

# Engineering With Nature® to Enhance Urban Marsh Resiliency, Biodiversity, and Habitat

## BELLE ISLE COLLABORATIVE MEETING April 25, 2023



Belle Isle Marsh, Boston MA



**Above:** Belle Isle Project Team presenting on the 'state of science' at Belle Isle Marsh.  
**Below:** Belle Isle Collaboration Workshop Attendees



Cross-organization small group discussions

### Background

Urban coastal areas are facing threats from sea level rise and severe weather events which are increasing pressures on infrastructure and communities. New approaches are needed to enhance coastal resiliency and natural infrastructure function, while broadening social, economic, and environmental benefits. The Belle Isle Marsh presents an excellent opportunity to apply leading Engineering with Nature® (EWN) practices to achieve these goals.

As part of an EWN research task (ERT 22-12), The ERDC EWN team co-hosted a collaborative meeting on April 25, 2023 to identify potential collaboration around Nature Based Solutions (NBS) in Belle Isle, understand EWN opportunities, and discuss linkage with the City of Boston's Coastal Storm Risk Management (CSRM) goals. The meeting brought together stakeholders to discuss the 'state of the science' of past, present, and planned research and planning in the Belle Isle Marsh.

### Workshop outcomes:

- The Stakeholders discussed shared goals for the marsh, including elements of **community, collaboration, and connectivity**, as a starting point towards developing a long-term vision for Belle Isle Marsh. Components of this vision include:
  - Improved marsh that supports a variety of species and biodiversity
  - Balanced urban and natural area
  - Interconnected greenways linking communities
  - Space for marsh migration
  - Increased community continuity and connectivity
  - Pathways for smaller-scale implementation and experimentation to test innovative solutions
  - Public education and outreach allowing for an appreciation of the marsh



## Guest Speakers

**Catherine Pedemonti** / Mystic River Watershed Association & **Julie Conroy** / Friends of Belle Isle Marsh & **Celeste DiPalma** / Massachusetts Department of Conservation and Recreation (DCR) & **Sean Riley**/ DCR & **Conor Ofsthun** /Woods Hole Group, “Belle Isle Project Team Background”

**Lisa Winter** / USACE, NAD & **Todd Randall** / USACE, NAD & **Hannah Wagner** / City of Boston “Coastal Storm Risk Management Regional Study”

**Andrew McQueen** / USACE & **Sara Copp Franz** / Ramboll “Engineering With Nature® Nature-Based Solutions and Resiliency Scope”

## Collaborative Meeting Participants

- City of Boston
- City of Winthrop
- Friends of Belle Isle Marsh
- Massachusetts Bay Transportation Authority
- Massachusetts Department of Conservation and Recreation
- Montrose Environmental
- Mystic River Watershed Association
- Northeastern University
- Ramboll US Consulting
- The Nature Conservancy
- USACE Engineering, Research, and Development Center
- USACE New England District
- Woods Hole Group

## For more information

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<https://ewn.erdcdren.mil/?p=8219>

## Workshop outcomes continued:

- There are major **opportunities** in the cross-agency alignment for implementing EWN in the Coastal Storm Risk Management Plan including guidance on Natural and Nature-Based Features implementation; detailed evaluation of initial environmental impacts versus the long-term benefits of EWN;
- There are many opportunities to use **applied learning** when incorporating EWN into the CSRM Plan including learning from similar marsh areas and from other coastal restoration and resiliency projects within and outside of Massachusetts; learning from past projects regarding opportunity costs and missed opportunities.
- **Adaptable alternatives** using a phased implementation, adaptive management, and sequencing may help with planning and implementing innovative EWN solutions into urban marsh environments.
- **EWN solutions** and NBS that provide physical protection as well as opportunities for marsh migration should be considered in urban marsh environments

## What's next?

- Coordination with the City of Boston/ USACE CSRM Plan
- Timely data sharing
- Regular collaborative meetings
- Alignment on phased and sequenced work
- Joint pilot projects for innovative and tough-to-permit EWN solutions

