

Chapter 3: Environmental Setting

Physical Resources

Geology

Bedrock Geology

Throughout the park a series of unconsolidated sediments lie over the crystalline bedrock; depth of the bedrock is approximately 900 to 1,000 feet below sea level. It is overlain by Cretaceous sediment called the Raritan Formation and the Magothy Formation. The youngest glacial stage of the Pleistocene epoch, the Wisconsin Stage, formed Long Island Sound and the topography seen today in Suffolk County. See Figure 4 for a map of the bedrock geology of the park (Southold LWRP 2003).

Surficial Geology

Sands and gravels of the Harbor Hill moraine are the most common soils found in the park. They were deposited from the Pleistocene Glaciations. The soils of the park belong to two main groups: the Carver and Plymouth Sands Association and the Haven-Riverhead Association. Carver and Plymouth Sands are deep, well-drained and moderately coarse. The second group, the Haven-Riverhead Association, is a medium textured, well -drained, and gently sloping and is suitable for farming (Long Island Lighting Company FEIS 1975). Soils of the park are classified by the Soil Survey for Suffolk County. See Figure 5 for a map of the surficial geology of the park.

There are steep slopes and bluffs adjacent to Long Island Sound and the beach in the northwest and northeast corners of the park. Additionally, geologic formations known as hoodoos, which are not often found in this part of the country, make these sections of the park very geologically sensitive and not suited for development or recreation.

Topography

The topography of the park is generally level with gentle slopes that has a range of elevation of 20 to 140 feet above sea level. A maritime bluff rises up abruptly from the beach (Lundgren and Smith 2009). See Figure 6 for a map of the topography of the park.

Water Resources

Ponds

Hallock's Pond is located approximately in the center of the park and is 4.5 acres in size and nearly 23 feet deep. It is a perched pond with a clay lining formed by the glacial outwash from the receding Wisconsin glacier. Hallock's Pond has been identified as a coastal plain pond and a unique ecological community within the park due to the scarcity of the community type, according to the 2008 Natural Heritage Report done by OPRHP.

Hallock's Pond was historically used for agriculture and recreation. The Hallock family used the pond to water their cattle, sheep and horses and the Cichanowicz family used it to irrigate their fields in the mid-20th century. During the early and mid-20th century, Camp Carey used the pond for recreational purposes (swimming; fishing). There has also been ice skating on the pond in winter. When the Levon Corporation acquired the land in the 1960s, it used the low area adjacent to the east side of the pond to contain water used to wash sand as part of the sand mining operation. However, the pond itself was not disturbed by Levon Corporation (Wines 2008).

Hallock's Pond was tested by the OPRHP Environmental Management Bureau Water Quality unit during summer of 2006 and 2008 and was found to have very little contaminants despite years of sand mining and washing occurring in close proximity to the water's edge.

Hallock's Pond is a coastal plain pond that is ranked as a significant natural community. This community type is restricted to the coastal ecoregion and many other ponds of this type have been lost to agricultural use and development. The pond is in good condition. Two rare plant species listed as state-endangered have been reported in the pond: saltmarsh loosestrife (*Lythrum lineare*), a native loosestrife species, and Farwell's water-milfoil (*Myriophyllum farwellii*), a submerged aquatic plant. Protecting the quality of the pond and the adjacent upland habitat can thus play a significant role in protecting the biodiversity of Long Island and the state (Lundgren and Smith 2009).

Lily Pond has been identified as a shrub swamp and is 1 acre in size. This wetland also provides valuable habitat and contributes to the local biodiversity of the park.

Springs

Howell's Spring is located near the northeastern border of the park. The spring flows towards the beach but disappears before reaching the Sound (Wines 2008).

Long Island Sound

The park includes more than one mile of ocean beachfront along Long Island Sound (LIS), which is a significant natural resource feature of the park, providing scenic views of Connecticut and the North Shore of Long Island. Long Island Sound was designated a National Estuary in 1987. As an estuary, LIS is a body of water where fresh water from rivers draining the land mixes with salt water from the ocean, creating unique and highly productive ecosystems. Long Island Sound has 1,320 square miles of surface water and a watershed of 16,820 square miles. It is 110 miles long and 21 miles at its widest point, with over 600 miles of shoreline and an average depth of 63 feet. It is estimated that \$5.5 billion is generated per year from services and resources it provides. Long Island Sound supports commercial and recreational fishing, boating and tourism and is a major commercial waterway. More than eight million people live in the LIS watershed and development has increased some types of pollution, altered land surfaces, reduced open spaces, and restricted access to the Sound (EPA website 2009). The Sound supports a great variety of coastal habitats including tidal and freshwater wetlands, submerged aquatic vegetation -- such as eelgrass beds-- beaches, dunes, cliffs and bluffs, estuarine embayments, coastal and inland forests, riverine migratory corridors, shellfish reefs, intertidal flats and rocky intertidal habitats. More than 120 fish species occur here and more than 125 species of birds rely on the Sound for food and habitat. These habitats and the species they support are threatened and abundance and diversity have been diminished (Long Island Sound Study 2009). See Figure 7 for a map of the water features of the park.

Wetlands

Wetlands provide valuable ecological functions and services, including providing habitat for unique species and water purification. See Figure 8 for a map of the wetlands in the park.

- **Hallock's Pond wetland complex:** Hallock's Pond has a fluctuating water level and overruns its banks during rainy parts of the year. There's a natural swale that the water flows to south of the pond. According to DEC, this wetland complex has been identified as a Class 3 wetland and is 5.9 acres in size.
- **Lily Pond wetland complex:** The Lily Pond wetland complex has been identified as a Class 2 wetland and is approximately one acre in size, according to DEC. The NHP has identified this area as a shrub swamp but it also referred to as a vernal pond.

- Federally designated wetlands: There are two areas within the park that have been designated as Federal wetlands. The federally designated wetlands exist adjacent to the shoreline and there is another small wetland located in the southeast corner of the park.

Air

The park falls within the New York, Northern New Jersey, Long Island, NY-NJ-CT non-attainment area for failing to meet the national ambient air quality standard for ozone (Environmental Protection Agency 2008).

Natural Resources

Many of the natural resources at Hallock State Park Preserve have been compromised due to the previous uses occurring on the site prior to the state ownership of the property. As a result, many of the natural resources indigenous to the area are not as abundant as they once were. In spite of its varied past, the land has started to recover and many native plant species (in addition to non-native) are found in the park.

Ecological Communities

Sixteen ecological communities were identified in the park by the New York Natural Heritage Program (NHP). The sixteen communities are classified under four general system types (terrestrial, lacustrine, estuarine, and marine) and seven subsystems (forested uplands, open uplands, terrestrial cultural, natural lakes and ponds, estuarine intertidal, marine subtidal, and marine intertidal) (Evans, Novak, and Weldy, 2002). According to the NHP report, the 233 acres of parkland surveyed are in varying stages of succession or disturbance. The ecological community types found in the park include coastal plain pond (4 acres), shrub swamp (1 acre), maritime beach (13 acres), maritime dunes (<1 acre) maritime shrubland (46 acres), maritime grassland (1 acre), eroding slope/bluff (8 acres), successional old field (2 acres), successional shrubland (9 acres), successional red cedar woodland (16 acres), successional maritime forest (80 acres), successional maritime forest (degraded) (15 acres), developed (15 acres), mowed lawn (5 acres), and unpaved road/path (18 acres). Please see Figure 9 for a map of the ecological communities of the park.

One of the ecological community types has special ecological significance. The coastal plain pond, Hallock's Pond, is an aquatic community with fluctuating water levels. Coastal plain ponds are typically shallow, groundwater-fed ponds that occur in kettle-holes or shallow depressions in the outwash plains south of the terminal moraines of Long Island. A series of coastal plain ponds are often hydrologically connected, either by groundwater, or sometimes by surface flow in a small coastal plain stream. Water is typically acidic, darkly stained, and has low transparency. Coastal plain ponds support a number of aquatic plants, fish, amphibians, and turtles, and sometimes host waterfowl, muskrat, and other animals (Lundgren and Smith 2009). In addition to Hallock's Pond, the diversity of the other 15 documented ecological systems contributes to the park's overall biodiversity.

Characteristic Flora

The forested uplands of Hallock State Park Preserve are categorized by two ecological community types: Successional Maritime Forest and Successional Maritime Forest (degraded). For a complete listing of the flora of the park please see Appendix A.

Rare or Threatened Plant Species

Rare plant species found in the park include salt marsh loosestrife (*Lythrum lineare*) and Farwell's Milfoil (*Myriophyllum farwelli*). Salt marsh loosestrife is on the state endangered list and Farwell's Milfoil is on the state threatened list.

Invasive Species

Under state law adopted in 2007 and amended in 2008 (Environmental Conservation Law Article 9, Title 17), “invasive species” are species that:

- (a) are non-native to the ecosystem under consideration; and
- (b) whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

The law also indicates that harm must significantly outweigh any benefits for a species to be considered invasive.

While there are many invasive plant species impacting the native ecological communities of the park, no invasive animal species have been found in the park at this time. Invasive species are viewed as a management issue and are addressed in Chapter 5 of the plan.

Fauna

Wildlife in the park is typical of the east end of Long Island and of a more suburban/rural setting. For a complete listing of the fauna of the park please see Appendix A.

The park hosts a diverse community of birds throughout the year, with over 150 species recorded from the park and adjacent waters in Long Island Sound. A number of state-listed species can be found within the park, including Roseate Terns (*Sterna dougallii*), Northern Harrier (*Circus cyaneus*), Least Tern (*Sternula antillarum*), Common Tern (*Sterna hirundo*), Sharp-shinned Hawk (*Accipiter striatus*) and Cooper's Hawk (*Accipiter cooperii*). Piping Plovers (*Charadrius melodus*), which are listed at both the federal and state levels, breed within the park. A full list of birds observed at the park can be found in Appendix B.

Endangered, Threatened and Rare Animal Species

Of the 12 federally or state listed bird species that have been observed at Hallock State Park Preserve, only one species nests within the park. The piping plover is a federally threatened species (state endangered) and while the amount of suitable habitat is small, one pair has nested on the beach each year since 2002.

Cultural Resources

Historic

Agriculture and recreation have long played a role in the use of the land that makes up Hallock State Park Preserve. Historically, the park and adjacent farming parcels were owned by several families who started farming the land in the late 17th century. According to *The History of Hallockville: The Museum Farm, the Neighborhood and the Surrounding Land Including Jamesport State Park*, by Richard Wines, the Hallock Family settled in the area around 1660. Descendants continued to farm there throughout the 19th century and lived there through the late 1970s. During the late 19th and early 20th centuries, an influx of Polish immigrants to the area yielded a change in the ownership of the land, but farming continued. A War of 1812 battle occurred in the park when a British ship

attacked the mainland in an attempt to capture an American revenue cutter. The 1814 battle lasted for nearly three days and the British emerged victorious by capturing the cutter.

In 1903, the Boys Club of New York opened Camp William Carey on 30 acres of what is now the northwest corner of Hallock State Park Preserve. The camp served approximately 2,500 disadvantaged boys from New York City ranging in age from 8-15 years. In 1944, the camp acquired additional land to bring its total holdings up to 125 acres. After 60 summers, Camp Carey ceased operations in 1963 (Wines 2008).

In the 1960s, the Levon Corporation bought the majority of the land encompassing the park and submitted plans to develop an industrial port at the site. Critics charged that the corporation never contemplated developing an industrial port, but rather developed the proposal as a cover for the sand mining operation that Levon was operating on the property. This operation was eventually halted and Levon sold the property to the Long Island Lighting Company (LILCO) (which later became Keyspan and is now National Grid), which proposed to develop a nuclear power station on the site in the 1970s. When the nuclear power plant proposal failed, the land sat vacant for many years, though there were many proposals for development (Wines 2008).

Archeological

The archeological resources at the park include both pre-historic and historic artifacts and the foundations or other remains of buildings and other man-made structures. In 1975, John F. Vetter and Bert Salwen were hired by LILCO to conduct an archeological assessment to be included in the environmental impact study prepared for the development of a proposed nuclear power plant for the site. Archeological testing near Hallock's Pond has uncovered evidence of pre-historic (Middle and Late Woodland periods) activity including evidence of knives, scrapers, projectile points, hammerstones and grinding stones (Vetter 1975). Archeological survey and testing within the park has been limited to areas impacted by construction projects undertaken since 1975; however, historical accounts and more recent research suggests that evidence of Native American occupation on Long Island is widespread. Based on literature records, OPRHP's Field Services Bureau has concluded that areas of the park and its adjacent farmland are archeologically sensitive.

Scenic Resources

The most notable views at Hallock State Park Preserve can be observed from the higher points in the park, near the bluffs or from the top of the dunes. From here, there are wonderful views of Long Island Sound, Connecticut and the shoreline east and west of the park. Hallock's Pond is also considered to be one of the more scenic areas of the park, as well as the views overlooking the adjacent agricultural land.

Recreational Resources/Activities

The park is currently undeveloped and, therefore, public visitation numbers are not recorded. However, there is evidence that low levels of public use has been occurring in the park. Unauthorized ATVs, which are not allowed in State Parks, and other off-road vehicles, have been observed in the park by nearby residents and numerous tire tracks have been left behind in their wake. The park has also been used, with permission from OPRHP, for organized horseback rides approximately twice a year. Depending on the season, the Hallockville Museum Farm will host hikes and provide environmental education programs for local schools and residents.

Emergency Plans and Services

Security within the park is provided by the NYS Park Police, located out of nearby Wildwood State Park, with their regional headquarters located at Belmont Lake State Park. They provide year round police coverage in cooperation with other local, county and state police agencies. As the park is undeveloped, the park is currently managed from Wildwood State Park.

Infrastructure

Water Supplies

There are existing fire protection hydrants located at the abandoned Camp Carey site. There is an existing water fire protection main located within the ROW of Sound Ave. with a hydrant at the old Camp Carey road intersection. However, the current operating condition of this infrastructure is unknown at this time.

Waste Water and Sewerage

There are existing cesspools in the former Camp Carey site in the northwestern section of the park. The current condition of this infrastructure is unknown.

Utilities

There is an existing corridor line of what appears to be a LIPA electric transmission line along the west side of the park property line, which extends north past the adjacent greenhouse operation. This line might also contain communications cable.

Roads

There are remains of a macadam access road along the west boundary of the park which begins at Sound Ave. and continues north to the old Camp Carey site.

Traffic

As an undeveloped park there is no traffic associated with the facility. An analysis of existing traffic conditions was completed for this project and can be found in Chapter 5.

Accessibility

The park is officially closed; therefore there is no legal accessibility to the park by the public. As an undeveloped park, accessibility will be addressed later on in the plan and will be considered during the design and development of park facilities.

Operations

As an undeveloped park, there are currently no operations occurring at the park. However, maintenance clearing of several trails that currently exist within the park is performed by the staff from Wildwood State Park.