

# Understanding and Managing Hudson River Shorelines



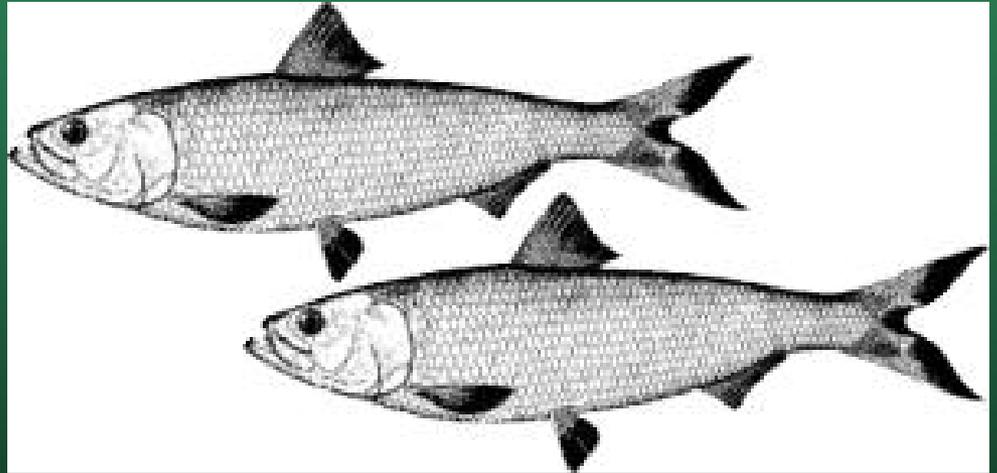
# Estuarine Shoreline: Habitat Functions

- Production
- Littoral species habitat
  - Forage
  - Refuge
  - Reproduction
- Interaction with uplands



# Estuarine Shoreline: Cultural Functions

- Food Resource
- Transportation
- Recreation
  - Fishing
  - Boating
  - Passive recreation
- Community Development



# Current Trends in Shoreline Management

- Failing bulkheads needing repair
- New development pressures
- Waterfront revitalization
- Hard vs. bio-engineered shorelines



# Reasons for Shoreline Stabilization

- Access
- Property protection
- Sediment retention



# Questions

- Can shorelines be managed to support both ecosystem and cultural functions?
- How do ecosystem functions vary with shoreline type (engineered and natural)?



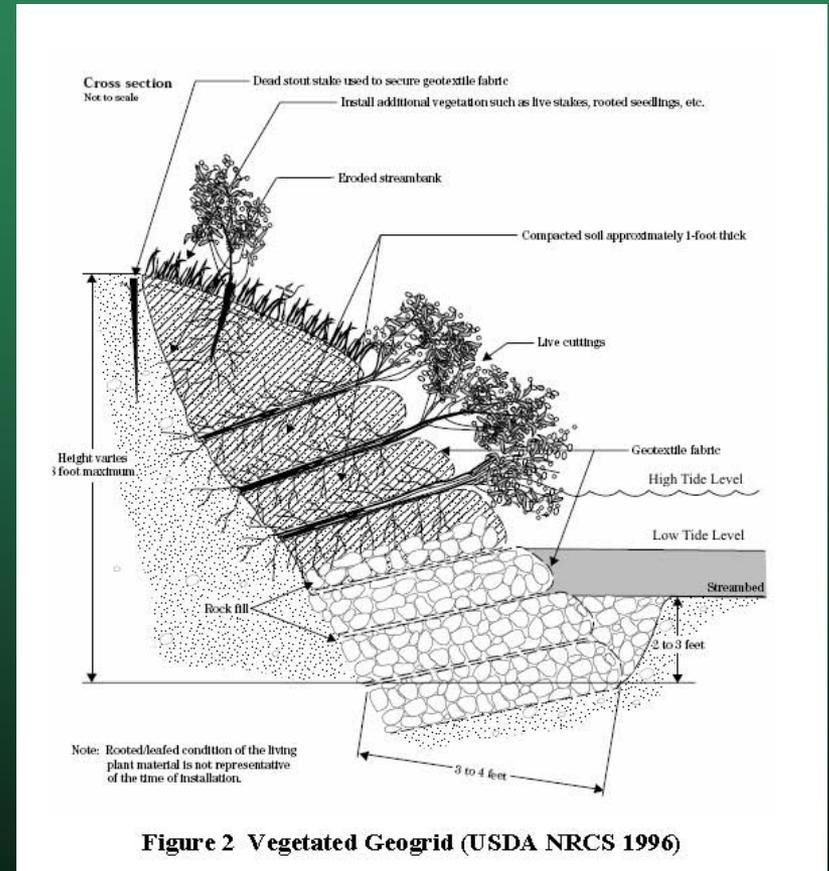
# Shoreline Options

- Vertical Bulkheads
  - High energy environments
  - Deflect wave energy
  - Deep water access
  - Low biodiversity and habitat value
- Natural Sloped
  - Usually in lower energy environments
  - Absorb wave energy
  - Living plants provide stability
  - High habitat value



# Bio-Engineered Shorelines

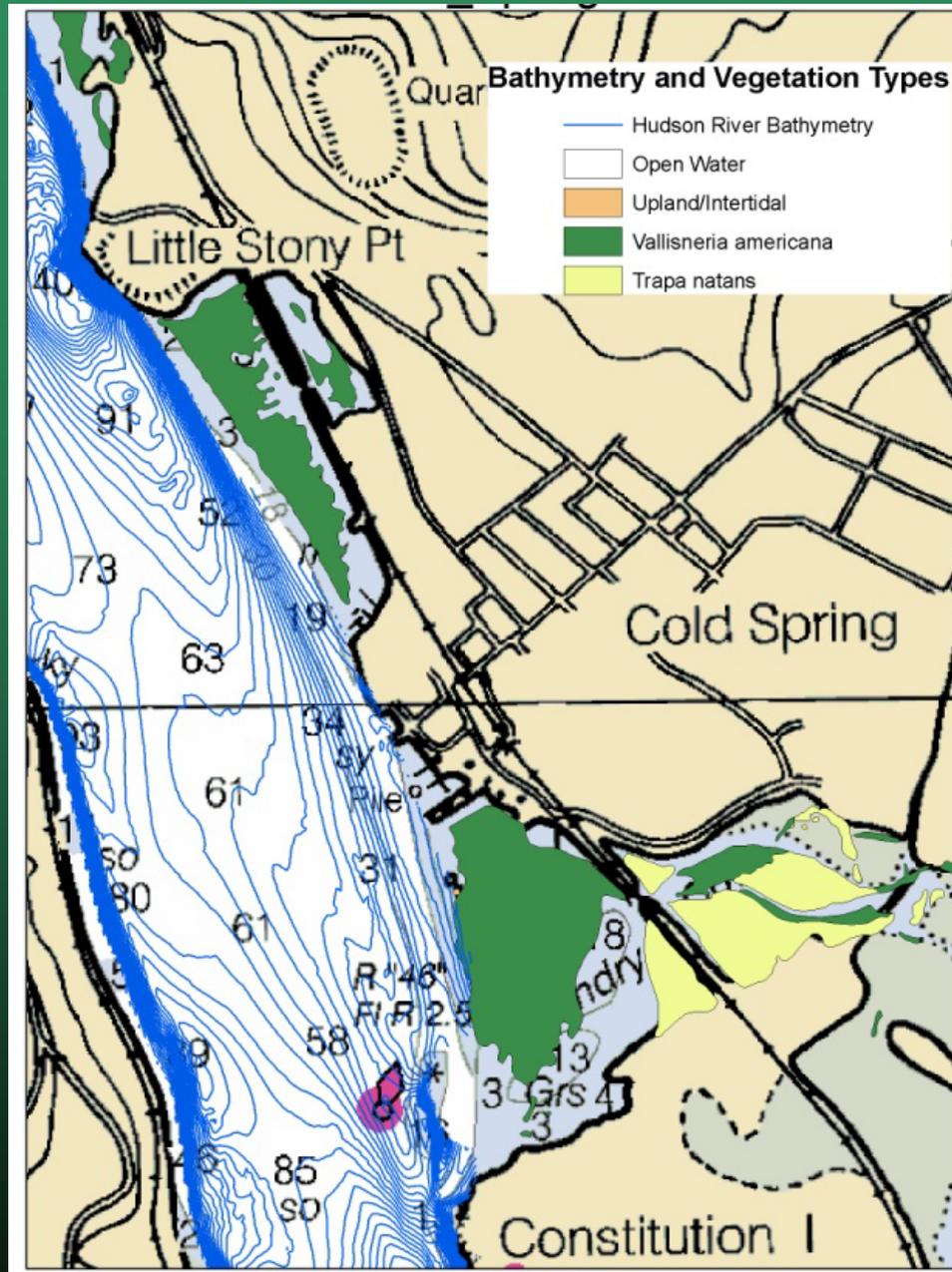
- Moderate slope to dissipate energy
- Engineered elements provide stability
- Living plants used to increase stability and improve habitat value
- Engineered elements to provide structural habitat.



# Cold Spring Environmental Considerations

- High energy shore
- Low energy areas
- Deep and shallow water areas
- Submerged aquatic vegetation (SAV)
- Site History
  - Fill
  - Contaminants





# Cold Spring Shoreline Use Considerations

- Multiple Uses
  - Recreation
  - Viewshed
  - Boating
  - Open Space
  - Community Development
- Erosion Control
- Habitat



# Shoreline Decision Making

- Consider multiple uses.
- Consider range of shoreline types.
- Avoid 'one size fits all'.
- Match use and design with compatible locations.
- The river is the reason- take care of it.



# Thank You

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