SCOPE OF PRESENTATION

- Statutory Authority of the Corps
- Geographic Jurisdictional Limits
- Definitions
- Types of Authorizations
- Alternatives Analysis & Public Interest Review
- Regulatory Review Process
- Living Shoreline Features & Evaluation
New England Region

- 66,000 square miles
- 13.9 million people
- 6,100 miles of coastline
- 13 deep draft commercial waterways
- 13 major river basins
STATUTORY AUTHORITY

Section 103 Marine Protection Research and Sanctuaries Act

…Allows for Transportation of Dredged Material for Purpose of Ocean Disposal - 33 USC 1413

Section 9 Rivers and Harbors Act

…Construction of a dike or dam in navigable waters

Section 10 Rivers and Harbors Act 1899

…Protect Navigation - 33 USC 403

Section 404 Clean Water Act

…Protect Aquatic Environment, Foster Balanced Development - 33 USC 1344
SECTION 10 RIVERS & HARBORS ACT

- Regulates any “work” in, over or under navigable waters of the U.S. that may affect their course, condition, location of capacity of the waters.

- Prohibits the unauthorized obstruction or alteration of a navigable water.
SECTION 10 RIVERS & HARBORS ACT

- "Navigable Waters" are those waters subject to the ebb and flow of the tide, waterward of MHW and/or those waters that are presently used, have been used in the past, or may be susceptible for use in the future for the transport of interstate commerce.
SECTION 404 CLEAN WATER ACT

- Goal is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters”
- Requires a Dept. of Army authorization for discharge of dredge or fill material into Waters of the U.S. and adjacent wetlands.
- All discharges of dredged or fill material in Waters of the U.S. requires a Dept. of Army Permit.
- Applies to both permanent and temporary discharges
- “Waters of the U.S. includes navigable waters, inland rivers, lakes, streams and adjacent, contiguous and bordering wetlands including mudflats and wet meadows – 33 CFR §328.3
SECTION 404 CLEAN WATER ACT

Wetland boundary determined by the presence of vegetation, hydrology and soils.
CWA 404(b)(1) GUIDELINES

- Rebuttable presumption that upland alternatives are not available.
- Avoid & minimize discharge to greatest extent practicable.
- Review impact for location, type discharge, site stabilization, construction BMPs to ensure discharge is minimized.
- Factual determination & technical evaluation of impact on substrate, water circulation/quality, aquatic function, secondary & cumulative impacts.
- Unavoidable impacts contributing to wetland loss mitigated.
- Corps can only issue an authorization for the least environmentally damaging practicable alternative (LEDPA).
TYPES OF AUTHORIZATIONS

“General Permit”
- Minimal impact activities with specified criteria and terms and conditions
- Expedited review timeframe usually less than 60 days upon receipt of a complete application

“Individual Permit”
- Larger project scope, concern for impacts or conflicts identified, can be more controversial
- Requires analysis of alternatives and evaluation of proposed project on items of concern in the public interest
- Requires WQC and/or CZMC authorization or waiver from CT DEEP
NEPA requires an evaluation of the probable impacts of a proposed activity, and its intended use, on the public interest.

Agency compliance with Federal law is mandatory.

Complete & objective evaluation; fully-informed decision.
REGULATORY REVIEW PROCESS

- Corps is impartial – cannot favor one type of project over another.
- Corps must evaluate effect of a project under existing authorities. If a project involves a discharge of fill, the agency must consider practicable alternatives to reduce discharges.
- Ensure that the best practicable environmental alternative is selected to accomplish project purpose.
Coastal Shoreline Continuum Ideal & “Living Shorelines” Treatments

- Tidal Marsh
- Irregularly Flooded
- Regularly Flooded
- Upland Buffer
- Bankface
- Coastal Wetlands & Beach Strand
- Subtidal Waters
- Extreme High Tides & Storms
- Mean High Tide
- Mean Low Tide
- Riparian Vegetation Management
- Tidal Marsh Enhancement
- Tidal Marsh Creation
- Beach Nourishment & Dune Restoration
- Marsh Toe Revetment
- Marsh Sill
- Marsh with Groins
- Living Breakwater
- Offshore Breakwater System
- Oyster Reefs

Graphic courtesy Burke Environmental Associates
NATURAL & NATURE-BASED FEATURES (NNBF) *

- Corps recognizes the beneficial character of properly-designed NNBF.
- Should be designed to be compatible with existing coastal processes & conditions.
- Use best-available science & engineering evidence and acknowledge risk & uncertainty.

NATURAL & NATURE-BASED FEATURES (NNBF)

- Should balance the need to control erosion while maintaining or enhancing coastal transitional shoreline ecological function.
- Implementation process should be flexible and iterative to support sound decision-making.
NATURAL & NATURE-BASED FEATURES (NNBF) *
Assessing Alternatives

- Practicable alternatives that avoid waterway encroachment.
  - Relocation of threatened features
  - Modification above MHW
  - Dunes/vegetated slopes
NATURAL & NATURE-BASED FEATURES (NNBF) *
Assessing Alternatives

- Assess minimally-intrusive techniques 1st (green over gray approach) such as vegetation-only and fiber-toe protection.
NATURAL & NATURE-BASED FEATURES (NNBF) *
Assessing Alternatives

- Low profile natural toe protection.
- Contributes plant & animal community function but does not convert quality functional habitat to another type.
FACILITATING EVALUATION

- Ensure application includes analysis of bank erosion rate, source of sediment, elevation, wave energy, prevailing wind/wave direction, substrate & vegetation type.
- Do not place fill in wetlands, mudflats or SAV.
- Use the least amount of hard material to achieve project goal.
- Ensure design maintains normal hydrologic regime and access for marine & terrestrial organisms.
FACILITATING EVALUATION

- Design so that natural erosion and accretion processes are not impeded or accelerated.
- Use natural particle size and natural materials consistent with the proposed site.
- Ensure plans depict both existing MHW and MLW and proposed MHW and MLW elevation after shoreline modification.
- Limit height of structures if they are necessary to $\leq$ MHW
FACILITATING EVALUATION

- Regardless of energy level design for continuity of the shoreline.
- Limit fill discharge to minimum necessary to achieve adjacent wetland elevation.
- Should not site LSL on barrier land forms.
- Expect compliance monitoring such as erosion rate, substrate elevation, plant survival & invasive control.
LONG ISLAND SOUND

- Not geologically comparable to mid-Atlantic & southeast shoreline conditions
- Topographically distinct and sand-limited
- Variety of habitat and shoreline types
- Unconsolidated glacial till & exposed scarps
- Long and narrow – wind-generated waves move sediment alongshore; storm surge east to west
- Over-wash, if it occurs, has nowhere to go and limited sand to sustain barrier coastal features
- Wider tidal range than areas where LSL normally used – sill function limited in 7’ tidal range
Figure 1. NNBF evaluation Implementation framework.

- Identify and Organize Stakeholders, Partners and Authorities
- Define Physical and Geomorphic Setting
- Assess Vulnerability and Resilience
  - Identify NNBF Opportunities
    - Formalize NNBF Objectives
    - Identify NNBF Alternatives
    - Define NNBF Performance Metrics
  - Iterate as Needed
- Evaluate NNBF Alternatives
  - Tier 1
  - Tier 2
  - Tier 3
  - Advance through Tiers as Appropriate
- Select NNBF Alternatives
- Design Implementation Plan: Elaborate Operational and Engineering Practices
- Implement NNBF Alternative
- Monitor for Performance and Assess Ecosystem Goods and Services
<table>
<thead>
<tr>
<th>Land Planning</th>
<th>Vegetation Control</th>
<th>Beachfill</th>
<th>Sills</th>
<th>Groins</th>
<th>Breakwaters</th>
<th>Sloped Structure</th>
<th>Vertical Structure</th>
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<tbody>
<tr>
<td>Continued erosion with loss of upland</td>
<td>Reduces sediment and nutrient input into estuary</td>
<td>Changes from estuarine/sandy bottom to upland</td>
<td>Reduces sediment and nutrient input into estuary</td>
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<td>Buries local shoreline type with sand</td>
<td>Fill resulting in wetland or upland</td>
<td>Sand trap or fill results in wetland or upland</td>
<td>Sand trap or fill results in wetland or upland</td>
<td>Could eliminate intertidal habitat or environment</td>
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<td>Creates a new, lower energy environment</td>
<td>Increased erosion downdrift</td>
<td>Creates a new, lower energy environment</td>
<td>Reduces sediment to depositional areas downdrift</td>
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<td>Fragmented habitat</td>
<td>Starves sediment depositional areas</td>
<td>Fragmented habitat</td>
<td>Deepens water</td>
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<td>Increases habitat complexity</td>
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<td>Increases habitat complexity</td>
<td>Concentrates turbulence</td>
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QUESTIONS?