That need protection and restoration

The importance of protecting and restoring our beaches grows as people become more dependent on their economic, recreational, environmental and storm and flood damage risk reduction benefits. As beaches erode, property, structures and infrastructure are put at greater risk of damages from hurricanes and coastal storms.

Shore protection has been a U.S. Army Corps of Engineers mission since 1930. Beginning in the 1950s, the Corps has played an important role in protecting our Nation's shoreline, constructing and maintaining numerous projects.

Shore protection projects are designed to retain and rebuild natural systems such as bluffs, dunes, wetlands, and beaches and to protect structures and infrastructure landward of the shoreline. Shore protection not only can reduce a storm's potential physical and economic damages from waves, storm surge, and the resulting coastal flooding can mitigate coastal erosion and even help restore valuable ecosystems that may have been lost, such as beaches, wetlands, reefs, and nesting areas.

Several approaches can be employed to protect shorelines and beaches:

- Construction of structures such as breakwaters, seawall and surge barriers. These structures help stop waves from impacting beaches or property.
- Non-structural measures, which include relocations, elevating structures and zoning restrictions. These measures lessen impacts to structures as a result of beach erosion but do not address the erosion itself.
- Soft measures such as beach nourishment

For more information on
U.S. Army Corps of Engineers,
North Atlantic Division, please visit:
www.nad.usace.army.mil

BEACH NOURISHMENT

Restoring our coast and reducing flood damage risk

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BUILDING STRONG®

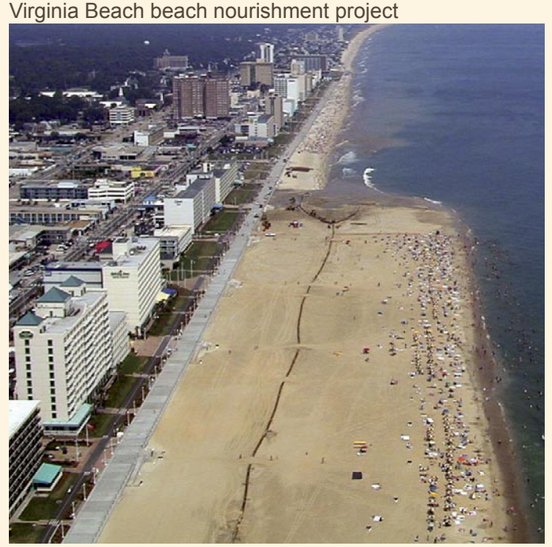
Beaches are vital resources...

Beaches are one of our Nation's most valuable natural resources. Local, regional and national economies depend on beaches. Tourism, shipping and commercial fishing are just a few of the many industries that operate within our Nation's coastal regions.

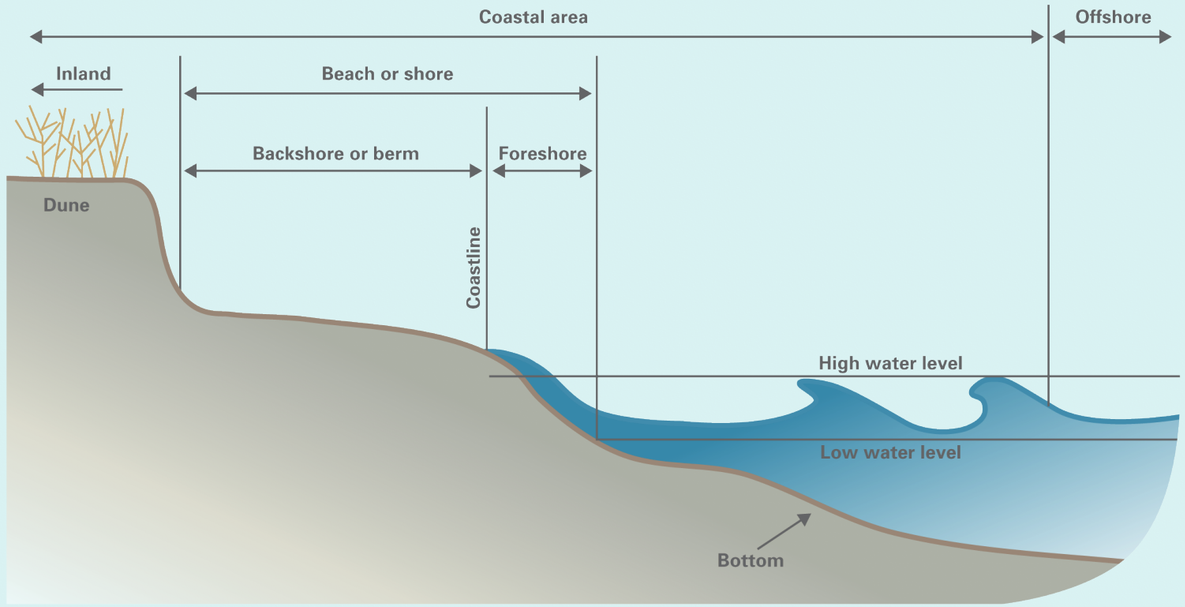
In addition to economic value, robust beaches have significant role in maintaining a healthy environment. Healthy beaches provide habitat and support for numerous species of plants and animals, including sea turtles, fish and shorebirds. Survival of several endangered and threatened species are directly linked to vitality of beaches and shoreline.

Humans depend on healthy beaches. Although coastal areas comprise less than 20 percent of the contiguous United States, more than half of all Americans live in the areas. Our beaches provide these men and women with more than recreational, social and economic opportunities. A wide, well defined beach reduces the risk of property and infrastructure damage as a result of coastal storms and floods.

Virginia Beach beach nourishment project

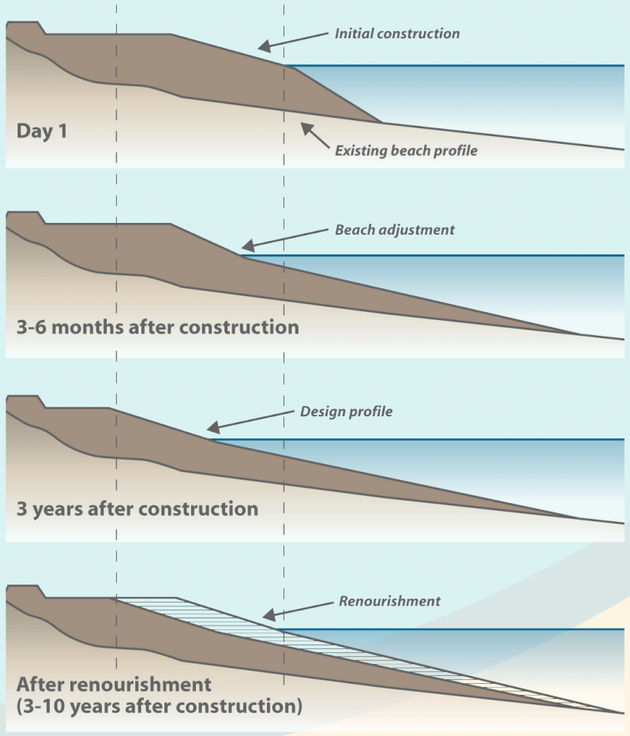


The components of a coastal beach work together as a system



Coastal beaches function as a system. The beach not only includes the dunes and berm, or the dry part of the beach, but also the wet part of the beach that slopes underwater.

Beach nourishment is the preferred approach to shore protection



Beach nourishment is the only approach to shore protection that adds sand to an existing coastal system. Engineered and designed to work like a natural beach, placed sand is naturally distributed over a period of time. When complete, the wider beach gently slopes below the water while taller sand dunes act as natural buffers.

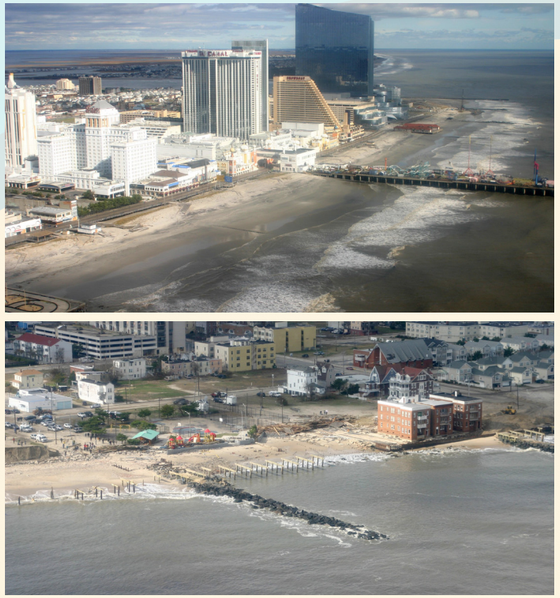
After a beach nourishment project is constructed, coastal engineers expect the beach to change gradually over time and assume a more natural form.

Superstorm Sandy

When Hurricane Sandy struck in October 2012, its surge and wave action pounded he North Atlantic coast. Throughout the area, the storm subjected shoreline protection features to an extended barrage.

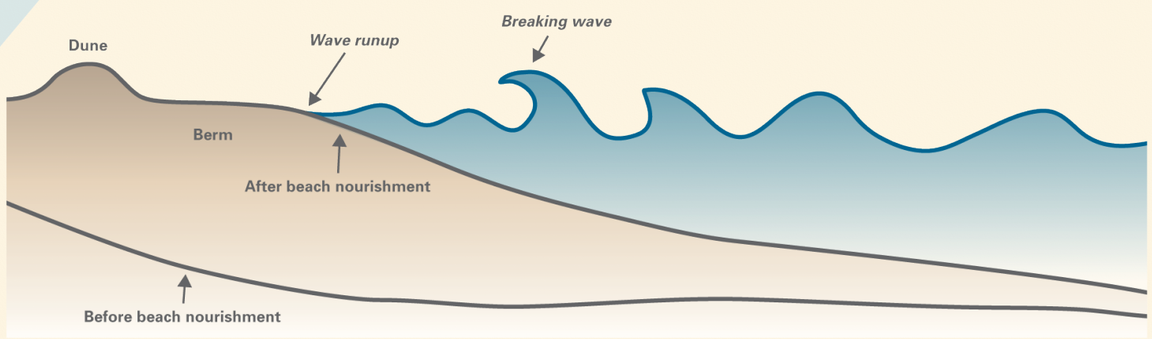
In many instances, the storm exceeded the design criteria for the projects. Nevertheless, features such as barrier dunes helped to soften the storm's impact on the property and infrastructure that reside behind these risk reduction projects.

As a result of Hurricane Sandy's winds, surge and waves, most of the shoreline protection features sustained substantial damage. The U.S. Army Corps of Engineers is engaged in repairing and restoring these projects so that they will be ready to defend against the next storm.

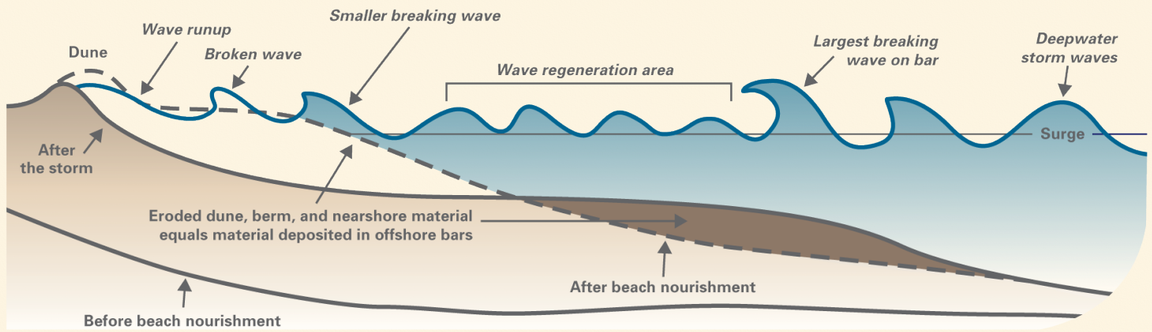


Beach damages caused during Hurricane Sandy

Impacts of a storm



A nourished beach (pre-storm)



A nourished beach (post-storm)