

Natural Heritage Resources Fact Sheet

Barrier Beaches

Description

Barrier beaches are dynamic natural environments found between open waters of the Atlantic Ocean or Chesapeake Bay and the marshes or uplands associated with the mainland or islands. Besides the sandy shore familiar to most people as “the beach,” this community also includes the vegetated dune system and the sandy fan-shaped flats or “overwash fans” among or behind the dunes.

Barrier beaches are harsh and highly energetic systems; wind and water move sand on barrier beaches creating a constantly changing environment. The two major factors influencing barrier beaches are coastal energy and elevation. Coastal energy refers to the kinetic energy in waves, currents and winds. This energy concentrates on the shore where land, sea and air come together and produces the most

dynamic zone of the barrier beach. Elevation above sea level influences how much of the energy contained in the wind and waves affects a site. The shore ranges from the average low tide line up to the line of the spring high tide (the highest regular high tide). Every day, tides flood much of the shore. Overwash fans typically occur from the average high tide to the highest surge produced by storms. Dunes usually lay above the spring high tide level. Salinity level also influences barrier beach communities by affecting the types of plants and animals that occur there. You can expect to find highly salt tolerant plants and animals on the barrier beaches of the Atlantic Ocean and lower Chesapeake Bay and more brackish water species farther up the Bay.

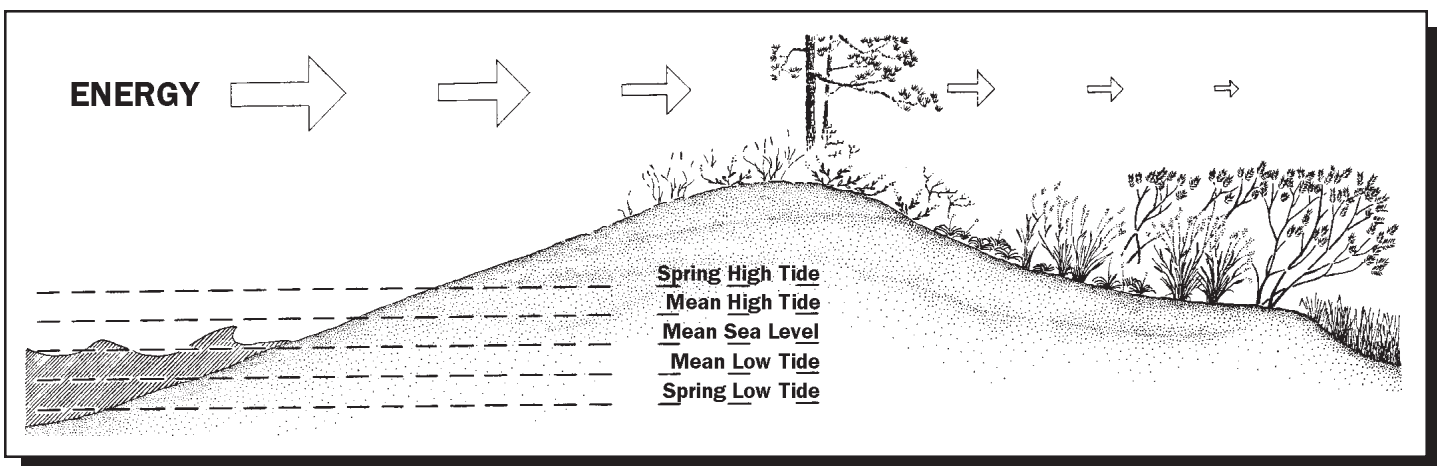
Distribution

In Virginia, barrier beaches occur along the Atlantic Coast and at

various points along the shore of the Chesapeake Bay.

Flora and Fauna

A limited number of plant and animal species can tolerate the harsh and constantly changing conditions of barrier beaches. The shore is so dynamic that virtually no rooted plants can grow there. Many species of invertebrate animals, such as small clams, crustaceans and insects, have adapted to survive on the shore by burrowing into the sand. Some species of birds evolved special adaptations, such as long probing beaks, to forage for food on the shore. Plants may colonize overwash areas depending on how frequently they flood. While young or frequently flooded overwash fans often lack plants, older and less frequently flooded overwash can be densely vegetated with switchgrass, running dune grass, sea rocket and Russian thistle. Some overwash



Barrier Beach Community - coastal energy inputs and tide levels.



Department of Conservation & Recreation
CONSERVING VIRGINIA'S NATURAL AND RECREATIONAL RESOURCES

For more information, contact
Department of Conservation and Recreation
203 Governor Street, Richmond, VA 23219
(804) 786-7951; <http://www.state.va.us/~dcr/vaher.html>

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fans gain enough vegetation to catch significant amounts of wind-borne sand and build up into dunes. Dunes in Virginia normally support plant species such as beach grass and salt meadow hay. Some large and ancient dune systems may even become forested, typically by loblolly pine or live oak. Several species of birds nest in colonies directly on the sands of the overwash and dune areas. Among these are rare and sensitive species such as the least tern and piping plover. Barrier beaches also harbor rare invertebrate species such as northeastern beach tiger beetle and rare plant species such as seabeach knotweed.

Values

Barrier beaches help protect coastal areas from the forces of nature by absorbing some coastal energy. The presence of a healthy, well-developed barrier beach and associated wetlands lessens the inland impacts of crashing waves, strong currents, flooding, erosion and damaging winds. Because many people like to spend time in or near the water at the beach, barrier beaches are important recreational resources both to Virginia residents and the Virginia tourism industry. Most important, barrier beaches provide habitat for a diversity of both rare and common

plant and animal species, many of which are found only in barrier beach ecosystems.

Threats

The most serious threats to barrier beaches in Virginia include habitat conversion and the alteration of sediment deposition. Habitat alteration in barrier beach systems degrades or eliminates shore, overwash and dune habitats. Gone are the species they support and the ecological services they provide. Bulkheads, groins and other structures built in attempts to stabilize this naturally dynamic environment can affect barrier beaches by interfering with the natural transport cycles of sand which keep barrier beaches in equilibrium. A series of groins or bulkheads can rob a natural beach area of nourishing sands from a considerable distance up-current. Off-road vehicles on beaches can threaten sensitive plant and animal species in some locations during certain times of the year.

Conservation

Many local, state and federal agencies and private conservation organizations are protecting barrier beaches by establishing refuges, reserves and parks along the coast. The Virginia Department of Conservation and Recreation's Division

of Natural Heritage has protected approximately 10 miles of barrier beach habitat by purchasing coastal property at various locations along the Atlantic Ocean and Chesapeake Bay and dedicating them as natural area preserves. Another nine miles of barrier beach are protected by the department's state park system. These conservation areas are important, but are not enough to ensure the survival of healthy barrier beaches and the values they provide. Protection of barrier beaches in Virginia requires increased public awareness and understanding.

To learn more about Virginia's rare plant and animal species and rich biological communities write to the following: *Plant and Insect Species* - Virginia Department of Agriculture and Consumer Services, Office of Plant Protection, P.O. Box 1163, Richmond, Virginia 23209; *Animal Species* - Virginia Department of Game and Inland Fisheries, P.O. Box 11104, Richmond, Virginia 23230; *Plants, Animals, or Biological Communities* - Virginia Department of Conservation and Recreation, Division of Natural Heritage, Main Street Station, 1500 East Main Street, Suite 312, Richmond, Virginia 23219.

