

Pleasant Bay Area of Critical Environmental Concern (ACEC)

Designation Date:	March 20, 1987
Total approximate acreage:	9,240 acres
Watershed/subwatershed:	Cape Cod/Pleasant Bay
Municipalities (% of ACEC):	Brewster (<1%), Chatham (24%), Harwich (4%), and Orleans (72%)

State-approved resource management plans:

Pleasant Bay Resource Management Plan (1999)

Guidelines and Performance Standards for Docks and Piers in Pleasant Bay (2001)

What makes this area so special?

Designation Overview

The Pleasant Bay ACEC was nominated by the Conservation Commissions, Boards of Selectmen, and Planning Boards from the Towns of Brewster, Chatham, Harwich, and Orleans and was designated as an ACEC in 1987 because of the area's extraordinary natural resources. The boundary for this ACEC generally follows a 100-foot buffer to the 10-foot contour line and includes wetlands and waterbodies that outflow into Pleasant Bay. Over 1,000 acres of salt marsh and several hundred acres of tidal flats are found in the ACEC. Other important habitats include islands, salt and freshwater ponds, rivers, bays, and barrier beaches. These areas provide flood control, storm damage prevention, improved water quality, wildlife habitat, 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. Pleasant Bay is an important transition area for biological communities in the region, with some species at their most northerly range and others at their most southerly range. The resulting wildlife diversity is illustrated by the fact that bird watchers have noted 248 different species of birds. Muddy Creek, Stillwater Pond, Frost Fish Creek, and the Namequoit River are four waterways in the ACEC that support herring migratory fish runs. Habitat for bay scallops, quahogs, softshell 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.

In 2002, the state's Natural Heritage and Endangered Species Program (NHESP) identified approximately 7,425 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. That same year the NHESP listed seven species that were either Endangered (E), Threatened (T), or of Special Concern (SC), including: the short-eared owl (E - bird), diamondback terrapin (T - reptile), piping plover (T - bird), New England bluet (SC - insect), strigose knotweed (SC - plant), four-toed salamander (SC - amphibian), and the plymouth gentian (SC - plant). In 2001, the

NHESP also located 13 potential vernal pools in this ACEC.

Land Use

Most of the land within the ACEC boundary is either residential or forested with the majority of the area consisting of the open waters of Pleasant Bay. Approximately 10% of the area or 1,025 acres is salt marsh habitat while the Bay has over 1,600 acres of eelgrass – some of the highest acreage in the state. The majority of the 725 acres of protected open space is owned by municipalities, non-profit organizations, and the federal government. The outer barrier beach and some of the islands in the Bay are part of the Cape Cod National Seashore.

Economic Benefits

The economies of the four towns are tied to this area since the local fishing and tourism industries depend on natural resources in the ACEC. The rich shellfish populations, which are an important part of the recreational and commercial fishing industry, are supported by the Bay's clean waters and productive marsh and estuarine habitats. In 2002, tidal areas in the ACEC supported approximately 20 acres of aquaculture lease sites used by 22 license holders. The economy is also supported by residents and tourists who are drawn to the many trails and pathways, including: Frost Fish Creek Trail, Cape Cod Rail Trail, Paw Wah Point, and the Cape Cod National Seashore. The area's clean beaches and waters are also popular for boating, swimming, sport fishing, and bird watching.

Archaeology

With a total of 56 recorded archaeological sites in lands surrounding Pleasant Bay, it is not an exaggeration to say that virtually every elevated, well-drained location within the ACEC was used at some time in history ranging from 8,000 to 450 years ago. There are many burial sites, including one near Namequoit Point where 76 copper beads were reported. A number of archaeological sites that were excavated by the Massachusetts Archaeological Society indicate that the area was a viable habitat for plants, animals, and humans for thousands of years.

What are some stewardship activities?

One goal of the ACEC program is to promote stewardship of this area's natural resources through the participation, cooperation, and expertise of many interest groups. The Friends of Pleasant Bay is a grass roots environmental organization that formed in 1985 to help preserve the Bay and surrounding resource areas. This group supported the ACEC designation and the creation of a resource management plan. They also provide support for ongoing technical studies, public outreach, and educational projects in the Bay.

Through a cooperative agreement, the towns developed the Pleasant Bay Resource Management Plan (RMP) in 1998 for the ACEC and its watershed. The plan seeks to preserve traditional uses and manage competition of the Bay's shores, water, shellfish, and other resources. The RMP provides a practical framework for the towns to work together to promote sustainable use and enjoyment of these resources.

When the Pleasant Bay RMP was approved, the Towns of Orleans, Chatham, and Harwich agreed to form the Pleasant Bay Resource Management Alliance. The purpose of the Alliance is to implement recommendations and revisions of the RMP. The Alliance has a coordinator and a Technical Resource Committee (TRC), which helps address specific projects and issues, write grants, and coordinate with other partners and the public. The organizational structure of the Alliance builds upon the high degree of public involvement and inter-governmental cooperation initiated with development of the plan.

Implementation of the RMP has resulted in a number of programs and projects in the ACEC. The Alliance, with input from the TRC's local conservation commissions, planning boards, and state agency representatives, developed the *Guidelines and Performance Standards for Docks and Piers in Pleasant Bay*, which was adopted by the towns and approved by the state in 2001. These guidelines, voted through Town meetings as bylaws and zoning regulations, help local boards and commissions manage the appropriate use of docks and piers along the shoreline.

The Alliance also coordinated an *Intertidal Habitat and Sediment Assessment* study for the Bay, which is the first phase of a comprehensive inventory and monitoring program for habitats within the Pleasant Bay estuary. This study classifies and evaluates the variety of intertidal habitats and inventories the plant and animal life in these areas. Information generated from the project will be used by local officials to evaluate and manage competing uses of tidal flats and will also provide baseline data needed to design a long-term project to monitor the health of the Bay's intertidal resources. The Bay is a location for two important studies on horseshoe crabs – one was completed by the United States Geological Survey for the Cape Cod National Seashore and the other was funded by the Friends of Pleasant Bay.

Numerous groups monitor water quality in different parts of the Pleasant Bay watershed. The Alliance designed a bay-wide monitoring strategy that the Citizen Water Quality Monitoring Program uses to collect water quality samples from Bassing Harbor, Inner Ryders Cove, Crows Pond, Muddy Creek, Round Cove, Quanset Pond, Paw Wah Pond, Arey's Pond, Kescayogansett Pond, and Meeting House Pond. Other sampling groups include the Chatham Water Watchers, the Harwich Shellfish and Marine Water Quality Committee, and the Orleans Water Quality Monitoring Task Force. The Alliance has published, *The Citizens' Guide to Estuarine Protection*, which was designed to inform property owners about wastewater management and nitrogen loading issues in their community.

Many of the waterbodies in the Pleasant Bay ACEC were selected in 2001 as priority sites for the *Estuaries Project - Southeastern Massachusetts Embayment Restoration* conducted with collaboration of state agencies, academic institutions, and local municipalities. The goal of the Estuaries Project is to classify the nitrogen sensitivity of southeastern Massachusetts' coastal bays and estuaries. Citizens in Orleans from the Wastewater Monitoring Steering Committee are sampling water quality for this study and working with UMass Dartmouth Center for Marine Science and Technology. This study will result in the generation of planning and policy guidance documents to help the communities of Pleasant Bay consider how to improve water quality by implementing nitrogen management strategies.

If you have any questions or ideas for stewardship in the Pleasant 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, Chatham, Harwich, and Orleans
Pleasant Bay Resource Management Alliance
Orleans Water Quality Monitoring Task Force
Harwich Shellfish and Marine Water Quality Committee
Chatham Water Watchers
Friends of Pleasant Bay
Friends of Meeting House Pond

Friends of Crystal Lake
 Friends of Pilgrim Lake
 Friends of Uncle Seth's Pond
 Friends of Lonnie's Pond (Kascayogansett Pond)
 Friends of Arey's Pond

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

Harbors, Sounds, Bays: Bassing Harbor (*Chatham*), Frostfish Cove (*Orleans*), The Horseshoe (*Orleans*), Pleasant Bay (*Brewster, Chatham, Harwich, Orleans*), Round Cove (*Harwich*), Ryder Cove (*Chatham*)

Rivers: Namequoit River, The River (*Orleans*)

Lakes, Ponds: Crows Pond, Lovers Lake, Mill Pond, Ministers Pond, Stillwater Pond (*Chatham*); Areys Pond, Crystal Lake, Gould Pond, Kescayogansett Pond, Meeting House Pond, Paw Wah Pond, Pilgrim Lake, Quanset Pond, Sarahs Pond, Uncle Seths Pond (*Orleans*)

Brooks, Creeks: Frost Fish Creek, Muddy Creek (*Chatham*); Broad Creek, Hog Island Creek (*Orleans*)

Great Ponds (ponds > 10 acres): Lovers Lake, Mill Pond, Stillwater Pond (*Chatham*); Crystal Lake, Pilgrim Lake (*Orleans*)

Outstanding Resource Waters (ORWs): All waters in the Pleasant Bay ACEC are classified as ORWs. (*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 included in ACEC (Massachusetts Barrier Beach Inventory, CZM, 1982): Foreside Harbor Spit (Cm-7), Fox Hill Tombolo (Cm-6), Kendrick Rd. Barrier (Cm-10), Salt Marsh Way Barrier (Cm-11), Sedge Lane Beach (Cm-8), Shell Drive (Cm-9), Strong Is. East Spit (Cm-3), Strong Is. Spit (Cm-5), Strong Is. North Barrier (Cm-4) (*Chatham*); Muddy Creek Inlet Barrier Complex (Hw-7), Round Cove Spit (Hw-6) (*Harwich*); Davis Rd. Barrier Spit (Ol-14), Hog Island (Ol-12), The Horseshoe Spit (Ol-13), Nauset (North) Beach (Ol-7), Old Field Point (Ol-9), Quanset Rd. (Ol-17), Quanset Rd. Cranberry Bog (Ol-16), Quanset Rd. Northeast (Ol-15), Sampson Is. South Spit (Ol-11), Sampson Is. North Barrier (Ol-10) (*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	550	6	Recreation	215	2
eelgrass	1,645	18	Agriculture	10	<1

salt marsh	1,025	11	Residential	950	10
tidal flat	180	2	Commercial	2	<1
freshwater wetland	216	2	Industrial	5	<1
cranberry bog	7	<1	OPEN SPACE		
forest	725	8	<i>federal</i>	220	2
open water	5,745	62	<i>State</i>	--	--
100 yr floodplain	4,125	45	<i>Municipal</i>	1,185	13
			<i>private/nonprofit</i>	410	4
			<i>chapter 61</i>	15	<1
			<i>protected</i>	725	8