DELAWARE BAY, BENEFICIAL USE OF DREDGED MATERIAL

PROJECT UPDATE

July 2025
U.S. Army Corps of Engineers
Philadelphia District

U.S. ARMY

US Army Corps of Engineers

PROJECT BACKGROUND

HOW DID WE GET HERE?

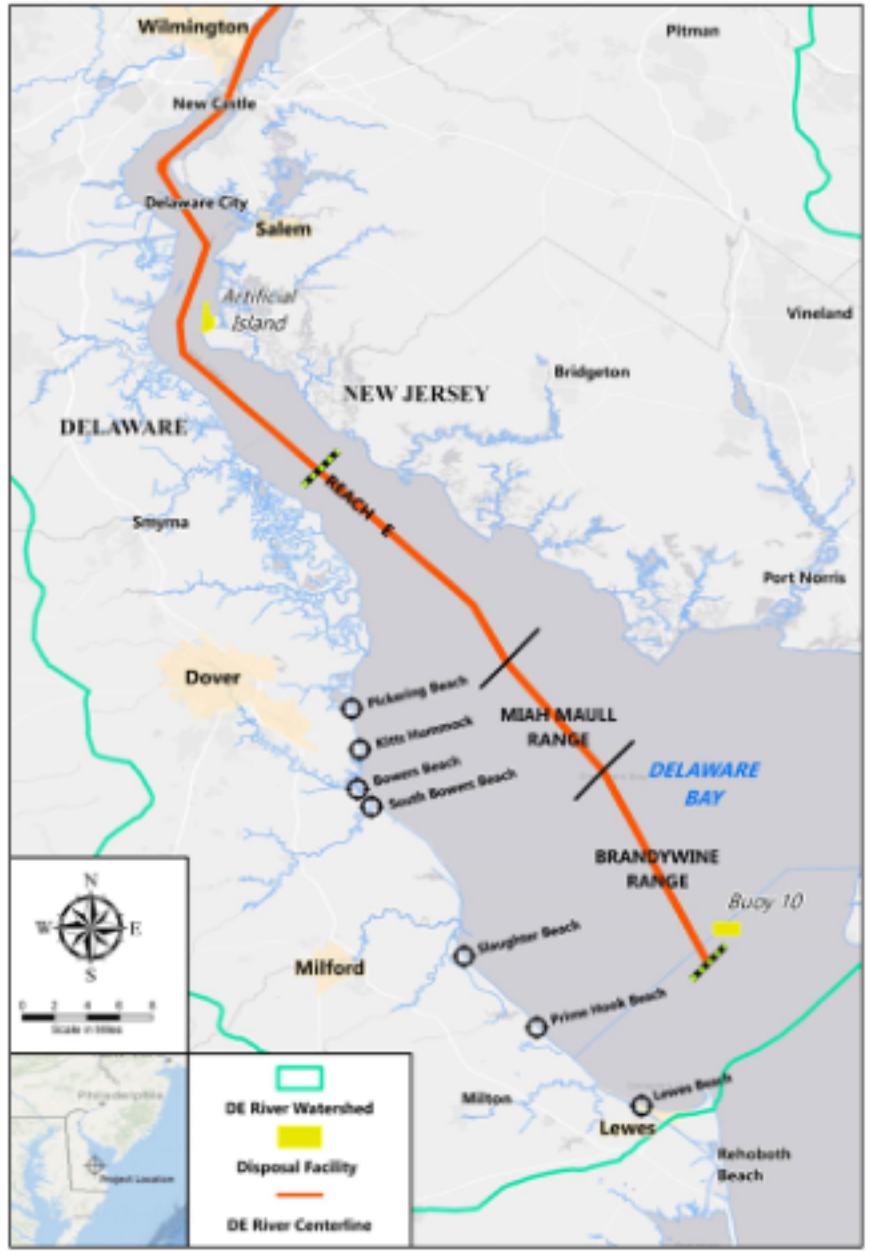
- Existing Delaware River, Philadelphia to the Sea Navigation Project – periodic dredging of sections of 102-mile channel to maintain 45-foot depth

- Delaware River Dredged Material Utilization (DMU) Study
  - Analyzed feasibility of using dredged sediment to nourish Delaware Bayshore beaches.
  - Authorized by Congress in 2020

- Congress passes multiple Water Resources Development Acts (cost-share, one-time fill, alternate borrow sources)

- Congress appropriates ~ $56 million in Federal funds

- Design agreement with DNREC signed in July 2024

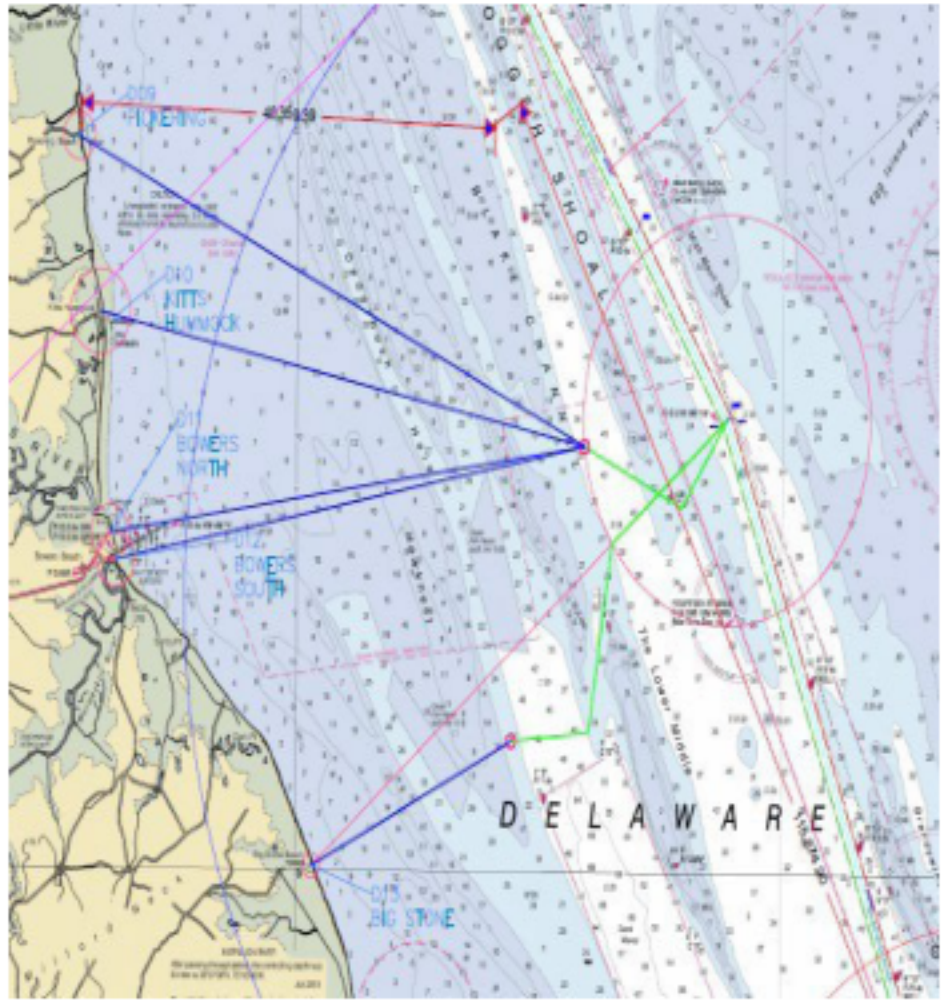


PLANNING AND DESIGN PARAMETERS

- USACE conducted ***value engineering study or design charette***

- Intent – maximize funding for one-time sand placement along Delaware Bayshore

- Considerations:
  - Existing beach conditions
  - Vulnerability assessment (DNREC Report)
  - Constructability
  - Dredge mobilization costs
  - Environmental factors
  - Maximizing existing funding/efficiency
  - Real Estate considerations



DESIGN CHARETTE TAKEAWAYS

- Existing funds – can't cover entirety of DMU design; only a few locations would receive sand
- Relocating pipe and booster pumps reduces funds available to place sand.
- Minimizing moving the pipeline increases quantity placed
- Validated DNREC Bay Beach Prioritization Report (2023)
- DMU design without advance nourishment will compromise integrity/longevity

PERFORMANCE CRITERIA

Implementation	Takes into consideration: real estate acquisition, design schedule, constructability, biddability and acquiring any required environmental permits.
Cost/Benefit Relationship	Evaluated Results and Findings of DMU study
Longevity	Takes into consideration the width of berm and length of design template and resistance to erosion.
Environmental Benefits	Considers potential enhancement of fish, crustacean (horseshoe crab) and bird habitat.
Existing Beach Conditions	The higher the erosion rate for the beach, the higher score it would receive in this performance rating. Value given is based on 2023 DNREC Prioritization plan shoreline position change data.

DESIGN CHARETTE

- What was accomplished?
- USACE reviewed potential Courses of Action to implement Beneficial Use and:
  - Identified the Highest Performance Course of Action
    - Pickering & Kitts Design Berm and Advance Nourishment
    - Performance Criteria included biddability, constructability, design schedule, Coastal Storm Risk Management benefits, and longevity
    - Other courses of action
      - Various relationships between cost, risk, value, and performance
  - Assumptions

BOOSTER PUMPS

- Typically, necessary when pumping sand/water slurry long distances or w/ elevation changes
- Provide additional power to maintain velocity and prevent pipeline blockages
- Booster pumps WILL be required for this contract regardless of dredging method

CHALLENGES

- Pipeline – tens of thousands of ft of pipeline
- Transit time for dredges
- Pumping power – significant horsepower need
- Shallow water from shoreline. Limited bidder pool with appropriate capability.
- Mobilizing equipment at multiple beaches
- Limited staging areas for equipment
- Real Estate and Public Access

PUBLIC ACCESS

- Engineering Regulation (ER) 1165-2-130, Federal Participation in Shore Protection Projects, requires that '***reasonable public access be provided*** in accordance with the recreational use objectives of the particular area.'
  - Access – access points should be no more than ½ mile apart
  - Parking – 'parking on free or reasonable terms should be available within a reasonable walking distance of the beach.'
  - DMU study included appendix with some detail on these aspects

PATH FORWARD
WHAT IS THE CURRENT WORKING PLAN?

- Dredging Brandywine Range of Delaware River

- Sand placement at:
  - Pickering Beach (along 4700 feet)
  - Kitts Hummock (2300 feet)
  - Slaughter Beach (4010 feet)

- Design work for Bowers Beach continues

ADDITIONAL INFORMATION

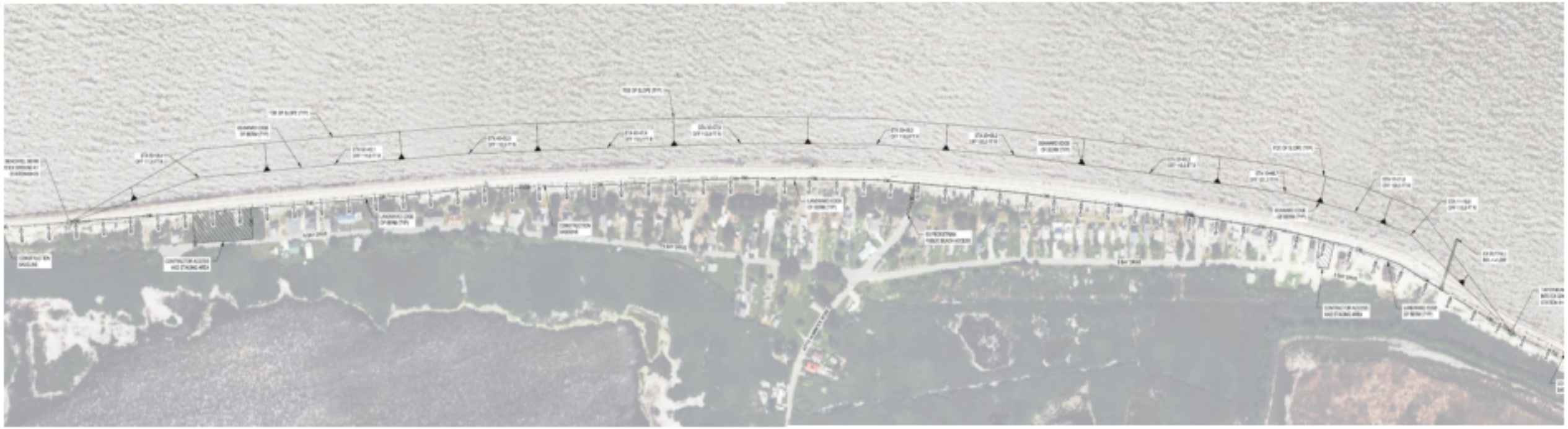
- Other communities – Broadkill, South Bowers, Prime Hook, Lewes remain a part of the Project Partnership Agreement between DNREC and USACE
- Continued monitoring by DNREC, eligible for future DNREC truckfills and other sand placements pending appropriations/funding
- $25 million funding capability for USACE for fiscal year 2026

CURRENT WORKING PLAN
PICKERING BEACH

- Optimized design calls for a berm only beachfill
- Berm width of 55 feet and berm elevation of 7.0 feet
- Construction berm to be 100 feet and include 45 feet of advance nourishment.
- The length of design berm is 2,500 feet with approximately 500 feet tapers at each end

CURRENT WORKING PLAN
KITTS HUMMOCK

- Berm only beachfill
- Design berm width of 55 feet and berm elevation of 7.0 feet.
- Construction berm to be 100 feet and include 45 feet of advance nourishment.
- The length of design berm - 4,400 feet w/ approximately 500 feet tapers at each end.



CURRENT WORKING PLAN
SLAUGHTER BEACH

- Small Dune and Berm beachfill
- Design Dune is 25 ft wide with an elevation of 8.5 feet.
- Design berm width of 25 feet and berm elevation of 7.0 feet.
- Construction berm to be 50 feet and include 25 feet of advance nourishment.
- The length of design berm is 4,500 feet with approximately 1,000 feet tapers at each end.
- *Would only be working in the southern half of Slaughter Beach*

PRELIMINARY QUANTITY ESTIMATES

Site	Design Volume (cubic yards, cy)	Advance Nourishment (cy)	Total Volume (cy)
Pickering	82,000	46,000	128,000
Kitts Hummock	112,000	81,000	193,000
Slaughter	143,000	48,000	191,000
Bowers	127,000	51,000	179,000
	464,000	**226,000**	**691,000**

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QUESTIONS?