



2019 BEACHWATCH LEGISLATIVE SESSION WRAP-UP

Excerpts from BeachWatch Updates

provided 5/6/19 by Debbie Flack

with 2019 Bill Summary by Diana Ferguson, Rutledge -Ecenia

Our 2019 Coastal Management Bill Sponsors and Beach Champions



Senator Debbie Mayfield



Representative Chip LaMarca

The 2019 Legislative Session is over — officially Saturday, May 4th, just after 2 pm with passage of the \$91 billion Conference Report on SB 2500 (the FY 2019/20 budget). It may have been a day late, but it wasn't a dollar short for Florida's beaches. This session will be remembered by a diverse group of major substantive and funding initiatives addressing water quality improvement, Everglades, school spending and helping the Panhandle recover after Hurricane Michael. A large number of bills were filed (3,500); only 200 passed before the 2019 Session ended. The good news for beaches is that FSBPA's BeachWatch advocacy agenda's goals and objectives were met or exceeded, and even a most unexpected wish granted.

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September 18-20, 2019
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2020 Tech Conference
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Hyatt Regency
Sarasota

2019 BEACHWATCH LEGISLATIVE SESSION WRAP-UP

APPROPRIATIONS

It all came together, a reasonable strategy that surpassed all expectations in a difficult budget year trying to accommodate the Governor's \$625 million for water quality enhancement and Everglades, Hurricane Michael impacts with estimated costs of \$1.8 billion but only new funding in the \$200M range, the rest restoring depleted reserves. Our funding objectives were to repeat \$50M in funding for FY 19/20, secure proviso that gave the Department of Environmental Protection the discretion to fund additional unfunded projects in priority order, and to maintain funding emphasis on inlet management and post-construction monitoring. Before Session, there was no assurance we could repeat \$50M in total project funding especially with the Senate "unofficial" starting allocations or increase the current \$29.5 million in recurring funds given the scarcity of available funds in the Land Acquisition Trust Fund. The Conference Report excerpts about beach funding follow:

The Details regarding the Traditional Statewide Beach Budget for 2019/20

(Conference Report on SB 2500, with FSBPA **annotations in red**)

1695 GRANTS AND AIDS TO LOCAL GOVERNMENTS AND NONSTATE ENTITIES - FIXED CAPITAL OUTLAY BEACH PROJECTS – STATEWIDE

1695 GRANTS AND AIDS TO LOCAL GOVERNMENTS AND NONSTATE ENTITIES - FIXED CAPITAL OUTLAY BEACH PROJECTS - STATEWIDE		
FROM GENERAL REVENUE FUND	9,814,930	
FROM LAND ACQUISITION TRUST FUND. .		40,185,070

From the funds in Specific Appropriation 1695, \$40,185,070 in recurring funds from the Land Acquisition Trust Fund and \$9,814,930 in nonrecurring funds from the General Revenue Fund are provided for the Department of Environmental Protection's Beach Management Funding Assistance Program (BMFAP) Local Government Funding Requests for Fiscal Year 2019-2020 pursuant to section 161.101, Florida Statutes, for Beach Restoration/Nourishment and Inlet Sand Bypassing/Inlet Management Plan Implementation Projects Lists. **(\$50M Appropriation: \$45M beach projects, \$5M inlets)**

Funds in Specific Appropriation 1695 shall be provided for Beach Restoration and Nourishment projects on the Fiscal Year 2019-2020 list, in priority order. **(Funds in their entirety projects 1-10, and #11 partially (less \$2M), and all 21 post-construction monitoring requests)**

Funds in Specific Appropriation 1695 shall be provided for Inlet Sand Bypassing and Inlet Management Plan Implementation projects including post-construction monitoring, in priority order, based on the amount of inlet funding requested as a percentage of the total statewide funding requested, or 10% of the total appropriation, whichever is greater. **(For FY19/20, the traditional 10% is greater. Funds top 5 inlet projects (less \$115K), and all 6 monitoring requests at 50%)**

Funds in Specific Appropriation 1695 shall be provided for post-construction monitoring projects for Beach Restoration/Nourishment and Inlet Sand Bypassing/Inlet Management projects, to be cost-shared equally, in the BMFAP. **(\$1.4M for 21 beach projects and \$339,750 for monitoring of six inlet projects)**

Any remaining unencumbered surplus funds shall be available for beach and inlet management projects in continued priority order, based on readiness to proceed. **(Consistent with existing statute and new legislation, HB 325)**

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Specific projects and state funding amounts requested are exactly as presented, in terms of order of priority and amount, in the Department of Environmental Protection's Local Government Funding Request (LGFR) for FY 2019/20.

Proviso captures the intent of a number of substantive provisions in the recently-passed Coastal Management bill ([HB 325](#)). Hopefully the State's beach program will continue to benefit from the proviso addressing unencumbered, surplus funding that allows DEP to put these dollars to timely use, protecting against future fund sweeps and reversions. This should put to good use appropriated state funds made available from generous Hurricane Irma Federal Supplemental Funding that might in fact expedite the restoration and nourishment of other storm-impacted projects when considering priority order and readiness to proceed. 2019/20 proviso is clearly consistent with existing statute, as well as other pending changes associated with the Coastal Management legislation. This includes the inlet funding "greater than" option, and the reduction in inlet project monitoring state funding to equal shares consistent with all beach projects.



One more positive final budget detail was funding for the **Florida Resilient Coastline Initiative of \$5,517,567**. It is primarily a grants program to assist local governments with "storm resiliency, sea level rise planning, coastal resilience projects, and coral reef health." Recommendations and estimated costs must be submitted to the Senate and House Budget Chairs and Governor's Office by Oct 1, 2019. FSBPA will follow-up with DEP on the Governor's budget recommendation that part of this funding be used "to support emergency sand placement to help fortify coastal areas ahead of storms."

Looking Back and Moving Forward: Let's not Forget

It was extremely difficult to wait until now to state the Conference Report on SB 2500 includes the largest recurring trust fund allocation in the recent history of Florida's beach program. We know next year's budget includes a recurring Land Acquisition Trust Fund allocation of \$40,185,070 which represents a \$10,681,181 increase over the current year and will be part of the base budget going forward.

How far have we come in a short time? The statewide beach management program secured a legislative appropriation of **\$50 million for the third year in a row** during a challenging budgetary session in which a number of major environmental programs lost ground. In FY 16/17, the beach program received a total appropriation of \$32.6M, including its first recurring allocation of Amendment 1 trust funds of \$10.1M, and we were delighted. For FY 17/18 the program received its first appropriation of \$50 M, our strategic "hush" number, \$29.5M in recurring LATF. These two allocations did not change for the current fiscal year, 18/19. Not at all sure why in a year of limited new recurring LATF dollars, the statewide beach program was the recipient, but assure you that a program that has statewide application, different agency-ranked projects in the mix every year, federal and local government funding partners had some part in the equation. The final

consideration just might have been the exposure and popularity of the Coastal Management Legislation—with refined and diverse criteria weighted toward economic benefits, emphasis on management of scarce sand resources, and quite possibly the discussion of the three-year work plan by our bill sponsors, stressing the need for a predictable funding source and amount. Now we must deliver. There is no reason not to carefully pursue the final \$10M in recurring LATF, to better ensure a stable \$50M in annual funding going forward; however, it may be necessary to instead focus on what we now have in the base budget—and make sure we keep it.

Next session, we can expect severe beach damages and associated costs from Hurricane Michael, especially in Gulf and Bay Counties, will be given attention to some degree with specific project recommendations, hopefully based on DEP's Preliminary Hurricane Michael Storm Recovery Plan (Feb. 2019). While extremely important especially in terms of economic recovery and future storm damage protection, the priority for beach and dune restoration was premature this session given the sheer scope of unmet basic survival needs. The Panhandle has only one federally-authorized project, Panama City Beach, and the Mobile District's response is encouraging, but for the remaining severely-impacted beaches like Cape San Blas and Mexico Beach its not reasonable, at least currently, to expect local project sponsors to step-up. They are overwhelmed. This is a discussion for another day, and perhaps the 2020 Session, once a FEMA response, if any, is determined.

COASTAL MANAGEMENT: SB 446 (Mayfield), HB 325 (LaMarca)

This past September, FSBPA's Board of Directors knew this initiative had a life of its own. But it was hard to argue "to take a break" when the political and programmatic need to refine 1996 generic project ranking criteria to better capture the economic importance of beaches to tourism, storm damage reduction and resource protection is apparent to so many. It seemed increasingly necessary to establish legislative intent and priority for the first time in statute. As we started the 2019 Session, the inspiration was the "third time is a charm." We also knew going into session we had outstanding Senate and House sponsors that were committed to and fully understood this legislation. This was the deciding factor in a year dominated by the Governor's "Bold Vision" for improved water quality and the Everglades, Hurricane Michael's unprecedented recovery needs and fiscal emphasis on replacing depleted reserves. **How good a job did Senator Debbie Mayfield (St Lucie, Brevard) and Representative Chip LaMarca (Broward) do? Be assured they were the difference.** With their creation of the Legislative Coastal Caucus, with each as co-chairs, their future commitment to the health of Florida's beaches is a given, and each of you, your coastal governments, and beach communities will be the beneficiaries.



If you were able to attend or watch one of these archived committee hearings, you would truly appreciate the interest and enthusiasm surrounding the Coastal Management bill. House and Senate members are increasingly vested in this legislation, especially concerning the details regarding mix, prioritization and weighting of individual ranking criteria, and its transferability to other environmental programs. There seems to be a recognition that member projects, while certainly popular to take home, may not be the most effective approach for addressing need. There was also an expressed appreciation for the inherent fairness in an objective framework for allocating limited state dollars based on merit.

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HB 325 passed the House 113-0 on April 17, which is exceptionally early in the House process; the Senate Bill 446, passed 38-0 the following week (4/24), and Senator Mayfield took up the House bill, and sent it to the Governor.

Short and sweet, but not easy... 3 sessions, 14 committee stops, 4 floor votes, and never a negative vote, or even comment. One final recognition that FSBPA has never taken for granted is the continued perseverance and commitment of our BeachWatch members and that of all our member governments.

GOING FORWARD

We need to digest the events and accomplishments of this year. We will also take a step back from Chapter 161 legislation and ensure successful implementation of HB 325 by supporting DEP's efforts, giving them time, while maintaining program funding levels.

Diana Ferguson's, FSBPA Legislative Services, Rutledge-Ecenia, bill tracking summary follows:

2019 Legislative Session Report – Week 9 and Final

Budget

Environmental budget highlights other than beach funding include:

Florida Forever - **\$33M**

Springs - **\$50M** (as well as an additional \$50M that was not released last year)

Coastal Resiliency - **\$5.5M**

Alternative Water Supply - **\$40M**

Water quality – targeting sources that contribute to harmful algal blooms - **\$25M**

Water quality – projects that help meet restoration goals (Total Maximum Daily Loads) - **\$25M**

Everglades Restoration - **\$360M**, including in part:

\$32M – Restoration Strategies

\$145.5M – Comprehensive Everglades Restoration Plan

\$40M – Tamiami Trail

\$33M – North Everglades and Estuaries Protection Program

Lake Okeechobee Watershed Restoration Project - **\$50M**

Additionally, Visit Florida was extended for one year at **\$50M**. Funding for the agency had been in doubt during the budget negotiation process.

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SB 2500 includes **\$220.9M** in funding for **Hurricane Michael** recovery, including:

- Restore Critical Life-Safety Services to Panhandle Communities - **\$6.84M**
- Affordable Housing for Displaced Families – **\$115M**
- Rebuild Local Government Infrastructure – **\$36.59M**
- Critical County and Municipal Road Repairs – **\$20.8M** in SB 2500 (there is an additional **\$20M** in SB 7068)
- Rebuild Education Facilities and Increase Investment in K-12 Schools – **\$39.4M**
- Restore Recreational Opportunities – **\$.12M**
- Technical Support for Local Governments to Secure Reimbursements – **\$2.16M** (this includes **\$1.5M** for Division of Emergency Management Local Government Assistance)
- Tax exemptions for Hurricane Michael recovery are addressed in HB 7123, the 2019 Tax Relief Package. It will create several tax relief benefits related to hurricane response, recovery and preparedness.

Legislation that Passed

Red Tide

SB 1552 by Senator Gruters establishes the Florida Red Tide Mitigation and Technology Development Initiative (Initiative) as a partnership between the Fish and Wildlife Conservation Commission's Fish and Wildlife Research Institute and Mote Marine Laboratory. The purpose of the Initiative is to develop technologies and approaches needed to address the control and mitigation of red tide and its impacts. The bill requires funds specifically appropriated by the Legislature for the Initiative to be awarded by the Fish and Wildlife Research Institute to Mote Marine Laboratory to achieve the goals of the Initiative. The bill also establishes a Technology Advisory Council within the Initiative.

The bill requires the Initiative to submit an annual report, beginning January 15, 2021, containing an overview of the Initiative's accomplishments and priorities to the Governor, the President of the Senate, the Speaker of the House of Representatives, the Secretary of Environmental Protection, and the Executive Director of the Fish and Wildlife Conservation Commission. The section authorizing the Initiative expires on June 30, 2025.

Lastly, the bill provides for an annual appropriation of \$3 million beginning in the 2019-2020 fiscal year and going through the 2024-2025 fiscal year, from the General Revenue Fund to the Fish and Wildlife Conservation Commission for the purpose of implementing the bill.

Legislation that Failed

Public Financing of Construction Projects

SB 78 by Senator J. Rodriguez and HB 169 by Representative Fernandez would have required a public entity that commissions or manages a construction project within the coastal building zone using funds

appropriated from the state to conduct a sea level impact projection study prior to commencing construction. Under the bills, the study would have to be conducted and submitted to the Department of Environmental Protection (DEP) before construction could commence.

The bills would have required DEP to adopt rules establishing standards for the studies, and the standards would include certain requirements for how the studies would be conducted and the information they must contain. Under the bills, DEP would have published and maintained copies of the studies for ten years after receipt.

The bills would have authorized DEP to bring a civil action in order to seek injunctive relief to cease construction, enforce the section or rules adopted pursuant thereto, or seek recovery of state funds expended on a coastal structure. SB 78 received two committee hearings but HB 169 did not receive a hearing.

Florida Tourism Marketing

SB 178 by Senator Gruters and HB 6031 by Representative Ponder would have saved Visit Florida from repeal. SB 178 passed the Senate but died in House messages. HB 6031 did not receive a hearing. The continued existence of this agency was in doubt for much of the session, but budget negotiators reached a deal to continue the agency's operations for one year at \$50M.

Northwest Florida Rural Inland Affected Counties Recovery Fund

HB 191 by Representative Drake and SB 1162 by Senator Gainer would have created the Northwest Florida Rural Inland Affected Counties Recovery Fund within the Department of Economic Opportunity (DEO). These bills provided that five percent of all payments to the state received pursuant to the BP settlement agreement after July 1, 2019, shall be appropriated by the Legislature to the fund. The Senate bill specified that this five percent is not appropriated until after the transfer of funds to the Triumph Gulf Coast Trust Fund pursuant to state statute. SB 1162 died in its last committee and HB 191 did not receive a hearing.

Smoking on Beaches

SB 218 by Senator Gruters and HB 237 by Representative Altman would have prohibited smoking on public beaches. However, neither bill received a hearing.

Fracking

There were a number of bills filed this session related to fracking. SB 136 by Senator Stewart, SB 314 by Senator Montford, and HB 239 by Representative Fitzenhagen all would have banned fracking, but none of these bills made it through the process. In addition to these fracking bills, two committee bills were introduced: HB 7029 by the House Agriculture and Natural Resources Subcommittee and Representative Raschein and SB 7064 by the Senate Agriculture Committee. Both of these bills were controversial because many environmental stakeholders expressed concerns that they created a loophole and would have allowed matrix acidizing to continue. None of these bills made it through all of their committees.

Indian River Lagoon

SB 368 by Senator Harrell would have appropriated the lesser of 7.6% or \$50M annually from the Land Acquisition Trust Fund (LATF) to the Indian River Lagoon. HB 141 by Representative Fine contained similar language as filed, but was amended to create a grant program for the Indian River Lagoon and to remove the LATF appropriation. Additionally, it contained language requiring wastewater utilities to report sewage spills and included civil penalties for spills. HB 141 died in its last committee and SB 362 died in its second of three committees.

Hurricane Michael

HB 555 by Representative Drake and SB 376 by Senator Montford would have appropriated \$50M in LATF annually through FY 25/26 for Bay, Calhoun, Franklin, Gadsden, Gulf, Holmes, Jackson, Jefferson, Leon, Liberty, Okaloosa, Wakulla, Walton, and Washington Counties for conservation and management projects following Hurricane Michael. The bills authorized DEP to distribute funds for projects related to reforestation, ecosystem management, fire control measures, debris removal, pollution mitigation, beach nourishment, coastal or shore protection structures and land acquisition. HB 368 died in its second of three committees and HB 555 did not receive a hearing.

Disaster Recovery

HB 645 by Representative Trumbull would have expanded the use of the small county surtax to counties that have a population of 200,000 or fewer, surrounded by at least three counties that have a population of 50,000 or fewer, if the county was named a major disaster area by the President of the United States within two years of the passage of an ordinance. HB 645 did not receive a hearing and had no Senate companion.

Apalachicola Bay Area of Critical State Concern

HB 921 by Representative Newton and SB 1256 by Senator Montford would have appropriated \$20M in LATF funds annually through FY 29/30 for the Apalachicola Bay Area of Critical State Concern. SB 1256 died in its second of three committees and HB 921 did not receive a hearing.

Florida Forever

SB 944 by Senator Stewart and HB 1341 by Representative Ausley would have appropriated \$100M annually from the LATF for Florida Forever. SB 944 died in its second of three committees and HB 1341 did not receive a hearing.

Hurricane Michael Funding

HB 1101 by Representative Trumbull would have required sales taxes accruing to the General Revenue Fund as a result of Hurricane Michael to be transferred to the Division of Emergency Management (DEM) to be distributed as grants to cities, counties, state agencies, and the judicial branch in the affected counties in order to assist with recovery. HB 1101 did not receive a hearing and did not have a Senate companion.

Emergency Mitigation and Response

SB 1610 by Senator Montford would have created the Hurricane Michael Recovery Task Force within DEM to make additional recommendations to the Legislature regarding additional assistance needed in the response to, recovery from, and mitigation of the effects of Hurricane Michael. It also contained several appropriations for Hurricane Michael recovery, including \$300M for funding the Public Facilities Hurricane Restoration Cash Flow Program and \$15M to the Department of Agriculture and Consumer Services (DACS) for funding agricultural loans. SB 1610 died in its last committee and did not have a House companion. Hurricane Michael funding issues were addressed in the budget.

Tourist Development Councils

SB 1708 by Senator Rouson would have allowed counties to establish more than one tourist development council under certain circumstances. SB 1708 died in its last committee and did not have a House companion.

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FLORIDA SHORE & BEACH PRESERVATION ASSOCIATION 62ND ANNUAL CONFERENCE



September 18-20, 2019

HUTCHINSON SHORES RESORT - HUTCHINSON ISLAND, FL

- ◆ **Limited Call For Abstracts - deadline June, 3, 2019**
- ◆ **Award Nominations - deadline July 17, 2019**
- ◆ **Registration will open in June**

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Flagler County's Unique and Unprecedented Dune Restoration Project by Flagler County and Faith Alkhatib

Flagler County's unique 11.4 mile in-house dunes restoration project was completed in February – more than one month ahead of schedule and \$10 million under initial cost estimates.

Work on the project started January 22, 2018 and took just over 13 months to complete. Its original completion date was April 30 of this year, just one day before the start of sea turtle nesting season.

It was anticipated the project would cost \$28.3 million. County Engineer Faith Alkhatib – with the support of the Flagler County Board of County Commissioners and County Administration – brought the project in house thus reducing the cost of the project to \$18 million.

“By having staff complete this project, we were able to save taxpayers a lot of money,” Alkhatib said. “We were able to expedite the project.”

Taylor Engineering designed the project, which included 19 reaches with different funding sources – most of which was covered by FEMA, Florida Department of Environmental Protection, and Flagler County through a designated Tourist Development tax. Three homeowners associations – Hammock Beach Club, Ocean Hammock, and Hammock Dunes – kicked in at least a third of the funding for the length of dunes in front of their individual properties.

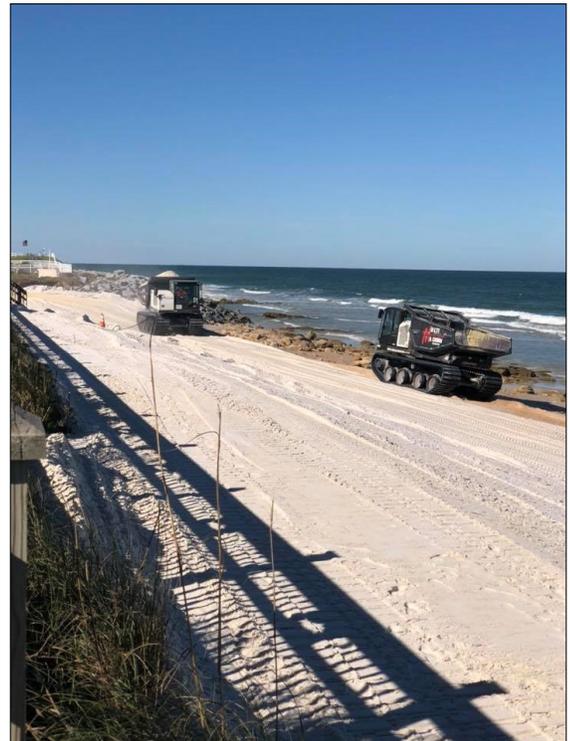
During a recent staff recognition ceremony, Taylor Engineering's Kenneth Craig said, “I've seen beach projects all over the country, and this is unique ... Doing something like this in house is unprecedented.”

Flagler County's Road and Bridge Department placed 690,000 tons of sand on the beach to create a buffer of sacrificial sand between the properties and the ocean.

While Flagler County staff completed the actual dune construction, subcontractors were hired for supporting services. These services include the following: construction engineering inspection (Eisman & Russo); dune planting (EarthBalance); gopher tortoise surveying and relocating activities (Atlantic Ecological Services); sea turtle surveying and relocating activities (Volusia/



Flagler County Engineer, Faith Alkhatib





Flagler Turtle Patrol); off-road dump truck rental (Eastman Aggregate Enterprises); tracked dump truck rental; sand delivery (Vulcan Materials Company); and, survey services (ATS Land Surveying).

The Florida Department of Environmental Protection permit obtained by Flagler County before it could undertake the project stipulates that the dunes are to be resurveyed annually. Compaction testing is required each year before sea turtle nesting season, and tilling will be required in areas where the dune compaction exceeds permit requirements.

"It's remarkable, and we have become somewhat of a model for the rest of the counties in the state," Flagler County Commissioner Greg Hansen said. "Several counties have come and said, 'How did you do this?'"

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Low-Impact Secant-Pile Bulkhead for Protecting SR-A1A along Flagler Beach

By: Steven Nolan, PE¹; Stefan Levine, EI¹; Lowry Denty, PE²; Christian Steputat, PE³; Antonio Nanni, PhD, PE³

(¹: Florida DOT; ²: Mott MacDonald Florida, LLC; ³: University of Miami, College of Engineering)

Corrosion is a constant concern for infrastructure design and maintenance in Florida. Due to the aggressive coastal environment, maintenance costs of structures can become excessive, leading the Florida Department of Transportation (FDOT) to research new technology and designs that can reduce the life-cycle costs through reduced maintenance repairs and increased service-life.

For this project FDOT engaged the services of RS&H to develop dune restoration and alignment plans, while Mott MacDonald Florida, LLC helped identify and design the optimal context sensitive solution for protecting SR-A1A after decades of threats from seasonal hurricane activity. A major goal of the project apart from functionality and durability, was to also preserve the character of the local environment (both natural and human), including the “Old Florida” feeling that the community embraces. The University of Miami also contributing to the project by closely monitoring and documenting the construction progress, with their

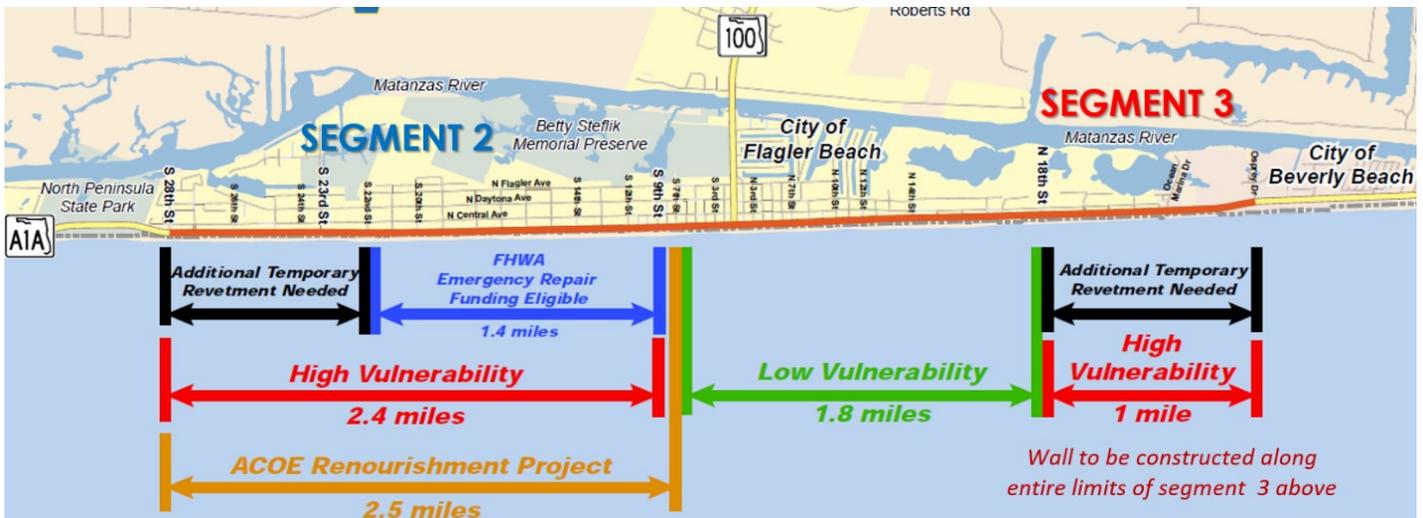


Figure 1: Project location (Segment 3) and hurricane vulnerability comparison.

interests in advancing innovative materials and building on a successful collaboration with FDOT on the Halls River Bridge replacement project in Homosassa Springs, Florida.

Severe corrosion damage of an existing steel sheet pile bulkhead and extensive erosion damage of the adjacent sand dune system necessitated intervention to avoid future closures of SR-A1A near Flagler Beach. This need for intervention was accelerated after increasing frequency of extreme weather and aggravating sea level changes, culminating in the most recent and severe damage from Hurricane Matthew in 2016. The resulting damage from beach dune erosion completely undermined and collapse almost one mile of the state highway (see *Figure 2*).



Figure 2: Damage to SR-A1A after Hurricane Matthew in 2016.

A low-impact solution – Buried secant-pile bulkhead

Several mitigation solutions had been under investigation since 2005, with the final alternative selected in 2017, utilizing a buried secant-pile system with auger cast piles. The design was preferred by the project team due to several factors and meeting all the project goals. The buried secant-pile system was estimated to be the lowest cost, with the least local impact during construction, and allowed for natural landscaping without impacting future sand renourishment activities.

Some project hurdles that arose consisted of a commitment to Governor Scott to begin construction in under two years, coordination with Army Corps of Engineers, and “*Keeping Flagler Beach, Flagler Beach*”.

The final design plans were completed early summer 2018, and the project put out to bid by FDOT in August. With the contractor onboard and the 2018 Atlantic hurricane season safely in the past, the secant-pile subcontractor (Malcom Drilling Company, Inc.) mobilized to the site on the week of February 4th, 2019 during our [National Conference on Beach Preservation Technology](#), which was held only a short scenic drive north in St Augustine.

A durable solution - Seawater meets GFRP reinforcing

The details of the final highway protection system consist of buried reinforced concrete secant-pile bulkhead, which minimizes impacts and still provides a robust durable support for the highway if the sand dunes are lost during a major storm. After the successful application of glass fiber-reinforced polymer (GFRP) reinforcing bar technology on several Florida projects including the almost completed Halls River Bridge project, FDOT directed the designer to update the design plans to include this more durable reinforcing solution. Numerous studies have proven the durability of GFRP rebar in concrete applications subjected to chlorides from either seawater or deicing chemicals. Fortunately, in Florida there is little necessity to routinely apply road salt to our bridges and pavements in winter, but the coastal environment is even less forgiving to carbon-steel than deicing chemicals, regardless of our best intentions to protect it.

With the mantra of “*Get in, get out, and stay out*” encouraged by the Federal Highway Administration under there *Every Day Counts* program, FDOT is utilizing FRP reinforcing technology as one of the tools in a virtual toolbox to meet these aspirations.

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Wall installation methods for the SR-A1A project were limited to drilling. Vibratory and impact methods for traditional sheet pile installation were not desirable due to the potential for damage to nearby businesses and residential structures as well as excessive noise impacts during pile driving. **Figure 3** provides a conceptual detail, showing how the secant-piles are to be installed.

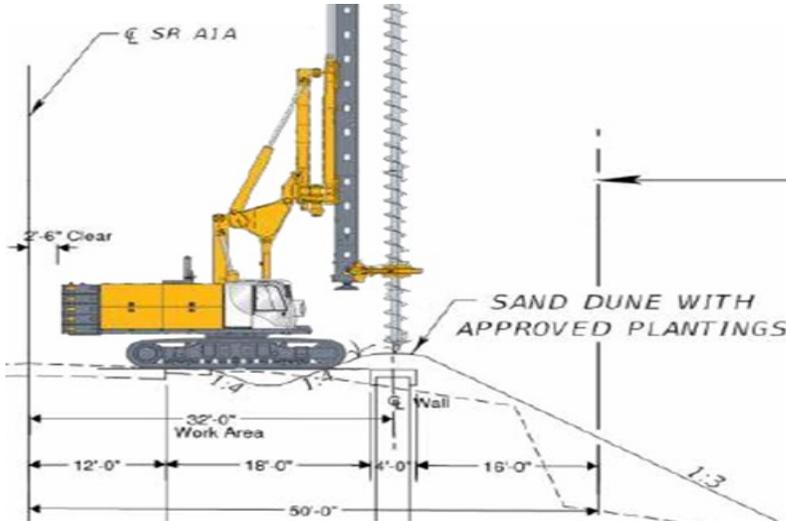


Figure 3: Typical section of secant-pile installation for retaining wall construction.

The illustration in **Figure 4** depicts the final installed secant-pile bulkhead upon completion relative to the roadway and adjacent dunes. This highlights the improved aesthetics and low impacts without compromising the protective measures.

Apart from its corrosion-free properties, GFRP reinforcing has other advantages over traditional carbon-steel reinforcing. One advantage for this project is the significant weight reduction compared to steel reinforcing, which allows for smaller equipment to handle the cages and a reduce overall construction footprint.

Life Cycle Analysis (LCA) studies can also show the environmental benefits of GFRP reinforced concrete solutions beyond extended service-life, and can consider the beneficial transportation and work process efficiencies. The five commonly assessed parameters under ISO standards 14040 and 14044 are: Ozone Depletion Potential; Global Warming Potential; Photochemical Oxidant Creation Potential; Acidification Potential; and Eutrophication Potential.

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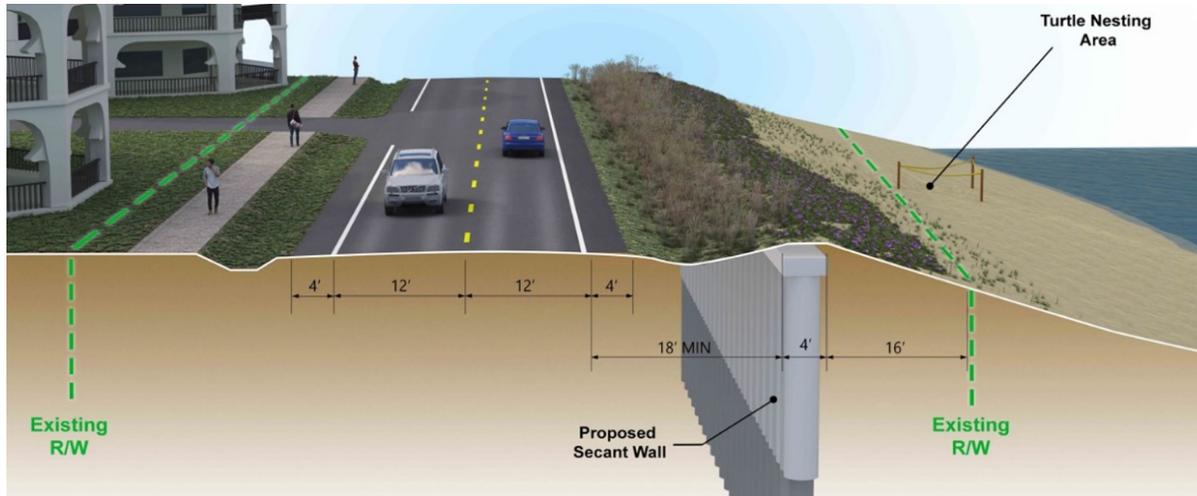


Figure 4: Concept rendering of the completed project for October 2019

Monitoring sand fill placement and dune buildup

Important structures and components have solid foundations and competent soil backfill conditions. For this project the fill-placement immediately adjacent to the proposed secant-pile bulkhead included a “cut-in” step-down procedure, as well as white-sand soil backfill placement, as shown in *Figures 5 & 6*. The sand fill color was dictated by the environmental permit conditions and contrasts distinctly with the existing coral sands, as can be seen in the photographs.



Figure 5: White sand, soil-backfill placement.



Figure 6: Backfill “cut-in” and step-down-profile.

Secant-pile guide wall construction

The project utilizes a concrete trench-type template, which is to be removed upon the completion of the secant-pile installation. The guide wall provides alignment control and is formed in the ground prior to the start of any drilling and auguring operation. Removeable, preassembled steel formwork is used to create the desired diameter and pile overlap (secant). This is important step since this project does not allow for any stay in-place formwork, so as to minimize any impacts to the dune system after completion of the construction. The guide wall provides important positional restraint, as well as assistance in maintaining vertical alignment during drilling and rebar cage installation operations. *Figure 7* shows the sequence of construction for the secant-pile guide wall.

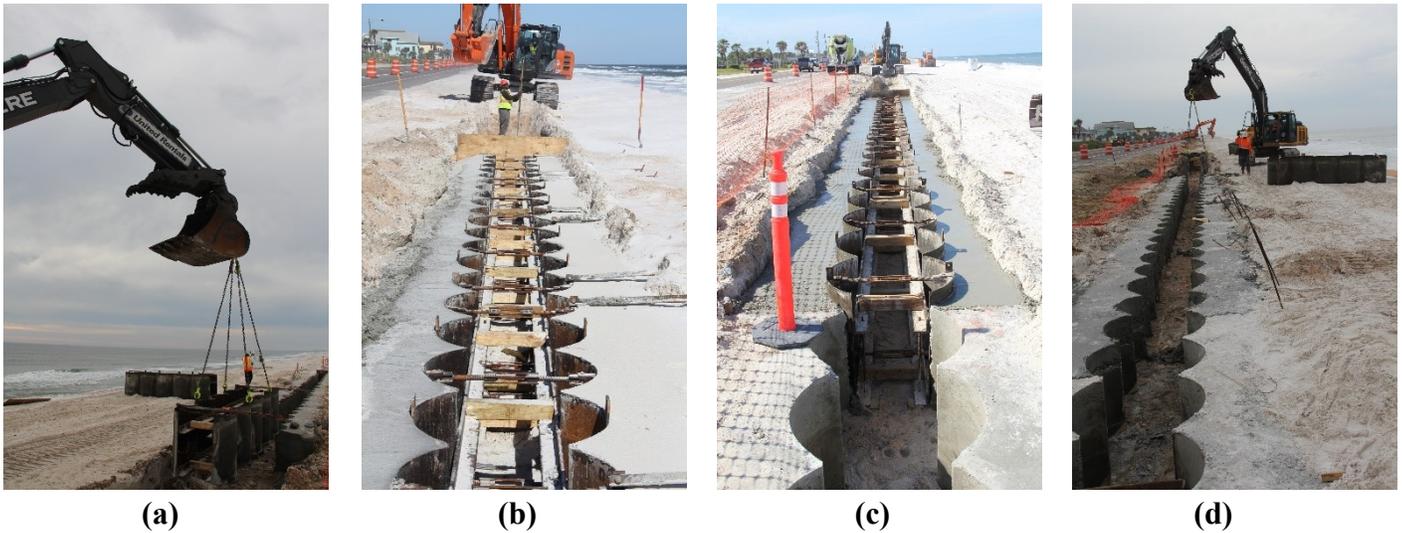


Figure 7: Sequence of guide wall construction to facilitate the secant-pile wall alignment and installation.

Monitoring GFRP rebar cage assembly and installation

The main objective of the monitoring effort is to provide quantitative information related to the constructability aspects of the project including: reinforcement transportation, cage assembly, rebar tying, rebar cage lowering, and pile cutting. Deliveries of GFRP rebar to the site are covered for protection during temporary storage, as shown in *Figures 8*.



Figure 8: GFRP reinforcing delivery

As designed, 1847 secant-piles are to be installed. The GFRP reinforced piles are 36-inch diameter x 36-feet long and are reinforced with 25 ~ #8 GFRP rebars. This is in direct contrast to the shorter intermediate fill piles that are also 36-inch diameter, but only 18-feet long and reinforced with a single #8 GFRP center-rebar. The designed pile overlap (secant) is 4-inches, with a proposed concrete cap that is 4-feet wide, by 18-inches deep and extends the full bulkhead length of 4,927 feet.

As currently monitored on this project, secant-pile GFRP-rebar cage assembly time savings of 32% to 52% are estimated, compared to a similar steel-rebar cage assembly. These time savings can mostly be attributed to the light weight and flexibility of the GFRP rebars. **Figures 9** thru **14** highlight the assembly activities:



Figure 9: Assembly of GFRP secant-pile Cages



Figure 10: Installation of Continuous Spiral-Ties



Figure 11: Lifting of GFRP secant-pile Cages



Figure 12: Storage of GFRP secant-pile Cages



Figure 13: Lifting of GFRP Cage without "Toe"



Figure 14: Inside View of GFRP secant-pile Cage

Smooth, rapid installation of the auger cast piles and rebar cages is illustrated through **Figures 15 to 23**. Pile and pile cap installations have also been closely monitored, timed, evaluated and analyzed. It has been determined that the use of GFRP rebar can have a significant positive impact on constructability due to the lighter weight and ease of cutting.



Figure 15: Pile Pre-Drilling



Figure 16: Soil Removal



Figure 17: Pile Cage Lifting



Figure 18: Cage Alignment



Figure 20: Cage Insertion



Figure 21: Cage Advancing



Figure 22: Cage Advancing



Figure 23: Cage Installed

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Figure 24. Guide-wall after removal



Figure 25: GFRP Pile-Cap rebar cage assemblies.



Figure 26: GFRP Pile-Cap rebar installation

Composite Element Research, Codes and Construction Practices

As the interest and use of FRP reinforcement for concrete structures increases, all stake holders are working on different fronts to make the technology more effective and efficient, while maintaining low cost and durability as the essential attributes.

Some interesting advances from a manufacturing perspective are the use of resins other than vinyl-ester or epoxy that will allow faster production (scaling-up), the possibility of shipping bars in coils, and bending at regional fabricators (never at the site!), rather than the rebar pultrusion facility. Investigations sponsored by manufacturers are also demonstrating the durability of this technology in existing structures that have been in service for more than 20 years.

Researchers at academic institutions are actively investigating bond performance to optimize development length and splicing requirements. These efforts also include the development of rebar coupling technologies. Additionally, new studies are focusing on static and cyclic fatigue resistance to better calibrate the associated reduction coefficients, and improve the efficiencies of future designs.

Standards (bridge and building code) development organizations are revising existing specifications and guides to capture the latest research developments. For example, AASHTO has recently published (December 2018) the second edition of the GFRP-RC bridge design guide that now allows for the use GFRP rebar in any element of a bridge structure. At the same time, AASHTO has published the first guide for the use of Carbon FRP strands in prestressed concrete bridge beams. On the ACI front, after the publication of several documents related to the use of FRP, ACI Committee 440 has significantly completed the development of their first building code for GFRP-reinforced concrete structures.

Conclusions

Seawall protection systems may not be everyone's ideal solution for ensuring future coastal asset protection, or community mobility and continuing economic prosperity, but until societal debate on coastal defense versus retreat, or the sustainability of beach renourishment programs are settled, the buried secant-pile protection system provides one effective solution. When coupled with dune restoration, it can provide a relatively low-impact solution for coastal dune highways.

The long-term effectiveness of shoreline hardening protection systems is often contingent on future sand renourishment. Periodic renourishment activities are preferable, to minimize the potential for seawall toe scouring, and provide some assurance of timely restoration after extensive hurricane erosion regardless of emergency restoration funding.

The secant-pile seawall can provide an extended time window for restoration activities, regardless of local dune management policies, without compromising the structural integrity of the state highway, and ensure accessibility for rapid post-hurricane response and continuing economic opportunity for the coastal community.

USACE Jacksonville District

Lee County Shore Protection Project - Gasparilla Island Segment

Construction Contract Awarded



**US Army Corps
of Engineers®**

By Gabriel Todaro, Intern, EN-WC, USACE Jacksonville District

The U.S. Army Corps of Engineers, Jacksonville District awarded a construction contract on April 23, 2019 for the Gasparilla Segment of the Lee County Shore Protection Project in Lee County, Florida. The contract work includes renourishing approximately 1.8 miles of shoreline out of the project's authorized length of 2.8 miles. The north reach of the project is 1.4 miles long from approximately Florida Department of Environmental Protection (FDEP) range monument R-10.5 to R-16.5, while the south reach of the project consists of 0.4 miles from R-24.5 to R-26.5 (Figure 1).

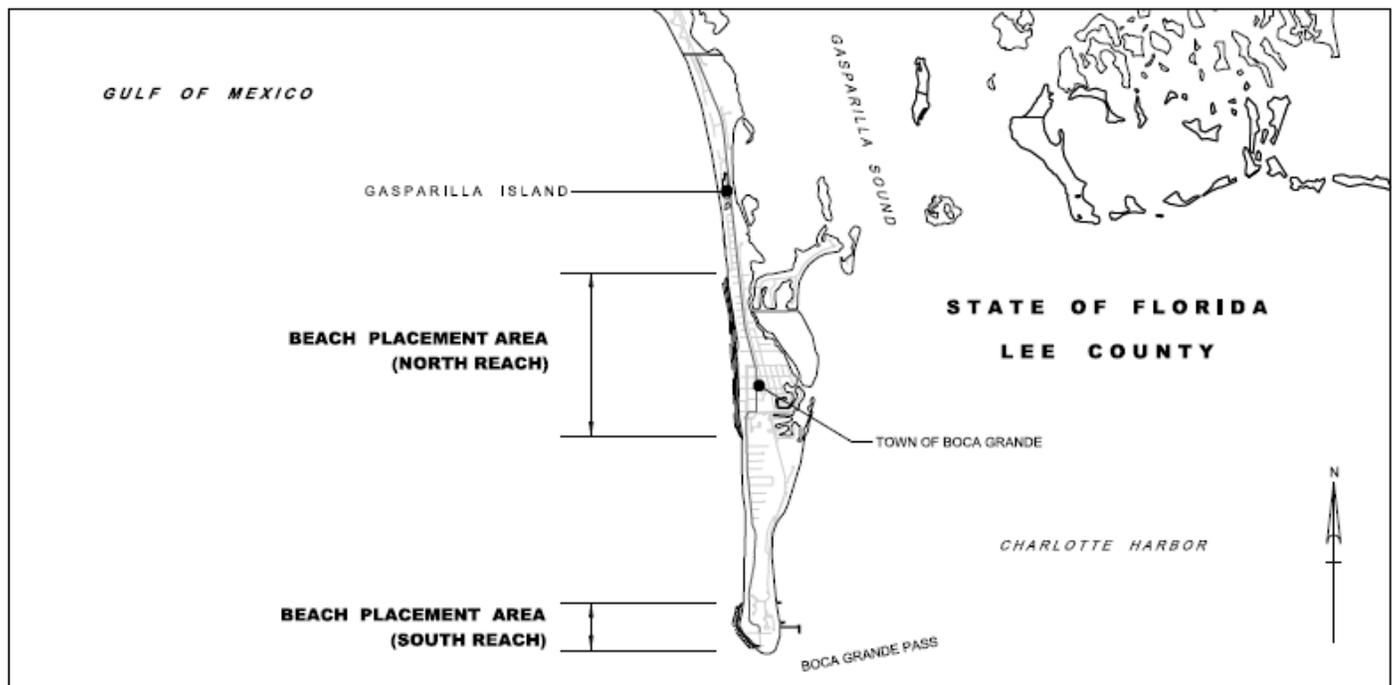


Figure 1: Project Placement Area

The last time the Corps of Engineers renourished the project was in 2013, in response to erosion caused by Tropical Storm Debby. At the time, this project was awarded for \$9,800,000 and placed a total of 457,800 cy from R-10.5 to R-24.5.

The Corps awarded the contract to Weeks Marine of Cranford, NJ for \$6,428,820. The dredging will remove approximately 161,000 cubic yards of material from the borrow area and place it on the beach. The Borrow Area for the project is located just north of the Boca Grande Pass, approximately 1.1 miles southwest of the beach project area.

Funding for this project was provided in Public Law 115-123, the Bipartisan Budget Act of 2018. This act provided funding to the U.S. Army Corps of Engineers for disaster recovery.

Construction of this project is expected to move about 500 feet (one to two city blocks) along the beach each day. Construction on the project is expected to begin in June 2019. For more up to date updates for the Lee County Shore

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Protection Project – Gasparilla Segment please visit the U.S. Army Corps of Engineers Jacksonville District’s Facebook page at: <https://www.facebook.com/JacksonvilleDistrict/>



Current Condition of Project Area
(courtesy of Lee County)



2007 Pre and Post Construction Photos
(courtesy of Humiston & Moore Engineers)

FDEP Agency Updates



FY 2020/21 Local Government Funding Request Schedule

Legislators voted to begin session early in 2020 under a bill (HB 7045) that was passed in March 2018. The 2020 legislative session is scheduled to begin on January 14 next year, resulting in the acceleration of the FY 2020/21 Local Government Funding Request (LGFR) schedule to meet session deadlines. The Beach Management Funding Assistance Program will provide updated application forms for the FY 2020/21 application period. Please use the updated forms when applying for funding so that Program staff can process applications quickly and efficiently. Local sponsors are encouraged to submit applications well in advance of the deadline to help us with the workload associated with assessing all projects. A notice will be sent by email to all stakeholders when new application forms are available on the Beaches Funding website. The anticipated schedule for the FY 2020/21 LGFR Call-for-Applications is provided below.

FY 2020/21 LGFR Call-for-Applications Anticipated Schedule (Early Session)

Entity	Task	Days	Rule	Due Date
DEP	Call for Applications	-		6/1/2019
LS	Application Deadline	60	Yes	7/31/2019
DEP	Draft Project Assessments Released	31	No	8/31/2019
LS	Local Sponsor/External Review Team Comments	21	Yes	9/21/2019
DEP	Final Project Assessments Released	14	No	10/5/2019
DEP	Draft LGFR Released for External Review Team	14	No	10/19/2019
DEP	External Review Team comments due	14	No	11/2/2019

New Grant Management System in Design

A web-based Grant Management System is proposed for the management of beach funding assistance grants. The system will be designed to allow for full integration of grant management capabilities from original funding requests to contract closeouts. Local sponsors will be able to utilize the online system to apply for grants, review executed agreements, upload quarterly reports, submit reimbursement requests and closeout agreements. A similar system has been completed for the Clean Vessel/Clean Marina Program, and the design phase for the Beach Management Funding Assistance Program will begin in the upcoming fiscal year.

Preparations for 2019 Hurricane Season Are Underway

The 2019 Hurricane Season is quickly approaching, and the Division of Water Resource Management has begun planning and scheduling our annual pre-storm season preparations. In addition to the internal steps the Division must

take to ensure an adequate level of readiness, this month we will concentrate on a few specific preparedness tasks that are conducted or overseen by the Division's Beach Field Services Program (BFS).

The Division participates annually in the statewide hurricane exercise with Florida's Division of Emergency Management (DEM) and the Federal Emergency Management Agency (FEMA). The statewide hurricane exercise took place from May 6 to May 9, 2019. From a Beaches Program perspective, the Division uses the annual hurricane exercise as an opportunity to perform pre-hurricane season Windshield Surveys. Beaches' District Office field inspectors and trained District staff volunteers perform these pre-storm season "baseline" inspections in specific pre-determined "hot spot" areas in each of the coastal counties throughout the state. The collected pre-storm inspections then serve to document baseline beach/dune conditions prior to hurricane season, and assist Division staff when assessing post-storm impacts should a county or counties be later affected by a hurricane or other tropical event. These pre-storm baseline inspections provide excellent comparative value when assessing damage caused by a storm event. All collected pre-storm (and post-storm) inspection reports are also shared with DEM's Emergency Support Function 10 (ESF-10).

Engineering, Hydrology and Geology Program staff and planning staff from our Beaches, Inlets and Ports (BIPP) also conducted mock engineering assessments in four counties.

Another pre-hurricane season preparedness task involves specific outreach to local government coastal counties and municipalities. Prior to June 1 of each year, BFS updates contact information for appropriate officials in coastal counties and municipalities and then sends specific outreach information and guidance via e-mail. The Division's target audience includes local government officials, including local sponsors affiliated with the Division through beach nourishment, who will likely interact with the Department and private property owners during post-storm emergency response. To facilitate coordination with beach-front private property owners, the public at large, and local government, the Division's outreach materials provide links to our Hurricane and Tropical Storm Information web page. This web page offers valuable post-storm information, including public information handouts and guidance documents designed to assist both private property owners and local government staff with the answers to many questions that arise from the post-storm emergency response environment. In addition to the public information handout that includes an easy-to-follow table to explain what activities can be authorized, and by whom, under a Department issued Emergency Final Order, pre-and post-storm guidance is available and Beaches Program staff contact information is provided if additional assistance is required.

Restoration Efforts in Gulf County and Mexico Beach

BIPP staff has modified the JCP section of the Hurricane Michael Emergency Final Order (EFO) to allow longer durations of emergency authorizations, and to extend the application period for emergency authorization. With a storm of Michael's magnitude, beach restoration activities may not be first priority. Therefore, it is not feasible to require application for emergency authorization within 30 days of issuance of the EFO. Additionally, the condition that limited emergency authorizations to 90 days does not allow for activities that may be larger in scale or account for other potential issues that may cause an activity to be delayed.

In order to facilitate additional restoration activities that may be conducted under regular authorization, BIPP has modified Gulf County's St. Joseph Peninsula Beach Nourishment permit to "fill the gap" between the

north and south segments of the beach nourishment template. This gap is the stretch of beach fronting Rish Park, and it is expected that filling this segment will further enhance the performance of the nourishment project overall. Additionally, BIPP is reviewing an application to incorporate storm repairs within St. Joseph Peninsula State Park.

In November 2018, BIPP issued an emergency authorization to Mexico Beach for debris removal on City owned beach, the canal system, and any debris that might be within the dredge footprints. In January 2019, BIPP issued a major modification to the City of Mexico Beach's inlet dredging and beach nourishment permit. The modification was originally only to include the critically eroded section of beach further eastward in the City limits, but following Hurricane Michael, a one-time authorization for an expanded dredging footprint was authorized in order to assist with the re-opening of the inlet and canal system. In March, BIPP determined the FEMA dune work, which will run the length of the City limits, could be initiated under the EFO. A permit modification will be processed to formally authorize the activity while also allowing maintenance events to be conducted in the future.

All permit activities can be viewed at <https://floridadep.gov/water/beaches-inlets-ports/content/bipp-permits-icps-and-erps-county>

Potential Permit Conditions

While each project presents a unique situation, BIPP understand the benefits of being able to expect and plan for typical conditions of a permit in advance. BIPP has been working with Florida's Fish and Wildlife Conservation Commission staff to develop a set of "standard conditions" that may be tweaked to apply to specific projects. Additionally, a similar list of conditions will be developed for other aspects of a project, such as those with seagrasses or hardbottom, turbidity monitoring, etc. While these suites of conditions will be helpful, BIPP strongly encourages pre-application consultations to discuss potential project specific expectations.

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Shoreline

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CALENDAR OF EVENTS**FSBPA Conferences**

September 18-20, 2019
62nd Annual Conference
Hutchinson Shores Resort
Hutchinson Island, Florida



February 5-7, 2020

National Conference on Beach Preservation Technology
Hyatt Regency Sarasota, Florida

Other Dates of Interest

May 27-31, 2019

Coastal Sediments 2019
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July 31-August 2, 2019

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