

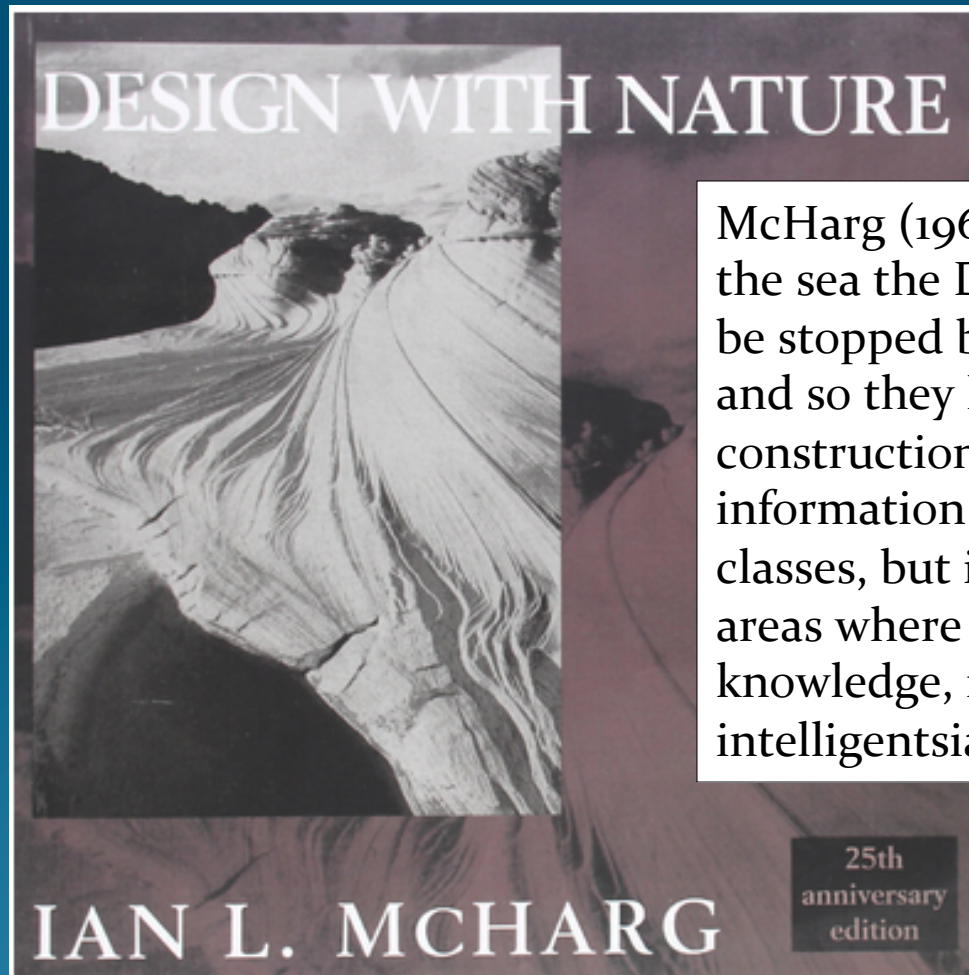
# Living Shorelines in Connecticut

Jennifer O'Donnell, Ph.D.

University of Connecticut, Dept of Marine Sciences

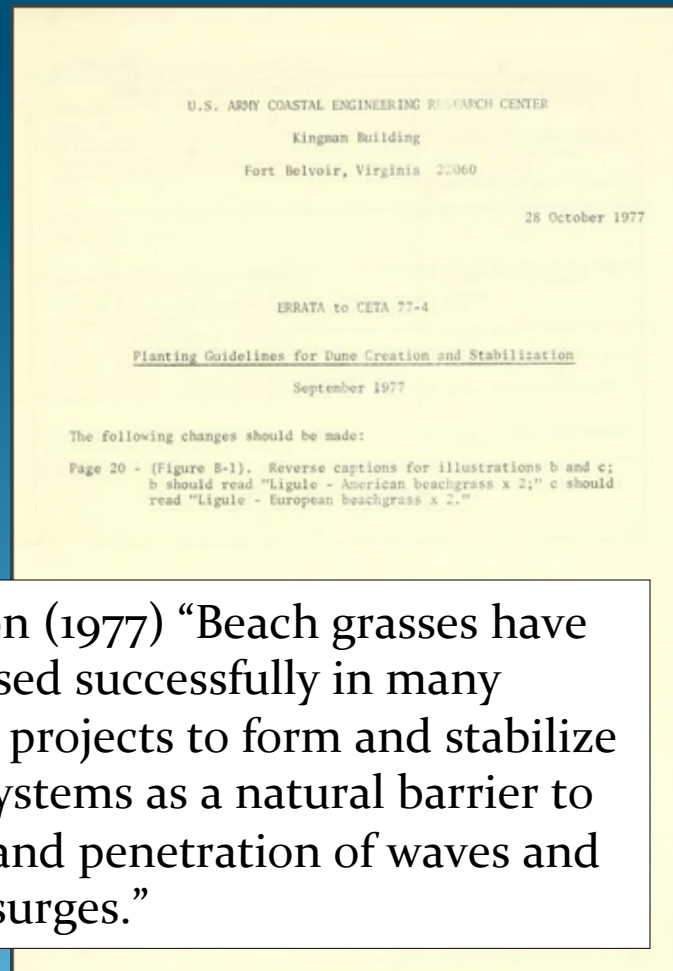
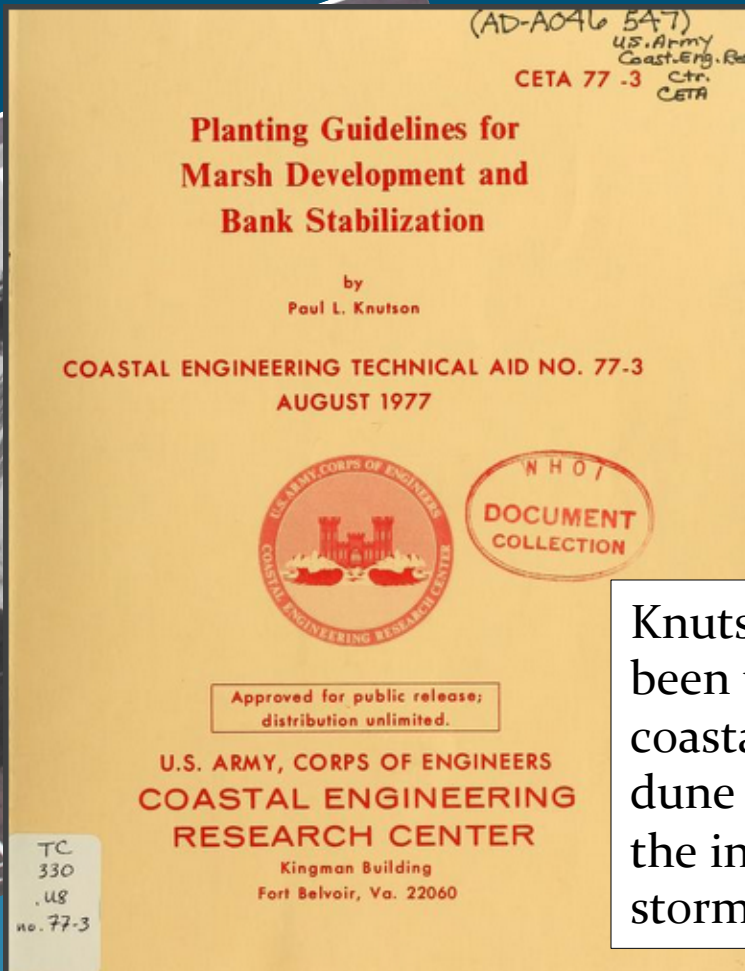
Coastal Ocean Analytics, LLC.

# Living Shorelines: not a new idea



McHarg (1969) “In their long dialogue with the sea the Dutch have learned that it cannot be stopped but merely directed or tempered, and so they have always selected flexible construction. In the Netherlands this information is the stuff of kindergarten classes, but in the United States, even in those areas where survival depends upon such knowledge, it does not even repose in the intelligentsia, far less the political process.”

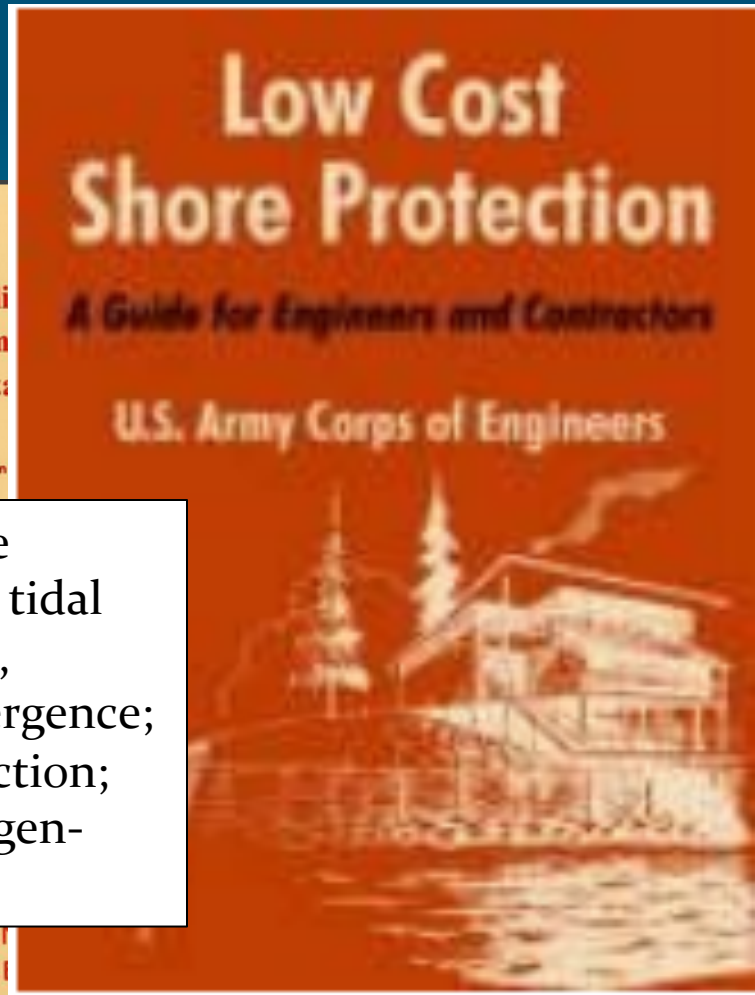
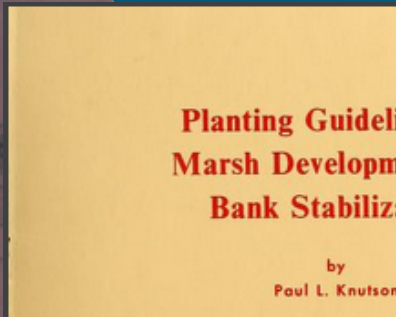
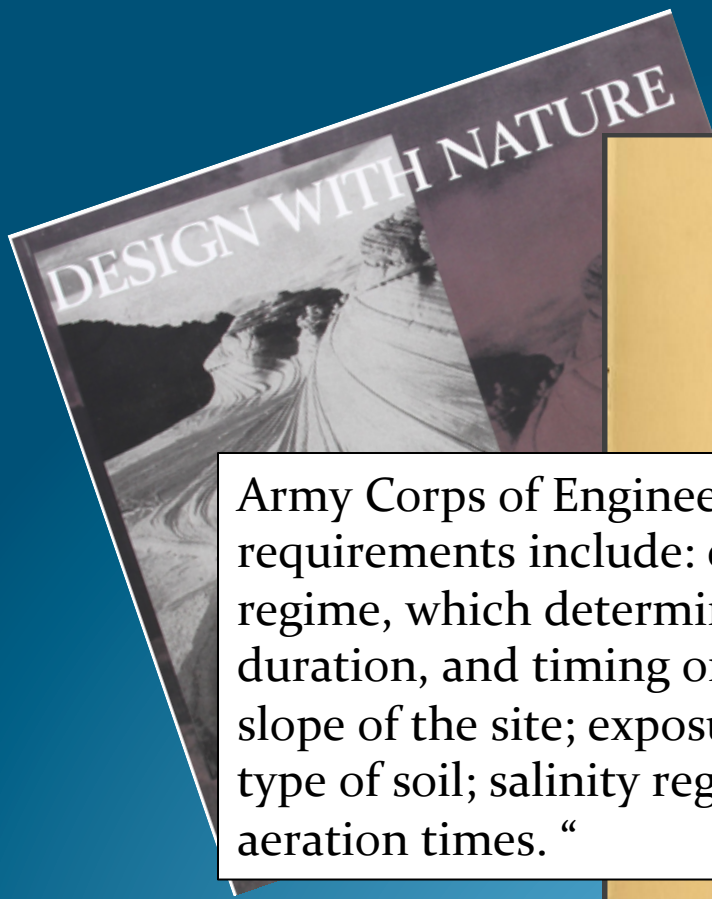
# Living Shorelines: not a new idea



Knutson (1977) "Beach grasses have been used successfully in many coastal projects to form and stabilize dune systems as a natural barrier to the inland penetration of waves and storm surges."



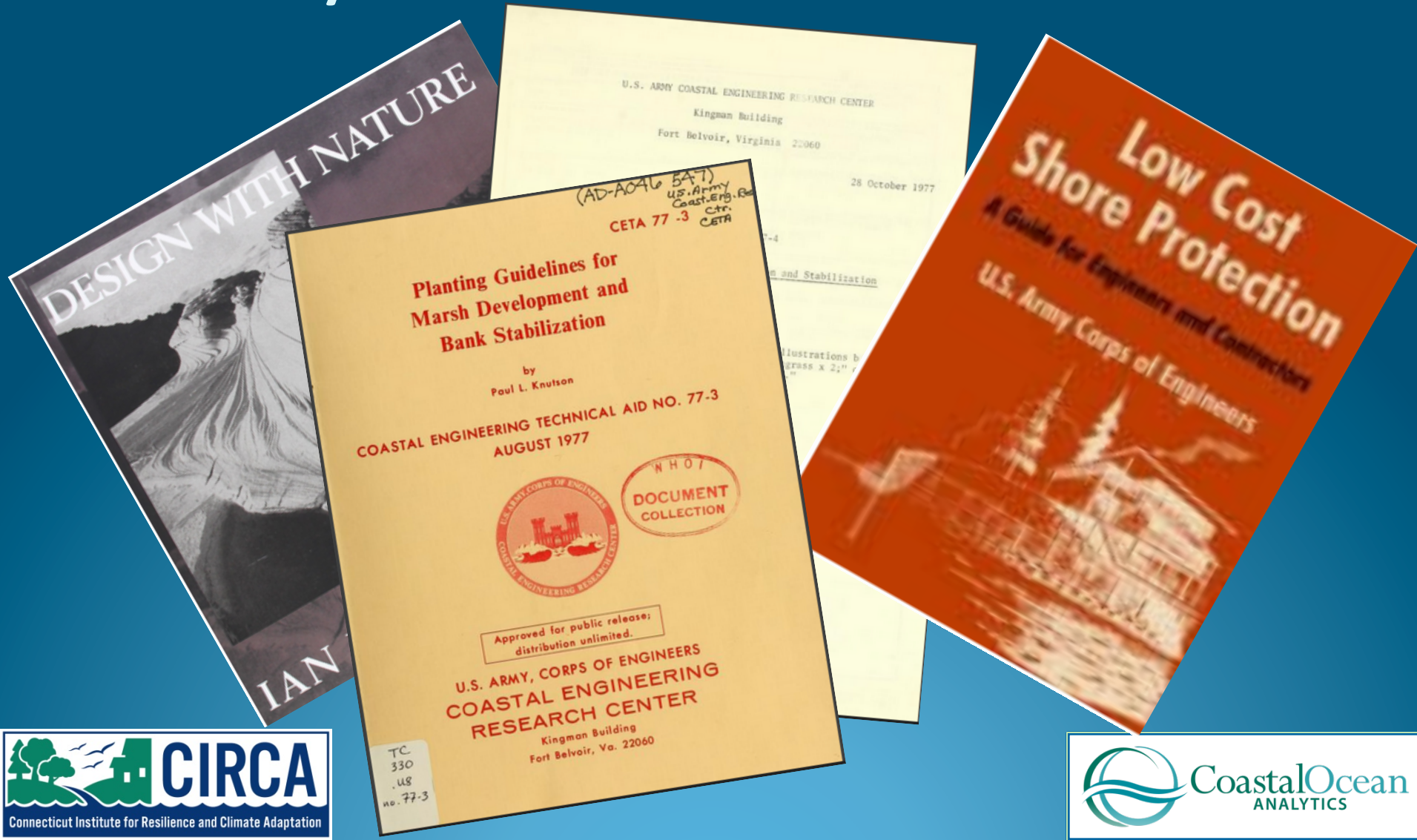
# Living Shorelines: not a new idea



Army Corps of Engineers (1981): “site requirements include: elevation and tidal regime, which determine the degree, duration, and timing of plant submergence; slope of the site; exposure to wave action; type of soil; salinity regime; and oxygenation times. “



# So why the “sudden” interest?



# Public Act 12-101: An Act Concerning the Coastal Management Act and Shoreline Flood and Erosion Control Structures

“feasible, less environmentally damaging alternative” restoration or creation of a dune or vegetated slope, or *LIVING SHORELINES* techniques utilizing a variety of structural and organic materials, such as tidal wetland plants, submerged aquatic vegetation, coir fiber logs, sand fill and stone to provide shoreline protection and maintain or restore coastal resources and habitat [CGS section 22a-92(e), as amended]



# Coastal Shoreline Continuum Ideal & "Living Shorelines" Treatments



Graphic courtesy Burke Environmental Associates

## Tidal Marsh Enhancement

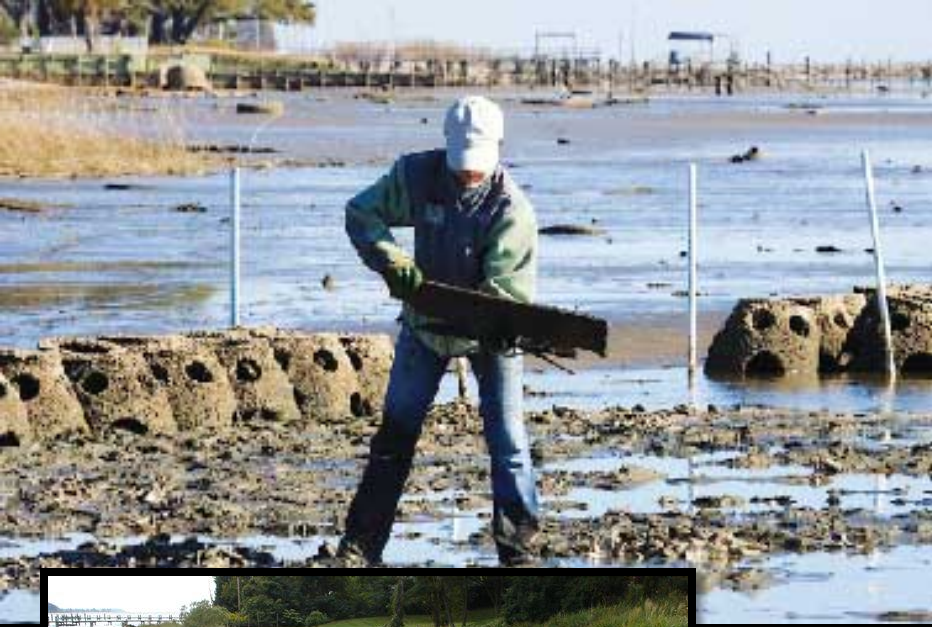
- Tidal Marsh Creation
- Beach Nourishment & Dune Restoration
- Marsh Toe Revetment
- Marsh Sill
- Marsh with Groins

## Living Breakwater

- Offshore Breakwater System
- Oyster Reefs

- Riparian Vegetation Management
- Bank Grading
- Fiber Logs







# Location, Location, Location

- Geography
- Geology
- Coastal Processes



# Variable Shoreline





# Location, Location, Location

## Coastal Processes

- Wave climate
- Fetch
- Tidal range
- Nearshore bathymetry
- Sediment transport



# Mean Tidal Range, ft

