



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

CECW-ZA

MAR 22 2018

MEMORANDUM FOR Commanding General, U.S. Army Corps of Engineers (USACE),
441 G. St., NW, Washington, DC 20314

SUBJECT: Coastal Engineering Research Board Executive Session Outbrief

1. The Coastal Engineering Research Board (CERB) met in Executive Session on 14-15 Mar 18 to discuss action items from the previous full CERB meeting, received updates on key initiatives, and planned the 95th full meeting scheduled for 7-8 Aug 18 in Providence, RI.
2. Based on in-depth discussions, 11 new action items were developed and linked to USACE Campaign Goals to ensure they support enterprise priorities (Encl 1). You can help with Action Item 2018-Exec-8, by directing we present the CERB initiative to pilot a next generation digital coastal guidance document at an upcoming Executive Governance Meeting.
3. Notable CERB Executive Session outcomes include:
 - a. Identification of gaps in our existing coastal research program regarding carbonate sediments and Pacific basin numerical modeling.
 - (1) Carbonate sediments have different properties and transport characteristics than more common quartz sediments and, although we construct coastal storm damage reductions projects using carbonate sediments, we are not able to fully quantify or predict performance. Another concern is interaction of placed sediments with coral reefs. The CERB recommends adding an appropriate level of research to improve predictive capabilities.
 - (2) The second research gap is the need to establish a West Coast numerical model testbed to evaluate the dominant coastal processes experienced in the Pacific basin and our ability to accurately characterize them. This would be similar to the testbed we run at the Field Research Facility in Duck, NC. These two gaps emerged through discussions at both the 93rd and 94th CERB meetings in 2016 and 2017, respectively.
 - b. The CERB leadership continued their strong support for the Nearshore Processes Research Initiative, instigated by the CERB and the American Shore and Beach Preservation Association (ASBPA) that now includes a dozen Federal agencies, numerous academic institutions, coastal industry, and several non-governmental organizations. Since inception in 2015 this initiative has produced \$2M in collaborative research.

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Continued collaboration is expected to yield resilient coastal infrastructure designs that will undoubtedly save lives during future hurricanes, increase protection to coastal communities, and recover more rapidly. The focus of the 95th CERB addresses a priority of this initiative.

4. Periodically, the Chief charges the CERB with addressing a compelling topic to help inform USACE needs and direction. The last charge in 2013 was entitled "Integrating risk and resilience to meet coastal water resources infrastructure objectives", which resulted in informing the USACE CW coastal resilience approaches and created three research initiatives that addressed specific gaps in capability. A list of potential topics you may consider charging the CERB to address, including our recommendation, are found in Encl 2. In 2019, the CERB will address Sediment Management Challenges.

5. Point of contact for this memorandum is Jeff Lillycrop, at (202) 761-4229 or jeff.lillycrop@usace.army.mil.

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DONALD E. JACKSON, JR., P.E.
Major General, USA
Deputy Commanding General
for Civil and Emergency Operations

	ACTION ITEM	UCP Alignment	Due	POC(s)
2018-Exec-1	Proceed with Pilot to develop the Next Generation Coastal Guidance Digital Document	Objective 2b: Deliver the Civil Works Program using innovative solutions	2019 Exec Session	Winkelman / Lillycrop
2018-Exec-2	Develop Statements of Need for Carbonate Sediment research and to establish a West Coast Numerical Model Tested	Objective 4a: Maintain and advance DoD and Army critical enabling technologies	3/31/18	Winkelman / Rosati
2018-Exec-3	Define and Categorize Natural and Nature-based Features to explain what NNB covers	Objective 2b: Deliver the Civil Works Program using innovative solutions	2018 Full	Lillycrop
2018-Exec-4	Provide a 15 minute Primer on Civil Works RD&T Business Processes and the Research Area Review Group	Objective 4a: Maintain and advance DoD and Army critical enabling technologies	2019 Exec Session	Rosati
2018-Exec-5	Organize Action Items by Function	Objective 4a: Maintain and advance DoD and Army critical enabling technologies	2018 Full	Lillycrop
2018-Exec-6	Review past CERB Recommendations, how the Civilian Members Influenced them, and the Impact of the Recommendation on the Corps	Objective 4a: Maintain and advance DoD and Army critical enabling technologies	2019 Exec Session	Rosati / Lillycrop
2018-Exec-7	Establish a Research Performance Metric of # of Publications / Annual Budget as a basic indicator of tech transfer through peer reviewed publications	Objective 4a: Maintain and advance DoD and Army critical enabling technologies	2019 Exec Session	Smith
2018-Exec-8	Seek to Present the Coastal Guidance Pilot at an upcoming EGM meeting	Objective 4a: Maintain and advance DoD and Army critical enabling technologies	2019 Exec Session	Winkelman / Lillycrop
2017-Exec-9	Calculate benefits resulting from coastal projects impacted by 2017 hurricanes	Objective 2d: Manage the life-cycle of water resources infrastructure systems to consistently deliver reliable and sustainable performance	2019 Exec Session	Bellomo
2017-Exec-10	Evaluate the potential of using the National Defense Science and Engineering Graduate Fellowship as another vehicle to attract our future workforce	Objective 4d: Build ready and resilient people and teams through innovative talent management and leader development strategies and programs	2019 Exec Session	Smith
2017-Exec-11	Advance the CERB Them of Sediment Management planned for CERB 2021 to CERB 2019	Objective 2b: Deliver the Civil Works Program using innovative solutions	2019 Full	Rosati

Encl 2: Possible Chief of Engineer Charge to the CERB (2018)

1. CERB RECOMMENDATION: How do we improve the linkage between our most challenging coastal studies and projects (e.g., IPET, MsCIP, NACCS, SACS, Coast of TX, and others) and our cutting edge research & technology programs and capabilities? What have we learned from successes at our “pockets of excellence” such as at Galveston District, the Mississippi Valley Division, and others, that we could apply on an enterprise scale?

OTHER CONSIDERATIONS:

2. How does the Corps successfully conduct its coastal mission in 2070 given changing storm intensity and frequency, increasing urban infrastructure, limited sand resources, navigation and multi-modal requirements, and ecosystem priorities? How may the mission change and how do we transition to it? What are the key challenges? What are the knowledge, skills, and tools needed to transition?
3. How do we sustain physical and numerical modeling capabilities into 2050? In a changing world with community-based numerical models, legacy tools and investments, the need to couple physical & numerical models, and easy access to a range of alternatives, what are the strategic investment needs and how do we sustain these investments?
4. What rapid response tools and capabilities are needed to support coastal Contingency Operations? Support prior to, and following the 2017 hurricane season illustrated many coastal tools and prediction capabilities, and a few gaps. It also exposed operational inconsistencies. What were the successes, what are the gaps, what research and tools are needed, and how do we consistently operationalize tools?
5. Are we meeting the full spectrum of military needs in the coastal environment? What are the primary requirements, what are our current capabilities, and what research and tools are needed to fill any gaps?
6. Can we develop a new paradigm for justifying coastal infrastructure based on resilience rather than solely damages prevented? Coastal resilience has four components – prepare, absorb/resist, recover, and adapt. Current project benefits and justification are based on “absorbing damages” or the national economics associated with damages prevented. Does it make sense to reconsider justification based on improved resilience (e.g., improving natural and human coastal infrastructure recovery and adaptation; linking benefits to additional categories such as ecosystem services) rather than only damages prevented? What research, knowledge, and tools would be required to develop new resilience design guidance and maintenance standards for coastal infrastructure? The Environmental Advisory

Board will be recommending methods for quantifying ecological benefits; can the CERB utilize these recommendations in advancing a resilience paradigm for coastal infrastructure?

7. How does the Corps integrate sediment management using immerging technologies and lessons learned? What tools and technologies do we need to address sediment management that we don't have?