplary leadership and unyielding commitment to the preservation of St. Lucie County's beaches and for successfully advancing the county's beach management program by finding solutions to complete priority projects – one project at a time"

Presented to
Joshua Revord

Jim Purpura/T.Y. Chiu Engineering Award

"In honor of your distinguished career at the Florida Department of Environmental Protection, and in recognition of your significant contributions advancing coastal engineering solutions for the protection and preservation of Florida's 825 miles of world-class beaches"

Presented to
Robert M. Brantly

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The Florida Resilience Conference Student Travel Scholarship Program

The Surfing's Evolution & Preservation Foundation awarded FSBPA a grant to initiate a Student Travel Scholarship Program for the FRC. Students from Florida universities competed to earn one of three scholarships that allowed them to attend and network at the event. Congratulations to Teagan Frazier, University of Florida, Center for Coastal Solutions; Leanne Hauptman, Florida Atlantic University; and Elizabeth Royer, University of South Florida, for a job well done!

Thank you to the Foundation for your generous support of these students and special thanks to the Selection Committee for reviewing applications and making the very tough decisions among candidates.

Surf & Beach Preservation

FLORIDA SURFN

SURFING'S EVOLUTION & PRESERVATION FOUNDATION

Scholarships presented at the conference luncheon
Thursday, September 28
Fort Lauderdale

Student Scholarship Recipients with Selection Committee
Lainie Edwards, James Gray, Teagan Frazier, Leanne Hauptman, Elizabeth Royer, and Lauren Floyd. Jimmy Sellers not pictured.

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Key Findings from the U.S. Army Corps of Engineers' Southeast Florida Sediment Morphodynamic Study for Miami-Dade County Beaches

US Army Corps of Engineers®

Dr. Kelly R. Legault and Laurel P. Reichold, U.S. Army Corps of Engineers, South Atlantic Division Regional Sediment Management, Center of Expertise

Study Overview

The U.S. Army Corps of Engineers (USACE) Southeast Florida Sediment Morphodynamics (SEFMOD) study began in 2019 as the first multi-project scale field measurement and modeling study in Southeast Florida. The study took a Regional Sediment Management (RSM) approach with more detailed studies at Lake Worth Inlet (Palm Beach Harbor), Port Everglades Harbor, and Miami-Dade County (MDC) to include Baker's Haulover Inlet (BHI). The main goals were to identify more sustainable solutions to improve sediment management for the region and to identify strategies that would decrease management costs at project specific sites (**Figure 1**).

The study acquired data across the region to establish an understanding of the natural system and the metocean processes that drive sediment transport so conceptual and numerical models could be used to forecast sediment transport pathways leading to improved sediment management decisions.

Figure 1: Map of SEFMOD Study

Miami-Dade Area

Project Background: The city was first integrated as Ocean Beach in 1915 but was later renamed Miami Beach in 1916. Miami-Dade County has continually had coastal erosion and storm vulnerability issues over the previous century. The region's barrier island provides natural defense against storms, but as documented in the 1930's - 1970's, man-made structures and erosion control measures disrupted natural processes, leading to increased vulnerability. Figure 2 (far right) and Figure 3 show beach erosion and groin field fronting Mid-Beach in 1937 and 1970, respectively. Since 1975, the Dade County Beach Erosion Control and Hurricane Protection Project (BEC & HPP) has protected the main section of the Miami-Dade Atlantic coast, primarily through beach nourishment.

Figure 2: Miami Beach 1970. (Aerial view of the Fontainebleau Hotel - Miami Beach, Florida. 1970. State Archives of Florida, Florida Memory. Accessed 12 Sep. 2023. https://www.floridamemory.com/items/show/55330

Figure 3: Miami Beach 1937. (Romer, G. W.(Gleason Waite), 1887-1971. Aerial photograph looking north over Miami Beach. 1937-04. State Archives of Florida, Florida Memory. Accessed 12 Sep. 2023.

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Table 1: Beach Nourishment Volumes by Location at Miami-Dade County (FDEP, SBMP, SE Atlantic SBMP. 2020)

Location FDEP R-Monument	Volume Placed (1955 – 2020) CY
Golden Beach Sunny Isles & Bakers Haulover Park R1 - 26	3,656,286
Bal Harbour R27 - 31	3,112,857
Surfside R31 - 38	3,572,800
Miami Beach R38 - 74	11,538,477
Miami-Dade Total	**21,880,420**

In 2022, USACE completed a feasibility study for the continued shore protection management of the main segment for the next 50 years (from 2025-2075) (USACE, 2022). The study forecasts that the MDC shoreline will remain at risk due to sea-level rise and erosive wave energy from coastal storms, threatening natural habitat, recreational use and tourism income. The estimated sand requirements for maintaining shoreline protection over the next 50 years are 10M cubic yards (cy) for the main segment and an additional 10Mcy for the other MDC segments. The main segment plan includes periodic beach nourishment, dune construction, and groins (shoreline structures) at specific locations. Sand sources would be a combination of existing borrow areas, nearshore areas, and new offshore sites. The SEFMOD study was completed to gain a better understanding of metocean processes and sediment dynamics in the area, particularly around the main inlets of Baker's Haulover and Government Cut, to implement sustainable sediment resource management techniques.

Study Methods: Field work was conducted and measurements collected from Aug. 2019 to Sep. 2020, and included inshore moorings to log Conductivity, Temperature and Depth (CTD) as well as Suspended Sediment Concentration (SSC), and meteorological data (i.e. wind, rainfall); nearshore moorings to log CTD, SSC, water-column to near-bed currents, waves, and sediment transport; and offshore and deepwater moorings to log water-column to near-bed currents and waves in approximately 60' and 220', respectively (Figures 4a&b). The release and sampling for 7 sand tracers and 4 silt tracers on the beach and/or in in the surf zone took

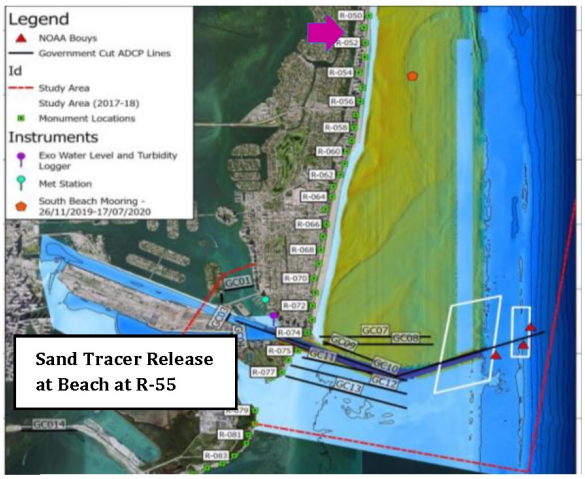

Figure 4b: Miami-Dade Study Area Instrumentation

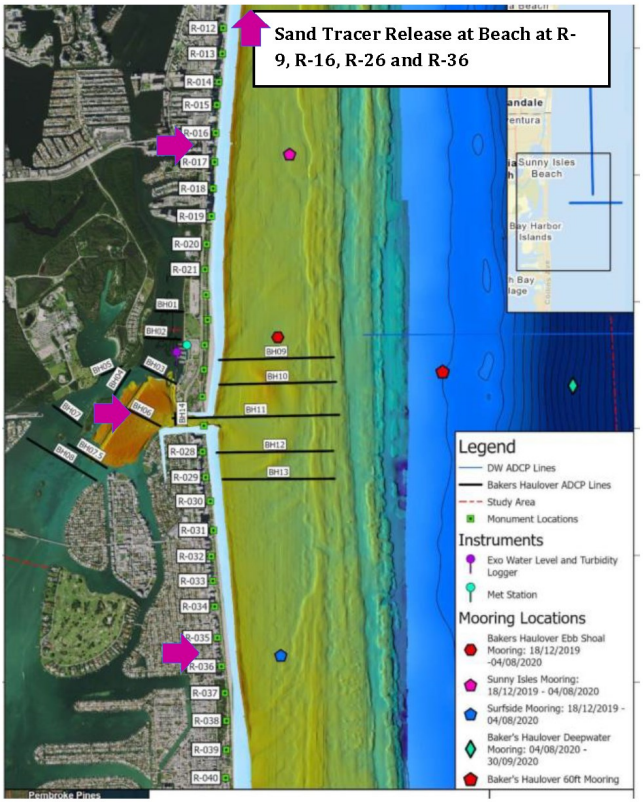

Figure 4a: Miami-Dade Study Area Instrumentation

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place up to 32 weeks after the initial release to map the transport and deposition of all sediment tracers. Multibeam bathymetric, sidescan, sub-bottom profiling and geophysical surveys were conducted from the north end of MDC (R1) down to Government Cut (R74) and out to the approx. 45' contour.

Study Results: Almost 22Mcy of sand has been placed along MDC shoreline over the past 70 years, and given that the estimated sediment requirements for the next 50 years are 10Mcy for the main segment and an additional 10Mcy for the other MDC segments, the study sought to better understand the dispersal and transport of sandy sediments from the beach. Sand tracer that was released on the subaerial beach and in the nearshore (Figures 4a&b) were quickly integrated into the inner and outer surf zone, including the bar system. Within six months, sands were found to have settled either within the active surf zone or upon existing sand lenses offshore of the outer-surf zone and in the inner plateau inshore of the -20ft contour (Figure 5). For the most part, sands were not found on hardbottom but were instead found in the troughs between the second and third reef. Sand tracer released in the vicinity of Baker's Haulover Inlet were

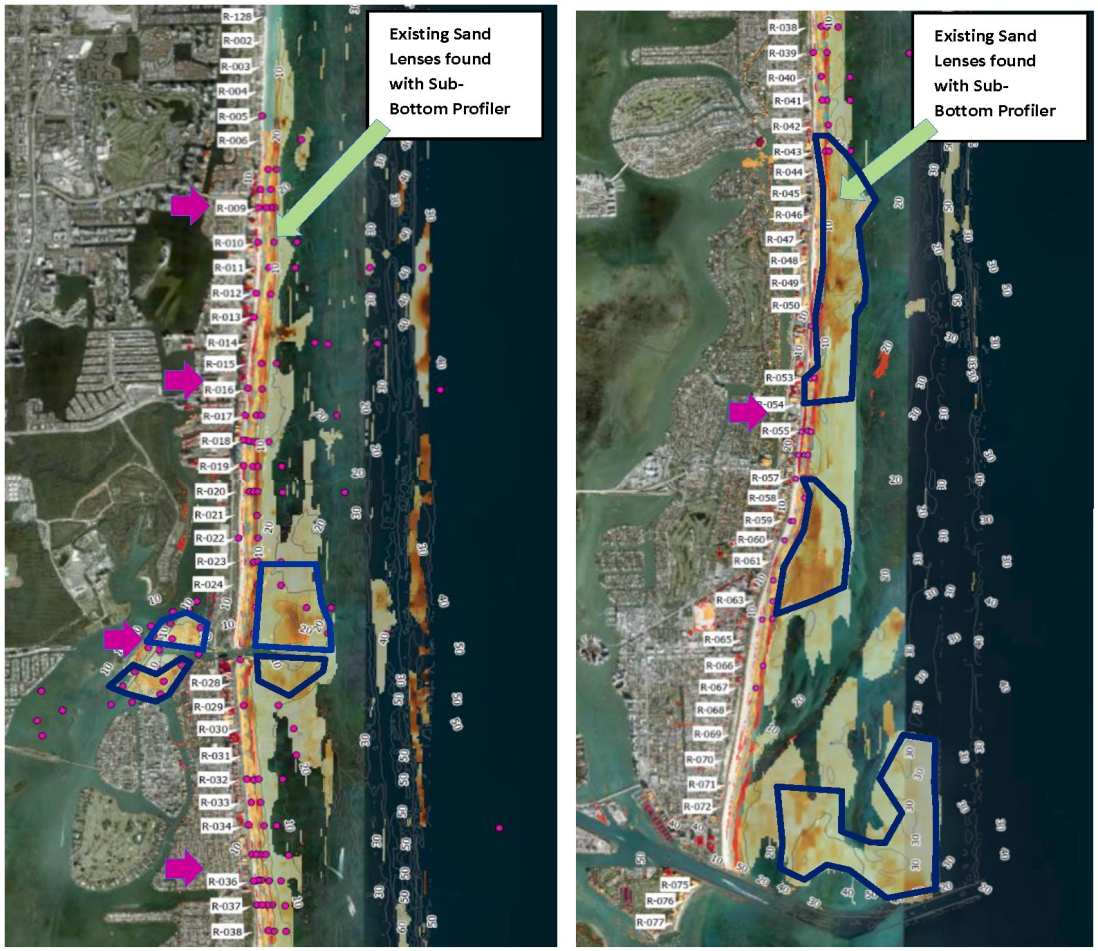

Figure 5: Sand tracer was released on the beach and in the nearshore at the location of the arrows and on the flood shoal of Baker's Haulover Inlet. Tracer (magenta circles) integrated into the active surf zone and into the existing sand lenses was found using sub-bottom profiling during SEFMOD (denoted by yellow to orange patches). The majority of released sand tracer was found upon the existing sediment lenses landward of the -20ft contour and not on hardbottom. Polygons denote regions along the MDC shoreline with significant sediment thickness between R25 (BHI flood and ebb shoal) to R74 (Government Cut) with volumes reported in Table 2.

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integrated into the flood and ebb shoals.

The most compelling measurements from the SEFMOD study at MDC were the combination of the sand tracer and the sub-bottom profiling. Volume estimates were made using the sediment thickness data (Table 2) for regions that exhibited substantial sand deposits. It was readily observed that the surf zone has an extensive and active bar system; however, a substantial amount of sediment was located within deposits directly offshore of the surf zone along the entire county (Figure 5; Table 2). Six months after the sand tracer release, the tracer was predominantly located either in the surf zone bar or within existing nearshore sand deposits.

Table 2: Estimated volumes of sand resources in larger deposits in the nearshore areas as shown in blue polygons in Figure 5 for Baker's Haulover flood and ebb shoal, R43-R55, R58 – R64 and north of Government Cut adjacent to R 69 – R74.

Area ID	Estimated Volume (cy)	Average Thickness (ft)
BHI Flood North	203,000	5.6
BHI Flood South	297,600	5.5
BHI Ebb North	1,145,900	6.5
BHI Ebb South	472,000	6.3
R43 – R54	2,412,100	6.9
South Beach R58 to R64	1,958,900	8.4
North of GC	4,595,000	4.3

The total volume of the sand deposits currently in the nearshore of MDC is approximately 11Mcy. The total volume of sediment retained between the 1970 and 2020 shoreline is approximately 6Mcy (Detail, Figure 6). Total sand placement during nourishments between 1978 and 2020 was approximately 22 MCY (FDEP, 2020). If it is assumed that the nearshore sand deposits are fed by nourishment projects (as evidenced by the tracer), then approximately 80% of the historical nourishment volume is still within the Miami-Dade nearshore.

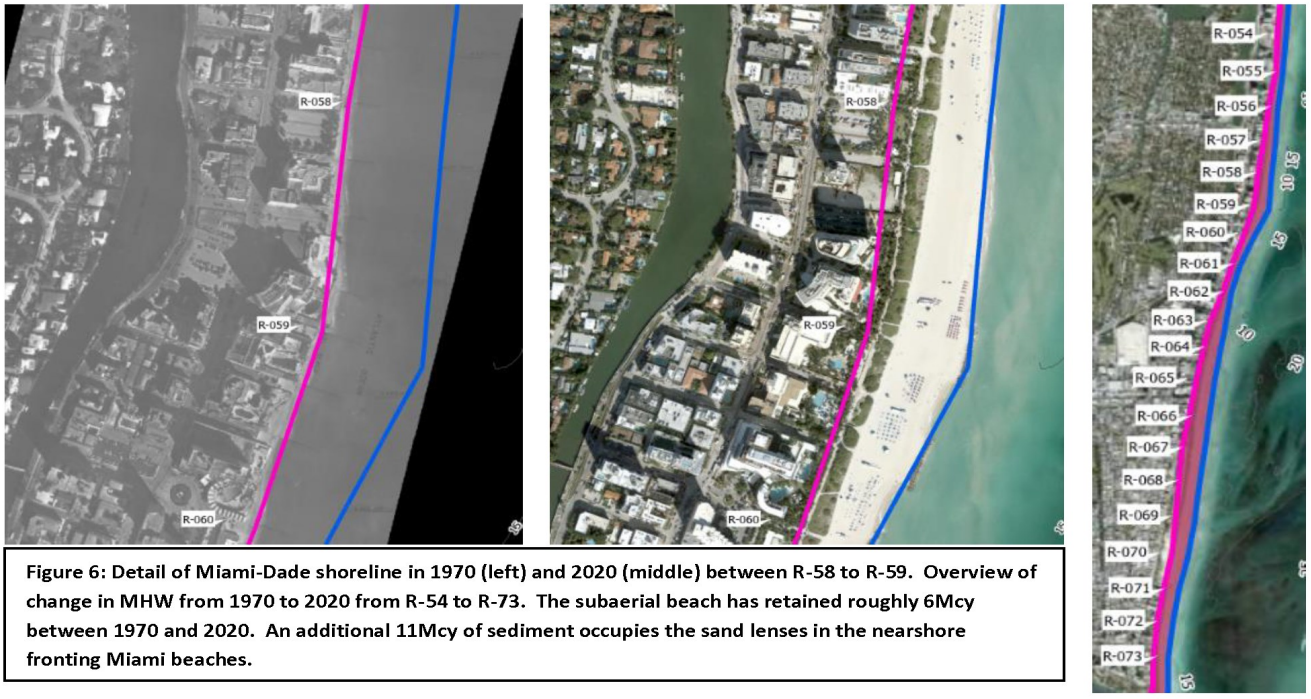

Figure 6: Detail of Miami-Dade shoreline in 1970 (left) and 2020 (middle) between R-58 to R-59. Overview of change in MHW from 1970 to 2020 from R-54 to R-73. The subaerial beach has retained roughly 6Mcy between 1970 and 2020. An additional 11Mcy of sediment occupies the sand lenses in the nearshore fronting Miami beaches.

The commitment amongst all stakeholders to restoring and maintaining Miami-Dade County beaches from their pre-1970 (and reaching back to the 1930's) conditions bears fruit today. The

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beaches fronting the county are in relatively good condition as the mean high water (MHW) in this decade maintains its seaward extent.

Sediment sourcing and regional sediment management practices must be kept in the forethought as estimates for future nourishment over the next 50 years are approximately 20Mcy for the entire county (USACE, 2022). The measurements obtained during the SEFMOD study demonstrated that the majority of sand tracer released from the beaches along the county were either incorporated into the substantial existing surf-zone bar or were transported further offshore and resided within the sand lenses of the nearshore. The sub-bottom profiling along the county indicates that there are potential sources of sediment at inlet shoals as well as in the nearshore. These sources may be recoverable and suitable with careful morphological analyses to determine impacts and improved dredging technologies.

Study Recommendations:

1. Trapping, recovery and re-using sand already within the system should be actively pursued adjacent to Government Cut north jetty to avoid or reduce loss of sand to the south, subject to an assessment of impacts at Virginia Key and Key Biscayne. This should be combined and integrated with an evaluation of the potential accumulation of sand north of R-64 and the 22Mcy of sand placed to date as part of the BEC & HPP.

2. The use of shore-parallel structures should be fully examined given the evidence that cross-shore sediment transport is the fundamental driver for beach profile evolution at Miami-Dade County. Proposed groins south of Baker's Haulover and Bal Harbor Inlets are appropriate because of the persistent inlet-directed flows owing to tidal forcing, but elsewhere, shore parallel structures should be considered.

3. Almost 11Mcy of sediment is in the nearshore fronting Miami-Dade County. Determine the feasibility and cost efficiencies of removal of nearshore sediment deposits between the outer surf zone and the first reef as a source for future nourishment needs.

References:

FDEP 2020. Strategic Beach Management Plan: Southeast Atlantic Coast Region. Office of Resilience and Coastal Protection. Florida Department of Environmental Protection. Tallahassee, FL.

USACE 2022. Miami-Dade County, Florida, Main Segment, Coastal Storm Risk management, Final Integrated Feasibility Report and Environmental Assessment, July 2022.

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The Florida Department of Environmental Protection (FDEP) Office of Resilience and Coastal Protection November 2023

A Warm Welcome to the New Program Manager for Coastal Engineering and Geology Group

Shamim Murshid, Ph.D. has been promoted to program administrator of the Coastal Engineering and Geology Group. Shamim received his bachelor's degree in civil engineering from Bangladesh University of Engineering and Technology; has two master's degrees, one in coastal engineering (Delft) and one in marine science (University of Delaware); and a Ph.D. in oceanography and coastal sciences (Louisiana State University). He started working for the department in 2021 and has supervised the survey team, performed numerical modeling, reviewed beach and inlet management projects as well as evaluated post-storm impacts.

Shamim is married, has a three-year-old son and loves to travel.

He hopes to improve our modeling expertise, especially hydrodynamic modeling, through hiring an Environmental Manager and a new Engineering Specialist III.

A Warm Welcome to the New Environmental Administer Beach Field Services

Ginger Shirah has joined the Beach Field Services team after eight years in Waste Management. She has also worked for the Division of Emergency Management and the United States Geological Service.

She is from Wakulla County and earned her geography degree from Florida State University. She is married with an 11-year-old son, likes to hike and kayak, keep bees and garden.

She looks forward to visiting with all the field inspectors around the state and exploring all the beaches!

Beaches Inlets and Ports Program (BIPP) Staff Updates

William (Zach) Boudreau to Resource Review Section

Zach Boudreau is moving to the Resource Review Section within BIPP. Zach served as permit manager for the Southeast Atlantic coast for seven years and oversaw the completion and issuance of many significant permits for coastal management activities. Zach earned his Master of Science in Marine Biology from Northeastern University and undergraduate degree in psychology from Franciscan University of Steubenville.

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Kaylee Rose to Manage Southeast Region Permits

Kaylee Rose will be promoted from Environmental Specialist (ES) II to ES III and will now cover the Southeast Atlantic coast as permit manager. Kaylee came to the department in January of 2022 and has managed the Florida Panhandle and northeast regions of the state. Kaylee has done an outstanding job managing her region and will undoubtably continue to do so for the southeast region. Kaylee earned a Master of Science in Aquatic Environmental Science from Florida State University and an undergraduate degree in biology from Georgia Southern University.

Zach and Kaylee's transitions to their new roles will occur over time. They may still be contacted regarding any of the permits they are currently managing. The hiring process for the vacant ES II position will take place immediately and new staff additions will be announced in subsequent newsletters.

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Florida Ocean Alliance's Coastal Resilience Leadership Meeting November 9 at Port Tampa Bay

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On November 9, 2023, the Florida Ocean Alliance will host the *Coastal Resilience - Protecting Florida's Blue Economy & Future* Leadership Meeting. Alliance members and marine and coastal experts and advocates from around the state will gather at Port Tampa Bay - Terminal 2 for discussions on the changing climate and the impacts on Florida's natural infrastructure and coastal communities as well as the blue economy. Speakers include Dr. Mark Rains, Chief Science Officer of the Florida Department of Environmental Protection; James Murley, Chief Resilience Officer of Miami-Dade County; and an expert panel including Dr. Charles Colgan of the Center for the Blue Economy plus Florida marine and coastal scientists and other experts who will discuss key challenges as well as new solutions that can strengthen Florida's coastal resilience.

Following the program, join us for an onboard reception, silent auction, and sunset cruise hosted by Port Tampa Bay and the Alliance Board of Directors.

Reserve now: Tickets are on sale, click here

For sponsorship information, contact: mlord.foa@gmail.com

Subscribe to *Florida Ocean News* for event updates and an invitation to the event.

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New Buoys off Ft. Pierce and Ponce Inlets
Filling Critical Regional Monitoring Gaps

The FAU Harbor Branch and UNCW team installed new buoy infrastructure at two sites (10 nautical miles NE of Ft. Pierce, and 16 nautical miles NE of Ponce Inlet). The work is performed as part of a new SECOORA grant to fill a critical regional monitoring gap regarding oceanographic and meteorological data.

Both sites consist of a full-size ocean buoy with CTD and meteorological sensors, and the Ponce site also has a co-located wave buoy. Hourly data is available from UNCW-operated CORMP.org, NDBC.NOAA.gov, or SECOORA.org. The real-time information will be useful not only for improving weather and hurricane forecasting, with the NWS included as partners on the project, but the Ponce site in particular has been very well-received by the local recreational communities, e.g. the surfers in New Smyrna and Daytona who previously had to rely on the Canaveral or St. Augustine buoys.

The grant expands the existing UNCW CORMP system to Florida (lead PI Lynn Leonard, Co-PI Chris LaClair), with their group responsible for providing the major equipment infrastructure, while FAU Harbor Branch researcher Jordon Beckler's group (Co-PI) is largely responsible for maintaining the buoys and working with local stakeholders and scientists who are interested in leveraging the data or even the buoy infrastructure for their own work. Please contact Dr. Beckler at jbeckler@fau.edu if you interested in working with the buoys, which are expected to be operational for at least the next four years.

Buoy data streams can be found at
PNC (Ponce Inlet) oceanographic and meteorological data
PNCWAVE (Ponce Inlet) wave data
FTP (Ft. Pierce) oceanographic and meteorological data



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CALENDAR OF EVENTS

FSBPA Events

February 7-9, 2024
37th Annual National Conference on Beach Preservation Technology
Embassy Suites, St. Augustine, FL

September 11-13, 2024
3rd Annual Florida Resilience Conference
featuring the 67th FSBPA Annual Meeting
Hyatt Regency Coconut Point, Bonita Springs, FL

Other Events

Florida Ocean Alliance's
Coastal Resilience Leadership Meeting
November 9
Port Tampa Bay

Atlantic Intracoastal Waterway Association
Annual Meeting
November 13-15, 2023, Aloft Hotel, Wilmington, NC

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