

Inner Cape Cod Bay Area of Critical Environmental Concern (ACEC)

Designation Date:	October 11, 1985
Total approximate acreage:	2,600 acres
Watershed/subwatershed:	Cape Cod/Namskaket Creek
Municipalities (% of ACEC):	Brewster (15%), Eastham (56%), Orleans (29%)

What makes this area so special?

Designation Overview

The Inner Cape Cod Bay ACEC was nominated by the Conservation Commissions, Boards of Selectmen, and Planning Boards from the Towns of Brewster, Eastham, and Orleans and was designated as an ACEC in 1985 because of the area's extraordinary natural resources. The boundary for this ACEC generally follows the 10-foot contour line on the landward side, and the mean low water on the seaward side, and extends from First Encounter Beach south to include Namskaket Creek. Included within the ACEC boundary are hundreds of acres of saltmarsh, highly productive shellfish beds, undisturbed wildlife habitat, barrier beaches, salt ponds, and tidal rivers and creeks. These areas provide flood control, storm damage prevention, improved water quality, and recreation opportunities to surrounding communities.

Wildlife Habitats

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) identified approximately 2,340 acres or 90% of the ACEC as core habitat through their BioMap project, which highlights areas in Massachusetts with high biodiversity and most in need of protection. That same year the NHESP listed four species that were either Endangered (E), Threatened (T), or of Special Concern (SC) including: salt reed grass (SC - plant), the oysterleaf (E - plant), the seabeach dock (T - plant), and the diamondback terrapin (T - reptile). In 2001, the NHESP located three potential vernal pools in the ACEC. In addition, the Herring River in Eastham and Rock Harbor Creek in Orleans are migratory fish runs for alewives and blue-black herring that travel to spawn in Cape Cod Bay. Habitat for oysters, quahogs, and razor, soft shell, and surf 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

The estuaries and surrounding salt marsh predominate most of the area in this ACEC. Most land falls within the 100-year floodplain, which minimizes development within the ACEC boundary. However, much of the land immediately adjacent to the boundary has been converted to residential development. The majority of the 350 acres of protected open space within the boundary, including portions of Namskaket Marsh, First Encounter Beach, Nickerson State Park, and land owned by the Orleans Conservation Trust, is owned by either the municipalities, non-profit organizations, or the state.

Economic Benefits

The economies of the three towns are tied to this area since local fishing and tourism industries depend on the natural resources in this ACEC. In 2002, eight acres of aquaculture lease sites used by 12 license holders were located in tidal areas. The economy is also supported by many public recreation areas throughout the ACEC. Herring Pond offers swimming, boating, trout fishing, and other recreational opportunities while First Encounter Beach and Hatch Beach offer public access to the ocean. Residents and tourists are drawn to the pristine beaches and waters for multiple recreation opportunities as well as scenic views of Cape Cod Bay.

Archaeology

The interrelated system of estuaries and surrounding wetlands of the Inner Cape Cod Bay ACEC contain between 13 to 15 archaeological sites. Of these, two sites are of particular note: the Chase Farm, located along the margins of the Herring River, was continuously occupied on a seasonal basis for thousands of years beginning as early as 9,000 - 8,000 years ago, and another site which dates back 450 - 400 years is located somewhere near the mouth of the Herring River and Cape Cod Bay in the vicinity of First Encounter Beach.

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. The Towns of Orleans, Eastham, and the UMass School of Marine Science and Technology have been partnering through the state's *Estuaries Project - Southeastern Massachusetts Embayment Restoration*. Water quality samples are being taken in Rock Harbor, Namskaket Creek, and Boat Meadow Creek. The towns hope this information can lead to long-term strategies for wastewater and stormwater remediation. The United States Geological Survey has also been involved for the past 15 years in leading water quality studies on Namskaket Creek to determine how a contaminant plume travels from the Brewster, Orleans, and Eastham tri-town wastewater treatment facility. The USGS has put monitoring wells near the treatment facility and along the creek to sample water quality. Ultimately, the results show how the wastewater plume and nitrogen transport affects the aquifer, marsh, and creek ecosystems.

In 1999, the Massachusetts Office of Coastal Zone Management (CZM) began a wetland study in the ACEC at the junction of the Boat Meadow Creek and the Cape Cod Rail Trail. This study took a detailed inventory of animal and plant life to see how the creek's natural tidal flow was affected by a small culvert restricting the channel beneath the rail line. Results indicated a decrease in tidal exchange, upstream flooding, and lower diversity and abundance of native wildlife upstream of the tidal restriction. In 2002, a wetland restoration project was undertaken through a partnership of state and local agencies. CZM worked with DCR through the Cape Cod Rail Trail and the Wetlands Restoration Program to complete this culvert replacement project and will continue to monitor this site for long-term restoration progress.

By becoming active stewards, community members can help monitor the condition, target problems, and find ways to improve and protect the natural resources in their ACEC. If you have any questions or ideas for stewardship in the Inner Cape Cod Bay 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 Brewster, Eastham, and Orleans
Brewster Conservation Trust

Brewster Pond Stewards
 Orleans Conservation Trust
 Orleans Water Quality Taskforce
 Nickerson State Park

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

Harbors, Sounds, Bays: Cape Cod Bay (*Brewster, Eastham, Orleans*)

Rivers: Boat Meadow (*Eastham*); Herring (*Eastham*)

Lakes, Ponds: Cedar Pond (*Orleans*); Herring Pond (*Eastham*)

Brooks, Creeks: Little Namskaket Creek (*Orleans*); Namskaket Creek (*Brewster, Orleans*); Rock Harbor Creek (*Eastham, Orleans*)

Great Ponds (ponds > 10 acres): Cedar Pond (*Orleans*); Herring Pond (*Eastham*)

Outstanding Resource Waters (ORWs): All waters including rivers, ponds, and creeks except for Cape Cod Bay. (*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*).

Barrier Beaches (Massachusetts Barrier Beach Inventory, CZM, 1982): beach south of Namskaket Creek (*Brewster*); First Encounter Beach/Hatch Beach (Eh-2), beach south of Herring River (Eh-3), beach south of Boat Meadow River (Eh-4), beach north of Rock Harbor (Eh-5) (*Eastham*); beach between Rock Harbor and Little Namskaket Creek, Skaket Beach (Ol-2), beach north of Namskaket Creek (Ol-3), beach south of Namskaket Creek (Ol-4, connected to Bt-1) (*Orleans*)

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	95	4	recreation	25	9
eelgrass	95	4	Agriculture	--	--
salt marsh	840	32	Residential	105	4
tidal flat	1,095	42	Commercial	--	--
freshwater wetland	130	5	Industrial	5	<1
cranberry bog	5	<1	OPEN SPACE		
forest	205	8	Federal	--	--
open water	1,450	56	State	40	2
100 yr floodplain	1,245	48	Municipal	250	10
			private/nonprofit	320	13
			chapter 61	--	--
			protected	350	13

