

Carolina Beach State Park

General Management Plan



Department of Environment and Natural Resources

Division of Parks and Recreation

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GENERAL MANAGEMENT PLAN

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	
I. DESCRIPTION OF CAROLINA BEACH STATE PARK	I-1
Location and Access	I-1
Park Land	I-2
Visitor Facilities.....	I-3
History of the Park Area.....	I-4
II. PARK PURPOSES	II-1
Mission Statement for the State Parks System	II-1
Carolina Beach State Park Purpose Statement	II-1
III. SUMMARY OF INTERPRETIVE THEMES	III-1
Primary Interpretive Themes	III-1
Secondary Interpretive Themes	III-2
IV. PARK AND RECREATION DEMAND AND TRENDS	IV-1
Annual Visitation Trends	IV-1
Monthly Visitation Trends	IV-1
Visitor Information	IV-2
Outdoor Recreation Participation in North Carolina	IV-3
Priorities of Public Outdoor Recreation Funding	IV-5
Nearby State Areas and Facilities.....	IV-6
V. SUMMARY OF LAWS GUIDING PARK MANAGEMENT	V-1
State Legal Mandates	V-1
Federal Laws.....	V-3
VI. NATURAL AND CULTURAL RESOURCE MANAGEMENT	VI-1
Natural Resource Management Policy.....	VI-1
Natural and Cultural Resource Management Issues	VI-2
VII. PHYSICAL PLANT INVENTORY	VII-1
Facility Inventory and Inspection Program	VII-1
Road and Parking Inventory	VII-3
Sewer System	VII-4
Water System.....	VII-6
Electrical System	VII-6
Telephone System.....	VII-7
Major Capital Improvement Project Priorities	VII-7

VIII.	OPERATIONS ISSUES	VIII-1
	Introduction	VIII-1
	Management of Carolina Beach State Park Marina.....	VIII-1
	Inadequate Maintenance Facilities.....	VIII-3
	Picnic Area	VIII-4
	Tent and Trailer Campground	VIII-4
	Radio Communications and Water Supply Structure.....	VIII-4
	Staffing Needs.....	VIII-

5

IX.	LAND ACQUISITION	IX-1
	Current Acquisition Status	IX-1
	Future Acquisition Needs.....	IX-1
	Acquisition Summary Table.....	IX-1

INTRODUCTION

Planning is an essential element of effective and efficient park administration and management. The North Carolina General Assembly acknowledged its importance by passing state parks system legislation that includes planning requirements.

The 1987 State Parks Act (G.S.114-44.7 through 114-44.14) stipulates that a State Parks System Plan be prepared. The first plan was completed in December 1988. It evaluated the statewide significance of each park, identified duplications and deficiencies in the system, described the resources of the system, proposed solutions to problems, described anticipated trends, and recommended means and methods to accommodate trends. The most recent update of the Systemwide Plan was completed in December 2000.

The State Parks Act also requires each park to have an individual general management plan. The general management plans are required to:

...include a statement of purpose for the park based upon its relationship to the System Plan and its classification. An analysis of the major resources and facilities on hand to achieve those purposes shall be completed along with a statement of management direction. The general management plan shall be revised as necessary to comply with the System Plan and to achieve the purpose of the [State Parks Act].

The general management plan (GMP) is to be a comprehensive five-year plan of management for a park unit. A GMP's function is to:

1. Describe park resources and facilities;
2. State the purpose and importance of each park unit;
3. Outline interpretive themes and propose locations for informational and interpretive facilities;
4. Analyze park and recreation demands and trends in the park's service area;
5. Summarize the primary laws guiding park operations;
6. Identify internal and external threats to park natural and cultural resources, and propose appropriate responses;
7. Identify and set priorities for capital improvement needs;
8. Analyze visitor services and propose efficient, effective, and appropriate means of responding to visitor needs; and
9. Review park operations and identify actions to support efficient and effective park administrative procedures.

This GMP for Carolina Beach State Park, developed with public involvement, is intended to serve these purposes.

I. DESCRIPTION OF CAROLINA BEACH STATE PARK

LOCATION AND ACCESS

Carolina Beach State Park is located off US 421 in New Hanover County on Dow Road, 10 miles south of Wilmington. (Figure I-1) From Interstate 40, take College Road (State Route 132) south through Wilmington to U.S. 421. Continue south on US 421 and cross the Snow's Cut Bridge over the Intracoastal Waterway. At the second stop light, turn right on Dow Road and follow the signs to the park, a short distance on the right

Carolina Beach State Park may also be reached from Brunswick County via the Southport-Fort Fisher ferry, which crosses the Cape Fear River. From Southport, a thirty-minute ferry ride takes you to the end of Federal Point. Take U.S. 421 north about six miles and turn left onto Dow Road and follow the signs to the park.

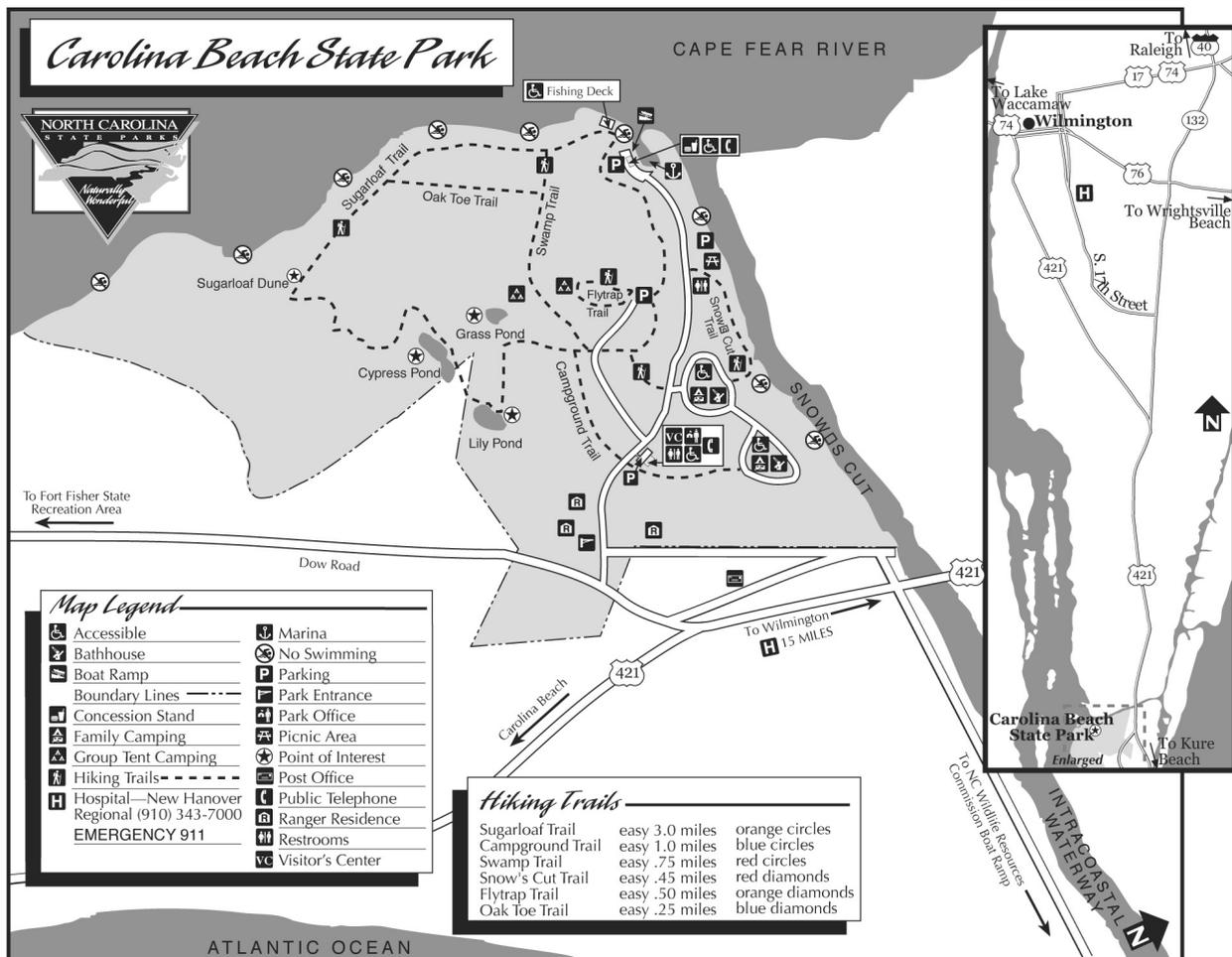


Figure I-1. Carolina Beach State Park

The park's mailing address, telephone numbers and email address are:

Carolina Beach State Park
P.O. Box 475
Carolina Beach, N.C. 28428

Office (910) 458-8206
Marina (910) 458-7770

Carolina.Beach@ncmail.net

PARK LAND

Carolina Beach State Park consists of 686 acres (including 266 leased acres) that lie along Snow's Cut and the Cape Fear River (Figure I-1). The major attraction is the park's unique environment that includes several coastal ecosystems. Forests dominated by longleaf pine, turkey oak and live oak occupy the dry, coarse soil of a series of relict sand dunes. Between the dunes are dense shrub swamps, called pocosins, populated by pond and loblolly pines, sweet bay, yaupon and evergreen shrubs. Brackish marshes consisting primarily of cordgrasses and sedges can be found beyond the relict dunes adjacent to the river.

Eight limesink ponds are located within the park. Three of these, each vegetated by a unique plant community, are found in the sand dunes. A dwarf cypress swamp forest dominates Cypress Pond,



the most unusual limesink pond in the park. Lily Pond is occupied by the broad, oval leaves and beautiful, white flowers of water lilies, which cover its waters in early summer. Grass Pond, which dries out almost every year, is filled with a variety of aquatic sedges. Carnivorous plants thrive in the boggy soil around its edge and in the park's acidic, mineral-poor soil.

Several interesting carnivorous plants thrive at Carolina Beach State Park by trapping and digesting insects. Among these carnivorous plants are pitcher plants, bladderworts, sundews and butterworts, but the most familiar—and the most spectacular—is the Venus' flytrap.

Figure I-2. Venus' Flytrap

Carolina Beach State Park is a great place for bird watching. Brown pelicans thrive in the coastal environment, and warblers, finches and woodpeckers fill the woods. In summer, painted buntings, yellowthroats and prairie warblers can be seen in the forest while ospreys populate Snow's Cut. Besides providing habitat for resident land birds during the winter and summer, Carolina Beach State Park also is located along an important migration corridor and attracts many birds during their migrations.

The small ponds in the park are home to various frog species, including the rare gopher frog. Carolina anoles, five-lined skinks and six-lined racerunners are also found. Occasionally, an alligator will wander into the marina. White-tailed deer and raccoons are abundant, and gray squirrels, cottontails and other animals common to the southern coastal plain may be seen along with an occasional opossum, fox squirrel, gray fox or river otter.

VISITOR FACILITIES

Carolina Beach State Park offers a variety of recreational opportunities (Figure I-1). The waters of the Cape Fear River, the estuarine waters of Masonboro Sound and the salt waters of the Atlantic Ocean are all only moments away. A marina with two launching ramps and 42 boat slips is located in the park at the junction of Snow's Cut and the Cape Fear River. Fuel, snacks and restrooms are available in the marina building, and a pumpout station and showers are provided for slip renters. Within the park, visitors may fish from the riverbank or the wheelchair-accessible fishing deck.



Figure I-3. Launching Ramps

Figure I-4. Marina

The park's family campground is located in a wooded area near Snow's Cut. Pine and oak provide shade for 83 campsites, including two wheelchair-accessible sites. Each site is equipped with a picnic table and grill. Drinking water and restrooms with hot showers are located nearby. Hookups are not provided for recreational vehicles, but a dump station is available for a fee.

Two camping areas for organized groups are located along Swamp Trail and are available by advance reservation only. One site accommodates up to 20 people; the other accommodates up to 35 people. These areas include picnic tables, fire circles and pit toilets.



Rangers hold regularly scheduled educational and interpretive programs. In addition to the multiple educational programs offered, Carolina Beach State Park's visitor's center features environmental education exhibits. Displays allow visitors to look deeper into the diversity of carnivorous plants in the park, and hands-on exhibits allow for interactive learning about these intriguing species.

Figure I-5. Visitor's Center

The park's picnic area is located near the bank of Snow's Cut, between the campground and marina. Picnic tables and grills are located under the shade of large oak trees. Water, restrooms and parking are conveniently located nearby.



More than six miles of trails wind through a variety of distinct habitats. Relatively flat and easy to walk, the trails offer an opportunity to observe the diversity of plant and animal life in the park.

Figure I-6. Boardwalk Trail

HISTORY OF THE PARK AREA

Early Settlement of the Area

Prior to European settlement, the Cape Fear Indians, of the Siouan language group, lived in and around the area that is now Carolina Beach State Park, farming, fishing and hunting. Mainly occupying the land along the Cape Fear River and its tributaries, the small tribe grew hostile to early settlers who had not treated them well and, in 1715, participated in an uprising against European settlers in the area. Fighting reduced their numbers, and in 1725, the Cape Fear Indians were defeated by a military expedition lead by “King” Roger Moore, founder of Orton Plantation in Brunswick County, and the Indians left the area. Artifacts of the native culture, including pottery fragments, arrowheads and mounds of oyster shells, have been found in the area.

Early attempts at colonization in the area were unsuccessful, mainly due to conflicts with the Cape Fear Indians. Pirating, common in the area during colonial times, also contributed to the struggles of early settlers. In 1726, a permanent settlement, the Town of Brunswick, was established along the lower Cape Fear in what is now Brunswick County. Brunswick, home to two royal governors, was an early political center and major pre-Revolutionary port. It declined in importance as Wilmington grew and the royal governor was relocated to New Bern in 1770. By 1776, when British redcoats landed, few people remained. Some reports indicate that much of Brunswick was burned at this time. The ruins and land at Brunswick became a part of Orton Plantation in 1842. In the late 1950s and 1960s, archaeological work was undertaken at Brunswick, and the area is now a state historic site (N.C. Office of Archives and History, 2004).

About 1730, further upstream on the east side of the Cape Fear River, the port of Wilmington was settled and rapidly outgrew the Town of Brunswick. Wilmington became a bustling port, particularly important for its exports of naval stores – tar, pitch and turpentine products derived from the resin of the longleaf pine. These products, critical for building and maintaining sailing vessels of that period, were sometimes called “sticky gold” (Sharpe, 1954). The English crown designated the newly settled Cape Fear River as one of five official ports of entry, and the port became an important area for commerce. Agricultural and timber products, naval stores, shipping and trade formed the basis of the area’s economy.

Sugarloaf, a 50-foot high relict sand dune near the bank of the Cape Fear River, is part of an east–west ridge of sand dunes formed thousands of years ago during the late Pleistocene epoch. Gradually trees and grasses stabilized the dunes by holding the sands in place. The massive sand

dunes reminded early settlers from Barbados of the mounds of sugar at their home port, and the name “Sugarloaf” stuck. Today, Sugarloaf is a part of Carolina Beach State Park. Sugarloaf appeared on navigational charts as early as 1738 and was an important landmark for river pilots.

Civil War

Sugarloaf was also of strategic significance during the Civil War when, as part of the Confederacy's defense of the Port of Wilmington, about 5,000 troops camped on or near Sugarloaf during the siege of Fort Fisher. Fort Fisher, located a few miles south of Carolina Beach State Park, was built to protect Wilmington from Federal forces prior to the Civil War. Its capture on January 15, 1865 severed the supply line of the Confederacy and the Civil War ended soon thereafter. An engagement between Union and Confederate forces took place at Sugar Loaf, a former community at or near this site, following the fall of Fort Fisher.

Continued Development of the Area

Twenty-five years after the Civil War, a pier at the base of Sugarloaf became a major area transportation link. Captain John Harper’s new steamer “Wilmington” made regular stops here. The gleaming white vessel with three decks could hold 500 passengers. Some would debark and board a narrow gage, open car railway that followed Harper Avenue and provided easy access to the boardwalk and beach. Other steamer passengers continued on to Southport. Carolina Beach, settled about 1885, was incorporated in 1925 (Powell, 1968). By the 1940s, roads had improved and automobiles had become the preferred mode of transportation to Carolina and Kure Beaches.

The southern tip of New Hanover County became an island (now known as Pleasure Island) in 1929 when the US Army Corps of Engineers dredged Federal Point Cut, a canal that connects the Cape Fear River to Masonboro Sound. Renamed Snow’s Cut in 1930 for Major William A. Snow, Chief Engineer for the Wilmington District, the canal is part of the Atlantic Intracoastal Waterway. The waterway, an inland passage for boats along the Atlantic coast, was built to bring ocean traffic inland, away from North Carolina’s dangerous coastline.

World War II

World War II caused huge economic and social changes in the Wilmington area as industrial development and shipyards boomed. Civilian workers and military personnel poured into the area during the war years, causing Wilmington’s population to quadruple. A huge, rapidly constructed shipyard began mass-producing the well-known Liberty Ships (Wilmington Today, 2004), armed cargo ships that transported all types of war supplies so important to the allied war effort.

In late 1940, construction started on Camp Davis, located about 30 miles above Wilmington. The base quickly grew, and by August of 1941 had over 20,000 personnel. Camp Davis used five remote training sites along North Carolina’s southern coast for anti-aircraft gunnery and automatic weapons training. Fort Fisher became the primary firing range.

Wilmington and the New Hanover County beaches became favorite places to visit for soldiers on liberty. Many soldiers had never seen a beach or tried to live at one, so swimming lessons and beach safety were taught.

Establishment of Carolina Beach State Park

Following the suggestion of the North Carolina Department of Conservation and Development, the 1967 General Assembly created the State Parks and State Forest Study Commission. The Commission evaluated the existing state parks system and in January 1969 presented its findings and made recommendations to the next legislature regarding expansion of the system needed to provide adequate outdoor recreation opportunities. The Commission reported that a *...bold and new concept in development of state parks would be necessary to meet these needs*, and that *...a broad and realistic program for acquiring new parks and expanding existing parks* was needed (Paris, Jr., 1969). Increased state park visitation - approaching five million at that time - indicated a demand for more parks and park facilities.

The Commission recognized that the primary means of establishing state parks, gifts from private citizens and transfers of publicly owned lands, was not sufficient. From 1915 to October 1968, 84 percent of the land for state parks (19,651 of 23,380 acres) had been acquired in that manner. Only 3729 acres had been purchased (State of North Carolina, 1971).

Specific recommendations of the Commission included enlarging the system by 15 or more new areas in order to accommodate an additional 2.1 million visitors; placing new parks so that most of the state's population would be within approximately 50 miles or one hour of driving time; improving and increasing facilities in existing parks; providing an equitable location of parks across the state; encouraging advanced planning and land acquisition in areas of major water projects; adding staff for site planning and development; and insuring access to public waters.

The Commission put a top priority on the need to act quickly to acquire fast- disappearing resources and also made recommendations regarding the types of land needed. The Commission recommended acquiring the most scenic and distinctive natural resources, consistent with objectives of location and priority, and recommended emphasis on sites capable of meeting the public demand for water- oriented outdoor recreation activities such as swimming and boating. The Commission's report also ranked proposed new sites (*North Carolina State Parks for the Future*, 1969).

Following the report, the state undertook a program to expand the State Parks System in order to preserve and protect natural resources of unique, scenic value; to acquire adequate examples of such features in order to preserve them in as close to a natural state as possible; to provide recreational use in a variety of outdoor recreation surroundings; to portray and interpret plant and animal life, geology and all other natural features and processes for educational purposes; to provide access to public waters; and to preserve, protect and portray scientific sites of statewide importance (State of North Carolina, 1971).

While the ambitious proposals made by the Commission never fully materialized, some concomitant benefits to and growth in the state parks system did take place. From 1968-1970, four new parks were added, more than in any previous two-year period, bringing the total number of state parks to 17. The parks added were Pilot Mountain, Stone Mountain, Masonboro (later to be renamed Carolina Beach State Park), and Raven Rock state parks. Significant land additions to Morrow Mountain and Hanging Rock were also made (State of North Carolina, 1971). Masonboro State Park was established to preserve the unique environment along the intracoastal waterway and to allow the public to have an opportunity to enjoy the nearby beaches.

Park Land Acquisition and Development

The first land for Masonboro State Park - 290.6 acres - was purchased May 13, 1969 from James Carr, and the General Assembly appropriated \$125,000 for initial facility development. The next year, 53.3 acres were leased from the US Army and added to the park. A 38.5-acre purchase followed in January 1971. A portion of the initial land acquired for Masonboro State Park was funded by the first General Assembly appropriation for state park land acquisition since the purchase of Mount Mitchell in 1916.

In 1976, the park began to manage approximately 310 acres under a five-year lease with the Department of the Army. The leased area, part of the buffer for the Military Ocean Terminal at Sunny Point (MOTSU), continues to be operated as a part of the park with five-year renewals of the lease. The MOTSU area within the park contains limesink ponds that are some of the park's unique natural features and also contains many of the park's rare plants and animals. Sugarloaf, the relic sand dune of prehistoric and historical significance, is a part of the MOTSU lands as well. Portions of the park's trail system are located on the leased lands. Continued renewal of the lease is critical to the park's recreation use and to preservation, protection, and interpretation of the area's natural heritage.

In 1972, the State applied for and received approval from the US Department of the Interior's Bureau of Outdoor Recreation for a federal Land and Water Conservation Fund project to further develop Masonboro State Park. The 50 percent matching grant totaled \$168,288 and included dredging for and construction of a marina, campsites with water and electrical hookups, restrooms, and a park entrance and roadway (US Department of the Interior). The park's name was changed to Carolina Beach State Park in 1975. A second LWCF grant awarded in 1986 funded dredging of the marina basin and channel, replacement pilings, and dock and bulkhead repairs. In 1999, a new park visitor's center was opened that included an auditorium, administrative offices and a classroom. Exhibits that focus on the park's history and natural heritage were added in 2000.

In August of 1973, Secretary Grace Rohrer of the Department of Cultural Resources (DCR), concerned over the problems created by uncontrolled recreational use of the nearby Fort Fisher area, called a meeting with other involved state agencies. Two decisions were made: that the DCR would have management responsibility over the areas; and that the DCR and Department of Natural and Economic Resources would write a master plan to determine the area's needs and steps to manage it.

The *Fort Fisher State Historic Site Master Development Plan* was completed in 1974. It recapped the problems facing the area, assessed the site's natural resources, and recommended development priorities. The Division of Parks and Recreation began giving some limited assistance with management of the outdoor recreation use of the beach area using staff from Carolina Beach State Park. Carolina Beach State Park's management involvement at Fort Fisher increased during the 1970s and 1980s, continuing until after establishment of the Fort Fisher State Recreation Area in 1986 (Huband, 2005).

In the spring of 1989, a bill (SB 619) was introduced in the General Assembly directing the State to transfer 22.8 acres of land from Carolina Beach State Park to the Town of Carolina Beach to be used for development of a youth center. The land identified for transfer lay directly across from the park entrance and to the east of State Road 1534. The Division of Parks and Recreation and the Department of Natural Resources opposed the transfer because the proposed transfer conflicted with the State Parks Act, was in violation of the federal Land and Water Conservation Fund Act which

prohibited conversion of park land to other than public outdoor recreation use, set a damaging precedent, and resulted in loss of land that was important to the park. The bill never passed and the state retained the land for park purposes.

Huband, Robert Kimley. *History of Fort Fisher State Recreation Area*. Division of Parks and Recreation. North Carolina Department of Environment and Natural Resources. 2005.

North Carolina Office of Archives and History. *Brunswick Town/ Fort Anderson*. Division of Archives and History, Department of Cultural Resources. (<http://www.ah.dcr.state.nc.us/sections/hs/brunswic/brunswic.htm>) 2004.

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Powell, William S. *The North Carolina Gazetteer*. A Dictionary of Tar Heel Places. The University of North Carolina Press, Chapel Hill, North Carolina. 1968.

Sharpe, Bill. *A New Geology of North Carolina*. Volume I. Sharpe Publishing Company. 1954.

State of North Carolina. *23rd Biennial Report of the North Carolina Department of Conservation and Development. 1968-1970*. pp. 49-60. December 3, 1971.

United States Department of the Interior, National Park Service. LWCF Grants 37-00270, Masonboro State Park, and 37-00890, Carolina Beach State Park.

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II. PARK PURPOSES

MISSION STATEMENT FOR THE STATE PARKS SYSTEM

The North Carolina state parks system exists for the enjoyment, education, health, and inspiration of all our citizens and visitors. The mission of the state parks system is to conserve and protect representative examples of the natural beauty, ecological features and recreation resources of statewide significance; to provide outdoor recreation opportunities in a safe and healthy environment; and to provide education opportunities that promote stewardship of the state's natural heritage.

CAROLINA BEACH STATE PARK PURPOSE STATEMENT

Carolina Beach State Park was established in 1969 to preserve the unique environment and diverse natural communities and to provide recreational activities in a coastal environment. Acquisition of the initial 291 acres for the park was funded by the first General Assembly appropriation for state park land acquisition since the purchase of Mount Mitchell in 1916. Snow's Cut, which forms the northern boundary of the park, was dredged in 1929 to connect Masonboro Sound with the Cape Fear River as part of the Atlantic Intracoastal Waterway. A significant portion of the park land is leased from the U.S. Army.

Thirteen natural communities, including the only protected Coastal Fringe Evergreen Forest community in the state, make this one of the most diverse sites in the State Parks System and contribute to its statewide significance. Several species of carnivorous plants are found at Carolina Beach State Park, including the Venus' flytrap, found only within 75 miles of the park. The beaches, ponds and woods are all home to many animal species: birds - such as brown pelicans, ospreys and painted buntings; larger mammals - such as river otter, white-tailed deer and raccoons; and reptiles and amphibians - such as skinks, anoles and the rare eastern coral snake.

The opportunity to view many natural communities in one location and opportunities for water-based recreation are significant recreational resources at Carolina Beach State Park. Recreational uses should be compatible with the protection of the park's outstanding natural resources. Fishing, hiking, picnicking and boating are all popular activities for visitors, and family and group campsites accommodate overnight visitors. Boat ramps and amenities for boaters are provided. From the park, boaters can access the estuarine waters of the Cape Fear River and Masonboro Sound, and the salt waters of the Atlantic Ocean.

The underlying geology at Carolina Beach State Park contributes to the presence of the large number of natural communities. The dry, coarse soil of a series of stabilized east-west trending relict sand dunes of Pleistocene age hosts forests of turkey oak, live oak and longleaf pine. Dense shrub swamps called pocosins occur between the dunes. A

series of small shallow ponds are sinkholes in the Pleistocene coquina or shell limestone that underlies the park, formed when groundwater dissolves and weakens the limestone. These limesink ponds are each vegetated by a unique plant community, and the park's acidic, mineral-poor boggy soils provide the ideal environment for several interesting carnivorous plants to thrive.

Over six miles of trails and boardwalks provide the visitor with excellent places for watching birds, exploring tidal marshes and creeks, and experiencing the many natural communities and unique carnivorous plants found at Carolina Beach State Park. Locations along Sugarloaf Trail and from Sugarloaf Dune provide scenic views of the natural landscape of the Cape Fear River, several river islands, watercraft, and the mainland beyond.

Prior to European settlement, Cape Fear Indians lived in and around the area that is now Carolina Beach State Park, and artifacts of their culture that have been found here include pottery fragments, arrowheads and shell middens. In 1726, permanent colonial settlement was established and the Cape Fear River became an official port of entry for commerce, supporting the local economy of agricultural and timber products, naval stores, shipping and trade. Sugarloaf, a 50-foot high sand dune near the bank of the Cape Fear River, was of strategic significance during the siege of Fort Fisher near the end of the Civil War.

Carolina Beach State Park exists primarily for its outstanding biological, recreational and geologic resources, and also for its scenic and archaeological significance. The Division of Parks and Recreation is charged with preserving these values and providing park experiences that promote pride in and understanding of this natural heritage.

12/06

III. SUMMARY OF INTERPRETIVE THEMES

The 1987 State Parks Act defines the purposes of the state parks system. It establishes that:

The State of North Carolina offers unique archaeological, geologic, biologic, scenic and recreation resources. These resources are part of the heritage of the people of this State. The heritage of a people should be preserved and managed by those people for their use and for the use of their visitors and descendants.

It further provides that:

Park lands are to be used by the people of this State and their visitors in order to promote understanding of and pride in the natural heritage of this State.

One of the best methods of meeting these purposes is through environmental education. The definition of environmental education as set forth in *The North Carolina Environmental Education Plan* is given below.

Environmental Education is an active process that increases awareness, knowledge and skills that result in understanding, commitment, informed decisions and constructive action to ensure stewardship of all interdependent parts of the earth's environment.

The staff of Carolina Beach State Park is committed to using environmental education to encourage park visitors to protect biodiversity. Public understanding and support are critical to the park staff's efforts to preserve representative examples of biodiversity within the park and throughout the coastal area. Each year, the staff offers a series of environmental education workshops that provide hands-on teaching tools in environmental awareness and protection. The Carolina Beach Environmental Education Learning Experience (EELE) was the first environmental education curriculum guide produced by the division and has been widely distributed in schools and environmental education centers throughout the state.

Carolina Beach State Park has two primary themes and ten secondary themes. In priority order, the primary themes are biodiversity and carnivorous plants.

PRIMARY INTERPRETIVE THEMES

BIODIVERSITY

With at least 13 different natural community types within a small area, Carolina Beach State Park serves as an excellent example of biodiversity in our state park system. Programs and exhibits in this theme area explain what biodiversity is, why it is important and how society can preserve it. Important concepts within this theme are natural community, plant adaptations and the geologic history that has created environments fostering biodiversity. Park management methods to maintain biodiversity, such as prescribed burning and control of non-native plants,

are also highlighted.

CARNIVOROUS PLANTS

The park's EELE, *Plants That Bite Back*, provides 13 activities that introduce carnivorous plants and their protection to students in the elementary and middle grades. The park itself hosts five different types of carnivorous plants: Venus' flytrap, sundew, bladderwort, butterwort and pitcher plants. Venus' flytraps are endemic to an area within 75 miles of Wilmington, North Carolina. Exhibits and programs in this theme explore the different methods used by carnivorous plants to lure, trap and digest small animals. In describing habitat needs and management methods, the park staff hopes to inspire students and park visitors to enjoy and protect these rare and unusual plants.

SECONDARY INTERPRETIVE THEMES

Secondary themes for the park support and supplement the primary themes, and are listed below.

1. Fishing: how to catch and identify some of the Cape Fear River's many fishes.
2. Crabbing: natural history of the blue crab and how to catch, cook and eat them.
3. Fire It Up: prescribed burning, its results and importance in maintaining the park.
4. Backyard Birding: native birds and how to attract them to your backyard.
5. Sugarloaf: the natural landmark and its significance to the area's cultural history.
6. Poisonous Plants and Animals
7. Reading Animal Signs
8. River Walk
9. What Does a Park Ranger Do?
10. Reptiles and Amphibians

12/06

IV. PARK AND RECREATION DEMAND AND TRENDS

ANNUAL VISITATION TRENDS

Carolina Beach State Park's annual visitation for the years from 1994 through 2006 is shown below in Figure IV-1. One traffic counter, located just inside the park entrance, is used to record visitation. A persons-per-car multiplier of two was used up until 2006, when the multiplier was changed to four to more accurately reflect visitation based upon visitor surveys. Visitation for the years prior to 2006 has been retroactively adjusted for the purposes of this document.

In the years from 1994 through 2006, visitation has averaged 447,562 annually and ranged from a low of 352,680 in 1999 to a high of 516,114 in 2001. In 1999 hurricanes Dennis, Floyd and Irene impacted the area, causing the park to be closed for 14 days and thus decreasing park attendance. Traffic counter problems in 1999 also contributed to lower recorded visitation. Bad weather and major storms, particularly during popular holidays and summer weekends, can significantly impact visitation at state park units.

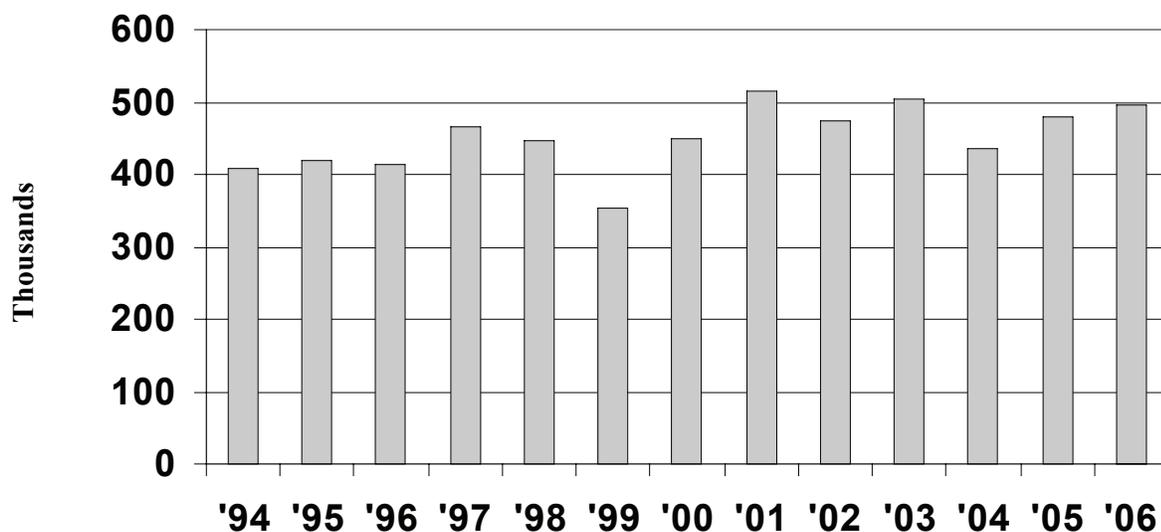


Figure IV-1. Carolina Beach State Park Annual Visitation: 1994 - 2006

MONTHLY VISITATION TRENDS

Figure IV-2 shows the average monthly visitation at Carolina Beach State Park for the four years ending in 2003 (adjusted for the increase in the persons-per-car multiplier to four). Carolina Beach State Park's monthly visitation increases in the spring as the weather warms, peaking in July at 66,826 visits. Average monthly visitation then decreases each month through the end of the year, with attendance dropping to a monthly low of 17,910 in December.

The monthly visitation pattern suggests using seasonal and peak load personnel to assist in months of higher visitation. Where possible, staff vacation and other leave should be scheduled at times other than the higher visitation months.

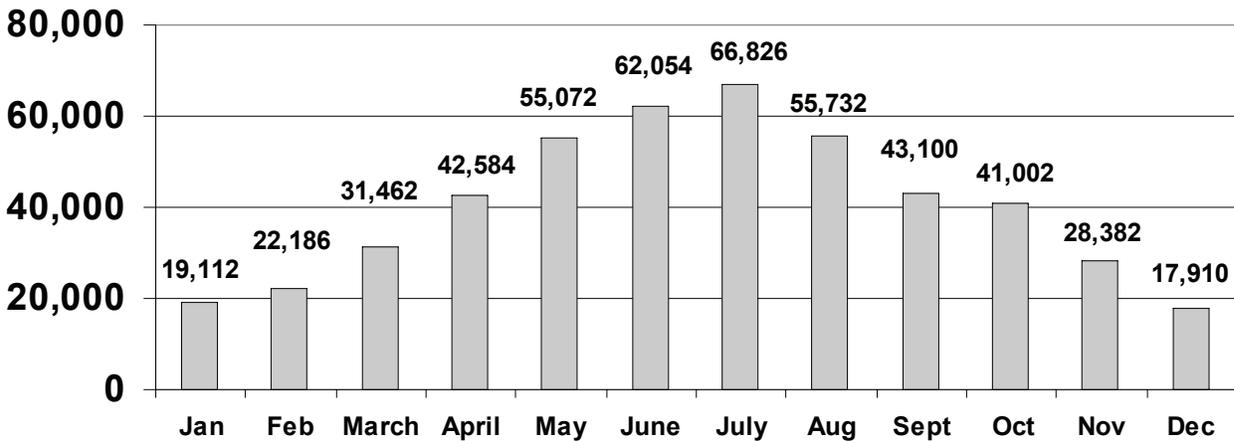


Figure IV-2. Carolina Beach State Park Average Monthly Visitation (2000-2003)

VISITOR INFORMATION

In 1987 the United States Forest Service was contracted to conduct a Public Area Recreation Visitors Survey (PARVS) for the North Carolina State Parks System. The survey was designed to identify visitor socio-economic characteristics and economic contributions to the state's economy. Since Carolina Beach State Park was one of the eight park units involved in the survey, the general information concerning state park visitors is particularly useful in assessing visitation trends at the park.

Why do people visit state park units? The convenient location was cited by 31 percent of the respondents; 25 percent thought other areas were too crowded; 21 percent liked the quality facilities; 8 percent wanted to try a new area; 7 percent enjoyed the scenic beauty; and 6 percent came to see the attraction.

More than one third of state park visitors come from within a 30-mile radius (37 percent), while 17 percent come from 30 to 60 miles away. Survey respondents indicated that the parks were their sole destination 86 percent of the time. While many visitors come from nearby, the average one-way distance traveled was 139 miles. Approximately 25 percent of state park visitors come from out of state. Visitors averaged 4.1 trips per year to North Carolina state parks.

Seventy-eight percent of those surveyed indicated that they were return visitors. The average number of return trips per year was six. Sixty-one percent of visitors statewide came with family members, 16 percent with friends, and 7 percent with both family and friends. Ten percent of visitors came alone.

Visitors also came in small numbers in organized groups and multiple families.

PARVS data indicates that 16.8 percent of groups surveyed used more than one car, and that the average number of persons per car was 3.0. The average age of the park visitor was 38.2 years. The age distribution was as follows:

Table IV-1. Percent of Visitors by Age Group

<u>Under 6</u>	6-12	13-18	19-25	26-35	36-45	46-55	56-65	Over 65
6.7	11.6	10.6	12.5	20.1	16.9	0.9	7.3	4.4

Since over 18 percent of visitors are under the age of 13, a demand exists for children's programs and facilities. Approximately 12 percent of visitors are 56 and older. This older segment of the general population will be increasing, and as it does, demand for improved quality, accessibility, and safety should increase.

OUTDOOR RECREATION PARTICIPATION IN NORTH CAROLINA

The five most popular outdoor recreation activities in North Carolina are walking for pleasure, driving for pleasure, viewing scenery, participating in beach activities, and visiting historical sites. Three out of every four households participated in walking for pleasure at least once in the past 12 months (Table IV-2). In addition to the five most popular activities, over fifty percent of the households responding to a 1989 survey participated at least once in the following activities: swimming (in lakes, rivers, or oceans), visiting natural areas, picnicking, attending sports events, visiting zoos, and freshwater fishing.

The North Carolina Outdoor Recreation Participation Survey was mailed to 3,100 randomly selected residents in the spring of 1989. Forty-five percent, or 1,399 people, returned completed surveys. Each person receiving the survey was asked to estimate the number of times that household members had participated in each of 43 activities. The survey results provide good insight into the current participation of North Carolinians in a wide range of outdoor recreation activities. The survey results also closely mirror those of the National Survey on Recreation and the Environment conducted in 1994-1995 and 2000.

Table IV-2. Outdoor Recreation Activities Ranked by Popularity.

RANK	ACTIVITY	PERCENTAGE OF HOUSEHOLDS PARTICIPATING
1.	Walking for Pleasure	75%
2.	Driving for Pleasure	72
3.	Viewing Scenery	71
4.	Beach Activities	69
5.	Visiting Historical Sites	62
6.	Swimming (in Lakes, Rivers, and Oceans)	54
7.	Visiting Natural Areas	53
8.	Picnicking	52
9.	Attending Sports Events	52
10.	Visiting Zoos	51
11.	Fishing - Freshwater	50
12.	Use of Open Areas	41
13.	Swimming (in Pools)	40
14.	Fishing - Saltwater	38
15.	Attending Outdoor Cultural Events	35
16.	Bicycling for Pleasure	32
17.	Other Winter Sports	31
18.	Camping, Tent or Vehicle	29
19.	Softball and Baseball	28
20.	Hunting	28
21.	Use of Play Equipment	28
22.	Power Boating	26
23.	Trail Hiking	26
24.	Jogging or Running	24
25.	Basketball	24
26.	Nature Study	22
27.	Golf	22
28.	Target Shooting	20
29.	Water Skiing	19
30.	Camping, Primitive	14
31.	Tennis	14
32.	Use Motorcycles, Dirt Bikes, ATVs	13
33.	Use Four Wheel Drive Vehicles	13
34.	Canoeing and Kayaking	13
35.	Horseback Riding	12
36.	Volleyball	12
37.	Downhill Skiing	12
38.	Football	11
39.	Soccer	7
40.	Sailboating	7
41.	Skateboarding	6
42.	Cross Country Skiing	2
43.	Windsurfing	1

PRIORITIES OF PUBLIC OUTDOOR RECREATION FUNDING

The North Carolina Outdoor Recreation Survey asked residents a series of questions in order to identify and rank future demand for various types of public outdoor recreation activities. Future demand was determined by asking them which activities they would have tried more often had adequate facilities been available. Respondents were then asked to rank these activities in order of importance. A scoring system was used assigning each activity a rating of high, moderate or low future demand based on the survey results.

In the second part of the analysis, the respondents' level of support for publicly funded outdoor recreation activities was determined by asking them to identify and rank those activities to which government should give highest priority when spending public money. The same scoring system used to analyze unmet demand was then applied to the survey results, with each activity receiving a high, moderate or low rating in public support for public funding.

In the final part of the needs analysis, the two ratings for each activity were combined to produce a score from one to nine that reflected both future demand and public funding priorities. The activities that ranked high in both future demand and support for public funding received the highest priority in the needs assessment. Support for public funding was given higher priority than expressed demand (Table IV-3).

Table IV-3. Priorities for Future Outdoor Recreation Activities

ACTIVITY	CODE	FUTURE DEMAND	SUPPORT FOR PUBLIC FUNDING
Walking for Pleasure	1	High	High
Camping, Tent or Vehicle	1	High	High
Picnicking	1	High	High
Beach Activities	1	High	High
Fishing - Freshwater	1	High	High
Attend Outdoor Cultural Events	1	High	High
Visiting Natural Areas	2	Moderate	High
Use of Play Equipment	2	Moderate	High
Visiting Zoos	2	Moderate	High
Visiting Historical Sites	2	Moderate	High
Bicycling for Pleasure	3	High	Moderate
Swimming (in Pools)	3	High	Moderate
Viewing Scenery	4	Moderate	Moderate
Hunting	4	Moderate	Moderate
Trail Hiking	4	Moderate	Moderate
Use of Open Areas	4	Moderate	Moderate
Target Shooting	4	Moderate	Moderate
Swimming (Lakes, Rivers, Ocean)	4	Moderate	Moderate
Fishing - Saltwater	4	Moderate	Moderate

NEARBY STATE AREAS AND FACILITIES

Bald Head Island State Natural Area

The Bald Head Island State Natural Area consists of a complex of barrier islands, salt marshes, bays, tidal creeks and estuarine islands located south of the state recreation area. (Figure IV-3) The state natural area, a unit of the N.C. State Parks System, is under administration of staff from Fort Fisher State Recreation Area and includes: all of Bluff Island; about five miles of the beach strand of East Beach and the marshes behind it; and land at the actual point of Cape Fear on the southeastern tip of Bald Head Island. The state natural area contains sand ridges with Dune Grass communities, Maritime Wet Grassland in the swales, Maritime Evergreen Forest, Interdune Pond community, Salt Marsh and Maritime Shrub communities.

Bald Head Island State Natural Area is part of a nationally significant biological complex. East Beach provides excellent nesting habitats for loggerhead and green sea turtles (threatened – federal) and least terns (special concern – state) because it is one of the few beaches in southern North Carolina that is free of both vehicular traffic and lights associated with adjacent beach development. Seabeach amaranth plants (threatened – federal) are succulent annuals that grow in foredune areas and inter-dune flats. Notable plants (i.e., significantly rare – state) found in back dune, shrub thicket and maritime forest communities of Bluff Island include tough bumelia, dune bluecurls, cabbage palmetto, moundlily yucca, four-angled sedge and sunrise lichen. At the south end of the property, Cape Fear contains additional listed species in the dynamic beach/dune complex located at the southeastern-most point of the state: loggerhead sea turtle (threatened – federal), Wilson’s plover (significantly rare – state), peregrine falcon (endangered – federal), common ground dove (significantly rare – state), coachwhip (significantly rare – state), seabeach amaranth (threatened – federal), seabeach knotweed (significantly rare – state) and beach morning-glory (significantly rare – state) (NCNHP, 2004).

Bald Head Woods Coastal Reserve

The 186-acre [Bald Head Woods](#), managed by the N.C. Division of Coastal Management with the Bald Head Island Conservancy as its local steward, is located in the central portion of Bald Head Island (Figure IV-3). The N.C. Natural Heritage Program lists Bald Head Island as a priority site of national significance, and the U.S. Department of the Interior has registered the Smith Island Complex as a National Natural Landmark. One of the significant features of Bald Head Woods is the extremely old, large trees in this maritime forest. Live oak and laurel oak are the major species, making up a canopy that shelters the plants from salt spray. The thick undergrowth consists of wild olive, American holly, yaupon, and catbrier. The lack of light favors shade-tolerant plants like ebony spleenwort. Cabbage palmetto appears throughout the forest. Local wetlands provide habitat and breeding grounds for amphibians and reptiles such as the southern toad, squirrel tree frog, eastern mud turtle, and black racer. Gray squirrels, raccoons and opossums inhabit the forest, as do Carolina wrens, cardinals and painted buntings. Catbirds, towhees, blue jays and twenty-two species of warblers migrate through in the fall. Trails and interpretive signs wind through the reserve.



Carolina Beach State Park

- Division of Parks & Recreation
- North Carolina Aquarium
- Dept. of Cultural Resources
- Division of Coastal Management
- Dept. of Transportation

0 5000 10000 Feet

0 0.5 1 1.5 2 Miles



Division of Parks and Recreation

Figure IV-3. Lower Cape Fear Peninsula

WRC Boating Accesses

In addition to the boat ramps at the Carolina Beach State Park marina, other public boating accesses are nearby. Outside of Carolina Beach State Park, on the southeast side of the Snow's Cut bridge, the N.C. Wildlife Resources Commission (WRC) operates a public boating access that provides access to the Intracoastal Waterway (Figure IV-3). The WRC also operates a boating access at The Basin at Federal Point, located approximately five miles south of Carolina Beach. On the north side of Snow's Cut across from Carolina Beach State Park, a public park is operated by New Hanover County that offers fishing and picnicking facilities.

Fort Fisher State Historic Site

The [Fort Fisher State Historic Site](#), located four miles south of Carolina Beach, includes a visitor center, museum and historic trail that offer a look into the history of the Civil War era fort and lower Cape Fear Region (Figure IV-3). Adjacent to the historic site is an exhibit building operated by the Underwater Archaeology Section of the N.C. Department of Cultural Resources that features artifacts and maritime history.

Fort Fisher State Recreation Area

[Fort Fisher State Recreation Area](#) is located five miles south of Carolina Beach (Figure IV-3). Its 287 acres lie along the ocean beach and include over seven miles of undeveloped shoreline and a great diversity of maritime habitats, including sandbars and intertidal pools, maritime forest, and salt marsh. Bird life abounds along the beach, salt marsh, tidal creeks and mudflats, and the threatened loggerhead turtle uses the beach as nesting habitat. A small visitors center includes nature exhibits, restrooms, and a refreshment stand that is open during the summer months. A marsh trail offers a glimpse into sound-side wildlife and habitats.

N.C. Aquarium at Fort Fisher

The [N.C. Aquarium at Fort Fisher](#) is located on Loggerhead Road south of the state recreation area visitor center and parking (Figure IV-3). The newly remodeled and expanded aquarium offers indoor and outdoor exhibits, an auditorium and classrooms. Daily programs feature live animals, marine life videos and special activities. Programs are conducted both within the aquarium and outside.

Southport-Fort Fisher Ferry

The N.C. Department of Transportation toll ferry transports vehicles and passengers across the Cape Fear River between Fort Fisher and Southport. Crossing time is about 30 minutes. Each ferry holds 30 cars, and waiting lines often form during summer months. (Figure IV-3)

N.C. National Estuarine Research Reserve - Zeke's Island

The [N.C. National Estuarine Research Reserve - Zeke's Island](#), a component of the North Carolina National Estuarine Research Reserve, an 1160-acre area of outstanding estuarine and ocean resources with extensive marshes and tidal flats, is found to the west of the state recreation area. The reserve includes a portion of the long rock jetty called "The Rocks" and The Basin as well as Zeke's Island,

No-Name, and North Island. The Division of Coastal Management manages the area for research, education and compatible recreation (Figure IV-3).

12/06

V. SUMMARY OF LAWS GUIDING PARK MANAGEMENT

There are many federal and state statutes, state and federal executive orders, and administrative rules and policies that govern the operation of the state parks system. This chapter includes a brief discussion of the primary legal basis for the existence and operation of the state parks system. It also includes other legal issues of particular concern at Carolina Beach State Park.

STATE LEGAL MANDATES

North Carolina Constitution

Article XIV, Section 5 of the North Carolina Constitution sets overall policy by broadly defining the conservation and protection of natural resources and the acquisition of such resources as a proper function of government. The amendment reads in part as follows:

It shall be the policy of this State to conserve and protect its lands and waters for the benefit of all its citizenry, and to this end it shall be a proper function of the State of North Carolina and its political subdivision to acquire and preserve park, recreation, and scenic areas, to control and limit the pollution of our air and water, to control excessive noise, and in every other appropriate way to preserve as a part of the common heritage of this state its forests, wetlands, estuaries, beaches, historical sites, open land, and places of beauty.

State Parks Act

The State Parks Act (G.S. 113-44.7 through 113-44.14) sets forth a mission statement for the state parks system. It states that the system functions to preserve and manage representative examples of significant biological, geological, scenic, archaeological, and recreational resources, and that park lands are to be used by the people of the state and their visitors and descendants in order to promote understanding of and pride in the state's natural heritage.

The State Parks Act also calls for development and periodic revisions of a system plan to achieve the mission and purpose of the state parks system in a reasonable, timely, and cost-efficient manner. The Act describes the System Plan components and requires that public participation be a component of plan development and revisions.

The State Parks Act also calls for the classification of park resources and development of general management plans (GMPs) for each park. GMPs are to include a statement of park purpose, an analysis of major resources and facilities, and a statement of management direction.

Powers and Duties of the Department of Environment and Natural Resources

The Department is authorized to make investigations of the resources of the state and to take such measures as it may deem best suited to promote the conservation and development of such resources. In addition, the Department may care for state forests and parks and other recreational areas now owned, or to be acquired by, the state (G.S. 113-8).

State Nature and Historic Preserve Dedication Act

Article 14, Section 5 of the North Carolina Constitution authorized the State Nature and Historic Preserve Dedication Act (G.S. 143-260.6). The Act seeks to ensure that lands and waters acquired and preserved for park, recreational, and scenic areas - for the purpose of controlling and limiting the pollution of air and water, controlling excessive noise, and in every other appropriate way preserving as a part of the common heritage of the state - continue to be used for those purposes. The State Nature and Historic Preserve Act provides a strong legal tool for protecting lands from incompatible uses. The addition and removal of lands to and from the State Nature and Historic Preserve requires a vote of three-fifths of the members of each house of the General Assembly. All state-owned land and water within Carolina Beach State Park's boundaries as of May 6, 2003, are protected by the State Nature and Historic Preserve Dedication Act.

Nature Preserves Act

The Nature Preserves Act (1985, G.S. 113A-164) prescribes methods by which nature preserves may be dedicated for the benefit of present and future citizens of North Carolina. It authorizes a Natural Heritage Program to provide assistance in the selection and nomination for registration or dedication of natural areas.

The state may accept the dedication of outstanding natural areas by gift, grant, or purchase of fee simple title or other interest in land. Lands dedicated are held in trust by the state and are managed and protected according to regulations. They may not be used for any purpose inconsistent with the provision of the Nature Preserves Act or disposed of by the state without a finding by the Governor and Council of State that the other use or disposition is in the best interest of the state. Registered areas lack the long-term protection afforded to those areas that are dedicated.

The Carolina Beach State Park Registered Natural Heritage Area contains 280 acres and was registered in May of 1980. Ninety acres are state-owned and 190 are leased acres. Developed areas within the park - including the park's marina, camping area, visitor's center and maintenance area - are excluded from the registered natural area.

North Carolina Environmental Policy Act of 1971

Recognizing the profound influence that human activity has on the natural environment, the General Assembly passed the Environmental Policy Act "*to assure that an environment of high quality will be maintained for the health and well-being of all...*"

The Act declares that:

It shall be the continuing policy of the State of North Carolina to conserve and protect its natural resources and to create and maintain conditions under which man and nature can exist in productive harmony. Further, it shall be the policy of the State to seek, for all its citizens safe, healthful, productive, and aesthetically pleasing surroundings; to attain the widest possible range of beneficial uses of the environment without degradation, risk to health or safety; and to preserve the important historic and cultural elements of our common inheritance. (G.S. 113A-3)

Archaeological Resources Protection Act

The Carolina Beach State Park area is known to have been occupied by American Indian tribes. The area also contains some cultural resources associated with early settlements. Unknown archaeological resources may also exist, both within the existing park boundaries and in nearby areas. Development of recreational facilities should avoid destruction of these resources.

A permit is required from the Department of Administration, in consultation with the Department of Cultural Resources, to excavate, remove, damage, or alter any archaeological resource on state lands. Archaeological resources are defined as the remains of past human life or activities that are at least 50 years old and are of archaeological interest (G.S. 70-10).

While there are other General Statutes that concern the state parks system and the environment, the above-described statutes, along with Article XIV, Section 5, of the North Carolina Constitution, largely define the purposes of the state parks system and serve to guide the operation of state park system units.

FEDERAL LAWS

Land and Water Conservation Fund Act of 1965

The federal Land and Water Conservation Fund Act (PL 88-578) offers protection and places restrictions on fund-assisted outdoor recreation areas. By virtue of receiving Land and Water Conservation Fund (LWCF) grant assistance, most of the state parks system, including Carolina Beach State Park, is subject to LWCF rules and regulations. Carolina Beach State Park has received two LWCF grants, one in 1972 and one in 1986 (LWCF #37-00270 and 37-00890). The state park land as of the time of the last grant application is subject to LWCF rules and regulations.

Property acquired or developed in whole or in part with LWCF assistance cannot be converted to other than public outdoor recreation use without federal approval. A conversion may take place only if approved by the Secretary of the Interior, and only then if replacement property of equal fair market value and reasonably equivalent usefulness and location is made.

LWCF requirements include: programming, operating and maintaining areas in a manner that

encourages public participation; maintaining the property so it appears attractive and inviting to the public; maintaining property, facilities and equipment to provide for public safety; keeping facilities, roads, trails and other improvements in reasonable repair throughout their lifetime to prevent undue deterioration and encourage public use; keeping the park and facilities open for use at reasonable hours and times; and making future development meet LWCF rules and regulations. LWCF-assisted sites are periodically inspected by state and federal inspectors to ensure compliance with LWCF requirements.

The Americans With Disabilities Act

Title II of the ADA prohibits discrimination against any "*qualified individual with a disability.*"

New Construction and Alterations

Buildings that are constructed or altered by, on behalf of, or for the use of a public entity shall be designed, constructed, or altered to be readily accessible to and usable by individuals with disabilities. (Section 35.151 of Title II)

Existing Facilities

Structural changes in existing facilities are required only when there is no other feasible way to make the public entity's program accessible. ("Structural changes" include all physical changes to a facility [28 CFR Part 35, Section 35.150, Title II of the ADA Section-by-Section Analysis].)

When alterations affect access to a primary function of a facility, the entity shall also make alterations to the path of travel to the area and bathrooms, public telephones, and drinking fountains serving the altered area.

Programs and Services

....each service, program, or activity conducted by a public entity, when viewed in its entirety, be readily accessible to and usable by individuals with disabilities.
(Title II, Section 35.150)

This includes, but is not limited to, the provision of auxiliary aids and services, including services and devices for effective communication where necessary to afford persons with disabilities an equal opportunity to participate in and enjoy the benefits of a service, program, or activity conducted by a public entity.

Signs

A public entity must ensure that persons with impaired vision and hearing can obtain information regarding the location of accessible services, activities, and facilities. Signs must be provided at all inaccessible entrances to each facility directing users to an accessible entrance or to a location where information can be obtained about accessible facilities. The international symbol for accessibility must be used at each accessible entrance to a facility. (Title II, Section 35.163)

Clean Water Act

Carolina Beach State Park's sensitive wetland areas receive protection from Section 404 of the federal Clean Water Act. The Act prohibits the discharge of dredge or fill materials into waters, including wetlands, without a permit from the U.S. Army Corps of Engineers. Activities in wetlands for which permits may be required include but are not limited to: placement of fill material; ditching activities; land clearing involving relocation of soil material; land leveling; most road construction; and dam construction (33 USC 1344). The Division will avoid undertaking construction located in wetlands unless there is no practical alternative and all practical measures are taken to minimize harm to the wetland.

Snow's Cut Lease

The State of North Carolina has leased 35.34 acres at Snow's Cut from the U.S. Department of the Army, Corps of Engineers, for public park and recreational purposes. The N.C. Division of Parks and Recreation manages 31.4 acres of the leased land for Carolina Beach State Park. The 31.4 acres runs along the south side of Snow's Cut between the Cape Fear River and State Road 1534. The Town of Carolina Beach and the N.C. Wildlife Resources Commission (WRC) manage the remainder of the leased property. The WRC provides boating access, and the town manages a walking/hiking trail.

The leased 31.4 acres is an important component of Carolina Beach State Park's land base (Figure IX-1). Part of the marina basin and picnic area, and a small portion of the campground lie on the leased property, as does one of the park's trails. The property also provides park visitors with scenic views of Snow's Cut and boat traffic through the waterway.

The current lease (#DACW 21-1-01-5411) runs for a term of 25 years from August 1, 2001 through July 31, 2026. The land must be used for public park and recreational purposes. The lease includes numerous provisions with which the Division must comply, including: compliance with applicable federal, state and local laws and regulations; fees; insurance; health and safety; compliance with development and management plans; and environmental protection.

MOTSU Lease

The State of North Carolina leases approximately 235 acres (Figure IX-1) from the U.S. Department of the Army (lease #DACA21-3-97-1405). The land is part of the buffer lands for the Military

Ocean Terminal, Sunny Point (MOTSU), located across the Cape Fear River in Brunswick County. The land has been managed as a part of Carolina Beach State Park since 1976 on leases that run for five-year terms. On April 15, 2003, the Division of Parks and Recreation requested that MOTSU renew for another five years the lease of the 235 acres plus an additional 75 acres containing Scout Pond, a total of 310 acres. The Division would like to add at least 75 additional acres to the leased area. Ideally, all the MOTSU buffer lands along Dow Road between the towns of Carolina Beach and Kure Beach should be added to the park. These lands were once leased as a part of the park, but the leased area was reduced years ago because of a lack of staff to adequately manage the property. Staff is now adequate to manage this additional land.

The MOTSU leased lands contain some of the unique natural features in the park, including Gum Pond and Dry Pond and portions of Grass Pond and Cypress Pond. Of the 24 rare plant and animal species found in the park, 18 are found within the leased lands. Most of these rare species are associated with the wet natural communities and the transition zones to the uplands. Several high quality natural communities found here are not well represented in other state park system units. The MOTSU leased area also includes the sand dune Sugarloaf, an important geologic and historic feature. Over one-half of the park's trails run through the property, and much of the park's interpretive programming is tied to these wetlands, natural communities and dune features. The park's two primitive campsites are also located on the property. The continuation of the lease for the MOTSU lands is critical to the operation of Carolina Beach State Park.

Like the Snow's Cut lease, there are numerous conditions of the lease with which the Division must comply. The lease specifically prohibits overnight camping on the property that includes use of a motor home or trailer. Semi-annual inspections are required, and provisions for evacuation are included.

12/06

VI. NATURAL AND CULTURAL RESOURCE MANAGEMENT

NATURAL RESOURCE MANAGEMENT POLICY

The Division of Parks and Recreation's approach to natural resource management is directed by the North Carolina Constitution and the State Parks Act, both of which require the prudent management of natural resources. The constitution sets the overall policy by broadly defining the conservation and protection of natural resources and the acquisition of such resources as a proper function of government. The State Parks Act states that unique archaeological, geological, biological, scenic and recreational resources are a part of the heritage of the people that *A...should be preserved and managed by those people for their use and for the use of their visitors and descendants.*@

The North Carolina state parks system plays an important role in maintaining, rehabilitating and perpetuating the state's natural heritage. The natural resources of the state parks system are: high quality, rare or representative examples of natural communities; native plants and animals; geological features and landforms; water resources; and the natural processes that affect these resources. The primary objective in natural resource management will be the protection of natural resources for their inherent integrity and for appropriate types of enjoyment while ensuring their availability for future generations.

It is the Division's policy that natural resources will be managed by allowing natural environments to evolve through natural processes with minimal human influence. Natural resource management will not attempt solely to preserve individual species or processes; rather, it will attempt to maintain all the components and processes of a park's naturally evolving ecosystems. When intervention is necessary, direct or secondary effects on park resources will be minimized to the greatest extent possible. Intervention of natural processes may occur:

1. To correct or compensate for the previous human disruption of natural processes;
2. To protect, restore or enhance rare species and natural communities;
3. To protect, restore or enhance significant archaeological resources;
4. To construct, maintain, improve or protect park facilities; and,
5. To prevent danger to human health or safety around park facilities.

All park facilities will be designed, constructed and maintained to avoid adverse impacts to high quality natural communities, rare plant and animal species, major archaeological sites and other significant natural and cultural resources.

NATURAL AND CULTURAL RESOURCE MANAGEMENT ISSUES

Division of Parks and Recreation staff identifies natural and cultural resource management issues as a component of the general management plan process and groups them according to the categories shown below. Staff assigns a high, medium or low priority to each issue using the criteria described at the end of this section. The Division's Natural Resources Program is responsible for all actions unless otherwise noted.

Category	Subcategory	Project	Priority*
Water Resource Management	Water Pollution	Drain from Marina parking lot goes directly into the basin. A stormwater management plan should be devised to minimize runoff directly to the basin.	High
Water Resource Management	River bank erosion	Snows cut continues to erode into the park. The Snows Cut trail has already been moved away from the river bank. The erosion along Snows Cut should be monitored by the Division.	Medium
Botanical Resource Management	Inventory Deficiencies	Natural community mapping of the park is needed.	Medium
Botanical Resource Management	Exotic Species Management	Exotic species in need of control include phragmites, privet, and Chinaberry.	High
Animal Resource Management	Inventory Deficiencies	Large-scale herp survey is needed for the park. Mist-netting for the presences of Yellow-Bats, <i>Lasiurus intermedius</i> , should be attempted. In addition, ponds should be sampled for both flora and fauna.	Medium
Animal Management	Rare Species Management	A plan needs to be developed to reduce the amount of fatalities for Coral snakes at road crossings.	High
Animal Management	Reintroduction	Gopher frog introduction is currently being investigated.	Medium
Animal Management	Exotic Species Management	Feral cat removal should be continued.	High
Cultural Resource Management	Cultural Resource Management	The Sugarloaf area needs better interpretation and protection from human impacts.	Low
Land Use Management	Fire Management	Current acres under prescription need to be burned regularly.	High
Land Use Management	Riparian Buffer Zone Protection	Ensure that 75 acres is added to next lease for MOTSU.	High
Visitor and Recreational Resource Management	Soil Compaction	Campground sites need to be properly delineated to avoid further resource impacts from expanding sites.	Medium
Infrastructure Management	Trails Management	Fly Trap trail needs to be upgraded to handicapped accessible.	Medium
Infrastructure	Environmental	Environmental review will be needed	Low

Management	Compliance for Planned Construction Projects	for maintenance dredging and picnic/parking expansion.	
Resource Management Training	Training	Prescribed fire training is needed.	Medium

*Explanation of priority codes:

HIGH If the resource management activity is not undertaken in the near future, there is a distinct possibility that natural resources will be compromised. These issues should be addressed within the next five years.

MEDIUM Although there is a possibility that resources could be compromised, the priority is not as critical as the high priority projects.

LOW Projects with low priority have significantly less chance for compromise of the natural resources if the project is not undertaken in a timely fashion or the project may depend on completion of other projects.

12/06

VII. PHYSICAL PLANT INVENTORY

FACILITY INVENTORY AND INSPECTION PROGRAM

Buildings and other structures in state parks are necessary to provide services to park visitors. These structures are essential for protecting public safety, health, and welfare while providing opportunities for outdoor recreation. They include infrastructure, such as roads, parking lots, trails, and systems for potable water, electrical distribution, and sewage treatment. They also include operational and recreational facilities, such as campgrounds, picnic areas, concession building, boardwalks, park offices, residences, pump houses, warehouses, barracks, maintenance shops, visitor centers, etc. These facilities must be properly maintained to provide for a safe, continuous, and quality park-use experience. In addition to undergoing normal maintenance and repair, buildings and structures in the parks are periodically inspected to determine their condition and their repair and renovation needs under the Division's Facility Inventory and Inspection Program (FIIP).

Carolina Beach State Park Buildings In Use

A list of the buildings and structures currently in use and brief descriptions of them follows:

- Visitor's Center: Built in 1998, but not opened until March 1999 because of moisture problems. 5,923 square foot (SF) wood structure. One story with cathedral ceiling. Used as visitor's center and administrative offices. Good condition.



Figure I-1. Maintenance Office and Shop

- Maintenance Office & Shop: Built in 1971. 1,706 SF wood frame building used as maintenance office and shop. Formerly used as park office/maintenance building. Good condition. (Figure I-1)

- Vehicle Shed: Built in 2003. 1,920 SF heavy-timber structure with concrete slab floor and electrical wiring. Located in maintenance area. Good condition.
- Boat Shed: Built in 1988. 519 SF wood structure with a concrete floor. Unheated storage building. Good condition.
- Wood Shed: Built in 1975. 89 SF unheated wood frame building used to store firewood. Good Condition.
- Marina Office: Built in 1991. 3,072 SF wood frame structure on pilings used as the marina office. Good condition. Vinyl tile floor in snack room and store area was replaced in 2003. Ceramic tile floor in showers was replaced in 2004. 42 boat

slips are in place, with space available for additional slips. Floating docks are in fair shape. Park staff recently completed electrical improvements.

- Public Toilet Building: Built in 1971. Heated wood-frame building used for public toilets. Located in the picnic area. Good condition.
- Washhouse, Campground Loop 1: Built in 1971. 830 SF heated concrete block building with wood siding, used as a washhouse. The washhouse is currently being remodeled to meet ADA guidelines.
- Washhouse, Campground Loop 2: Built in 1971. 830 SF heated concrete block building with wood siding, used as washhouse. The washhouse is currently being remodeled to meet ADA guidelines.
- Pump House: 51 SF unheated concrete masonry building used to house pump equipment. The park is now on city water and the pump equipment is no longer in use. The pump house will be demolished when the tank is removed. Fair condition.
- Pit Privy: Built in 1981. 21 SF unheated wood-frame primitive toilet facility. Fair condition. Located in the group camp area.
- Pit Privy: Built in 1981. 21 SF unheated wood-frame primitive toilet facility. Fair condition. Also located in the group camp area.
- Ranger Residence: Built in 1977. 1440 SF heated wood-frame structure used as a ranger residence. Good condition.
- Storage Shed at Residence: 101 SF unheated wood-frame structure used as storage building at the superintendent's residence.
- Superintendent's Residence: Built in 1991. 1585 SF heated wood-frame structure used as the superintendent's residence. Good condition.
- Ranger Residence: Built in 1991. 1585 SF heated wood-frame structure used as a ranger residence. Good condition.
- Marina Basin: Last dredged in 1999. Dredging is expected approximately every 7-10 years. Depth is currently a problem.
- Fishing Pier: Built in 1996. Handicapped accessible, pressure treated wood structure on six-inch pilings. Occasions of high water have caused the pier to float upwards in some areas, causing an unlevel surface, but the pier remains operationally sound (Figure VII-3).



Figure VII-2. Campground Washhouse



Figure VII-3. Fishing Pier

Facility Repair Needs

Buildings and structures at Carolina Beach State Park are in good condition considering their location in a harsh coastal environment. They are being adequately maintained. Staff currently has a contract underway to make both washhouses and the picnic area restrooms ADA compliant. Other needed maintenance and repairs are ongoing.

A capital improvement project exists to make needed repairs and renovations identified under the Facility Inventory and Inspection Program. Work is needed for the maintenance office/shop, washhouses, public toilet building, marina office, residences and other structures. Park staff will continue to address these repair needs using major maintenance funds until repairs are completed or the Park Building Renovations capital improvement project is funded.

ROAD AND PARKING INVENTORY

Background information

The Institute for Transportation Research and Education (ITRE) conducted a road inventory for Carolina Beach State Park in March of 1990 and found the following quantities: 2.48 miles of paved road; 0.22 miles of unpaved road; 8,601 square yards of paved parking lots; and 506 square yards of unpaved parking lots. Since the 1990 ITRE inventory, a new visitor center parking area was constructed (in 2000) that consisted of 2882 paved square yards; and the maintenance area (the former park office) parking lot, consisting of 754 square yards, was paved in 1994. The revised quantities are now:

Paved road – 2.48 miles;
Unpaved road - .30 miles;
Paved parking lots - 12,237 square yards; and
Unpaved parking lots - 3000 square yards.

Road and Parking Description

The road system is comprised of a main park road (State Park Road) approximately 1.1 miles in length. State Park Road connects to the visitor center parking lot, Nature Trail Lane, Campground Road, and dead-ends at the marina. State Park Road is 20-foot wide with a two-foot wide paved bike lane on each side. The other two-lane roads within the park are 19 to 20-foot wide.

Campground Road is a single lane, 12-foot wide road that runs through two camping loops. The paved areas have an 8-inch stone base with asphalt depths ranging from 1½ to three inches, since the road way has been resurfaced on one occasion. The shoulder widths are approximately four feet. Drainage is handled through concrete pipes that are located at low points along the roadways and parking lots. Most pipe culverts are concrete, and there are four concrete catch basins located in the park. Since the soil is a sandy texture, most of the run off is absorbed into the ground.

Road and Parking Conditions

The road and parking lots were constructed in 1969-70 and most were resurfaced in 2001. Their condition is good. The Campground Road was not resurfaced in 2001 and is in fair shape. The marina parking lot was redesigned and repaved in 1990 and is in good shape. Bike lanes were added to the main entrance road in 2001. Paving of the maintenance parking lot is scheduled for 2004. Culverts are in good condition.

Repair Needs and Costs

The superintendent has requested that the marina parking lot be expanded to help meet current demand for parking for today's larger vehicles and boat trailers and for trailhead parking. There presently is room on the southern end of the parking lot to expand parking by approximately 40 additional spaces; however, an environmental review of the proposed expansion area is needed. If constructed, the parking expansion could be a mixture of car and boat trailer spaces.

The Campground Road will need to be resurfaced within the next five years. Several sinkholes need repair and edge patching needs to be done in the campground. The marina parking lot needs patching in front of the marina store. Existing NC DOT maintenance funds can take care of the patching needs.

A 40-car expansion of the parking lot at the marina will require approximately 2500 square yards at \$30.00/yard, for a total cost of \$75,000. The expansion will be a part of a new capital improvement project for Carolina Beach State Park.

SEWER SYSTEM

Description

Every building that discharges sewage has its own separate sewer system with a septic tank and nitrification drain lines. There currently are ten systems in operation at Carolina Beach State Park. The sewer systems and a description of each follows:

Campground Washhouse A (Loop # 1): This system has a 5000-gallon septic tank with a 1000-gallon dosing tank, with a single siphon located approximately 400 feet from the washhouse. Ten 140-foot drain lines are fed from the concrete distribution box. The system was installed in 1971.

Campground Washhouse B (Loop #2): A 5000-gallon system with a 1000-gallon dosing tank, with a single siphon located approximately 500 linear from washhouse B serves camping loop two. Ten 140-foot drain lines are fed from a concrete distribution box. The system was installed in 1971.

Visitor's Center: A 2500-gallon septic tank serves the park office, with six 80-foot drain lines on the south side of the visitor center. The system was installed in 1999.

Marina Operation Center: The marina is served by a 4000-gallon septic tank with a 4000-gallon pump tank with 24 58-foot low-pressure lines of 1½ inch PVC. The pump tank has two five-horsepower effluent pumps that pump the sewage to a field at the intersection of Nature Trail Lane and State Park Road, located approximately one-half mile from the marina. The system was installed in 1989.

Picnic Toilet Building: The picnic toilet building has a 2500-gallon septic tank with a concrete distribution box with six 120-foot drain lines. The system was installed in 1970.

Maintenance Building: This system consists of a 900-gallon septic tank with three 50-foot nitrification lines. The system was installed in 1970, and the drain lines were replaced in 2002.

Superintendent's Residence: Located behind the maintenance area, this system has a 900-gallon septic tank with three 50-foot drain lines. This system was installed in 1991.

Ranger Residence #1: This house near Dow Road, constructed in 1977, has a 900-gallon septic tank with an unknown amount of drain lines.

Ranger Residence #2: This newer residence was built in 1991. It has a 900-gallon septic tank with three 50-foot drain lines

Ranger Residence #3: This privately owned mobile home serves the Fort Fisher State Recreation Area superintendent. It has a 900-gallon septic tank with three 50-foot drain lines and a distribution box. The system was installed in 1985.

Current Conditions

Overall, the sewer systems are in good shape. Park staff does a good job in maintaining the systems, and there is a licensed sub-surface operator on site. The septic tanks are on a rotating schedule for pump out and seem to be okay. The picnic area septic tank needs a cast iron ring and some landscaping on its drain field. The marina pump tank is approximately 14 years old and corrosion has started inside the tank. All materials that are not stainless steel are corroding at an excessive rate. The marina drain field has some problems with the pressure head settings, but the system continues to function okay. The two campground systems are the oldest, but they seem to be adequate at this time. The washhouse B tank has recently been pumped out and has ruts in the drain field where the pump truck got stuck. The drain field is routinely mowed.

Repair Needs and Costs

The pumps and associated piping will need to be replaced at the marina, and the drain field will need replacing within the next five years. All septic tanks need risers and filters on them, a requirement added in 1999. The distribution box needs to be uncovered and inspected for roots and even flow, especially at the campground. Costs are estimated as follows:

- Replace the marina drain field and renovate the pump tank pumps and hardware: \$50,000.
- Inspect and level the distribution boxes with five new aluminum lids at \$500 each: \$2500.
- Install ten filters and risers at \$500 each: \$ 5000.

WATER SYSTEM

Description

The park is supplied water by the Town of Carolina Beach. Until 1999, the park had its own deep well and a 40,000-gallon elevated water storage tank that supplied the park. In 1999, an agreement was worked out with the town that allowed the park to tie on to the town's public water supply. The water piping is class 200 PVC piping of various sizes with valves at all service connections. Approximately 6500 feet of waterline runs from the main park gate to the campground, marina, visitor center, and ranger residences. The park pays one monthly water bill. It usually averages from \$200 to \$400 a month, with the peak around July.

Current Conditions

The main lines are in good shape. The valves are in fair shape and need to be exercised on a routine schedule. The existing 40,000-gallon tank is currently being used to keep it from deteriorating further. The well is still hooked up and needs to be abandoned.

Repair Needs and Costs

The well that is located between the campground and new visitor center is now disconnected from the water lines and needs to be properly abandoned. Some 800-feet of asbestos/cement pipe that is still being used at the old well site needs replacement. The water tower is no longer needed for the water system, although water continues to flow through it. The water tower is being used for the park radio system, so another location is needed for communication purposes before the tower is removed. If kept long term, the tower would need painting, estimated to cost \$50,000 in 2000. Painting should be avoided by relocating the communications equipment and surplus the tower, hopefully at little or no cost.

ELECTRICAL SYSTEM

Description and Conditions

Park power is fed underground and is supplied by Progress Energy Corporation. All of the park facilities are supplied underground power by pad-mounted transformer. The system was installed between 1969-75 and is in good shape. The power company owns the power and will do any replacement that is needed.

Repair Needs

Progress Energy has recently repaired conduit and support brackets for the marina parking lot area light poles. Electrical work that is needed around the floating docks will be done as part of a capital improvement project.

TELEPHONE SYSTEM

Description and Conditions

Bell South provides phone service. The visitor center has two voice lines, one fax line, two modum lines, and two alarm lines for the fire and security systems. Nine phones are in the building. The maintenance area has one voice line that is also used for dial-up. The marina has two voice lines and one line used for credit card authorizations only. There are two phones located in the marina. A pay phone is located at both the marina and the park office. Current conditions are good, and no repairs are needed.

Internet service is currently via dial-up. Park staff will work with the Division Computer Consultant to investigate improvement of this service.

MAJOR CAPITAL IMPROVEMENT PROJECT PRIORITIES

As a part of the general management plan process, the four proposed capital improvement projects at Carolina Beach State Park were carefully reviewed. In reviewing these projects and looking at the park for other capital improvement needs, the general management plan evaluation team considered factors such as changes in environmental regulations, condition of facilities, natural heritage inventory, recreation demand, operational issues and needs, visitor safety considerations, State Park Act mandates, and trends.

Capital improvement project review resulted in the elimination of one project, *New Water Supply System*. This project included connecting to city water from the Town of Carolina Beach and demolition of the tall steel water tank. The park has already been connected to city water, but the tank demolition has not taken place. Because the city water hookup - the major component of the project - is complete, the project was eliminated. Demolition or surplusing of the water tank will take place after another location is arranged for the park's

communication equipment that is presently located on top of the water tank. Replacement of 800 feet of asbestos/cement pipe will be accomplished using Major Maintenance funds.

The other three proposed capital improvement projects are still needed, although some amendments to their project scopes were made. Two new projects were created: *Two Picnic Shelters and Parking Improvements*, and *Tent/Trailer Campground Improvements*. Following the general management plan review and revision of the existing projects and the addition of the two new projects, the five projects were then evaluated and ranked using the Division’s Project Evaluation Program (PEP), thus creating a revised project priority list of capital improvement projects for Carolina Beach State Park. The revised project priority list is shown below. Carolina Beach State Park’s capital improvement projects were then combined with projects evaluated and ranked for other state park units, resulting in a priority list of capital improvement projects for the entire state parks system. The Carolina Beach State Park project priority list is shown below and is followed by a brief description of each project.

Carolina Beach State Park Project Priority List

Rank	Project Name	Score*	Cost
1	Two Picnic Shelters and Parking Improvements	620	\$529,669
2	Park Building Renovations	597	264,644
3	Tent/Trailer Campground Improvements	590	862,766
4	Marina Dredging, Dock Additions and Improvements	511	1,231,916
5	Maintenance Area Improvements	488	<u>909,387</u>
TOTAL:			\$3,798,382

** The score comes from the Division’s Project Evaluation Program (PEP). The PEP uses an evaluation formula to rank projects that considers four factors: the objective of the project; the justification or urgency for funding; the estimated annual number of persons (visitors and/or employees) who are affected by the project; and the project’s significance, ranging from local to national. The park superintendent, district superintendent, and division management evaluate projects. There are 15 objectives categorizing a project’s purpose, and each project can have a primary and secondary objective.*

Capital Improvement Project Descriptions

1. Two Picnic Shelters and Parking Improvements: This project is subject to U.S. Army Corps of Engineers (ACOE) approval, and environmental review and approval is required before it can go forward. Included are construction of two eight-table picnic shelters, one in the picnic area and one at the marina area, and the addition of 20 parking spaces at the picnic area near the toilet building. Also included is the expansion of the marina parking lot by 40 spaces and resurfacing

and restriping of the existing marina parking lot. The construction of the marina area picnic shelter is contingent upon decisions about the future operation of the marina. Cost is estimated to be \$529,669.

2. Park Building Renovations: These building renovations were identified by the Division's FIIP inspection report and include: major repairs to the maintenance shop/office, two washhouses, public toilet building, marina office, and two residences; minor repairs to the woodshed, pump house and storage building. The park superintendent will continue to complete as many repairs as possible with major maintenance funds and the project costs should be adjusted annually as repairs are completed. Cost is estimated to be \$264,644.
3. Tent/Trailer Campground Improvements: This campground improvement project adds electrical hookups to campground loop number two in order to meet the high demand for such campsites. It also adds borders and tables to campsites in both loops. The two washhouses will be either renovated and upgraded to meet current building codes or replaced with new structures. A decision on renovation versus replacement will be made at the time of project funding; additional funds may be required to demolish the old structures and build new ones. One dump station is currently inoperable, so dump station improvements will also be made. Cost is estimated to be \$862,766.
4. Marina Dredging, Dock Additions and Improvements: This project calls for construction of 14 new boat slips to bring the marina to its maximum capacity of 56 slips. The new slips will use the same design as the existing ones in order to provide a uniform look to the marina. Also included is installation of a flagpole and a full set of warning flags. The marina needs periodic dredging in order to maintain a sufficient depth for boating traffic, but future dredging is contingent upon location of a suitable spoil site and other considerations that need to be resolved before this project is funded. (See Chapter VIII for further discussion of marina operation and dredging.) Project scope additions to the project include repairs to the existing floating courtesy dock and 50-amp service to the 42 existing boat slips. The project cost was revised, increasing to \$1,231,916.
5. Maintenance Area Improvements: This project includes all maintenance area needs. Because Carolina Beach State Park is the maintenance operations area for nearby Fort Fisher State Recreation Area, vehicular storage and warehouse needs are larger than the standard park unit. Where possible, buildings are the standard design. The project includes industrial equipment, a flammable storage building, vehicle shed, vehicle lift and vehicle wash station. Cost is estimated to be \$909,387.

VIII. OPERATIONS ISSUES

INTRODUCTION

Division of Parks and Recreation staff identified the major park issues facing Carolina Beach State Park at the initiation of the general management plan process. The issues have been divided into three categories: natural resources (see Chapter VI), capital improvements (see Chapter VII) and operations. This chapter identifies park operations issues and makes recommendations for addressing them during the next five years.

Operations issues for Carolina Beach State Park that are of significant concern are:

- Management of the Carolina Beach State Park Marina
 - Maintenance Dredging of Marina Channel and Basin
 - Location of a Suitable Spoil Site
 - Inadequate Parking
 - Inadequate Number of Boat Slips
- Inadequate Maintenance Facilities
- Picnic Area
 - Lack of Shelter
 - Lack of Parking
- Tent and Trailer Campground
 - Damage to Resources
 - Lack of Electrical/Water Hookups
 - Inadequate Facilities
- Radio Communications and Water Tower
- Staffing Needs

MANAGEMENT OF CAROLINA BEACH STATE PARK MARINA

Background

The Carolina Beach State Park Marina is the only state-owned and operated marina in North Carolina (the four other marinas are operated by lessees). It has been in operation for approximately 30 years. As with all older facilities, the 42-slip marina, two boat ramps, fuel dock and marina building are requiring increased maintenance.

Parking in the marina parking lot routinely fills to capacity on weekends spring through fall. Once the parking lots reach capacity, boaters, fisherman, and other visitors park on the hill next to the boat basin, along the edges of the parking lots, and along both sides of the park road. This results in increased congestion and opportunities for accidents.

There are no single-vehicle parking spaces located in the southwest marina parking lot where the Sugarloaf trailhead is located. Visitors using the Sugarloaf Trail park in the boat/trailer parking spaces, along the edges of the parking lot, or along the roadside. In addition, the existing boat/trailer parking spaces are too short to accommodate many of

today's SUV/extended cab vehicles pulling boats. This results in boat trailers extending out past the end of the parking space, decreasing the width of the travel lane.

The park currently leases 42 boat slips. Thirty-four slips are rented for terms of one to three years. Eight slips and the ends of the T-docks are rented as transient slips. There is a waiting list of 170 people for the long-term slips, and the approximate waiting time for a slip is two years. Many others would likely be on the list were the wait not so long, so public demand for marina services seem high.

Costs of the marina operation are high considering the number of staff needed for operation and the modest amounts of revenue. For 2002/2003 revenues were: \$86,000 from boat slip rentals and boat ramp fees; \$47,000 in gross marina sales; \$201,600 for gas and \$57,300 for diesel fuel sales; and pumpout fees of \$720. Marinas generally operate with more slips, and a capital improvement project exists that would construct an additional dock with boat slips on the northeast side of the basin (Figure VIII-1). Adding the slips would provide space for no more than fourteen additional boats. However, it is uncertain if that section of the basin could be dredged to allow anything other than small boats due to the height of the bulkhead wall.



Figure VIII-1. Marina Expansion Location

Sand and silt constantly accumulate in the channel and boat basin. Both were dredged in 1988 and partially dredged again in the spring of 2000. There were problems, especially at low tide beginning several years prior to the last dredging.

Finding a suitable spoil site or sites located close enough to the park so that spoil transportation costs are not prohibitively expensive is a key to continued long-term operation of the marina. The spoil island located in the Cape Fear River that received spoil from the last dredging is, according to the Corps of Engineers, unavailable for such future use. The next dredging will need to be a full dredging. A capital improvement project to dredge the marina, complete needed marina repairs, and build additional docks has been developed and is described in Chapter VII (page VII-8). Docks will need to be removed from the pilings for accumulated silt to be removed, and hardware will need to be replaced.

Recommendations

Prior to proceeding with the capital improvement project to dredge, repair and expand the marina, several steps are needed. Park staff will take depth readings of the marina basin and channel. Division staff will then assess the adequacy of current depths, estimate when dredging should take place, and make rough estimates of the number of cubic feet of material that needs to be dredged. Division staff or a contractor will then investigate locating a suitable spoil site and obtaining the necessary permits to proceed with the project. Attempts will be made to locate a spoil site or sites close to the park that will not only serve the next dredging, but inevitable maintenance dredges that will follow in the future.

Assuming that a suitable spoil site or sites can be located, the Division will proceed with the proposed capital improvement project for the marina. The size and configuration of boat slips will be reviewed in an attempt to maximize the carrying capacity and public use of the marina and to increase revenue from boat slip rentals. The optimum dredging depth will also need to be investigated.

If environmentally suitable and cost-effective spoil sites cannot be found for the currently proposed and future dredges, the Division will investigate other alternatives to current marina operations. Factors to consider include the significant expense of the proposed marina capital improvement project (estimated at \$1.23 million), inevitable future maintenance dredging, periodic dock maintenance, the number of staff needed to operate the marina, the modest revenue from marina operations, public demand, and the small number of pleasure craft owners that benefit from the marina. Even if marina operations were to cease, the boat ramps should remain, however, as they are popular and operate at a low cost. The marina building could possibly be converted for alternative uses and a picnic shelter could be added to the area if marina operations ever cease.

The boat/trailer parking lot needs to be expanded. Existing spaces need to be lengthened, if possible and single vehicle spaces need to be added near the Sugarloaf trailhead. Due to the heavy use of the boat ramp, fishing pier and trail, this project should occur regardless of the marina status. This parking expansion is part of a proposed capital improvement project (see Chapter VII, page VII-8).

Park staff will periodically review the fee schedule for marina services by comparing them to area marinas and will report these findings to the District Superintendent and Superintendent of State Parks.

INADEQUATE MAINTENANCE FACILITIES

Background

Both Carolina Beach State Park and Fort Fisher State Recreation Area use the Carolina Beach State Park maintenance area. Designed to serve only one park, the maintenance area has inadequate storage facilities for supplies, flammable materials, lumber, vehicles and equipment. All work on vehicles and equipment is currently accomplished in the shop building, thereby severely limiting any other work that needs to be accomplished at the same time using shop equipment such as table saws, radial arm saws, et cetera. Given the frequency of the vehicle repairs and routine service, the shop building and its stationary equipment are often unavailable for use.

Recommendations

Provide maintenance area improvements as identified in the existing Maintenance Area Improvements capital improvement project (Chapter VII, page VII-8). The improvements include construction of a flammable storage building, a vehicular storage building with vehicle lift and vehicle wash station, and renovation of existing buildings.

PICNIC AREA

Background

The picnic area is used by an increasingly large number of visitors, including school groups, especially during the spring and fall. Park staff also conduct interpretive programs in the picnic area for large school groups. There is no structure to offer shade or protection from inclement weather in the picnic area; therefore a picnic shelter is needed.

Bus parking is inadequate. During the spring and fall there may be as many as six charter buses in the lot at one time, leaving no room for any other vehicles. At the same time, there may be several other buses parked at the visitor's center or marina because they cannot get into the picnic area.

Sufficient room for optimal parking at the picnic area does not exist. Wetlands constrain parking lot expansion in one direction, while the picnic area already occupies most of the adjacent high ground.

Recommendations

Construct a 12-table picnic shelter and add parking at the picnic area to the extent feasible. A capital improvement project to make picnic area improvements and expand parking has been created (see Chapter VII, page VII-8). Investigate the possibility of constructing a picnic shelter at the marina area if the marina operation is reduced or eliminated.

TENT AND TRAILER CAMPGROUND

Background

The campground is a popular facility regularly filling to capacity during the warm months. Through the years, campers have placed their tents further from the campground road resulting in the gradual expansion of the campsites. As the campsites have grown, additional soil has been compacted and additional vegetation damaged.

There is a steady increase in the number of RV's and campers used by park visitors. The park has no sites with electric and water hookups. Campers are allowed to use generators except during quiet hours.

The washhouse facilities do not meet ADA regulations and are in need of renovation. Siding and plumbing fixtures need replacing and ventilation problems need to be addressed.

Recommendations

Continue to request funds through major maintenance to renovate the campsites by installing impact pads and delineating the campsite driveways by the placement of bollards. Create a new capital improvement project that will make campground improvements including electric and water hookups to one loop of the campground. Not only will this provide service

to visitors with RV's and campers, it will also provide for a quieter, more enjoyable camping experience than results with the use of generators.

There is a project currently under contract to make the washhouse facilities ADA compliant. Park staff should request major maintenance funding to address siding, plumbing and ventilation problems. If such improvements are not made before the Tent/Trailer Campground Improvement project is funded, they will be undertaken as a part of that project.

RADIO COMMUNICATIONS AND WATER TOWER

Background

The radio serving both Carolina Beach State Park and Fort Fisher State Recreation Area is located on top of the old 90-foot tall water tower at Carolina Beach State Park. Since tying on to the water system of the Town of Carolina Beach, the water tower is no longer used for its intended purpose. The tower is rusting and in need of repair if it is to remain. The use of the tower at this time is to house the repeater, provide a structure for the antenna, and provide a small amount of storage space.

Recommendations

Operations staff should identify suitable alternative repeater and antenna sites as the water tower should be disassembled and salvaged. Possible alternative antenna sites include existing towers in the Town of Carolina Beach. Any proposed location must also be accessible from Fort Fisher State Recreation Area.

STAFFING NEEDS

Background

The visitor's center and marina require continuous staff presence during operating hours all year. The marina is staffed until 15 minutes prior to scheduled park closing and the visitor center is staffed from eight a.m. until five p.m. daily. Due to recurring absence of supporting seasonal and permanent staff, the park superintendent and park rangers must devote much of their time to staffing these facilities. This responsibility removes them from more important duties in administration, providing interpretive programming, managing natural resources and providing for visitor protection and safety. Contributing to the recurring absence of seasonal staff is the low hourly wage of the positions.

Recommendations

An additional Office Assistant or Processing Assistant position should be created to divide time between the marina and the visitor center. This would provide better coverage for both facilities and allow the rangers and superintendent more time and flexibility to better accomplish more important duties.

<u>Permanent Staff</u>	<u>Current</u>	<u>Needs</u>
Park Superintendent III	1	
Park Ranger III	1	

Park Ranger II	1	
Park Ranger I	1	
Maintenance Mechanic III	1	
Maintenance Mechanic I	1	
Office Assistant III	1	1
Processing Assistant III	1	

Seasonal Staff

Assistant Park Ranger, April – Sept.	1	
General Utility Worker, March – Nov.	1	
General Utility Worker, May 15 – Labor Day	1	
Park Attendant, June 1 – Labor Day	1	
Refreshment Stand Clerk, March – Oct.	3	
Refreshment Stand Clerk, Nov. – Feb.	1	
Peak Load Park Attendant, Dec. – Feb.	1	
Peak Load Refreshment Stand Clerk, Nov. – Feb.	1	
Peak Load Office Assistant, Year Round	1	

12/06

IX. LAND ACQUISITION

Even though Carolina Beach State Park is one of the smaller parks in the state parks system, it is one of the most diverse parks. The underlying Coquina Formation has resulted in rare limesinks in the state park. Most of the rare species found within the state park are associated with the limesinks. The park also encompasses a relic sand dune known as Sugarloaf and the rare Coastal Fringe Sandhills natural community. The primary focus of the park is the protection and interpretation of the rare natural communities, the limesinks and Sugarloaf dune.

Several factors are considered in determining whether a piece of property should be included in an acquisition plan. These include: data from the Natural Heritage Program, the park's existing identified needs, and Division staff's surveys of the properties. Threats to these properties can include development, logging, and other forms of irreparable damage. Needs and threats are evaluated to determine what properties need to be added to the acquisition plan of the park.

CURRENT ACQUISITION STATUS

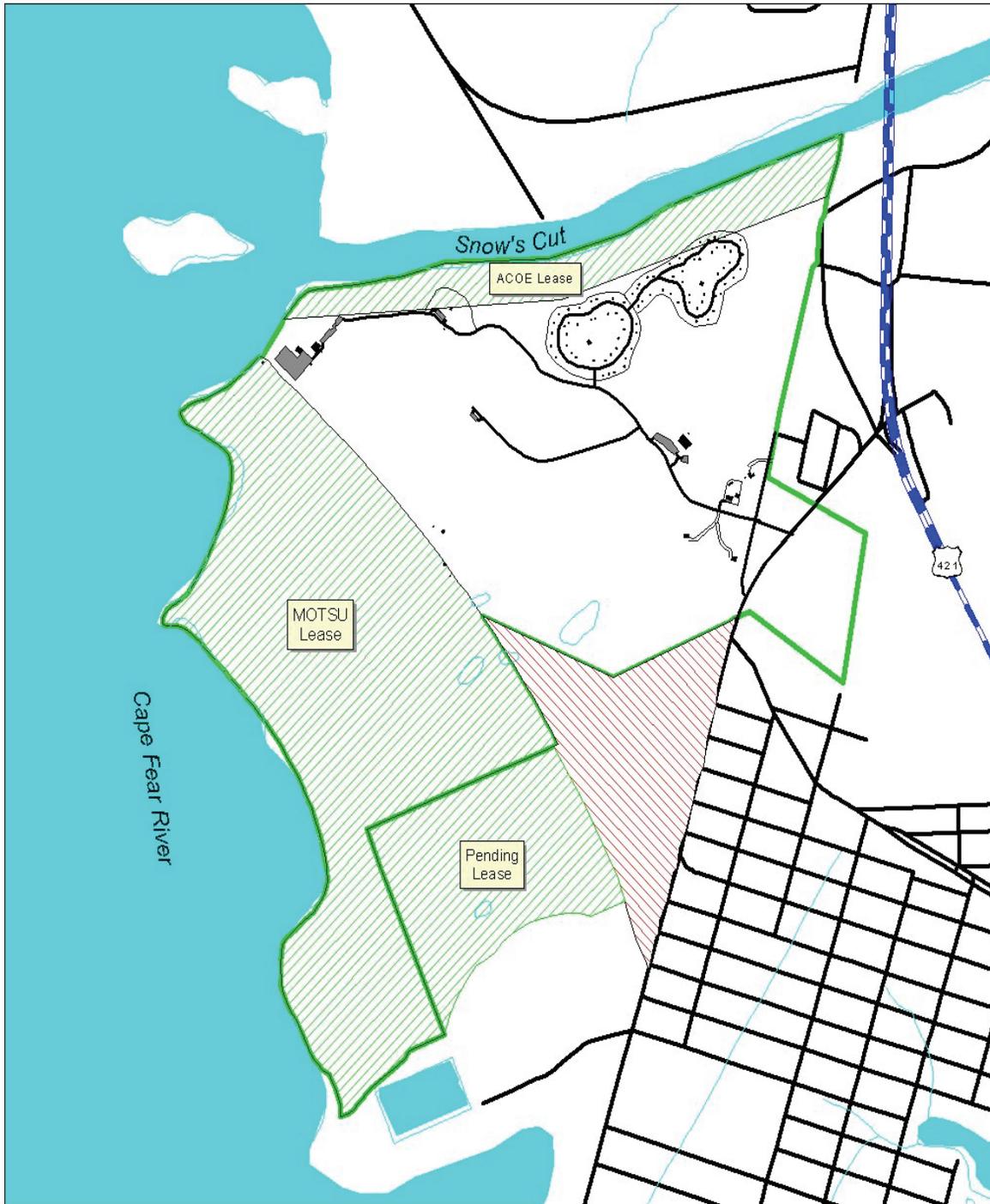
Carolina Beach State Park contains 686 acres as of January 1, 2007. The state owns 420 acres and leases 266 acres from the Department of the Army. Thirty-one of the leased acres lie along Snow's Cut, and 235 acres are in the Military Ocean Terminal - Sunny Point (MOTSU) buffer. At least 75 additional acres are pending as an addition to the MOTSU lease that is currently in the renewal process. Ideally, all the MOTSU buffer lands along Dow Road between the towns of Carolina Beach and Kure Beach should be added to the park. These lands were once leased as a part of the park, but the leased area was reduced years ago because of a lack of staff to adequately manage the property. Staff is now adequate to manage this additional land.

FUTURE ACQUISITION NEEDS

Completion of land acquisition at Carolina Beach State Park requires the acquisition of two parcels consisting of 71 acres. This very high priority acquisition includes the protection of several lime sink ponds and additional land for trails. The property identified for acquisition has state ownership on one side and the area leased from MOTSU on the other. This property was evaluated in 2003 using the Division's Land Evaluation and Acquisition Priority Program (LEAP) criteria, and it has a very high systemwide ranking.

ACQUISITION SUMMARY TABLE

State-owned land	420 acres
Leased land	<u>266 acres</u>
Current size of the park (January 1, 2007)	686 acres
Minimum addition to the MOTSU lease area	75 acres
Acquisition needs	<u>71 acres</u>
Planned size of the park	832 acres



Carolina Beach
State Park

-  State Park
-  Future Need
-  Leased Land

0 500 1000 1500 Feet




Division of Parks and Recreation

Figure: IX-1. Carolina Beach State Park