

Beneficial Use of Dredged Materials for Resilient Tidal Marsh Restoration and Creation

Workshop
September 28, 2017

UConn | COLLEGE OF LIBERAL
ARTS AND SCIENCES

DEPARTMENT OF MARINE SCIENCES



UConn



Planning Committee

Peter Francis – CTDEEP Coastal Resources Section of Land & Water Resource Division

Steve Jacobus – NJDEP Office of Coastal and Land Use Planning Coastal Zone Management

Jessica Fain – Science and Resilience Institute at Jamaica Bay

Dave Hudson – The Maritime Aquarium

Thomas Naiman – The Maritime Aquarium

Jennifer O'Donnell – UConn Department of Marine Sciences

Rebecca French – UConn Connecticut Institute for Resilience and Climate Adaptation

Kimberly Bradley – UConn Connecticut Institute for Resilience and Climate Adaptation

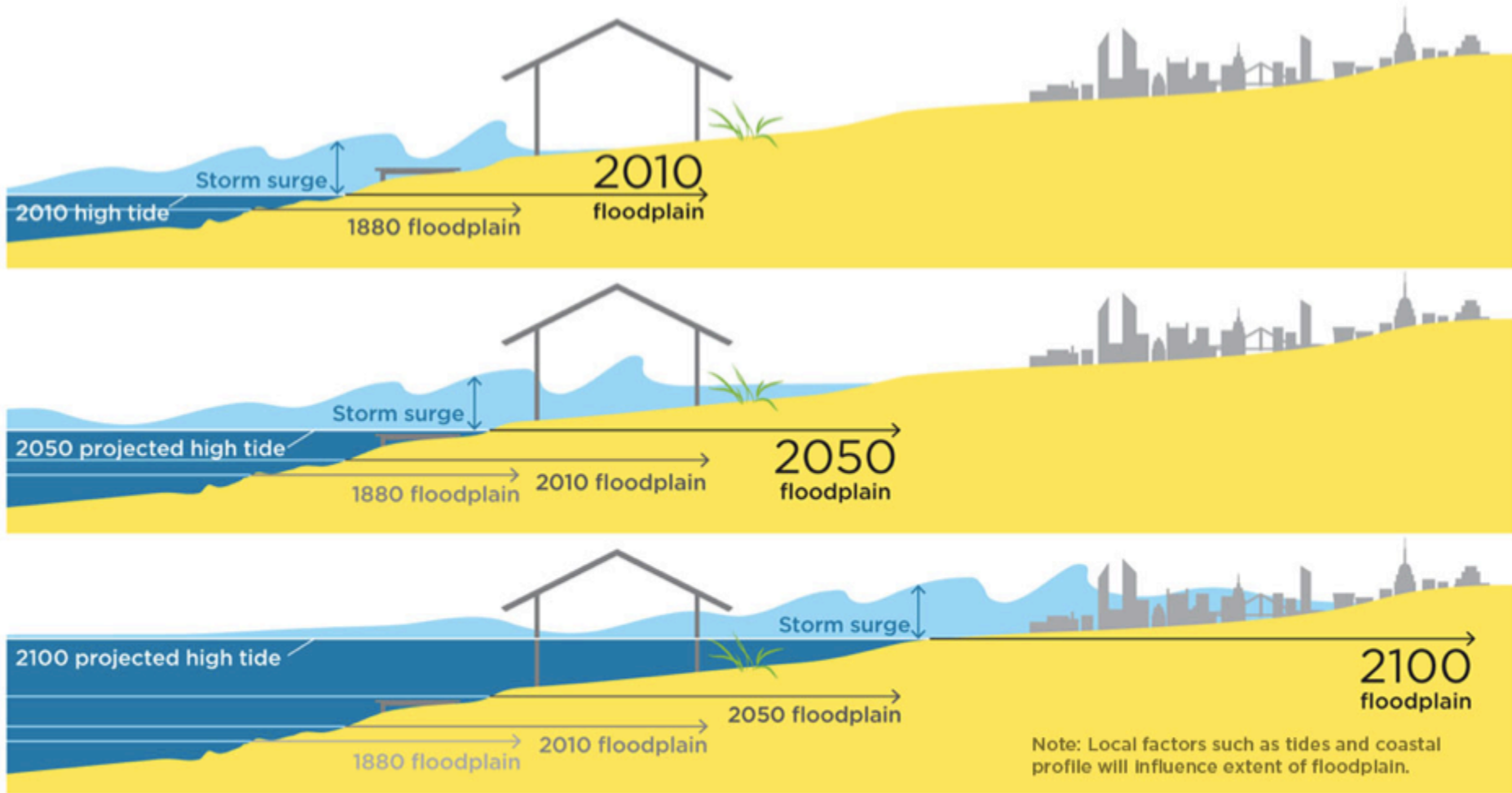
Colleen Dollard – UConn Connecticut Institute for Resilience and Climate Adaptation

Robin Murray – NJDEP Office of Coastal and Land Use Planning Coastal Zone Management

Elizabeth Semple – NJDEP Office of Coastal and Land Use Planning Coastal Zone Management

Lesley Patrick – Science and Resilience Institute at Jamaica Bay

What we're worried about



Sea level sets a baseline for storm surge—the potentially destructive rise in sea height that occurs during a coastal storm. As local sea level rises, so does that baseline, allowing coastal storm surges to penetrate farther inland. With higher global sea levels in 2050 and 2100, areas much farther inland would be at risk of being flooded. The extent of local flooding also depends on factors like tides, natural and artificial barriers, and the contours of coastal land.

What we're worried about

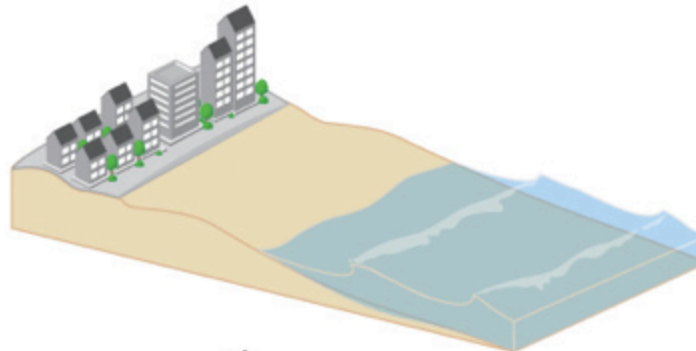


Project Hypothesis

- Creating and restoring marshes along shorelines has the potential to enhance both ecosystem resilience and provide green infrastructure to better protect communities from the impacts of flooding and sea level rise.

Minimal Defense

Many communities have developed right along the ocean with only minimal natural defenses from a small strip of beach between them and the ocean.



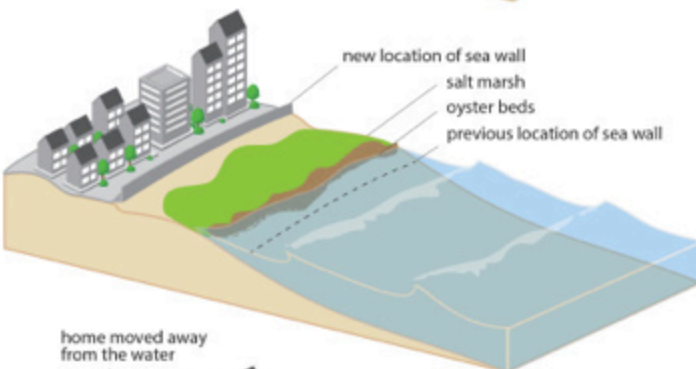
Natural

Natural habitats that can provide storm protection include salt marsh, oyster and coral reefs, mangroves, seagrasses, dunes, and barrier islands. A combination of natural habitats can be used to provide more protection, as seen in this figure. Communities could restore or create a barrier island, followed by oyster reefs and salt marsh. Temporary infrastructure (such as a removable sea wall) can protect natural infrastructure as it gets established.



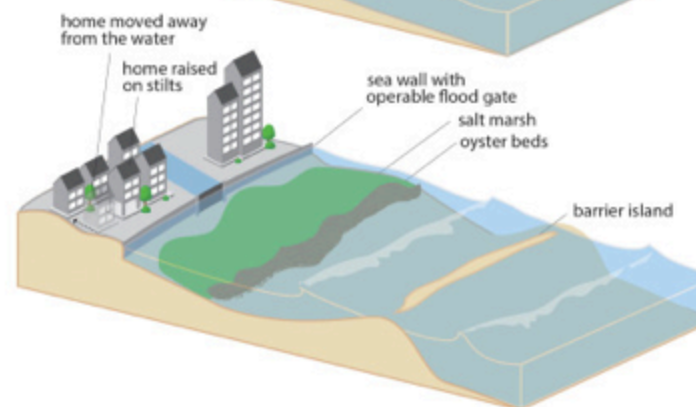
Managed Realignment

Natural infrastructure can be used to protect built infrastructure in order to help the built infrastructure have a longer lifetime and to provide more storm protection benefits. In managed realignment, communities are moving sea walls farther away from the ocean edge, closer to the community and allowing natural infrastructure to recruit between the ocean edge and the sea wall.



Hybrid

In the hybrid approach, specific built infrastructure, such as removable sea walls or operable flood gates (as shown here) are installed simultaneously with restored or created natural infrastructure, such as salt marsh and oyster reefs. Other options include moving houses away from the water and raising them on stilts. The natural infrastructure provides key storm protection benefits for small to medium storms and then when a large storm is expected, the built infrastructure is used for additional protection.



Sutton-Grier et al, 2015

Can we create that solution with dredged sediments?



Prime Hook NWR, Delaware
Credit: David Eisenhauer/USFWS

Workshop Goals

- Framing of cross-regional collaboration of Mid-Atlantic/New England Regions, including a comparison across federal regions
- Identification of resources with an emphasis on networking and information sharing
- Models for resilient and sustainable restored and created wetlands using dredged sediments to address barriers for implementation of projects

Logistics

- Bathrooms
- Received agendas at the door
- Full workshop program with speaker bios at each table – please share or look online
- Saving questions for the facilitated discussions after the block of two presentations
- You are seated at your lunch topic discussion table. Directions at table and assigned facilitator.
- We will call you up by table to get lunch
- Coffee and tea available all day
- Train westbound to NYC leaves at 4:13pm. Eastbound at 4:35.