

Summer, 2003

Sandy Neck/Barnstable Harbor Area of Critical Environmental Concern (ACEC)

Designation Date:	December 15, 1978
Total approximate acreage:	9,125 acres
Watershed/subwatershed:	Cape Cod/Barnstable Harbor
Municipalities (% of ACEC):	Barnstable (90%) and Sandwich (10%)

What makes this area so special?

Designation Overview

The Sandy Neck/Barnstable Harbor ACEC was nominated by the Selectmen from the Towns of Barnstable and Sandwich, and was designated as an ACEC in 1978 because of the area's extraordinary natural resources. The ACEC boundary generally follows the 100-year floodplain elevation on the landward side and mean low water on the seaward side of the Harbor. Included in the ACEC is one of the largest barrier beach systems in New England. Sandy Neck extends eastward approximately seven miles and shelters Barnstable Harbor and the extensive saltmarsh habitat. This barrier beach is considered relatively stable, helping to establish a variety of natural communities including migrating sand dunes, fresh and saltwater marshes and ponds, wooded swamps, tidal flats, streams, and deciduous and coniferous forests. These areas provide flood control, storm damage prevention, improved water quality, wildlife habitat, and recreation opportunities to surrounding communities.

Wildlife Habitat

The diverse and relatively unaltered habitats of this ACEC provide feeding, spawning, and nursery grounds for numerous shellfish, finfish, amphibians, reptiles, birds, and mammals. In 2002, the state's Natural Heritage and Endangered Species Program (NHESP) listed nine species that were either Endangered (E), Threatened (T), or of Special Concern (SC) in the ACEC including: piping plover (T - bird), swamp oats (T - plant), diamondback terrapin (T - reptile), eastern spadefoot (T - amphibian), salt reedgrass (SC - plant), plymouth gentian (SC - plant), eastern box turtle (SC - reptile), least tern (SC - bird), common tern (SC - bird), coastal heathland cutworm (SC - moth).

This important region serves as spawning, nursery, and foraging habitat for marine, brackish, and fresh water animals. Mill Creek in Barnstable is a migratory fish run that supports the annual return of herring from the sea to spawn in freshwater. In 2001, the NHESP certified four vernal pools and located 17 potential vernal pools in this ACEC. The NHESP also identified approximately 7,300 acres or 80% of the ACEC as core habitat through their BioMap project, which highlights areas in Massachusetts with high biodiversity and most in need of protection. Habitat for bay scallops, quahogs, blue mussels, and surf, soft shell, and razor clams can be found within the ACEC boundary according to draft maps made in 2003 by the Division of Marine Fisheries and based on historical information and interviews with local shellfish officers.

Land Use

Almost half of the land within the ACEC boundary is covered by salt marsh habitat, and over 75% of the area is located within the 100-year floodplain. The majority of the 4,335 acres of protected open space in the ACEC are owned by the Town of Barnstable - located on Sandy Neck and in the adjacent expanse of salt marsh, locally known as the Great Marsh. There are also several private in-holdings, including two small (< 20 acre) tracts owned by The Nature Conservancy and cottages at the end of the Neck, which are leased by the town to private individuals. Although much of Sandy Neck is protected from residential development due to public ownership, a large portion of the land immediately adjacent to the ACEC has been developed. In addition, much of the beach is used by off-road vehicles for recreation.

Economic Benefits

The economies of the two towns are tied to this resource area since local fishing and tourism industries depend on the natural resources in the ACEC. In 2002, tidal areas in the ACEC supported 103 acres of shellfish aquaculture lease sites used by 52 license holders and worth around \$700,000 a year in income. The economy is also supported by the many public recreation areas throughout the ACEC. Birdwatchers and nature enthusiasts have reported sightings of almost 300 species of birds, and over 160 species of plants, including 85 varieties of wildflowers. Thus, residents and tourists are drawn to the pristine beaches and waters for multiple recreation activities as well as scenic views of Cape Cod Bay.

Archaeology

All of Sandy Neck has been designated as a significant historical site by the Massachusetts Historical Commission. Findings suggest prehistoric use of the rich natural resources in the area range from 8,000 to 450 years ago. Fourteen archaeological sites have been formally inventoried, although it is important to note that this area contains well in excess of this number of as the changing dune landscape make it difficult to identify more locations on Sandy Neck. The remainder of the archaeological sites within this ACEC extend westerly along Scorton Creek, cluster around the margins of the Great Marshes, and along the south side of Barnstable Harbor. The significant cultural artifacts and historic sites reflect the changing human occupation at Sandy Neck and remain vulnerable to destruction. Their protection is one of the Town's management challenges as human activities continue to influence the beachfront and dunes.

What are some stewardship activities?

One goal of the ACEC program is to promote stewardship of this area's resources through the participation, cooperation, and expertise of many interest groups. With its value to public and private uses, many stakeholders are interested in the management of Sandy Neck including the Towns, private property owners, The Nature Conservancy (TNC), Massachusetts Audubon Society, and state agencies. The Sandy Neck Park field station, administered by the Town of Barnstable, is located on the salt marsh side of the barrier beach and oversees operations, management responsibilities, and education activities on the barrier beach.

Sandy Neck and Barnstable Harbor have been the site of scientific investigations for such things as the Diamondback Terrapin turtles and a classic study on the historical development of bordering salt marsh vegetation. More recent studies in the ACEC have been conducted by researchers from the Boston College Field Ecology Program and the University of Massachusetts. In 2000, town officials began working with a consulting firm and the research group from Boston College to develop a long-term barrier beach management strategy. The resulting *Sandy Neck Barrier Beach Management Plan* addresses guidelines for vehicle and trail use on Sandy Neck and endangered Piping Plover breeding habitats.

In 2001, TNC completed a site conservation planning process for Sandy Neck and nearby

beaches and salt marshes. This process identified important targets for protection at the site including shorebirds, Diamondback Terrapins, the barrier beach, the dune/swale system, the saltmarsh, and shellfish habitats. One of the greatest threats to the dune/swale system was determined to be invasive species, particularly common reed (or *Phragmites*). In 2002 TNC initiated an invasive species control project in partnership with the Town and AmeriCorps Cape Cod to control *Phragmites* and prevent any new species from invading the interdunal wetland community.

By becoming active stewards, community members can help monitor the condition, target problems, and find ways to improve and protect the natural resources in the ACEC. If you have any questions or ideas for stewardship in the Sandy Neck/Barnstable Harbor ACEC, please contact the Massachusetts Office of Coastal Zone Management's ACEC Stewardship Coordinator, Katie Lund, at (508) 289-2889 or the Department of Conservation and Recreation's ACEC Coastal Coordinator, Liz Sorenson, at (617) 626-1394.

Local ACEC Stewards

Towns of Barnstable and Sandwich
Sandy Neck Park Field Station
The Nature Conservancy
Massachusetts Audubon Society
Massachusetts Beach Buggy Association
Boston College Research Community

What coastal resources are included (partially or entirely) in the ACEC?

Harbors, Sounds, Bays: Barnstable Harbor, Broad Sound (*Barnstable*); Scorton Harbor (*Sandwich*)

Rivers: none

Lakes, Ponds: none

Brooks, Creeks: Bass, Boat Cove, Brickyard, Bridge, Eel, Great Island, Mill, Scorton, Smith, and Wells Creeks (*Barnstable*); Scorton Creek (*Sandwich*)

Barrier Beaches included in ACEC (*Massachusetts Barrier Beach Inventory, CZM, 1982*): Sandy Neck (Ba-29, Sd-1), beach on east side of Scorton Harbor running to Scorton Shores (Sd-2), several areas along southern side of Barnstable Harbor (Ba-25,26,27,28)

Outstanding Resource Waters (ORWs): Barnstable Harbor. (*ORWs are waters, such as public water supplies and vernal pools that are protected by the most stringent standards because they constitute an outstanding resource as determined by their socio-economic, recreational, ecological, and/or aesthetic values.*)

NATURAL RESOURCE ACREAGE ESTIMATES

Note: acreages are estimated using Massachusetts Geographic Information System data (2001).

HABITAT TYPE	ACREAGE in ACEC	% of ACEC	LAND USE	ACREAGE in ACEC	% of ACEC
barrier beach	1,590	17	recreation	130	1
eelgrass	--	--	agriculture	6	<1
salt marsh	3,840	42	residential	115	1
tidal flat	1,030	11	commercial	10	<1
freshwater wetland	295	3	industrial	1	<1
cranberry bog	10	<1	OPEN SPACE		
forest	480	5	<i>federal</i>	--	--
open water	3,160	35	<i>state</i>	75	<1
100 yr floodplain	6,920	76	<i>municipal</i>	4,265	47
			<i>private/nonprofit</i>	215	2
			<i>chapter 61</i>	--	--
			<i>protected</i>	4,335	48