Natural & Nature-Based Features

Living Shorelines: Offshore Breakwaters

Description

Hybrid living shorelines combine organic features with structures to support wide tidal marshes and beaches. Offshore breakwaters combine beach sand and dune plants with large structures that intercept incoming waves to support wide sand beaches. This approach is suitable for higher energy beach shorelines. Research has shown that hybrid living shorelines and the habitats they support provide cleaner water, economic gains, and cultural traditions as ecosystem service benefits.

Multiple Benefits

* Dissipate energy of breaking waves
* Physical barrier to storm surge
* Sand storage for natural storm recovery
* Pervious soils for infiltration
* Recreation & tourism

Offshore Breakwaters Restoration Tips

* Seek advice from experienced coastal engineer
* More than one breakwater typically required
* Include beach nourishment with construction, do not rely on natural sand accretion
* Avoid impacts to submerged aquatic vegetation SAV and protected species like nesting sea turtles, shorebirds, Northeastern beach tiger beetle
* Carefully evaluate potential effects on adjacent shorelines
* Make sure construction & future maintenance access is feasible
* Choose dune plants similar to local beaches
* Manage foot traffic through planted dunes

Resources

Offshore Breakwaters & Beach Nourishment

VIMS Living Shoreline Design Guidelines 2017

Water Quality BMPs

Urban or Ag Shoreline Management

Urban or Ag Shoreline Erosion Control: Vegetated

Urban or Ag Shoreline Erosion Control: Non-Vegetated

CRS *Community Rating System*

Credit Potential

Offshore Breakwaters in Special Flood Hazard Areas

Offshore breakwaters will not receive credit in the CRS Program.

Beach and dune areas landward of the breakwaters can potentially earn **Open Space Preservation related** credit.

Learn More *www.vims.edu/ccrm/nnbf*

William & Mary Law School | VIMS William & Mary Virginia Institute of Marine Science | Center for Coastal Resources Management | Albemarle-Pamlico National Estuary Partnership | Wetlands Watch