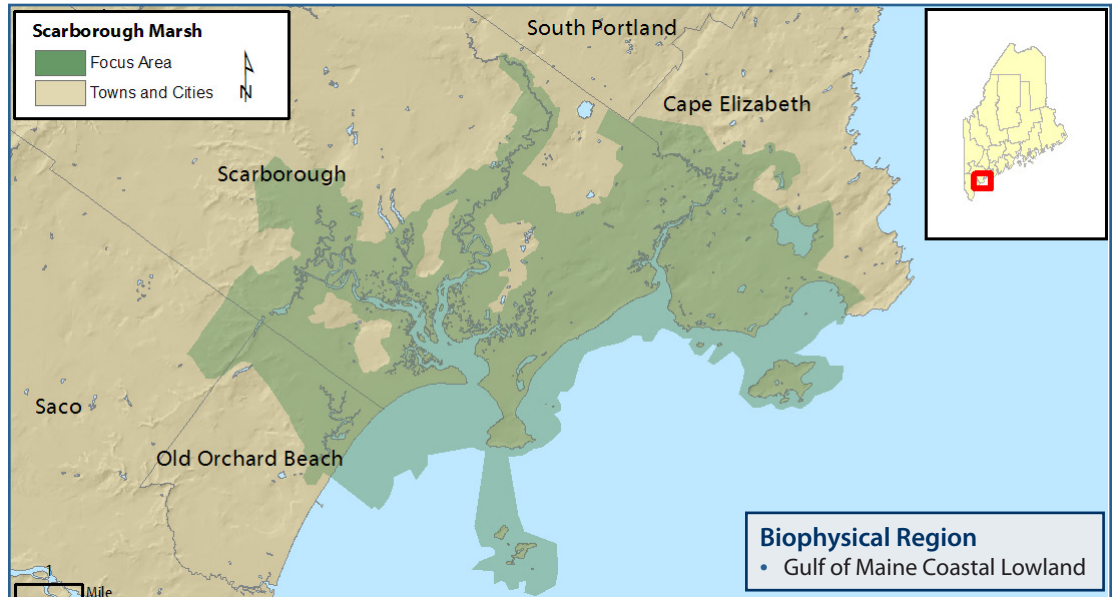
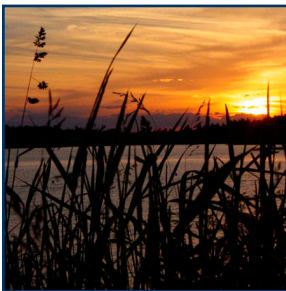


Scarborough Marsh



WHY IS THIS AREA SIGNIFICANT?

Covering more than 3,000 acres, Scarborough Marsh is the largest contiguous salt marsh system in Maine. Salt marshes filter pollution from the water and provide food and shelter for numerous species of birds, fish, mammals, and shellfish. Given the wildlife productivity and habitat diversity in this area, Scarborough Marsh is arguably the most significant of Maine's coastal Focus Areas. The Focus Area also includes Scarborough Beach and its dunes, which are Essential Habitat for piping plovers and least terns.

OPPORTUNITIES FOR CONSERVATION

- » Work with willing landowners to permanently protect remaining undeveloped areas.
- » Encourage town planners to improve approaches to development that may impact Focus Area functions.
- » Encourage homeowners to maintain adequate riparian buffers.
- » Monitor and remove invasive plant populations.
- » Identify and restore tidal restrictions and undersized culverts.
- » Educate recreational users about the ecological and economic benefits provided by the Focus Area.

For more conservation opportunities, visit the Beginning with Habitat Online Toolbox: www.beginningwithhabitat.org/toolbox/about_toolbox.html.

Scarborough Marsh photographs by Jennifer Soule

Rare Animals

Saltmarsh Sharp-tailed Sparrow
Common Moorhen
Harlequin Duck
Least Bittern
Arctic Tern
New England Cottontail

Rare Plants

Saltmarsh False-foxglove
Smooth Winterberry Holly
Beach Plum
Dwarf Glasswort

Rare and Exemplary Natural Communities

Coastal Dune-marsh Ecosystem
Dune Grassland
Pitch Pine Bog
Pitch Pine Dune Woodland
Salt-hay Saltmarsh

Essential Wildlife Habitats

Piping Plover/Least Tern
Roseate Tern

Significant Wildlife Habitats

Tidal Wading Bird and Waterfowl Habitat
Inland Wading Bird and Waterfowl Habitat
Deer Wintering Area

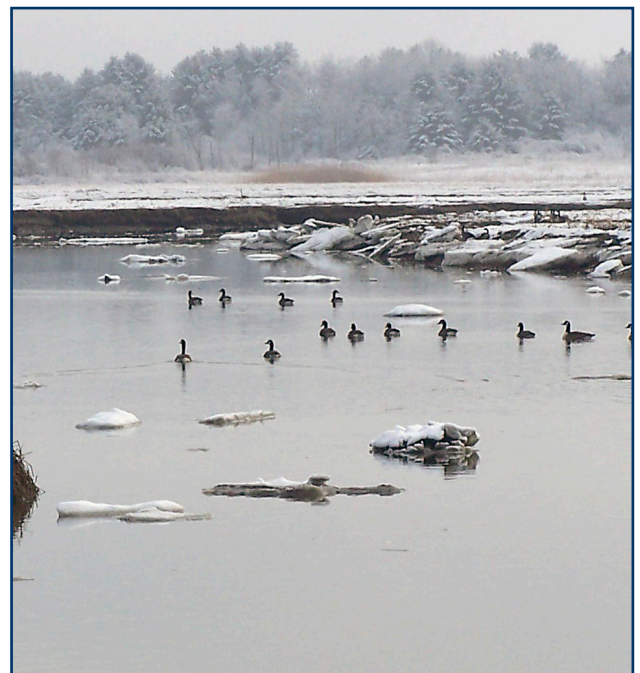


In all seasons, Scarborough Marsh Focus Area provides important habitat for fish, shellfish, mammals, and birds. *Hildegarde Anderson*

FOCUS AREA OVERVIEW

Scarborough Marsh is the largest contiguous tidal marsh system in the state of Maine. This 3000-plus-acre system of tidally influenced marshes, along with several closely associated freshwater wetlands, is located south of Portland, in the towns of Cape Elizabeth, Scarborough, and Old Orchard Beach. The marsh is at the terminus of a small watershed of approximately 58 square miles and is divided into five principal lobes by the adjacent uplands and the associated drainage channels of several rivers and creeks. Approximately 95% of the salt marsh (2965 acres) is currently owned and managed by the Maine Department of Inland Fisheries and Wildlife (MDIFW).

Given the wildlife productivity and habitat diversity in this area, Scarborough Marsh is arguably the most significant of Maine's coastal Focus Areas. The marsh and the adjacent uplands form a mosaic of 16 habitat types. The Maine Natural Areas Program (MNAP) has identified an exemplary salt-hay saltmarsh that covers most of the focus area and also a small area of exemplary pitch pine bog on the northwest side of the focus area. The Scarborough Beach area is included within the Focus Area. The beach has two exemplary natural community types: dune grassland and pitch pine dune woodland.



Hildegarde Anderson

CHARACTERISTIC SPECIES

Stratton Island is the most diverse seabird nesting colony in Maine. The 35-acre island is located in Saco Bay approximately one and a half miles off Prouts Neck. Nesting species include common tern, roseate tern, least tern, glossy ibis, snowy egret, little blue heron, cormorants, and gulls. Stratton and nearby Bluff Island are owned by the National Audubon Society. Breeding by the American oystercatcher was recorded for the first time in Maine on Stratton Island in 1995. Harbor seals haul out in large numbers on Little Stratton, which is connected to Stratton Island at low tide. Bluff Island is the breeding site for herring and great black-backed gulls, common eider, and double-crested cormorant. Hundreds of terns return to the islands each year to nest and raise their chicks. Many birds from Stratton and Bluff Islands feed in nearby Scarborough Marsh. Scarborough Marsh also supports the state's largest populations of Nelson's and saltmarsh sharp-tailed sparrows.

Scarborough Marsh's tidal rivers and streams, salt marsh, pannes, and mudflats support commercially, recreationally, and /or ecologically valuable fish and shellfish including soft-shelled clams, sea worms, alewives, striped bass, smelt, sea run brook trout, and eel. The marsh also protects high value habitat for shad, river herring - alewives, blue black herring, and winter flounder. Tidal creeks and pannes in the high marsh provide habitat for silversides and mummichogs which are key prey species for waterfowl and wading birds.

The National Marine Fisheries Service has designated Saco Bay as "essential fish habitat" for Atlantic salmon; pollock; whiting; hake; winter, yellowtail, and windowpane flounder; American plaice; ocean pout; halibut; sea scallop; sea herring; bluefish; and mackerel. With five major tributaries, the Scarborough Marsh flows into Saco Bay, and the high concentrations of herring, hake, and sand lance in Saco Bay depend directly on the delivery of clean and nourishing waters from the marsh.

RARE AND EXEMPLARY NATURAL COMMUNITIES

Salt-hay saltmarsh is abundant throughout Scarborough Marsh. Flooded by the tides, these areas are dominated by expanses of saltmeadow cordgrass, smooth cordgrass, and blackgrass. Populations of two rare plant species—dwarf glasswort and seaside gerardia—occur in the marsh.

The **pitch pine bog** is a sparsely forested peatland in which the dominant trees are pitch pine and red maple. The pitch pine bog in the Focus Area is located between the eastern and western tributaries of Mill Brook. It lies west of Winnocks Neck and east of Willowdale golf course.

Dune grassland is dominated almost exclusively by dune grass with very few other thinly scattered species. Much of the dune grassland that historically occurred along this section of the coast is now heavily developed. Dunes and fore dune areas are essential habitat for the Federally Threatened piping plover and the State Endangered least tern. The dunes also support a population of a rare plant—sea-beach sedge. All



Top: Arctic Tern. *USFWS* Above: This bridge is part of a public trail that crosses Scarborough Marsh. *Maine Natural Areas Program*

remaining viable areas of dune grassland should be preserved and managed as a sensitive natural area. All areas of sand dunes should be posted with signs indicating their fragile nature and regular crossing areas should be well defined and managed to prevent erosion of the dunes.

Pitch pine dune woodlands are generally located on the landward side of dune grasslands. This community type is found only in the southern coastal region of the state. Like dune grasslands, it has been impacted severely by development of shoreline properties. It is currently known from only four isolated locations.

Scarborough Marsh has not yet been surveyed thoroughly for natural communities or rare plants and animals.

Ecological Services of the Focus Area

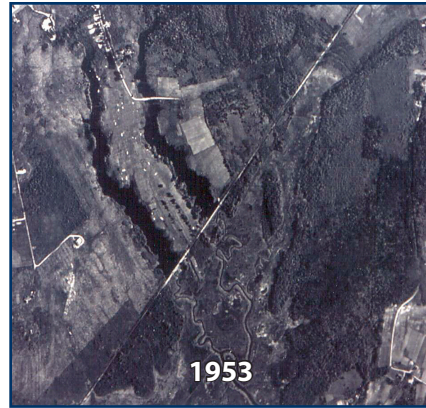
- Nutrient export to marine food webs
- Major migratory stopover for myriad bird species
- Cleans water running off land prior to discharge into ocean
- Nursery for juvenile fish and shellfish
- Contributes to regional biodiversity by providing habitat for rare species and habitats.

Economic Contributions of the Focus Area

- Attracts tourism for wildlife observation, paddling, hunting, and angling
- Acts as protective buffer for storm surge
- Supports local marine resource industries
- Provides scenic vistas that raise property values
- Valuable open space for local residents

CONSERVATION CONSIDERATIONS

- » Although most known populations of rare plants and rare and exemplary natural communities have now been conserved through public and private efforts, additional survey work is warranted in cooperation with private landowners, and additional conservation effort is needed, especially in undeveloped uplands that buffer marsh functions.
- » Natural communities still occurring on the uplands adjacent to the marsh—including upland forests, pine barrens, shrub swamps, forested swamps, and sand dunes—should be conserved as part of the greater ecosystem of the marsh. For long-term preservation of high-value natural areas such as Scarborough Marsh, retaining the surrounding natural landscape is critical.
- » The marsh system will benefit from establishing and/or maintaining vegetative buffer around its perimeter wherever possible. The marsh and the life it supports are not independent of the landscape in which they occur. A buffer of 250 feet or more will limit impacts from adjacent development, help prevent erosion, provide habitat for numerous species that depend on the marsh, limit opportunities for colonization of invasive species, and prevent reckless impacts from off-road vehicle use.
- » The integrity of the marsh, including its natural processes and the life forms it supports, is dependent on the maintenance of tidal hydrology in a natural condition. The hydrology of the marsh and its sedimentation patterns have been and are currently being impacted by the following factors: culverts, which restrict tidal flow on several creeks; dredging of the channel for boat usage; and past ditching. Partial tidal restriction from culverts causes increased freshwater influ-



Residential and commercial development have dramatically changed the uplands adjacent to Scarborough Marsh.



Sunrise at Scarborough Marsh. *Hildegarde Anderson*

ence (reduced salinity) in the upper marsh and an increase of oxygen. Increased oxygen leads to deterioration of the upper marsh through decreases in peat elevation and shifts in plant species. Channel dredging may cause erosion of adjacent marsh banks and disrupt natural sedimentation patterns in the lower marsh. Future management should prohibit additional impacts to the hydrology of the marsh.

- » Scarborough Marsh is crossed by a rail line, a pipeline, and several roads. Disturbances to the hydrology, soils, and natural vegetation in or adjacent to the marsh can create opportunities for colonization by invasive plant species, such as common reed (*Phragmites australis*). Common reed is already well established in several areas where tidal constrictions may be affecting the hydrology.
- » Care should be taken to ensure that boating in the channels and mouth of the marsh doesn't cause erosion to the exposed soils along the marsh edge, and that excessive noise from boats and people do not disrupt normal patterns of wildlife behavior.
- » No dredge spoils or other fill materials should be placed in the marsh.

Public Access Opportunities

- » MDIFW trail (end of Dunstan Landing Road, Scarborough)
- » Eastern Road/East Coast Greenway Trail (Scarborough)
- » Maine Audubon Visitors Center (Pine Point Road, Scarborough)
- » Pine Point Landing (Scarborough)
- » Ferry Beach (Scarborough)
- » Scarborough Beach State Park (Scarborough)
- » Crescent Beach State Park (Cape Elizabeth)

Focus Areas of Statewide Ecological Significance: **Scarborough Marsh**

- » Scarborough and adjacent towns have experienced rapid growth in the last decade, and many upland areas adjacent to the marsh are under increasing threat. Unmanaged land development and sprawl can contribute to habitat fragmentation, spread of invasive plant species, and water-quality degradation through pollution from storm-water runoff and private sewage systems.
- » Sea level is expected to rise rapidly during this century. Salt marshes tend to shift inland when sea level rises, offsetting loss of marsh areas that become submerged. It may be possible to accommodate the Scarborough Marsh's inland migration by carefully choosing where and how to develop along the upland edge of the marsh.



Jennifer Soule

RARE SPECIES AND EXEMPLARY NATURAL COMMUNITIES OF THE FOCUS AREA

	Common Name	Scientific Name	State Status*	State Rarity Rank	Global Rarity Rank
Animals	Saltmarsh Sharp-tailed Sparrow	<i>Ammodramus caudacutus</i>	SC	S3	G4
	Common Moorhen	<i>Gallinula chloropus</i>	T	S2	G5
	Harlequin Duck	<i>Histrionicus histrionicus</i>	T	S2S3	G4
	Least Bittern	<i>Ixobrychus exilis</i>	E	S2	G5
	Arctic Tern	<i>Sterna paradisaea</i>	T	S2	G5
	New England Cottontail	<i>Sylvilagus transitionalis</i>	E	S2	G3
Plants	Saltmarsh False-foxglove	<i>Agalinis maritima</i>	SC	S3	G5
	Smooth Winterberry Holly	<i>Ilex laevigata</i>	SC	S3	G5
	Beach Plum	<i>Prunus maritima</i>	E	S1	G4
	Dwarf Glasswort	<i>Salicornia bigelovii</i>	SC	S1	G5
Natural Communities	Coastal Dune-marsh	Coastal Dune-marsh		S3	n/a
	Dune Grassland	Dune Grassland		S2	G4
	Pitch Pine Bog	Pitch Pine Bog		S2	G3G5
	Pitch Pine Dune Woodland	Pitch Pine Dune Woodland		S1	G2
	Salt-hay Saltmarsh	<i>Spartina</i> Saltmarsh		S3	G5

State Status*

- E** Endangered: Rare and in danger of being lost from the state in the foreseeable future, or federally listed as Endangered.
- T** Threatened: Rare and, with further decline, could become endangered; or federally listed as Threatened.
- SC** Special Concern: Rare in Maine, based on available information, but not sufficiently rare to be Threatened or Endangered.

*State status rankings are not assigned to natural communities.

State Rarity Rank

- S1** Critically imperiled in Maine because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres).
- S2** Imperiled in Maine because of rarity (6–20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- S3** Rare in Maine (on the order of 20–100 occurrences).
- S4** Apparently secure in Maine.
- S5** Demonstrably secure in Maine.

Global Rarity Rank

- G1** Critically imperiled globally because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres) or because some aspect of its biology makes it especially vulnerable to extirpation.
- G2** Globally imperiled because of rarity (6–20 occurrences or few remaining individuals or acres) or because of other factors making it vulnerable to further decline.
- G3** Globally rare (on the order of 20–100 occurrences).
- G4** Apparently secure globally.
- G5** Demonstrably secure globally.