

FY20 RSM IPR - Philadelphia District (NAP)

Utilizing High Velocity Tidal Channels for BUDM and Marsh Restoration in the Delaware River Estuary



POC: Monica Chasten, CENAP-OP

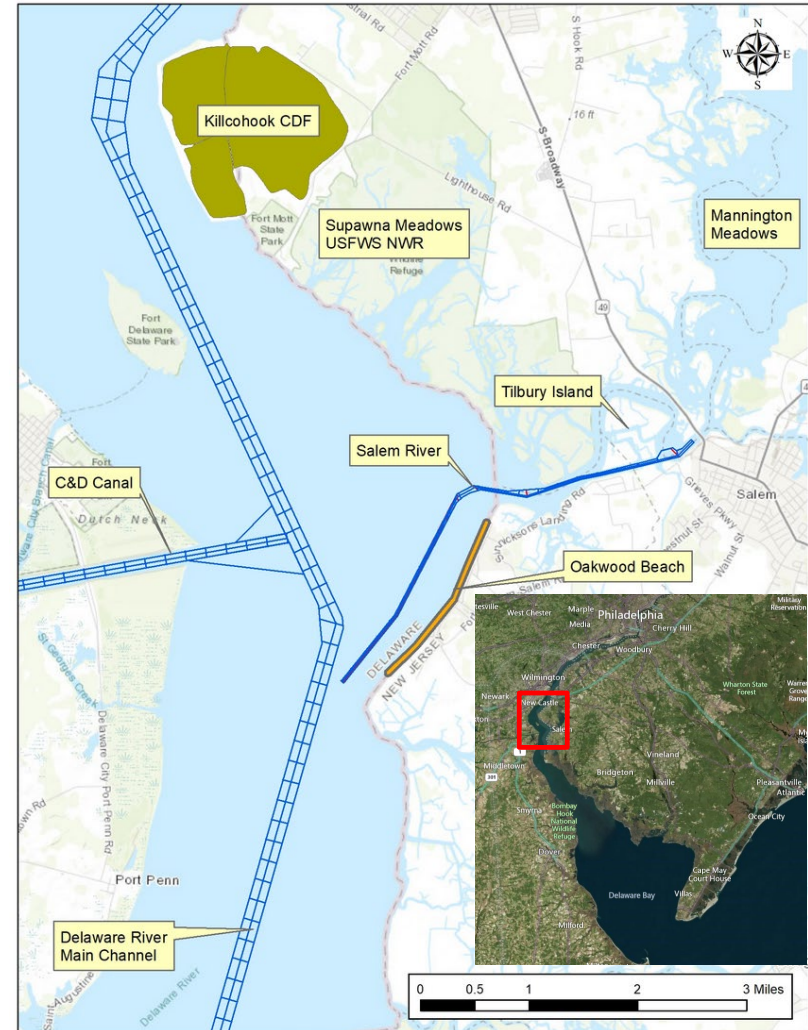
BLUF: NAP dredges ~1 MCY/yr from federal channels within 5 miles of Salem River, NJ. All sediment goes to upland CDFs. This RSM project is developing beneficial use alternatives using dredged sediment to restore eroding wetlands and tidal channels and to supplement a federal CSR project.

Challenge/Objectives

- Keep sediment out of CDFs and in the natural system
- Restore wetlands and habitats
- Collaborate across multiple federal and non-federal agencies and NGOs
- Change corporate thinking on “Federal Standard”

Approach – Year 1

- Compile dredging, sediment transport, historic shoreline change, and marsh evolution data
- Collect hydro survey and tide/current data where gaps exist
- Develop conceptual BUDM project designs and cost estimates



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USACE PDT Members

Rob Hampson, NAP Engineering & Construction;
Steve Allen, Jeff Gebert, Adrian Leary, NAP Planning;
Monica Chasten, Steve Farrell, NAP Operations;
Steve Rochette, NAP Public Affairs

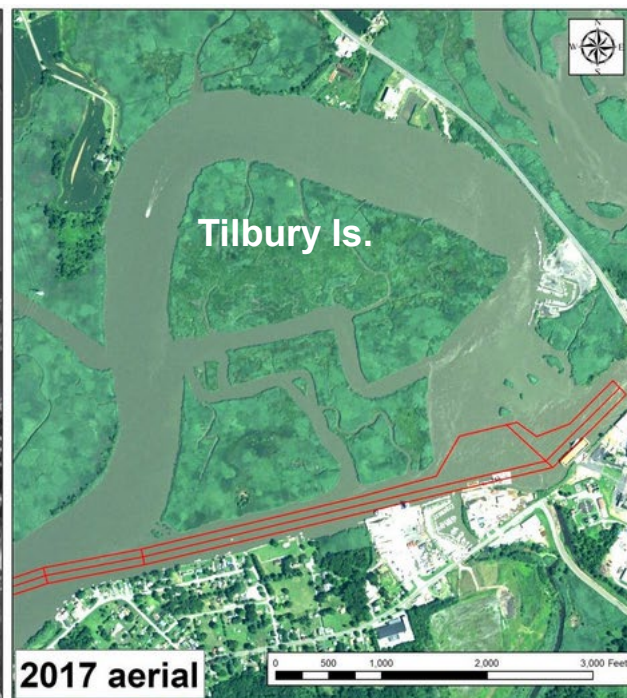
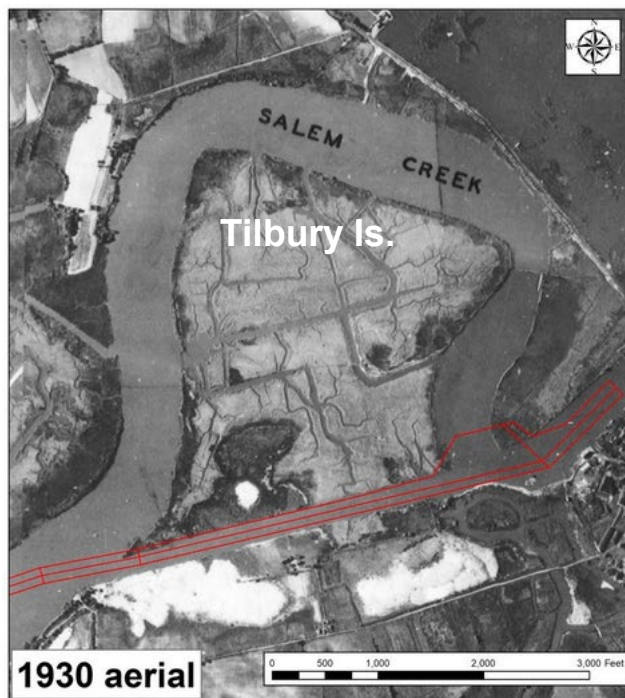
Stakeholders/Partners

Jim Feaga, Ducks Unlimited
Heidi Hanlon, Marc Virgilio, Steve Mars, USFWS
Jaymes Swain, USGS (DE)
John Mulford, Tilbury Island owner
Jessica Cobb, Land Use Mgmt., NJDEP

Leveraging & Collaborative Opportunities

Working with several units of
USFWS, Ducks Unlimited and
their design contractor (EA
Engineering), NJDEP, private
landowners

USACE ERDC EL/CHL and
Seven Mile Island Innovation
Laboratory for leveraging
lessons learned for use of fine-
grained dredged material to
build natural infrastructure





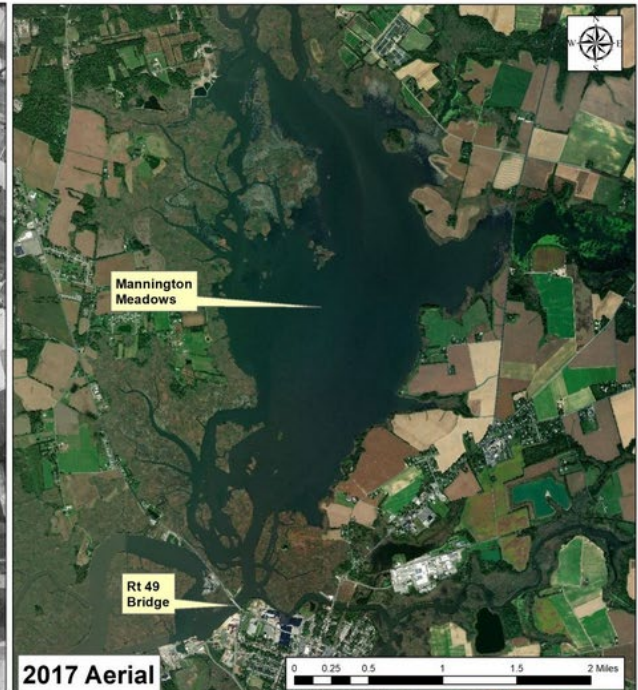
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Accomplishments/Deliverables/Lessons Learned – Year 1

- Sediment budgets and shoaling rates for the three adjacent Federal navigation projects
- Established temporal and spatial characteristics of dredged material sources (shoaling)
- Acquired new hydro survey data; purchased ADCP for performing current measurements
- Evaluated feasibility of potential marsh and tidal channel restoration using RSM strategies
- Identified target locations, quantities, and regulatory/real estate needs for pilot BUDM placement
- Technical report: “Introductory/background information on sediments, sediment transport, and dredging in the vicinity of the Salem River, NJ navigation project”

Coordination/collaboration during FY20 has expanded the effort to study potential placement locations beyond Salem River and Tilbury Island. These include:

- Supawna Meadows NWR
- Oakwood Beach CSR
- Mannington Meadows

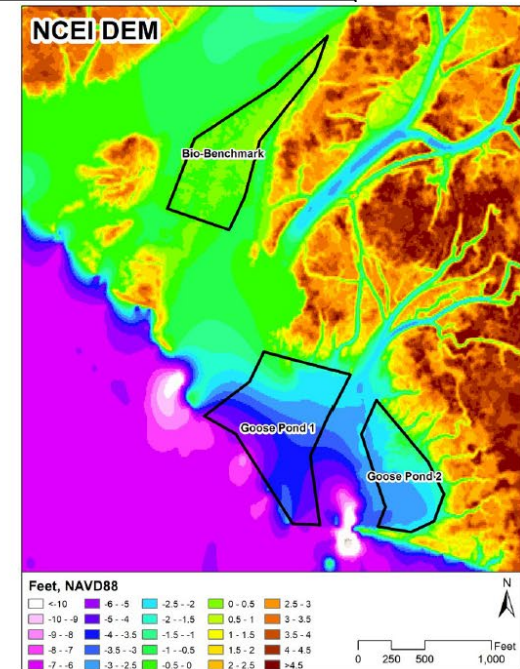
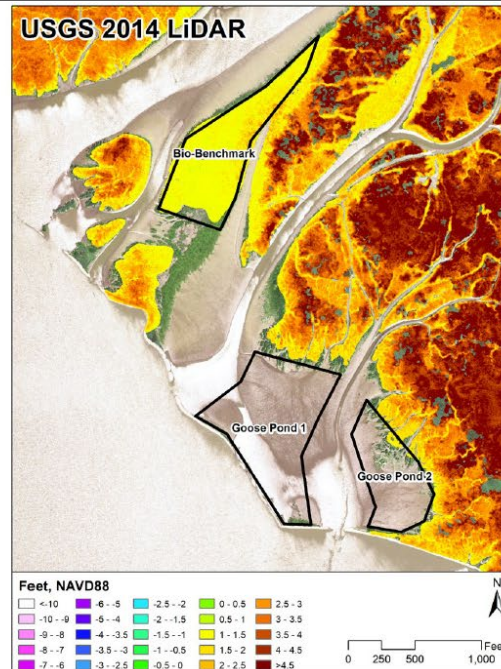
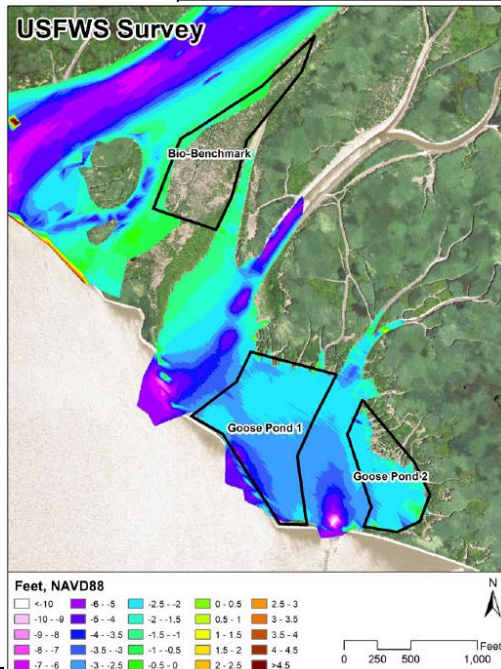




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Path Forward to Construction: Challenges and Opportunities

- COVID impacts have slowed progress and presented challenges
 - Coordination meetings not in person for large stakeholder group
 - Surveys staffing with “social distancing” and ADCP acquisition
- Potential MOA/MOU associated with doing work on USFWS lands
- Continue dynamic collaboration with USFWS & DU to refine proposed placement areas
- Need to identify appropriate model(s) to guide BUDM placement options
- Plans and Specs under development for “shelf ready” while waiting for funding and will include base to CDF but an Option for beneficial use at Supawna Meadows
- Potential Use of Currituck for Oakwood Beach sediment system (5,000 cy)



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Value to RSM and USACE

- BU of Delaware River, Salem River, and C&D Canal DM keeps sediment in the system and out of CDFs, extends their useful life, reduces long-term land acquisition and management costs
- Potential for almost 1 MCY/yr to be beneficially used in restoring eroded wetlands (multiple thousand acres) and tidal channels (multiple miles)
- Improves working relationship with State and Federal environmental agencies – “give and take” = compromise
- Developing Science, Partnerships, and Lessons Learned that will inform other estuarine USACE navigation projects with fine-grained sediments and high velocity channels



Potential wetland restoration placement area Supawna Meadows NWR (beyond rock breakwater)