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
August 2020

Inside this edition, you will find the latest information on the 63rd Annual Conference, notice of the 2020 Annual Membership Meeting, important agency updates, and a technical paper relating to environmental monitoring of dredge projects. The environmental monitoring and management plan (EMMP) concept was presented by DHI at the 2020 Tech Conference. Their paper provides a greater look into this alternative environmental monitoring methodology applied to some international projects. We hope you find this month's Shoreline informative. Stay safe.

2020 FSBPA Annual Conference Program is now available!

We are pleased to announce the 2020 conference program is available on-line as well as in this issue of *Shoreline*. The program includes substantial discussions on beach and inlet projects, agency updates, and must-hear educational sessions added throughout. A few presentations to highlight include:

- A Welcome from Lee County, Florida and a comprehensive look at the county's beach and inlet management strategies

continued on next page

Photo courtesy of The Beaches of Fort Myers and Sanibel

Inside this Edition

- Coastal Resiliency – science and policy discussions with a *Legislative Keynote* from Senator Jose Javier Rodriguez, District 37
- USACE Jacksonville District Commander updates by Colonel Kelly
- FDEP Secretary Valenstein on resiliency
- Success stories, all about beaches
- FEMA's new guidelines for building emergency berms and beach mitigation alternatives
- What Makes the Oceans Move in Circles? Find out through animated graphics and discussion, presented by Dr. Bodge
- Federal Beaches 101 – We are pleased to offer this session organized by the USACE Jacksonville District to provide a procedural overview of developing, authorizing, and implementing Federal beach projects, from feasibility to construction. Presentations will include:
    - **History, Feasibility, and Authorization, *Marty Durkin***
        - A brief history of Federal projects throughout Florida, discussion on how and when the Federal government began its involvement in nourishing beaches, and a review of the project delivery process
    - **Economics Considerations, *Colin Rawls***
        - An overview of guidance on USACE economic analyses, Principles and Guidance accounts, and the use of Beach-fx
    - **Design and Implementation, *Mike Neves***
        - A discussion of the newly developed, more flexible planning tool used to achieve storm damage reduction benefits over the project life-cycle in lieu of the traditional design process
    - **Sediments, *Barbara Nist***
        - A presentation on the sand search process, the challenges of competing demands and limited resources, and the USACE's current efforts to address these challenges
    - **Environmental Concerns, *Aubree Hershorin***
        - A discussion about the environmental considerations associated with Federal beach nourishment projects and the efforts by the USACE to develop efficiencies for improving project implementation and transparency

There are many other noteworthy presentations in the conference program. Please be sure to visit our website today for the full program and registration details. We would appreciate having an approximate head-

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count for in-person attendees to help us plan receptions and breaks with the Hyatt Regency Coconut Point. **If you are planning to attend in person, please register or reach out to us by August 13th.**

Your health and safety is our top priority as we continue to closely monitor the status of the pandemic. To ensure each attendee's total comfort as the situation changes day-to-day, you may convert your in-person registration to a virtual registration at any time.

* * *

FSBPA Annual Meeting Notice

Dear Members,

The annual membership meeting will be held on September 17, 2020, at 12:25 p.m. Given the continued concerns over COVID-19, the membership meeting will be held online via Zoom. Annual Conference attendees will receive the meeting link through the on-line registration system. Members who would like to attend the annual meeting but not attending the conference, should email mail@fsbpa.com to request a secure link to join the meeting. A meeting agenda will be provided in the September edition of Shoreline and posted on our website in advance of the meeting.

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63rd FSBPA Annual Conference Program
Hyatt Regency Coconut Point ♦ Bonita Springs, FL
September 16-18, 2020

Wednesday, September 16, 2020

1:05 p.m.
Call to Order

1:15 p.m.
Welcome and Opening Remarks, Lee County, Florida

1:25 p.m.
COVID – 19 Pandemic and the Effects on Beach Tourism
Lee County Visitor and Convention Bureau, Fort Myers

1:40 p.m.
Securing Florida's Blue Economy: A Strategic Plan for Florida's Oceans and Coasts
Lenore Alpert, Ph.D., Executive Director, Florida Ocean Alliance and William Stronge, Ph.D., Chair Emeritus, Department of Economics, Florida Atlantic University and Stronge Consulting, Inc., Boca Raton

2:10 p.m.
The Value of Beach Nourishment in Lee County
James R. Houston, Ph.D., Director Emeritus, U.S. Army Engineer Research and Development Center, Vicksburg, MS

2:30 p.m.
Sanibel Island Strategies to Deal with Inlet Downdrift Impacts
Brett Moore, P.E., Co-Founder, Humiston & Moore Engineers, Naples

2:50 p.m.
Professional Exchange Break and Sponsor Recognitions

3:30 p.m. – 5:00 p.m.

Sea Level Rise and Coastal Resiliency 101

3:30 p.m.
Gary Zarillo, Ph.D., P.G., Department of Ocean Engineering and Sciences, Florida Institute of Technology, Melbourne

3:55 p.m.
Jennifer Jurardo, Ph.D., Deputy Director of Broward County Environmental Protection & Growth Management Department and Chief Resiliency Offer, Broward County

4:15 p.m.
Noah Valenstein, Secretary, Florida Department of Environmental Protection, Tallahassee

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Wednesday, September 16, 2020 (continued)

4:35 p.m.
Legislative Keynote
Senator Jose Javier Rodriguez, District 37 (consists of part of Miami-Dade County)

5:00 p.m.
Adjourn

5:30 p.m.
Welcome Reception

Thursday, September 17, 2020

8:00 a.m.
Professional Exchange Break and Sponsor Recognitions

8:30 a.m.
Jacksonville District Commander's Update
Colonel Andrew D. Kelly, Commander, Jacksonville District, U.S. Army Corps of Engineers

8:55 a.m.
USACE 2020 – Delivering a Complex Coastal Program in Unprecedented Times
Jason Harrah, Project Manager + Florida Supplemental Program Manager Water Resources Branch Programs & Project Management Division, Jacksonville District, U.S. Army Corps of Engineers

9:20 a.m.
Q&A

9:25 a.m.
Regional Sand Needs and Solutions for the Next 50 Years
Clay McCoy, Ph.D., Acting Director, Regional Sediment Management Regional Center of Expertise, Jacksonville District, U.S. Army Corps of Engineers

9:45 a.m.
The Full Story of the South Ponte Vedra and Vilano Beach Coastal Storm Risk Management Project
Damon Douglas, Coastal Manager, St. Johns County

10:05 p.m.
Professional Exchange Break and Sponsor Recognitions

10:35 a.m.
Beach Construction During a Pandemic: The 2020 Mid-Town Shore Protection Project in the Town of Palm Beach
Thomas Pierro, P.E., D.CE., Principal Engineer, Coastal Protection Engineering, Boca Raton, Robert Weber, Coastal Program Manager, Town of Palm Beach, and Morjana Signorin, Lead Coastal Modeler/Oceanographer, APTIM, Boca Raton

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Thursday, September 17, 2020 (continued)

10:55 a.m.
Carolina Beach Risk Reduction Plan – Planning for the Worst & Hoping for the Best
Robert Neal, P.E., Senior Coastal Engineer, Moffatt & Nichol, Wilmington, NC and Layton Bedsole, Shore Protection Coordinator, New Hanover County, NC

11:15 a.m.
Manasota Key Beach Restoration – A Regional Success Story
Michael Poff, P.E., Coastal Engineering Consultants, Inc., Naples

11:35 a.m.
Florida's Office of Resilience and Coastal Protection – 2020 Updates
Alex Reed, Director, Office of Resilience and Coastal Protection, Florida Department of Environmental Protection, Tallahassee

11:45 a.m.
Florida's Beach Management Funding Assistance Program: 2020 Amendment to the Project Ranking Criteria for State Funding
Hanna Tillotson, Environmental Administrator, Beach Management Funding Assistance Program,
Office of Resilience and Coastal Protection, Florida Department of Environmental Protection, Tallahassee

12:05 p.m.
Draft Permitting Guidelines for Imperiled Beach-nesting Birds
Craig Faulhaber, Avian Conservation Coordinator, Division of Habitat and Species Conservation, Florida Fish and Wildlife Conservation, Ocala

12:25 p.m.
Adjourn

12:25 - 12:35 p.m. or until adjourned
FSBPA Annual General Membership Meeting

6:00 p.m.
Cash Bar

6:30 p.m.
Awards Dinner

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Friday, September 18, 2020

7:45 a.m.
Professional Exchange Break and Sponsor Recognitions

8:30 a.m.
FEMA's New Guidelines for Emergency Berms on Beaches
Robert (Bob) Glassen, Beach Specialist, Public Assistance Branch, FEMA Region IV

8:55 a.m.
Thinking Outside the Sand Box – Beach Mitigation Solutions & FEMA's Roadmap for Funding
Jackie Brower, P.E., Ph.D., Coastal Engineer, Moffatt & Nichol, Fort Lauderdale and Robert Glassen, Beach Specialist, Public Assistance Branch, FEMA Region IV

9:20 a.m.
What Makes the Oceans Move in Circles?
Kevin Bodge, Ph.D., P.E., President, Olsen Associates, Inc., Jacksonville

9:50 a.m.
Professional Exchange Break and Sponsor Recognitions

10:20 a.m.
Federal Beaches 101 - A Panel Presentation on the Process of Developing, Authorizing and Implementing Federal Beach Projects, Jacksonville District, U.S. Army Corps of Engineers

History, Feasibility, and Authorization
Marty Durkin, Coastal Team Lead

Economics Considerations
Colin Rawls, Lead Economist

Design and Implementation
Mike Neves, P.E., Coastal Design Team Lead

Sediments
Barbara Nist, P.G., Coastal Geology Team Lead

Environmental Concerns
Aubree Hershorin, Ph.D., Planning Technical Lead

12:00 p.m.
Conference Adjourns

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Proactive Environmental Monitoring and Management: A Best Practice Approach for Addressing Site Specific Dredge and Reclamation Turbidity Related Impacts in South Florida

T.M. Foster[1], Dr. M. Jain[2], J.J. van Berkel[3], Dr. C. Pedersen[4]

Coastal and port development activities in Florida and elsewhere often involve various forms of dredging and/or reclamation that result in the generation of sediment plumes and associated sedimentation that can impact diverse environmental receptors. In this regard, Floridian authorities have placed particular concern on impacts to coral reef and sea grass habitats and have put forward new turbidity (NTUS) based limits for the environmental management of these habitats (Edwards 2020, FDEP 2019). Experience shows that taken alone, what is essentially a water quality standard, does not provide an effective management tool for dredging and reclamation activities. It rather needs to be integrated into a broader Proactive Feedback Environmental Monitoring and Management Plan (EMMP) to ensure environmental quality objectives are met and dredging and/or reclamation works are undertaken in an efficient manner. A general overview of the key components and processes of a Proactive Feedback EMMP are offered, followed by a case study example illustrating how it could be applied in a Floridian context together with existing turbidity limits[5].

Recent History of Proactive Feedback EMMP

The complex hydrodynamic and benthic variables that influence the transport and fate of released sediment plumes in marine and coastal waters as well as the multifaceted response functions of the receptors, present a significant environmental management challenge requiring advanced environmental management techniques. 'Adaptive' EMMP approaches have become a standard requirement in many jurisdictions dealing with major dredging and reclamation projects. However, while termed 'adaptive,' the traditional 'adaptive' management approach remains entirely 'reactive', with the 'adaptive' description arising from a tiered management response based upon measured changes in the field. There are significant pitfalls associated with such a 'reactive' approach to the environmental management of dredging and reclamation activities. Key among these pitfalls are that the standard 'adaptive' approaches do not:

- respond proactively, as the non-compliance or impact must first be monitored before action is taken
- necessarily reflect the actual (temporal and spatial) impacts due to static, and often limited, monitoring locations
- differentiate between excess TSS, the most applicable measurement unit for managing impacts to receptors and background levels
- recognize the linkage between measurements (e.g. increase TSS or increase in coral mortality) and the actual sediment plume generating activity and thus cannot offer a mechanism to manage them
- provide a concrete linkage between the 'adaptive' measure and resulting consequence (benefit of implementing the change) and thus does not provide a progressive response mechanism
- differentiate between impacting contributions from different activities within a work area
- provide site-specific receptor tolerance information and are thus by nature overly conservative to ensure compliance with environmental quality objectives
- provide documentation of cause and effect that can stand up to legal scrutiny

Over the past 20 years, project proponents and authorities responsible for several high-profile projects in Europe and Southeast Asia recognized these issues with the classical 'adaptive' approach to EMMP and, in particular, the liabilities associated with not addressing them. This led to the development of a more proactive form of EMMP, termed Feedback EMMP, that integrates the standard 'adaptive' EMMP

[1] Regional Director DHI Water and Environment Inc.
[2] Technical Director DHI Water and Environment (S) Pte Ltd.
[3] Head Environmental Engineering Department DHI Water and Environment Inc.
[4] Technical Director DHI Water and Environment Sdn Bhd.

[5] Please Note: Portions of this article are summarised from a paper presented by the lead author at Proceedings of the Western Dredging Association Dredging Summit & Expo '18 (Foster et al. 2018)

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approach with additional levels of control that address all the key omissions of the traditional 'adaptive' EMMP approach. The Feedback EMMP approach took definitive form in the EMMP works for the Øresund Link between Denmark and Sweden in the late 1990's (Jensen et al. 1999, Møller 2000) and the Bali Turtle Island Project in Indonesia (Driscoll et al. 1997).

More widespread application of the Feedback EMMP approach to the environmental management of dredging and reclamation activities in Southeast Asia occurred after the resolution of the 2003-04 dispute between Singapore and Malaysia related to cross border impacts from dredging and reclamation activities. This dispute, which was taken to International Tribunal for the Law of the Sea (ITLOS 2003), was only settled after a lengthy technical and legal process. Subsequently, starting in 2005, all major coastal projects in Singaporean waters and projects in Malaysian waters in close proximity to Singapore adopted a Feedback EMMP approach to ensure a level of environmental control that prevented cross-border impact with a level of documentation and accountability that could comply with the ITLOS ruling.

The use of Feedback EMMP has continued in Europe and spread to other parts of Australasia (Savioli 2011) but has yet to be applied in the United States, despite that it has been recognized by the International Association of Dredging Contractors as best practice (Doorn-Groen et al 2007) and incorporated into various international guidance documents on the environmental monitoring and management of dredging and reclamation works. For example, Environmental Aspects of Dredging (Bray 2008), PIANC guidance on dredging and port construction in the proximity of Coral Reefs (PIANC 2010), and IFC's Environmental, Health, and Safety Guidelines for Ports, Harbours, and Terminals (IFC 2017).

Proactive Feedback EMMP - The General Approach

While approaches to the level of implementation of Proactive Feedback EMMP can vary in relation to the nature and scale of the project, sensitivity of impacts, and requirements of local authorities, there are several common feedback control processes (Figure 1):

- The daily quantification of sediment spill to determine **Spill Budget Compliance** and use of a regularly updated 'Spill Budget' to communicate to, and guide the actions of dredge contractors
- Daily or regular analysis of **Receptor Compliance** using receptor tolerance limits and daily numerical hindcast modeling of dredge and reclamation activities
- The use of **Real-Time infield Monitoring** of turbidity (NTUs) or suspended sediment (TSS) concentrations
- The use of **Habitat Monitoring** to determine the validity of applied spill budgets and tolerance limits and / or any need to adjust these in relation to autonomous background stresses (feedback loop)

Figure 1: Diagram of the Main Phase and Control Processes of Adaptive EMMP (see Feedback EMMP and Control Process semi-circles) within the Overall Cycle of Effective Environmental Management of Dredge Projects

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The key components of Proactive Feedback EMMP phases are further explained below.

Mobilization

The pre-construction phase of the Proactive Feedback EMMP defines a baseline from which to determine impact scale for control monitoring and post-construction auditing purposes (see subsequent sections). It is also used to analyze the appointed contractor's work plan which is often different (e.g. different equipment) than the assumptions made for environmental approval analyses. Specific subcomponents of pre-construction EMMP works include:

- Definition of a baseline
  - receptors and related physicochemical / biological feedback variables are identified, instrumented, and monitored for a statistically significant period
  - establishment of environmental tolerance limits for each receptor based on literature data, field experiments, or data from earlier studies in similar environmental settings and related environmental quality objectives (i.e. acceptable levels of impact)
- Analysis and assessment of work plans
  - provision of the work plans by the appointed contractor, with focus on the distribution of the work in time and space, procedures, and equipment
  - receptor compliance forecast analyses using work plan specific numerical sediment plume forecast modeling
  - advising the contractor on how to adjust their work plans if results indicate unacceptable impacts
- Spill Budget at start of works
  - based on the above-mentioned forecast modeling, an established Spill Budget that represents the maximum allowable spill (i.e. sediments escaping from the dredging and reclamation works) and related production levels, commensurate with prescribed Environmental Quality Objectives (Pedersen 2011)

Acceptance of the EMMP specifications typically includes joint consultation and decision-making between key stakeholders. It should be stressed that effective EIA and prior dredging planning usually ensures that overall work plan approaches and scheduling do not require significant adjustments during Proactive Feedback EMMP mobilization.

The Construction 'Control Process'

The construction Control Process of Proactive Feedback EMMP consists of four Feedback tiers of control:

1. Spill Budget Compliance
2. Receptor (EQOs) Compliance
3. Real-Time Monitoring to validate or correct compliance analyses
4. Habitat (receptor) Monitoring to validate or correct compliance analyses and provide tolerance limit feedback

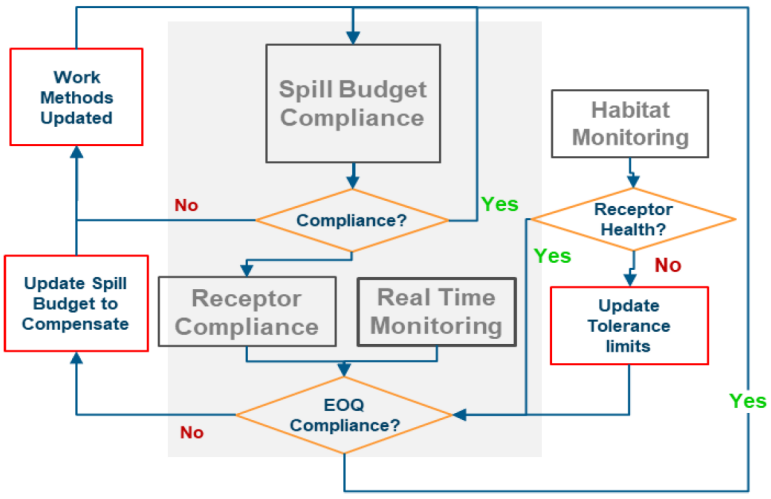

Figure 2: Diagram of Adaptive Control Processes

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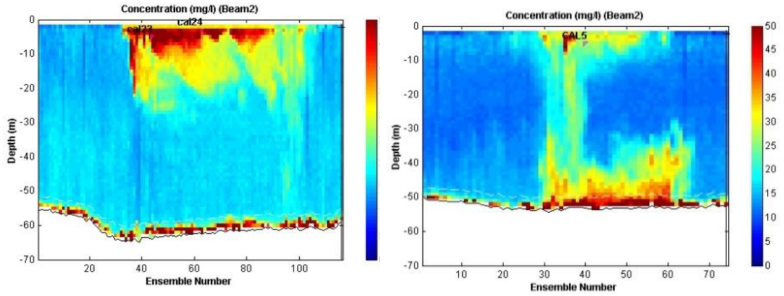
Control monitoring is normally performed daily (see lightly shaded area) and consists of both Spill Budget and Receptor Compliance assessment as well as input from Real-Time Monitoring. Where compliance is evident (see 'yes'), dredge and / or reclamation works continue within the bounds of the EMMP specifications. Where they are not (see 'no'), various feedback options such as adjusting work methods or updating Spill Budgets can be applied. Habitat surveys (see left side of diagram) are typically performed monthly or quarterly to validate applied receptor tolerance limits. Where habitat receptor health is maintained (see 'yes'), the EMMP continues as per usual. Where it does not (see 'no'), a feedback tolerance limit adjustment can occur. This allows for the adaptive refinement of Spill Budgets and sediment plume hindcast analysis to improve the overall efficiency and reliability of the management plan.

Spill Budget Compliance

Spill Budget Compliance involves daily compliance monitoring of the realized sediment spill from the dredging and reclamation works. This is achieved by obtaining detailed work activities from the contractor and related dredge material samples. The dredge material samples undergo laboratory analysis to determine - among other variables - percentage fines i.e. the maximum amount of material that may escape the immediate work area. Established relationships between these results (i.e. stripping rate) and the spill source (CSD cutter head, TSHD overflow, etc.) are then used to estimate the realized spill from every dredge activity. This estimate is validated on a daily basis by measuring the actual spill that escapes the immediate work area from a representative sample of activities (via



sediment flux transects).

Figure 4: Sediment Flux Transect Results of Trailer Hopper Suction Dredger Overflow With an Eco-Valve (right) and Without (left)

The spill from every site operation over a 24-hour period is then integrated to provide a total spill which is then compared to the Spill Budget to determine compliance. If exceeded, adaptive actions (e.g. adjusting production levels or areas) can be taken to ensure the contractor returns to compliance as quickly as possible. For complex work areas, the Spill Budget can be divided into sub-areas and even sub-periods (e.g. tidal windows) providing maximum flexibility.

It is vital to recognize the Spill Budget is a proactive, rather than reactive, measure of control. As spill is related to production, the contractor knows their daily production limit to achieve an outcome compliant with stated environmental quality objectives. Given that production is directly within the contractor's control, there is little room for uncertainty.

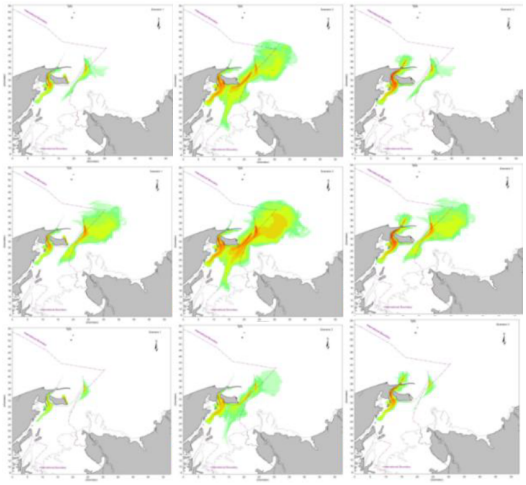


Figure 3: Random Examples of EMMP Hindcast Sediment Plume Modeling

Receptor (EQOs) Compliance

As the Spill Budget is an 'estimate' based on expected work plans, geotechnical conditions etc., Spill Budget Compliance must be supplemented by sediment plume hindcast modeling of the specific dredge and reclamation progress with results compared to receptor specific tolerance limits. The hindcast is based upon the actual production schedules, realized sediment spill (i.e. see Spill Budget) and hydrodynamic conditions that day.

While exceedance of the Spill Budget is a cause for concern and action is typically implemented to address non-compliance, it is mainly a guide for the daily management of the works. The realized spill only

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becomes significant if the hindcast modeling indicates the sediment spill actually impacted a receptor. In this context, it is a reactive indicator, but as hindcast results are available 48 hours in arrears, lag time is short compared to traditional EMMP responses.

Importantly, the hindcast modeling provides full spatial and temporal impact coverage (i.e. not just at fixed monitoring locations) and as each and every activity is hindcasted, there is a direct correlation between spill and impact. Any response identified can, with a high degree of confidence, be expected to yield the desired degree of mitigation.

Hindcast modeling is subject to daily validation of currents and suspended sediment, therefore the hindcast model is progressively improved and substantially more reliable than what is typical seen as part of the environmental approval process. Progressively improved plume hindcast model performance has withstood intense legal scrutiny whereas standard adaptive management techniques would have provided more uncertainty in environmental damage responsibility.

Real-Time Monitoring

Real-time TSS monitoring typically applies a trigger limit (e.g. in NTUs or TSS) to provide an early warning of an impact. This is particularly valuable for point location receptors sensitive to short-term excess concentration levels, where real-time monitoring can provide near real-time control such as cooling or process water intakes. Traditional 'adaptive' EMMPs often use real-time or offline monitoring of NTU or TSS at habitat receptors, (e.g. coral reefs or seagrass as implied by FDEP 2019) as an attempt to provide a rapid indicator in the adaptive management process. However, the value of such TSS monitoring on larger receptors is severely compromised due to lack of spatial coverage. For example, an impacting plume can readily pass between sensors.

Integrated into the overall Proactive Feedback EMMP approach, the value of real-time (or offline) sensor-based monitoring is greatly enhanced as it provides validation data for the hindcast modeling that addresses the spatial resolution problem of sensor-based monitoring. In addition, the Proactive Feedback EMMP approach constantly updates realized and forecasted impacts based upon specific contractor work plans. This enables the locations of real-time monitoring stations to be fine-tuned thus ensuring locations within and outside potential impact areas are captured, rather than relying on arbitrary plans as part of the environmental approval process.

Habitat Monitoring

Typically, applied Habitat Monitoring is problematic as it is impractical to measure health at a spatial and temporal scale to identify impacts in a timely manner and manage dredging works in a meaningful manner. This is apparent along with the obvious problems associated with linking observed response to the works performed.

Consequently, in the Proactive Feedback EMMP approach, monitoring of biological habitat feedback variables is primarily done to validate the tolerance limits for establishing the Spill Budget and habitat compliance control mechanisms (the feedback loop). This allows the number of habitat monitoring stations and frequency of habitat monitoring surveys to be significantly reduced as compared to traditional monitoring techniques, resulting in a substantial cost savings without sacrificing management control.

Other Important Aspects of the Control Process

Adjusting the Spill Budget

Spill Budget(s) are periodically updated to reflect work progress and related changes in the work plan related to equipment, scheduling delays, and unexpected geotechnical and differing seasonal hydrodynamic conditions. Variations can alter the assumptions of spill generation and feedback monitoring compliance results. Typically, such updates occur monthly or quarterly depending on the granularity of the contractor's work plans. In certain cases where receptor compliance illustrates an excessive margin of compliance, a Spill Budget can be increased to allow higher levels of production while favorable conditions (e.g. course sediments, advantageous hydrodynamics) persist.

Supplementary Monitoring

Effective Proactive Feedback EMMPs also apply supplementary monitoring to validate hindcast modeling results and augment an understanding of the effectiveness of environmental management. For example, real-time turbidity or TSS monitoring is often coupled with ADCP measurements, providing validation input for hindcast hydrodynamic and sediment plume modeling. Satellite and aerial imagery (e.g. automated drone surveys) as well as advanced extrapolation techniques may be used to provide supplemental validation of sediment plume hindcast modeling.

Application to the Floridian Situation

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The Wheatstone Project in Australia exemplifies how the Feedback approach can be integrated into traditional adaptive management strategies in cases where the environmental sensitivity of the project warrants such environmental management measures. The success of the Feedback EMMP approach on this project offers Floridian regulators and coastal planners a solution to coastal habitat protection challenges (FDEP 2019), while still allowing coastal developments to proceed efficiently. Adaptive EMMP techniques in Australia have typically applied similar turbidity criterion (NTUs) limits as Florida (FDEP 2019) (e.g. with different absolute values and recognition of magnitude-duration dose response) in parallel with habitat mortality criterion.

The Wheatstone Project in Australia involved approximately 30 million cubic meters of dredging over 18 months to create a channel, berth pockets, material offloading facility and trench for pipelay. The works included up to five dredgers operating in close proximity to corals, seagrass, filter feeders, macroalgae, dugong and turtles and, as may be expected, strict environmental performance requirements. Environmental approval for the project prescribed mitigation actions based on turbidity (NTUs) measurement trigger limits and coral health (amongst other variables). However, in recognition of the lagged response of previous so-called 'adaptive' monitoring programs and recognizing the potential costs associated with the environmental liability of exceeding the trigger values, the proponent opted to apply a Proactive Feedback EMMP. This included the turbidity-based trigger limits (NTUs) and coral health triggers specified as part of the approval conditions but supplemented the environmental management approach with Proactive Feedback EMMP control processes. The project proponent reported that environmental performance outcomes were achieved with no unacceptable dredging impacts to corals, seagrasses, macroalgae or filter feeders detected. They also emphasized that the approach led to less, but more effective monitoring, and a more flexible dredging program with limited requirement for additional regulatory approval and disruption to schedule. (Elsdon et. al, 2017)

As NTU limits were being applied together with a Feedback EMMP, it was necessary to establish a correlation between infield measurements of turbidity (NTU) and total suspended sediment (TSS) for both background and receptor monitoring sites. This was accomplished through site and benthic sediment, specific water sampling, and follow-up laboratory analysis of TSS at NTU control monitoring stations[6]. This correlation allowed EMMP experts to link NTU monitoring results with those from hindcast modeling. (Elsdon et. al, 2017).

The above example demonstrates that NTU limits can be applied within a Proactive Feedback EMMP. Floridian regulators could maintain turbidity based regulatory limits, while supplementing and strengthening the existing turbidity criterion' (FDEP 2019) with the more proactive techniques of the Feedback EMMP process. A Floridian Proactive Feedback EMMP approach would not only address the main draw backs of the present adaptive management approach and uncertainty regarding environmental management responsibilities (i.e. incl. liabilities) but would reduce the need for expensive in-field measurements. A basic road map for Floridian adoption of Adaptive EMMP could consist of:

- Initial site-specific (e.g. development or conservation areas of concern) research into the correlation between baseline turbidity and total suspended sediment
- Initial research and consensus on excess TSS-based tolerances applicable for Floridan coral, seagrass and other habitat or species of conservation concern
- Acceptance and documentation on the basic components of Floridian Proactive Feedback EMMP through a pilot Proactive Feedback EMMP project for a smaller dredge, reclamation or beach nourishment project
- Full implementation in all related coastal projects based on a published specification of the Floridian version of a Proactive Feedback EMMP

Summary and Conclusion

The Feedback EMMP approach has been developed over the past two decades and addresses the limitations of traditional adaptive management approaches to the environmental management of dredging and reclamation activities. After extensive application and refinement, the Proactive Feedback EMMP approach is now recognized as best practice by several international bodies. It promotes rapid and reliable management of spill generating activities to help ensure environmental quality objectives are met while minimizing the risk of environmental impact related

[6] Please note, other Proactive Feedback Projects have used a similar approach with follow-up laboratory analysis of TSS samples taken NTU control monitoring stations each time maintenance was conducted on EMMP sensors. This created an on-going database of the correlation.

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project delays and cost overruns. Proactive Feedback EMMP offers Floridian stakeholders the opportunity to move away from ineffective and overly conservative traditional reactive dredging and reclamation EMMPs that do not adequately address environmental liabilities to one that, in particular:

- Provides a linkage between spill generation and impact facilitating a more timely, targeted, and measured response to non-compliance events
- Allows variations in the dredge program to be considered via adjustments to related spill budgets
- Improves interpretation of physical and habitat monitoring data to quantify the impact of the works
- Enables impact segregation and management from multiple areas or multiple ongoing projects in a similar area
- Typically minimizes reliance on expensive monitoring surveys, thereby reducing overall environmental management cost, while providing a superior environmental management result
- Provides a reliable running quantification of realized spill, the transport and fate of that spill, and the resulting impact, thus eliminating uncertainties in the interpretation of monitoring data

Taken together, Proactive Feedback EMMP protects the interests of developers, contractors, regulators, and environmental groups at the same time by ensuring environmental quality objectives are met while reducing (and preferably eliminating) the risk of dispute over the actual impact of the works.

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FDEP Office of Resilience and Coastal Protection Updates

Beach Management Funding Program

Additional Funding for Projects

A little more than $10 million from the Beach Management Funding Assistance Program's surplus funds is available to be awarded to beach and inlet projects that were ranked, but unfunded on the Fiscal Year 2019/2020 list. Unencumbered funds that where legislatively appropriated to the Beach Management Funding Assistance Program can be reallocated to unfunded beach and inlet management projects based on authority in s.161.161(20)(a)1 F.S. The department maintains the unfunded, ranked projects for reallocation.

Eligible for funds:

- Three inlet projects
  - Wiggins Pass
  - Boca Raton Inlet
  - Estero Barriers Regional Study
- Six beach projects
  - Longboat Key
  - South Marco Island
  - South Ponte Vedra/Vilano
  - Captiva Island
  - Midtown – Palm Beach County Shore Protection Project
  - Deerfield Beach Feasibility Study

Rule 62B – 36 F. A. C.- BEACH MANAGEMENT FUNDING ASSISTANCE PROGRAM

The revised rule was published in the Florida Administrative Record on June 30, 2020. The Department is addressing minor comments from the Joint Administrative Procedures Committee as well as reviewing comments received from FSBPA and the Town of Hillsboro Beach.

Local Government Funding Requests for Fiscal Year 2021/2022

The call for applications was released July 31, 2020, and the deadline for submission is Sept. 30, 2020. The amended rule will be used to evaluate projects. Additional guidance was provided to local sponsors to

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assist with the new ranking criteria. Visit the program webpage for additional information or contact your project manager with any questions.

Catherine is Gone!

Best wishes for Catherine Florko in her retirement! In the interim, Andrew Briscoe will manage projects in St. Lucie, Indian River, and Martin counties, and Vince George will manage projects in Pinellas county.

Coastal Construction Control Line Program Rule Updates

Chapter 62B-33 – RULES AND PROCEDURES FOR COASTAL CONSTRUCTION AND EXCAVATION (PERMITS FOR CONSTRUCTION SEAWARD OF THE COASTAL CONSTRUCTION CONTROL LINE AND 50-FOOT SETBACK)

Proposed amendments to Chapter 62B-33, Florida Administrative Code (F.A.C.), *Rules and Procedures for Coastal Construction and Excavation* become effective July 29, 2020. The amendments filed with the Florida Department of State change definitions of “eligible” and “vulnerable” used to qualify projects for coastal armoring. “Eligible” now clarifies that for a private structure to be eligible for coastal armoring, it must be located wholly or partially seaward of the Coastal Construction Control Line (CCCL). “Vulnerable” now includes SBEACH in the coastal engineering models available to establish a building’s vulnerability to storm effects. The proposed rule amendments are available online.

Chapter 62B-55 – MODEL LIGHTING ORDINANCE FOR MARINE TURTLE PROTECTION

On June 17, 2020, the CCCL program held a rule development workshop for updates to Florida’s model sea turtle lighting ordinance. The webinar was attended by more than 60 representatives of local, state and federal governments; conservation organizations and environmental consulting firms; and other people interested in updates to the model lighting ordinance. The two-hour workshop provided background on the model ordinance, introduced draft amendments to Rule, Chapter 62B-55, F.A.C., and included a question-and-answer session with Florida Fish and Wildlife Conservation Commission (FWC) staff and workshop participants. Comments were accepted through July 17, 2020. Copies of the rule draft, workshop recording and attendee questions and comments are available online.

Beaches People on the Move

The Beaches and Field Services (BFS) program recuited Shannon Kennedy, Environmental Specialist, from the Southwest District Office as the new Field Inspector for the beaches of Pinellas, Manatee and Sarasota counties. She worked in DEP’s Hazardous Waste, Tanks, Clean Marina and Emergency Response programs before coming to Beaches. Born and raised on a ranch just north of Tampa, Kennedy has dabbled as a firefighter and ski/snowboard instructor, studied criminology at the University of South Florida, received her Juris Doctorate in Environmental Law and Policy from Lewis & Clark Law School in Portland, and is currently pursuing a master’s degree in Global Sustainability. Beaches field inspectors located in district offices and other locations provide compliance assistance and enforcement for the CCCL and Joint Coastal Permitting programs, issue CCCL field permits, consult with property owners regarding activities seaward of the CCCL and conduct post-storm windshield surveys reporting on hurricane damage.

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Zach Westfall, Coastal Geologist in the Coastal Engineering and Geology Program has resigned to become the Assistant Coastal Coordinator for Pinellas County. Congratulations, Zach, we will miss you!

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USACE Jacksonville District
USACE Awards Contract for St. Johns County CSRM Project Construction

US Army Corps of Engineers®

The St. Johns County Coastal Storm Risk Management (CSRM) Project includes 3 miles of shoreline from Vilano Beach to South Ponte Vedra Beach. The Feasibility Report for the project was approved in 2017 and included a 60 ft wide berm extension and dune construction.

The U.S. Army Corps of Engineers (USACE), Jacksonville District, awarded a contract to Great Lakes Dredge & Docks Company, LLC., worth $15,179,000 to restore the critically eroded shoreline. St. Johns County is the non-federal sponsor for the project and will contribute 71% of the cost, while Jacksonville District (the federal sponsor) contributes the other 29%.

Figure 1: Aerial photo looking south at Boating Club Rd

This is the first nourishment project along this stretch of shoreline with participation from the federal government. The nourishment will place approximately 1.3 million cubic yards (cy) of sand that will be dredged from shoals located within St. Augustine Inlet. This material will be placed along approximately 2.6 miles of beach with the goal of improving coastal resilience by reducing future storm damage to infrastructure (including evacuation route A1A). Additionally, this nourishment will protect and enhance nesting habitat for sea turtles and shorebirds.

Figure 1 shows the pre-project conditions of the beach looking south from Boating Club Road. In this image it is possible to see the eroded shoreline, and homes protected by seawalls. The nourishment event will help protect this infrastructure, as well as State Rd A1A, located adjacent to the houses.

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Mobilization for the project is expected to begin in mid-August and will require closing portions of the beach, including Surfside Park. Dredging of the shoals is expected to commence in late September and updates will be provided on the Jacksonville District project site located here: http://www.saj.usace.army.mil/StJohnsVilanoCSRM

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Shoreline

A monthly electronic publication of the Florida Shore & Beach Preservation Association.

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CALENDAR OF EVENTS

FSBPA Conferences

September 16-18, 2020
FSBPA Annual Conference
Hyatt Regency Coconut Point, Bonita Springs, Florida

February 3-5, 2021
34th Annual Tech Conference
Embassy Suites by Hilton, St. Augustine Beach, Florida

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