

MEMORANDUM FOR The Chief of Engineers

SUBJECT: Outcomes from the Full Meeting of the Board on Coastal Engineering Research, 15-17 August 2023, Miami, FL

1. I chaired the 99th Board on Coastal Engineering Research's (BCER) Full Meeting in Miami, FL from 15-17 August 2023. The theme of the meeting was "Community integration with non-structural and hybrid solutions." The meeting was hosted by USACE's South Atlantic Division's Jacksonville District (SAJ) and included a technical tour of SAJ's Beach Erosional Control and Hurricane Protection Project (Miami Beach Renourishment) and the Miami Harbor Navigation Improvement Study. Table 1 summarizes the BCER Recommendations and Action items. The remainder of the memo provides a narrative summary of the meeting and more details on each recommendation and action item. A synthesis of meeting outcomes follows:

- **Comprehensive benefits, coastal resiliency and serving underserved communities** continue to be topics of focus for the Board. During this meeting specific emphasis was on back bay features and a desire to utilize adaptive features that also serve community needs.
- A need exists for **joint authority for Flood Risk Management and Coastal Storm Risk Management projects** and how recreational features can enhance project purposes.
- Tools are needed to **effectively communicate coastal and inland compounded risk, uncertainty, and comprehensive benefits.**
- Research is needed to define and establish **approaches to define triggers for initiating Incremental coastal adaptation measures – whether specific storm events, frequency of storms, change in trajectory of long-term trends, or thresholds of long-term trends.**
- In summer of 2024, the **BCER will hold its 100th meeting**, providing an opportunity to highlight the future trajectory of the Board and its role in impacting National coastal engineering and science research and development.

2. This full meeting of the BCER focused on understanding the USACE South Atlantic Division's coastal setting and challenges, better serving the underserved, broadening and quantifying benefits, and future coastal R&D innovations (agenda provided in Appendix A). The USACE SAJ provided the BCER an overview of USACE South Florida Resiliency Efforts (integrating coastal and inland projects); lessons learned and gaps from the Miami and Collier County Back Bay Study; the partner perspective from Miami-Dade County Back Bay Community R&D Needs; and the partner perspective from the Key Biscayne – Community R&D Needs. The technical site visits provided a tour of South Florida shoreline project sites which illustrated challenges of community integration and complex physical systems in planning, engineering, and maintaining coastal projects in densely-populated communities and incorporating uncertainties and non-structural and hybrid solutions. (Figures 1 and 2).

Table 1. August 2023 Executive BCER Recommendations and Action Items

NUMBER	RECOMMENDATIONS	
2023-Full-Rec-1	Pursue continued research into comprehensive benefit analysis including consistent metrics across Flood Risk Management and Coastal Storm Risk Management projects, including recreational features that can enhance project purposes.	
2023-Full-Rec-2	Pursue opportunities to better communicate and tell USACE projects stories in real time including tools to effectively communicate compounded risk, uncertainty, and comprehensive benefits.	
2023-Full-Rec-3	Consider research opportunities to define and establish thresholds for triggers leading to implementing incremental coastal adaptation.	
NUMBER	ACTION ITEMS	DUE
2023-Full-1	Create comprehensive figure for the Coastal Hazard Analysis and Risk Toolkit (CHART) to visualize “multicomponent protection system” and associated terminology.	2024 Exec BCER
2023-Full-2	Circulate the Federal Register notice regarding the Agency Specific Procedures for implementing the Principles, Requirements & Interagency Guidelines (PR&G) for feedback.	Fall 2023
2023-Full-3	Identify basic research gaps and drivers across enterprise and identify who our academic and industry partners are.	2024 Exec BCER
2023-Full-4	Identify location for next Executive and Full BCER meetings, in preparation for the 100 th BCER meeting in Summer 2024.	Fall 2023
2023-Full-5	At the next BCER meetings, invite key decision makers from the Assistant Secretary of the Army, Civil Works, and USACE HQ Program Integration Division and their staffs to engage with the BCER’s preparations for 100 th Meeting and provide funding and policy perspectives.	2024 Exec and Full BCERs

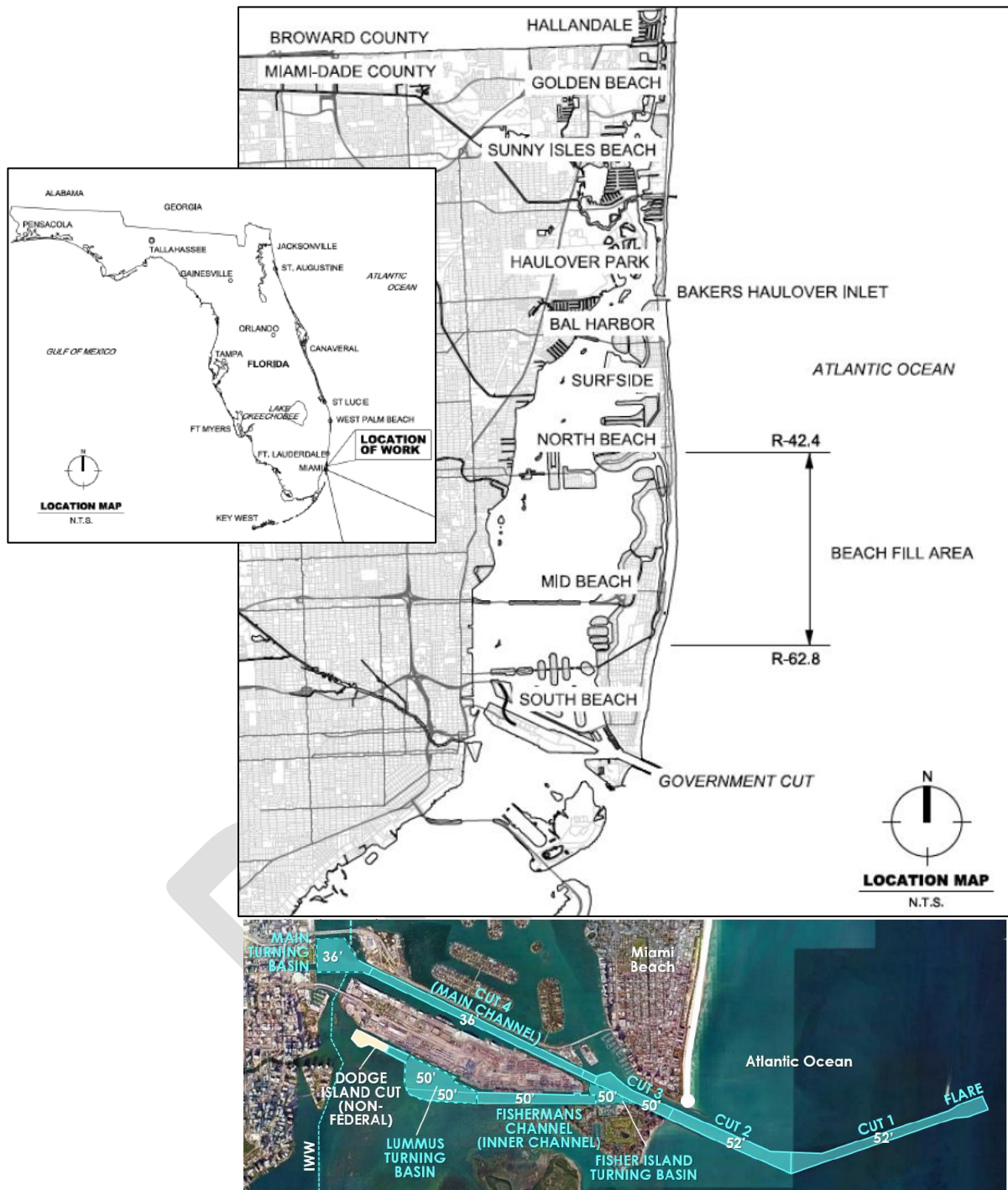


Figure 1. Overview of two BCER Technical Tour Stops: (Upper) Beach Erosional Control and Hurricane Protection Project, Miami beach renourishment 2021, Miami-Dade County; and (Lower) Miami Harbor Navigation Improvement Study.



Figure 2. BCER Members in Miami, FL, overlooking the Miami Harbor Navigation Improvement Project, August 2023 (from left to right: BG Antoinette Gant, Dr. Ed Lewis Link, MG William Graham Jr., and COL John P. Lloyd). BCER Member attending the meeting but not pictured was BG Daniel Hibner.

3. The remainder of the agenda centered around the meeting theme. BCER members requested a follow-up action item from the detailed briefing on the Coastal Hazards Analysis and Risk Toolkit (CHART) Fundamentals to create a **comprehensive figure and examples to visualize a “multicomponent protection system” and explain associated terminology as utilized by CHART (2023-Full-1)**. CHART is an integrated modeling system that calculates lifecycle Coastal Storm Risk Management project responses to a range of potential future forcing and climactic conditions, including impacts of status-quo and project alternatives. Outputs will provide the impact of each alternative on Flood Risk Management, Environmental Justice and Social Equity, and resulting economic and physical impacts to natural and built infrastructure. In part through BCER proponency, CHART is a priority for USACE within the FY24 Strategic R&D Program.

4. A briefing on incorporating Environmental Justice data into coastal planning, engineering, and design led to a discussion on maximizing comprehensive project benefits for Environmental

Justice, socially vulnerable populations and current Coastal Storm Risk Management (CSRM) challenges. Key best practices include incorporating comprehensive benefits consideration at the beginning of a study; using comprehensive benefits as the framework for a fully integrated analysis; and recognizing and accommodating the varying needs of a variety of populations—technically and for engagement. Discussion of maximizing comprehensive project benefits for social equity led to the recommendation to **pursue continued research into comprehensive benefit analysis applying consistent metrics across Flood Risk Management and Coastal Storm Risk Management projects, including recreational features that can enhance project purposes** (2023-Full-Rec-1 and 2). A presentation on coastal adaptation pathways and ongoing discussions related to back bay studies led to an action item to **define and establish thresholds for triggers that point to decisions for coastal adaptation** (2023-Full-Rec-3). The Board asked to be notified when the **Federal Register notice regarding the Agency Specific Procedures for implementing the Principles, Requirements & Interagency Guidelines (PR&G)** is published in the Federal Register (2023-Full-2).

5. Discussion of the USACE Strategic Focus Areas and future coastal R&D innovations in machine learning and coastal adaptation pathways led to an action item to **identify basic research gaps and needs across the enterprise and identify existing academic and industry partners** (2023-Full-3). The board highlighted that with increasing historic workload there is a need to be innovative in partnering with academia and industry in pursuing basic and applied strategic R&D and continue to identify “Moonshot” R&D to Address Coastal Engineering Challenges (an ongoing Action item from 2023 BCER Executive Meeting, 2023-Exec-6).

6. The 100th Meeting of the BCER will occur in the Summer of 2024. The Board recommended leveraging the 2024 Winter Executive Meeting of the BCER to invite key policy and decision-makers so they can learn about the impact of the BCER and provide guidance to contribute to the Board’s continued successes. Board members recommended the 100th BCER meeting focus on the BCER’s impact, most immediate and future coastal problems, and report on Moonshot R&D to address these coastal engineering challenges. Several locations were discussed for the 2024 Winter Executive Meeting, including the D.C. region to better engage HQ and key policy makers. Several locations for the 2024 Summer Full 100th BCER meeting were suggested, including Charleston, SC; New Orleans, LA; New York-New Jersey Harbors and Tributaries, and San Francisco Waterfront, CA. As Chair, I have an action item to discuss the **venues and focus with key Secretary of the Army leadership and identify locations for the next Executive and Full BCER meetings and invite key decision makers** (2023-Full-4, 2023-Full-5).

7. For questions about topics discussed herein, please contact the Designated Federal Officer for the BCER, Dr. Julie Rosati, Julie.D.Rosati@usace.army.mil.

WILLIAM “BUTCH” GRAHAM

Major General, US Army
Chair, Board on Coastal Engineering Research

Attachment A: Agenda for the Board on Coastal Engineering Research’s 99th Meeting

AGENDA

Theme: Community integration with non-structural and hybrid solutions

Meeting Concept: Identify coastal research needs associated with integrated natural, nature-based, hybrid, traditional, and non-structural solutions that are co-developed to meet coastal community needs.

Tuesday 15 August 2023 – Hilton Miami Dadeland Hotel

Meeting Attire: Military- Cammies/OCP; Civilian-Business Casual

0700 0830 Registration- Grand Magnolia Ballroom

0730 0830 Breakfast

0830 **Call to Order**

0830 0900 Welcome and Introductions

MG William H. “Butch” Graham, Jr., Deputy Commanding General for Civil and Emergency Operations, Headquarters (HQ), U.S. Army Corps of Engineers (USACE)

COL James L. Booth, Commander, USACE Jacksonville District (SAJ)

0900 0930 Purpose and History of the BCER and Discussion of 100th BCER Meeting in 2024
Dr. Ty V. Wamsley, SES, Director Coastal & Hydraulics Laboratory (CHL)

Panel Session #1: Jacksonville District’s (SAJ) Coastal Setting and Challenges

Moderator: Mr. Chris McNeas, SAJ

0930 1000 USACE South Florida Resiliency Efforts: Integrating Coastal and Inland Projects
Ms. Eva Velez, USACE/SAJ
Mr. Timothy Gysan, USACE/SAJ

1000 1015 Break

1015 1045 Miami and Collier County Back Bay Study – Lessons Learned and Gaps

- Ms. Michelle Hamor, USACE/Norfolk District (NAO)
- 1045 1115 Partner Perspective: Miami-Dade County Back Bay Community R&D Needs
Mr. Jim Murley, Miami-Dade County Chief Resiliency Officer
- 1115 1145 Partner / USACE Perspective: Key Biscayne – Community R&D Needs Dr. Roland Samimy, Chief Resilience Officer, Village of Key Biscayne Mr. Jason Engle, USACE/SAJ
- 1145 1245 Working Lunch Onsite**
- Panel Session #2: BCER Action Items***
Moderator: Dr. Julie Rosati, CHL
- 1245 1315 CHART Fundamentals
Mr. Kevin Hodgens, USACE/CHL
- 1315 1415 Better Serving the Underserved: Maximizing Comprehensive Project Benefits for Environmental Justice, Socially Vulnerable Populations And Current CSRSM Challenges
Ms. Susan Durden, Institute for Water Resources (IWR)
- 1415 1445 Industry Perspective: Tools to Assist Communities in Coastal Resilience
Dr. Angela Schedel, Global Director of Coastal Programs, HDR, Inc.
- 1445 1500 Break**
- Panel Session #3: Broadening and Quantifying Benefits***
Moderator: Ms. Jessie Straub, CHL
- 1500 1530 Quantifying Benefits of Natural and Nature-Based Solutions Dr. Soupy Dalyander, The Water Institute of the Gulf
Ms. Jean Cowan, The Water Institute of the Gulf
- 1530 1600 Coastal Storm Damages Prevented Tool
Ms. Marriah Abellera,
USACE/IWR Mr. Matt Wesley,
USACE/SAJ
- 1600 1630 Technical Site Visit Overview
Mr. M. Chris McNees, USACE/SAJ

Ms. Michelle Hamor, USACE/NAO

1630 1700 Wrap up Day 1 Feedback from the Board

1830 2100 Optional Evening Social TBD

Wednesday 16 August 2023 – Hilton Miami Dadeland Hotel

Meeting Attire: Field- For walking tour

Site Visits Led by Mr. Chris McNeese, SAJ and Ms. Michelle Hamor NAO

0730 0800 Board Busses and transit to field sites

0800 0930 Depart Hilton Miami Dadeland Hotel 9100
N Kendall Dr, Miami, FL 33176
Transit to Miami-Dade CSRM – Segment IV
Collins Park, 2100 Collins Avenue, Miami Beach, FL 33140

0930 1000 View recently completed Miami-Dade CSRM project

1000 1030 Depart Miami-Dade CSRM – Segment IV
Transit to Miami Harbor Entrance - Government Cut
South Pointe Park, 1 Washington Avenue, Miami Beach, FL
33139

1030 1100 View Miami Harbor Entrance – Government Cut
Presentation on proposed Miami Back Bay features

1100 1145 Depart South Pointe Park's Parking Lot

1145 1200 Arrive Hilton Miami Dadeland

1200 1300 Box Lunch; Break

Panel Session #4: Future Coastal R&D Innovations

Moderator: Dr. Gaurav Savant, USACE/CHL

1300 1330 Board Feedback on Site Visits

1330 1400 Machine Learning and Artificial Intelligence in Coastal Applications
Dr. Chris Massey, USACE/CHL

1400 1430 Coastal Adaptation Pathways for Barrier Island
Communities Dr. Stephanie Patch, University of South
Alabama

1430	1445	Break
1445	1515	Summary of Outcomes and Recommendations Dr. Jane Smith, USACE/CHL
1515	1545	Public Comment
1545	1615	Summary of Action Items Dr. Julie Rosati, USACE/CHL
1615	1645	Board Closing Remarks Open Discussion Board Members
1645		Adjourn

Thursday, 17 August 2023

Meeting Attire: Military-ASU'B; Civilian-Business Casual

Miami Dadeland Hotel

0800 – 0815	Opening Remarks	MG Graham
0815 – 0915	Discussion of the 98 th BCER	MG Graham / All
0915 – 0945	2024 Executive Session/100 th BCER	Location and Focus
0945 – 1000	Break	
1000 – 1015	Action Items Update	Dr. Julie Rosati
1015 – 1045	Closing Remarks	Board
1045	Adjourn	