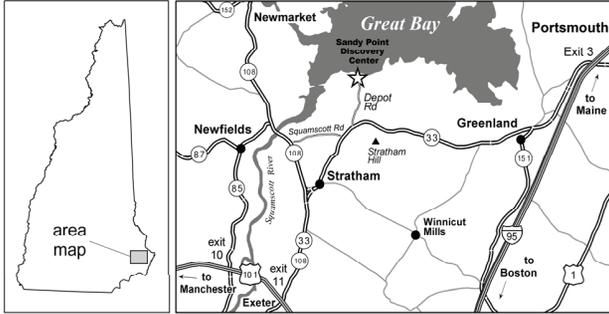


DIRECTIONS

The Great Bay Discovery Center is located at the north end of Depot Road on the town line between Stratham and Greenland, NH. Brown signs on Rte. 33 in Stratham direct you to the Sandy Point Discovery Center.

From Exit 3b off of I-95, take Rte. 33 west for 5 miles to the Depot Road turn on the right.

From downtown Exeter, take Rte. 33 north and east for 4 miles to the Depot Road turn on the left.



PROPERTY USE GUIDELINES

Trails and parking lots on this property are open to the public year-round from dawn to dusk for recreation and education. No dogs or wheeled vehicles are allowed beyond the parking lot, except assistance animals, strollers, and wheelchairs. Please, for the protection of the area and its inhabitants, and for everyone's enjoyment:

- Stay on the trail
- Don't remove anything, except litter

NH FISH AND GAME DEPARTMENT

The Great Bay National Estuarine Research Reserve (NERR) is managed by the Marine Fisheries Division of the New Hampshire Fish and Game Department. Designated by NOAA in 1989, the Reserve's primary purpose is to promote the wise use and management of the Great Bay Estuary. The Reserve supports multiple recreational uses on both water and land, including kayaking, walking, hunting, boating, fishing, and bird watching.

The Great Bay Discovery Center in Stratham, NH serves as the conservation education center for the Great Bay NERR. The Center's interpretive exhibits and interactive displays are a fun way for children to learn about the plants and creatures that live in Great Bay, and our own relationship to it as well. The grounds are open daylight hours throughout the year.

On the web: www.greatbay.org

SALT MARSH NATURAL COMMUNITIES

Salt marshes are naturally occurring wetlands found within estuarine intertidal zones along the coast where there is shelter from high-energy ocean wave action, such as at the southern shore of Great Bay. Together with the estuaries they occur in, they are among the most biologically productive systems on earth and support a vast array of plants and animals, including many species of migratory birds. Salt marshes are comprised of several natural communities:

Intertidal marsh communities

High salt marsh accounts for more than 90% of the total salt marsh habitat. Beyond the reach of most tides but within the reach of spring and storm tides, this community is strongly dominated by salt-meadow cordgrass (*Spartina patens*). **Low salt marsh** occurs seaward of the high salt marsh and is flooded and exposed by the tide twice a day. It is dominated by a much taller species, smooth cordgrass (*Spartina alterniflora*) ("low" refers to the height of the land, not of the vegetation). **Salt pannes and pools** occur as microhabitats within salt marshes, and sparsely vegetated **intertidal flats** are exposed at low tides.

Subtidal communities

Subtidal natural communities occur farther out in the bay, but are only visible from Sandy Point at very low tide. These communities perform important ecological functions including supporting oyster, eelgrass, and flounder populations, providing refuge for fish and invertebrates that retreat from exposed intertidal flats and estuarine marshes at low tide, and serving as spawning and nursery areas for numerous species of aquatic animals. Most are sparsely vegetated, but some, such as **eelgrass beds**, support dense stands of rooted aquatic vegetation.

This brochure was created by the New Hampshire Natural Heritage Bureau as part of a series designed to educate the public about the state's special plants and natural communities. For more brochures, visit: www.nhnaturalheritage.org



NEW HAMPSHIRE
NATURAL HERITAGE
BUREAU

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NH NATURAL HERITAGE BUREAU

VISITING NEW HAMPSHIRE'S BIODIVERSITY

GREAT BAY DISCOVERY CENTER SALT MARSH



a property owned and managed by

New Hampshire Fish and Game Department



GREAT BAY
NATIONAL
ESTUARINE
RESEARCH
RESERVE



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TRAIL DESCRIPTION: This trail is about ½ mile long and takes about 45 minutes to complete at a leisurely pace.

Beginning at the Great Bay Discovery Center parking lot, a short path zigzags down the slope to the trailhead for the Sandy Point Trail. From here, the graded gravel path enters a mature, upland forest natural community called a *mesic Appalachian oak - hickory forest*. The diverse tree canopy overhead is composed of oak, hickory, birch, beech, and elm trees. Below, a robust shrub layer forms a nearly perfect second canopy, or sub-canopy, dominated by such species as spicebush, hazelnut, black cherry, dogwood, witch hazel, ironwood, and sugar maple. Beneath this, a variety of herbaceous plant species carpet the forest floor during the summer, including wild sarsaparilla, Canada mayflower, partridgeberry, and false Solomon's seal. Look for the tracks of such mammals as deer, fisher, fox, and raccoon as you proceed through this forested upland.

The trail becomes a boardwalk as it enters slightly wetter habitat. This shrubby wetland is a different type of natural community, called a *red maple - sensitive fern swamp*. The forest structure and composition change here. The tree canopy thins out slightly, and spicebush and winterberry dominate the shrub layer. Several plant species indicative of wetter soils appear, such as Jack-in-the-pulpit, spotted touch-me-not, royal fern, and cinnamon fern.

The route passes briefly over a slightly drier swell with a small patch of *red maple - red oak - cinnamon fern forest*. In this wooded wetland community oaks dominate again and young white pines appear. Two tree species at the northern edge of their range in New Hampshire, swamp white oak and black gum, grow along the transition zone between marsh and upland.

Several *blowdowns* can be seen here. These are trees uprooted by strong winds. The dead trees and the shallow depressions they left behind now provide habitat for a variety of insects, birds, amphibians, and small mammals.

At a four-way junction, the Woodland Trail enters the forest to the left. Take the boardwalk to the right. Between the edge of the forest and the salt marsh is a transitional *brackish marsh* community containing narrow-leaf cattails and spike grass. While this is primarily a freshwater wetland, it is occasionally flooded by high spring tides and storm surges. At these times the fresh and sea water mix, creating slightly salty, or brackish conditions.

A particular feature to look for is the *strand line* (also called *wrack*), heaps of decaying cattails, seaweeds, cordgrass, and other plants at the edge of the marsh. Tides and winter ice uproot these plants and wash them into bands of *detritus*. This accumulation of organic debris is used as food by small flies and aquatic life in the Bay.

Immediately on your right is a nearly pure stand of feather-tufted common reed (*Phragmites australis* subspecies *americanus*), a native species that is currently being displaced by the invasive variety (subspecies *australis*) over much of North America. This stand at Sandy Point is currently the only known stand of native *Phragmites* in NH, but efforts are now underway to find other native stands.

At the first curve to the left on the boardwalk, you arrive at an expansive view of the salt marsh and Great Bay. Here you can see a fine mosaic of natural community types.

In the foreground at your feet, salt-meadow cordgrass (*Spartina patens*) is strongly dominant on the *high salt marsh*. This natural community occurs between the mean high-water mark and the upper reaches of the highest spring tides. Other common plants here include glasswort, the graminoids smooth cord-grass, spike grass, and salt marsh rush, and broad-leaved forbs such as goldenrods and asters.

Beyond the high salt marsh and closer to the open water (or mud flats at low tide), between mean sea level and mean high tide, is the *low salt marsh*. This physically stressful zone is flooded twice daily and dominated by the more flood-tolerant smooth cordgrass (*Spartina alterniflora*).

Frequently embedded within the two types of salt marsh communities is another natural community called *salt panes and pools*. These low, wet areas vary considerably in terms of their species richness and composition due to salinity levels, substrate type, and other factors.

Beyond the low salt marsh is another natural community type that is only exposed at low tides: sparsely-vegetated *intertidal flats*, commonly referred to as mud flats. This community covers more than half of Great Bay at low tide. There is little vascular plant growth in the mud, sand, and silt, but algae, worms, clams, snails, green crabs, and horseshoe crabs all thrive here and provide food for shorebirds.

The boardwalk loop encircles a small island. Look for the thick, deeply-gnarled bark of black gum trees here. A variety of *understory* shrub and vine species grow as well, such as sweet pepperbush, greenbrier, and winterberry holly. Beware of poison ivy vines, which sometimes climb tree trunks and wrap around branches in addition to growing in profusion on the ground. Rounding the next curve on the boardwalk, look to the right for birds foraging and hunting out in the wetland. Blue heron, egret, osprey, kingfisher, and waterfowl all frequent this part of Great Bay.

Once you've completed the boardwalk loop, you can either return to the Discovery Center, or explore a little farther on the Woodland Trail, a footpath which leads through the forest to a small outlook across the salt marsh.

Visit at different times and seasons to see what changes.

