

II. THE ENVIRONMENT OF CAPE LOOKOUT NATIONAL SEASHORE

A. Natural Conditions and Values

1. Overview

The area of the national seashore within the boundary established in 1974 is 28,400 acres including the 91-acre administrative site on Harkers Island. More than one-third of the total seashore acreage is comprised of small scattered islands on the sound sides of Shackleford Banks and Core Banks/Portsmouth Island and of the nearshore water surrounding the barrier islands. The emergent land (above mean high water) of the barrier islands proper totals 18,400 acres. The width of the linear islands ranges from 600 feet to 1-3/4 miles. The islands support various species of small animals and a variety of vegetation ranging from salt marsh grasses to shrubs and trees. (See the photographs of Core Banks and Shackleford Banks.)

Most of the land of the seashore islands, except Shackleford Banks, has been deeded to the United States by the state of North Carolina. Shackleford is presently being acquired by the United States, as stated in the legislation.

2. Geomorphology

The 55-mile-long narrow strips of sand comprising Cape Lookout National Seashore are breached today by two inlets. (See the map, Existing Conditions.) The northeast/southwest-oriented Core Banks is divided by New Drum Inlet (artificially opened by the U.S. Army Corps of Engineers) into a 21-mile strip north of the inlet and a 22-mile strip plus the 3-mile spit south of the inlet. Barden Inlet separates the southern end of Core Banks from Shackleford Banks, the latter a 9-mile long island with an east-west orientation. Numerous inlets have opened, migrated, and closed in the past, and others can be expected to do the same into the future.

The barrier-island landscape is dynamic. Ever changing, it reflects constant reworking by water and wind. The ocean is the dominant force. With its predominately southwest littoral or along-the-shore currents, its high waves and surge caused by storms, its historic rise in sea level, and its routine daily wave activity, the ocean is constantly moving the sand and changing the appearance of the islands--sometimes accreting, but more often eroding, the shoreline.

During the period from 1940 to 1975, the net effect of these processes was to erode the ocean shoreline of Core Banks a total of 52 feet, or an average of 1.5 feet per year. During a similar period, from 1943 to 1976, the ocean shoreline of Shackleford Banks eroded 49 feet, also for an average of 1.5 feet per year (Dolan and Heywood, 1977).

Core Banks/Portsmouth Island has a generally low profile, with the highest dunes seldom exceeding 10 feet (except near Cape Lookout Point). The topography of Shackleford Banks is more varied and generally higher, with dunes reaching an elevation of 35 feet.

Except for the tallest dunes on Shackleford Banks and Cape Lookout Point, all of the seashore lands on the barrier islands are

within the 100-year floodplain and in the coastal high hazard area. The coastal fringes of east Harkers Island are also in the 100-year floodplain and coastal high hazard area.

One of the most significant processes of the ocean is overwash, whereby storm waves from the ocean side penetrate or overtop the foredunes at various locations along the shoreline, usually carrying large amounts of sand. When the sand is dropped, deposits known as washover fans or terraces are created. Sometimes the waves and their deposits extend across the island to the sound side.

An inlet is created when the scouring and sand transport is extreme enough. Then water (and sand) freely flushes between the ocean and the sound. Sand will be deposited in the quieter water on the sound side of the inlet, a marsh will develop trapping more sediment, and topographical change and plant succession will take place, eventually closing the inlet. The islands thus slowly migrate toward the mainland.

3. Climate and Air Quality

The ocean and sound strongly influence the climate of the seashore, which is mild and predominately sunny. The extremes of temperature are moderate--average daily minimum and maximum of 38°F and 54°F for January, and 73°F and 87°F for July. The average annual rainfall is 52 inches. Prevailing winds blow from the northeast in the autumn and winter and the southwest at other times of the year. Ten to 12 miles per hour is the average wind speed while higher gusts occur during severe storms.

Two types of severe storms--hurricanes (tropical storms) and northeasters (extratropical storms)--strike the seashore. Northeasters occur in late fall, winter, and spring, and approximately 34 struck the North Carolina coast between 1942 and 1967 (Bosserman and Dolan, 1968). They are more frequent than hurricanes. Most hurricanes in North Carolina occur from August to October, with the greatest threat in September, although the hurricane season extends from June to November. On the average, between 1879 and 1955, hurricanes struck the North Carolina coast every two years and other tropical storms (winds less than 74 mph) struck twice a year (Bearden and Grimsley, 1969). The threat of a hurricane is now present because 21 years have passed, the longest period on record without a storm of this type, since Hurricane Donna on September 12, 1960.

The national seashore is designated as Class II for the prevention of significant deterioration of air quality (section 164 of the Clean Air Act amendments). Although there is some pollution from industrial operations and vehicular engines, the ambient air quality is well within North Carolina standards and air quality is not a major concern. Most air pollutants are dispersed by maritime winds.

4. Vegetation and Ecological Zones

Vegetation is critical in maintaining what little stability exists on the barrier islands. Extensive root systems of maritime grasses help to stabilize sediments, whether windblown or waterborne. The grasses themselves tend to trap windblown sand. In this way, dunes

build naturally and topography is elevated just enough so that other forms of plant life can take root.

Vegetation at Cape Lookout National Seashore forms distinctive ecological zones across the barrier islands as shown on the graphic, Cross Section of Barrier-Island Ecological Zones. The zones and some of their dominant plants, according to Snow and Godfrey (1978) are

Beaches--essentially devoid of vegetation except unicellular algae.

Berms--created by a few plants such as sea oats growing in the driftline, which may build small dunes, depending on storm frequency.

Tidal Flats--intertidal areas essentially unvegetated except for stands of salt marsh cordgrass; found at inlets.

Dunes--low scattered dunes formed by sea oats in overwash-influenced areas, and high densely vegetated dune fields where vines such as Virginia creeper may be found on the back side.

Open Grasslands--sparsely vegetated by salt meadow cordgrass and pennywort, both of which grow up through sand after burial in overwash.

Closed Grasslands--greater cover of salt meadow cordgrass, pennywort, broomsedge, and hairgrass; closer to the water table. Also species of rush where water stands.

Woodlands--shrub thickets of wax myrtle, marsh elder, and silverling, or of yaupon and live oak; maritime forests of live oak, Virginia redcedar, and American holly. Both are on higher and protected lands.

High Salt Marshes--dominated by black needlerush and salt meadow cordgrass; flooded by spring and storm tides.

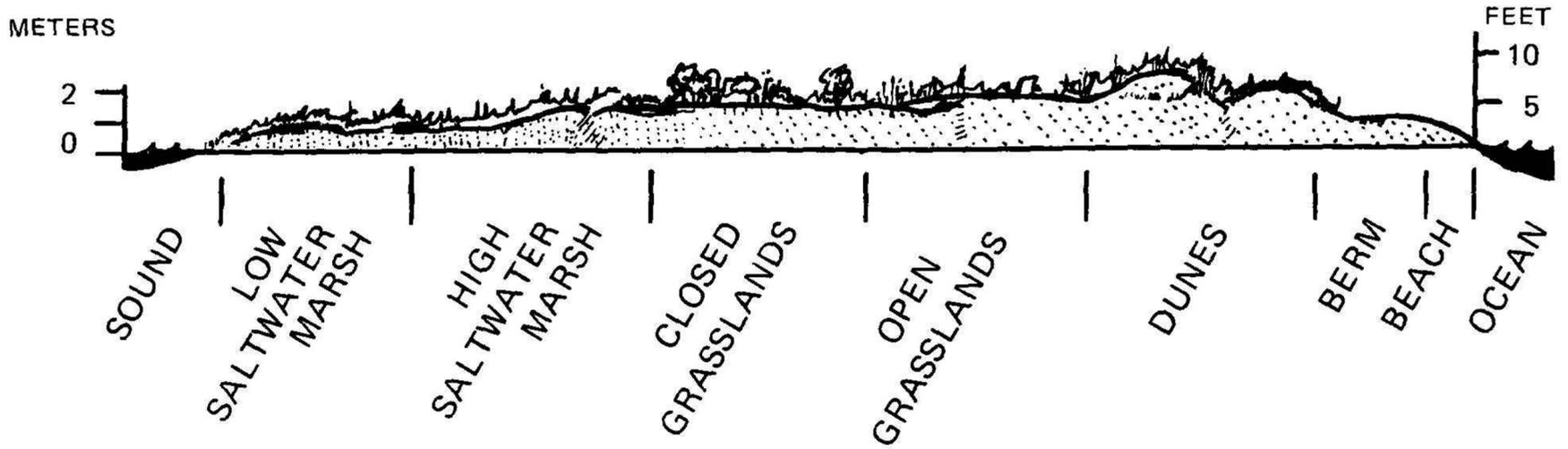
Low Salt Marshes--dominated by salt marsh cordgrass; flooded at mean high tide.

Subtidal Marine Vegetation--extensive stands of eelgrass and widgeon grass in protected, shallow waters.

Shackleford Banks, dominated by dunes/grasslands, is the most stable land in the seashore. Because the island faces the prevailing winds, sand is blown into the dunes, increasing their height and protecting the maritime forest at the western end. Expanses of salt marsh are found to the east of the maritime forest on Shackleford.

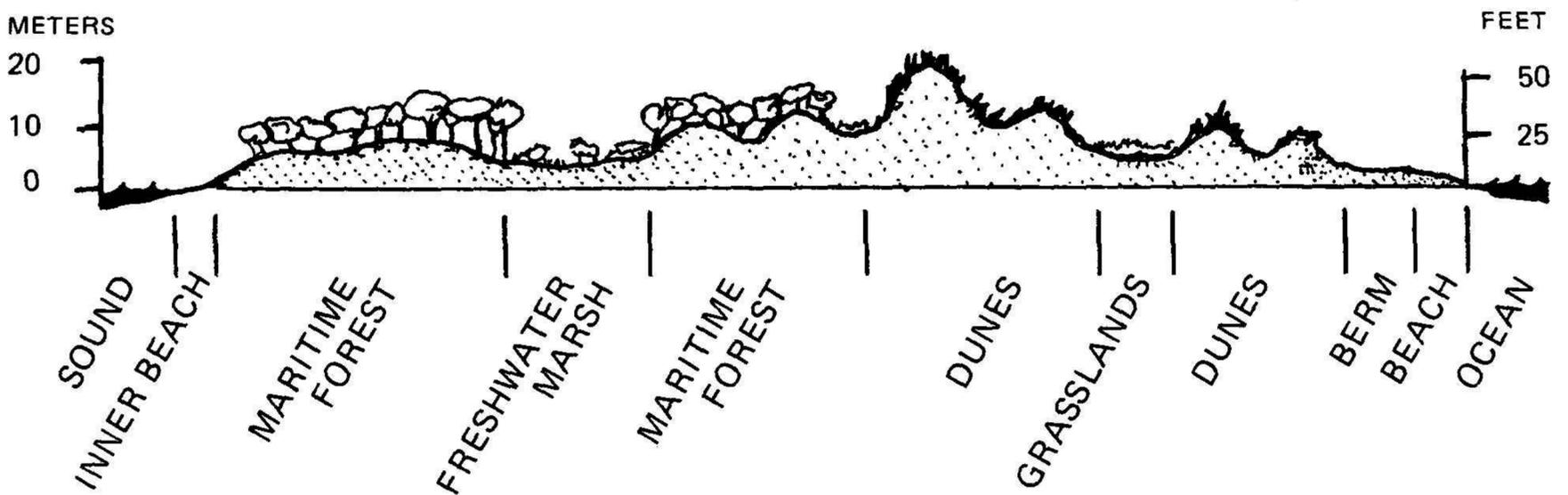
Core Banks is fairly uniform with a wide berm, low dunes, grasslands, and extensive salt marshes. This island is less stable than Shackleford as it is influenced by overwash and the prevailing winds blow sand parallel to the beach rather than into the dunes. An occasional

CROSS-SECTION OF BARRIER ISLAND ECOLOGICAL ZONES ON CORE BANKS NEAR CODDS CREEK



ADAPTED FROM: GODFREY, PAUL J. AND MELINDA M. GODFREY, BARRIER ISLAND ECOLOGY OF CAPE LOOKOUT NATIONAL SEASHORE AND VICINITY, NORTH CAROLINA, 1976

CROSS-SECTION OF BARRIER ISLAND ECOLOGICAL ZONES ON SHACKLEFORD BANKS INCLUDING THE MARITIME FOREST



ADAPTED FROM: AU-SHU-FUN, VEGETATION AND ECOLOGICAL PROCESSES ON SHACKLEFORD BANKS, NORTH CAROLINA, 1974

shrub thicket is found, but extensive shrub thickets occur only near Cape Lookout Point and at Merkle Hammock, the Evergreens, and Portsmouth Village. The slash pine trees, found near the lighthouse, were planted by local residents prior to the establishment of the seashore. Guthries Hammock is the only natural maritime forest on Core Banks. The northern portion of Core Banks and Portsmouth Island are primarily tidal flats. At Portsmouth Village, the shrub thickets are bordered by salt marsh on the north, and dunefields are expanding eastward onto the adjoining flats.

Appropriate recreational uses of these ecological zones are shown on the graphic, Interpretation of Cape Lookout Ecosystems/Suitability for Recreational Use. Generally, the beach and berm are most tolerant of recreational uses, and the shrub thickets or grasslands are the most suitable sites for structures.

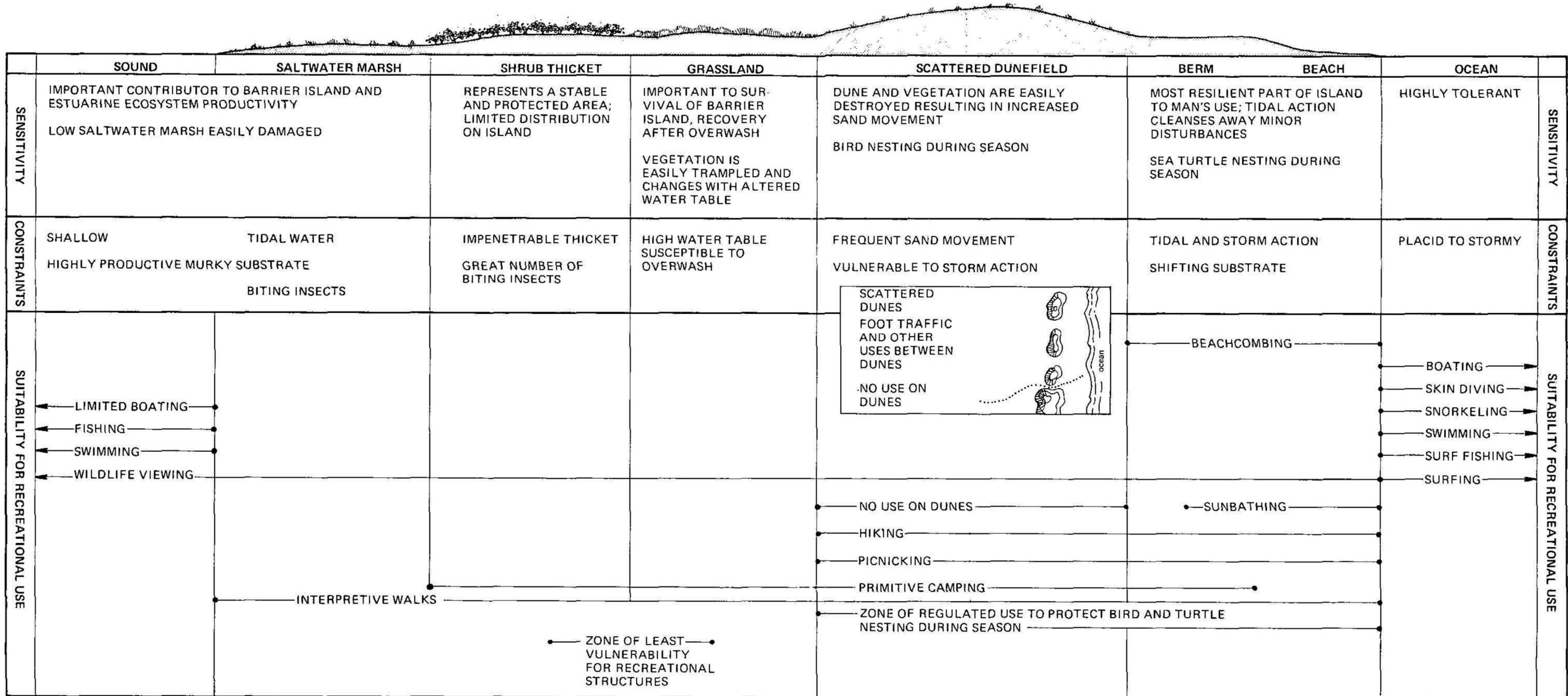
5. Animal Life

The barrier islands provide habitats for a diversity of birds and terrestrial and marine animals. Refer to A Preliminary Resource Inventory of the Vertebrates and Vascular Plants of Cape Lookout National Seashore, North Carolina (USDI, NPS, 1977) for checklists and descriptions of previous biological studies.

Birds are the most visible of all vertebrates within the seashore because of its location on the Atlantic Flyway, varied habitats, strong winds which drive oceanic birds onto land, and lack of development. Several significant and large nesting areas (e.g., 4 miles long and ½ mile wide) of colonial nesting shorebirds have been identified north of New Drum Inlet (USDI, NPS, 1979, and Parnell and Soots, 1979). Great numbers of least terns, gull-billed terns, common terns, and black skimmers nest in colonies on the beach/berm, among scattered low dunes, and on tidal flats. All of these birds except the skimmer are species of special concern to the state of North Carolina (North Carolina State Museum of Natural History, 1977). Least terns also nest on the barren sand behind the dunes south of New Drum Inlet. The area near the Cape Lookout lighthouse may be a major nesting site in North Carolina for another species of special concern, the Wilson's plover. Generally, the bird nesting season extends from April to October.

The eastern brown pelican (on the federal endangered list) may be seen all year, with up to 500 individuals being reported on some days fishing in the surf and resting on the ocean beach, particularly near the inlets. This pelican nests on three islands in Ocracoke Inlet north of the seashore, the most northerly breeding colony of this species. The Arctic peregrine falcon (endangered) is an overwintering and spring visitor which hunts for its prey in all habitats across the islands and rests on the ocean beach.

The Atlantic loggerhead turtle, a threatened species, is near the northern limit of its nesting range. The female turtles nest at night on the berms of wide, sloping beaches or near the bases of the dunes. In 1979, six nests were reported on Shackleford Banks, the only year for which a record is available for that island. On Core Banks/Portsmouth Island there were 31 nests in 1978, 66 in 1979, 46 in



INTERPRETATION OF CAPE LOOKOUT ECOSYSTEMS/SUITABILITY FOR RECREATIONAL USE

1980, and 31 in 1981. Of these, 23 in 1979, 30 in 1980, and 24 in 1981 were located on a 7-mile stretch of beach 3 miles west of Cape Lookout Point and 4 miles north. This is the greatest concentration of nests in North Carolina. During the four-year period 1978-1981, the first nest was dug on May 24 and the last on August 31. Incubation averaged 60 days. Hatching dates over the same period ranged from July 28 to late October (NPS data). Another federally listed species, the Atlantic leatherback sea turtle, is known at the seashore by one nesting in 1966.

Other animals found on the islands include amphibians and reptiles--tree frogs, toads, turtles, and snakes; freshwater fish in the isolated freshwater ponds; mammals--shrews, raccoons, and rabbits--in the shrub thickets; and mosquitoes and other insect pests in wet areas of the dunes, grasslands, and marshes. The ring-necked pheasant, which is a favorite with some hunters, exists in shrub thickets on Core Banks. Domestic livestock--horses, cattle, goats, sheep, and rabbits--are present today on Shackleford Banks.

Marine animals inhabit the intertidal zones of the beaches and tidal flats. Burrowing mole crabs, ghost crabs, and coquina clams are found on the ocean beaches, and crustaceans and worms on the tidal flats. Others are similar to those listed in A Checklist of Common Invertebrate Animals (Kirby-Smith and Gray, 1977).

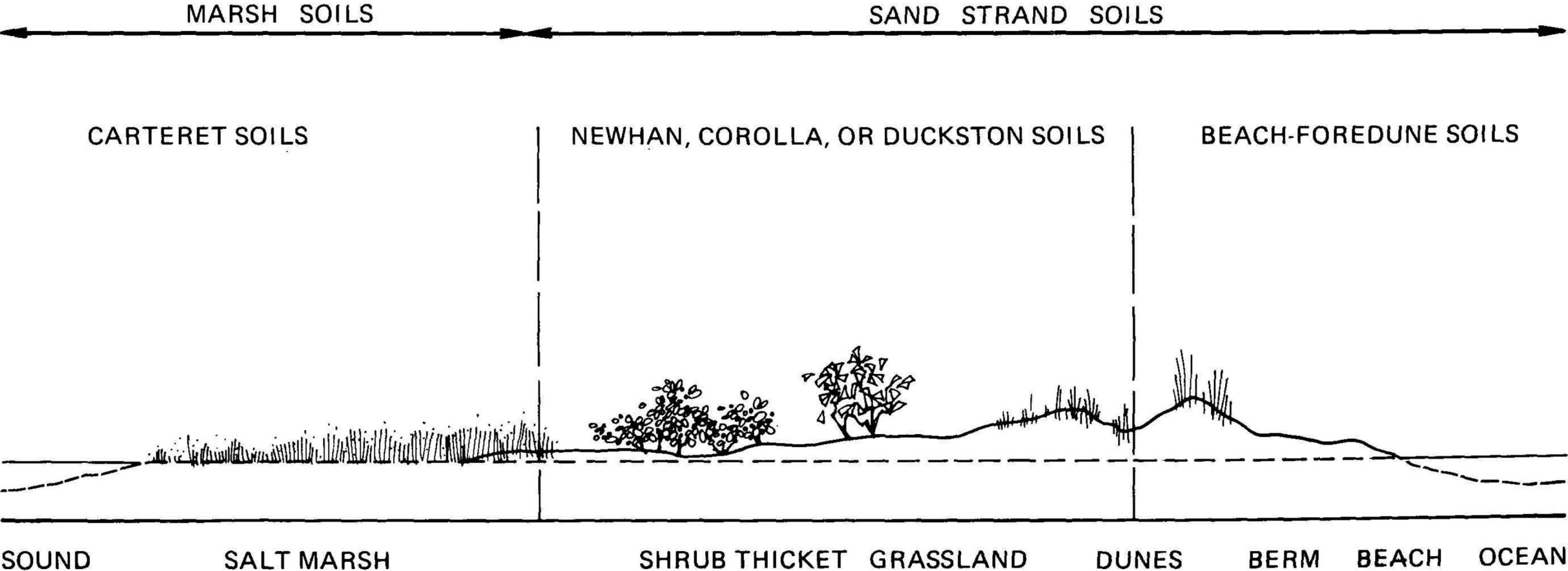
Many species of commercially valuable invertebrates and fish are supported by the food chain of the seashore's salt marshes. The marshes and tidal creeks serve as nursery grounds for such fish as the Atlantic menhaden, spot, striped white mullet, and several species of flounder. Clams and scallops are found in the grasses and softer mud bottoms, and crab and shrimp are found on the bottom. In the sound waters, there are pound and gill netting for jumping mullet, croaker, drum, flounder, spot, bluefish, butterfish, Spanish mackerel, and pompano. The species popular in both ocean sport and commercial fishing include drum, channel bass, speckled trout, and gray trout--best near Portsmouth Village; flounder--best at Cape Lookout and New Drum Inlet; and bluefish, Spanish mackerel, cobia, sea mullet, and pompano--common along all Core Banks.

The animals discussed in this section are those of greatest concern in planning for the seashore. They are sensitive to human activity in the ecological zones which they inhabit--the beach, berm, tidal flats, and salt marsh creeks/sound waters. (This is indicated on the graphic, Interpretation of Cape Lookout Ecosystems/Suitability for Recreation Use.)

6. Soils and Minerals

The soils within the seashore vary slightly with topography and, in turn, with vegetation. The major distinction is between the sand strand soils and the marsh soils. The different types are shown in the graphic, Characteristic Soil Types. The soils are mapped for the entire seashore and are discussed in greater detail in the Soil Survey of the Outer Banks, North Carolina (USDA, SCS, 1977).

CHARACTERISTIC SOIL TYPES



FROM: SOIL SURVEY OF THE OUTER BANKS, NORTH CAROLINA
U.S. DEPT. OF AGRICULTURE, SOIL CONSERVATION SERVICE

Almost all of the soils on Core Banks present severe limitations for development. This is due to poor bearing capacity, instability due to wind and water activity, and high water tables. Conventional subsurface sewage disposal facilities may contaminate the shallow freshwater table, especially in low-lying areas.

Much of the land on Shackleford Banks presents only slight limitations for development due to the occurrence of Newhan fine sand. However, this sand is highly pervious with questionable filtering capacities, and it may allow contamination of groundwater.

The only apparent mineral resource of the immediate area of the national seashore is silica sand. Studies by the North Carolina Department of Conservation and Mineral Resources indicate that silica sands in the area are too high in contaminants and too far removed from inland markets to be of value for glassmaking or other specialized uses. In addition, the relative inaccessibility of the sands makes them of negligible value for construction purposes.

7. Freshwater Resources

Groundwater in Cape Lookout National Seashore occurs in an unconfined sand aquifer, an upper confined aquifer, and a lower confined aquifer. (See the graphic, Geological/Groundwater Section.) The possible availability of groundwater is described in Ground-water Resources of Cape Lookout National Seashore, North Carolina (USDI, GS, 1978) and is summarized below.

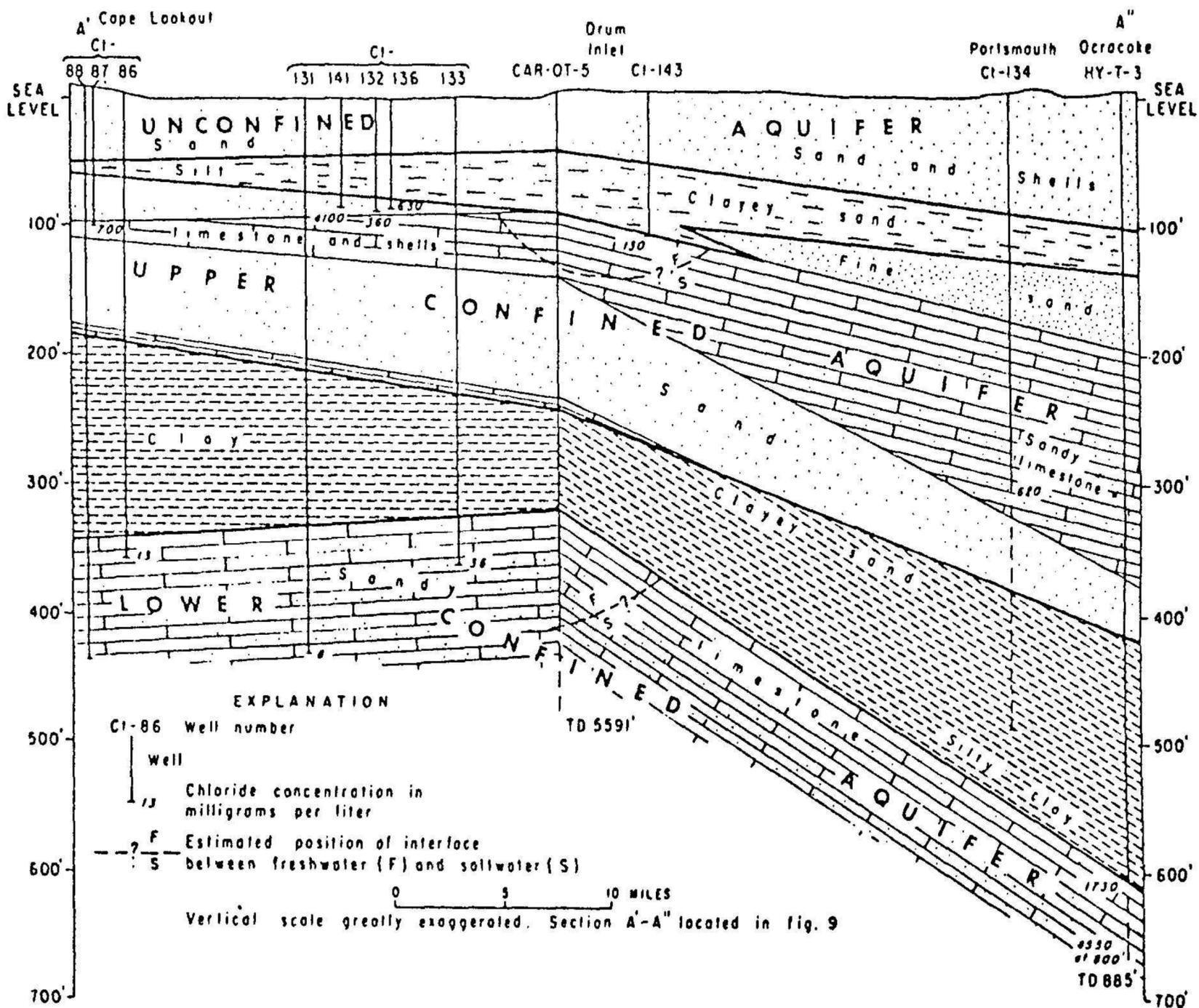
The unconfined aquifer (freshwater lens) in areas occupied by dunes will yield as much as 30 gallons per minute of freshwater to a horizontal well. In other parts of the seashore this aquifer is subject to periodic overwash from the ocean, thus temporarily contaminating it with saltwater. Some high dunes on Shackleford Banks and at Cape Lookout offer some protection from overwash to the unconfined aquifer. Any lowering of the water table will cause a rise of the saltwater/freshwater interface.

The upper confined aquifer, which occurs between depths of about 90 to 150 feet, is known to contain freshwater only in the New Drum Inlet area and at Harkers Island. The potential yield of this aquifer is unknown, but probably does not exceed 10 to 15 gallons per minute.

The lower confined aquifer, which occurs between depths of 150 and 550 feet, contains freshwater southeast of New Drum Inlet. Potential yield is estimated to be as much as 500 gallons per minute per well. The estimated freshwater yield from all aquifers depends on the position of the saltwater interface at any site.

Water samples from the seashore generally meet drinking water standards set by the U.S. Environmental Protection Agency, although some samples contained excess concentrations of chloride, iron, and manganese. Excessive chloride in the area is indicative of the presence of saltwater. Excessive iron and manganese occur naturally in some groundwater and may also be dissolved from well casings or pumping equipment.

GEOLOGICAL / GROUNDWATER SECTION



FROM WINNER, 1978. GROUND-WATER RESOURCES OF CAPE LOOKOUT NATIONAL SEASHORE, N.C. P.6.

Water from the existing wells at the fish camps at Shingle Point and North New Drum Inlet, however, has not met standards. Potable water will be provided for the public at these fish camps if Public Health Service standards can be met economically.

8. Scenic Quality

The scenery of Cape Lookout National Seashore is characterized by the following attributes:

Expansive Vistas--These occur along the ocean and sound shores, where one can see many miles into the distance.

Isolation--The islands are detached from the primarily rural mainland and surrounded by water, but are accessible by boat.

Contrast--The many edges between water and land attract the eye, as does the vertical shaft of the lighthouse contrasting with the surrounding flat surfaces. There are also contrasts of maritime forests with sand dunes, dunes with beaches, and stark ghost trees with living ones.

Motion--Rolling surf waves, blowing sand and grass leaves, and flying or running birds are features that catch the eye.

Intimate-Scale Areas--Hollows among the dunes are areas where one may feel alone with that immediate scene.

Color--The greens and grays of the seashore are not the warm colors to which people respond. Occasional blossoms, colorful flotsam, and sunsets stand out all the more against this background. So does the exciting history of shipwreck and life-saving when imagined in the bleakness of winter.

Variety--Views may be toward the mainland, toward the ocean, along the shore, or across the island, each quite different.

Detail--Beachcombing on the shore, fishing in the surf, hiking between the dunes, and inspecting the historic areas are among the activities that bring visitors into close contact with the environment.

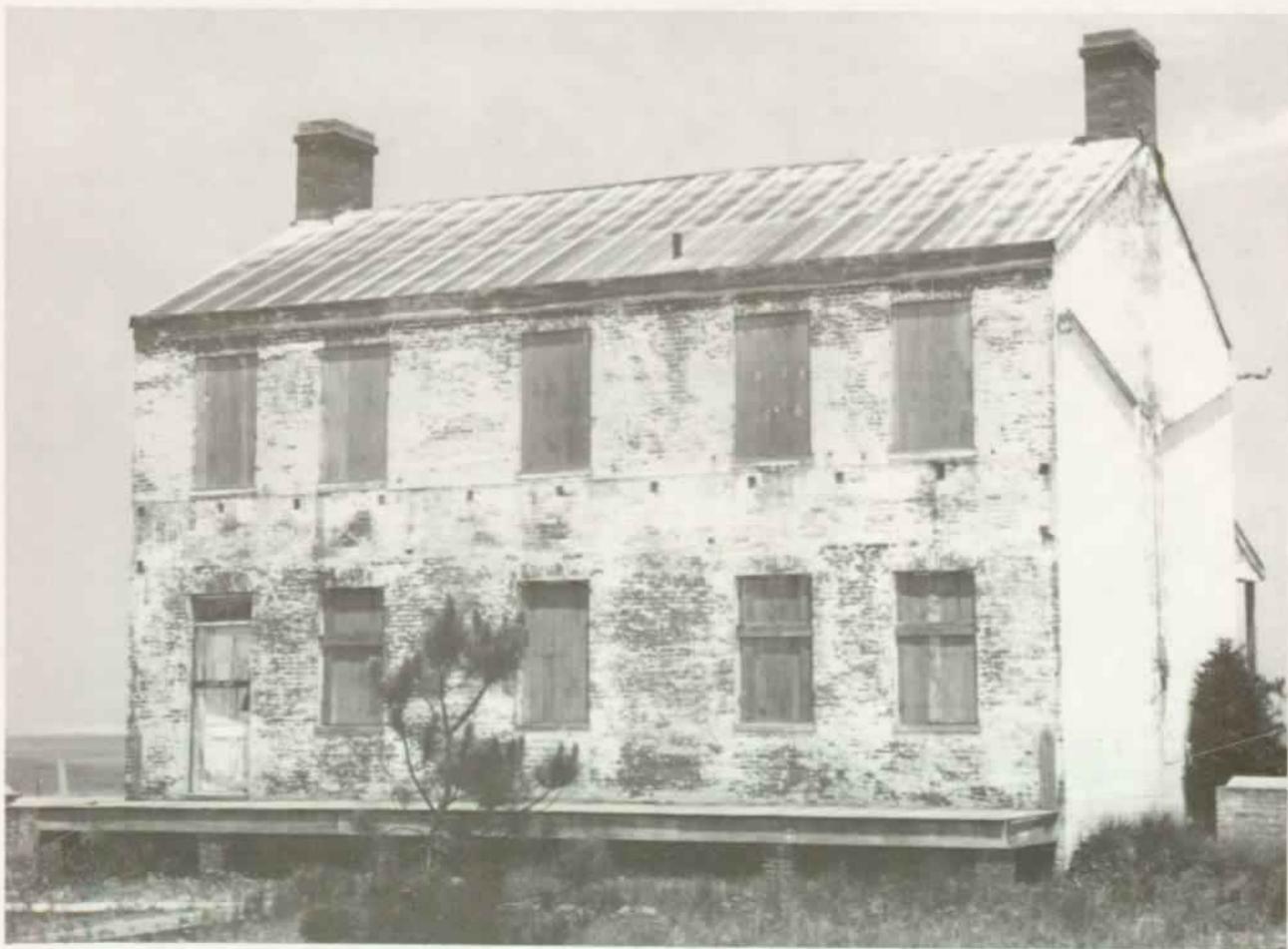
Remoteness--The feeling of remoteness from civilization is great in all parts of the islands except for the western sound shore of Shackleford Banks, where industrial development on the mainland is clearly in view.

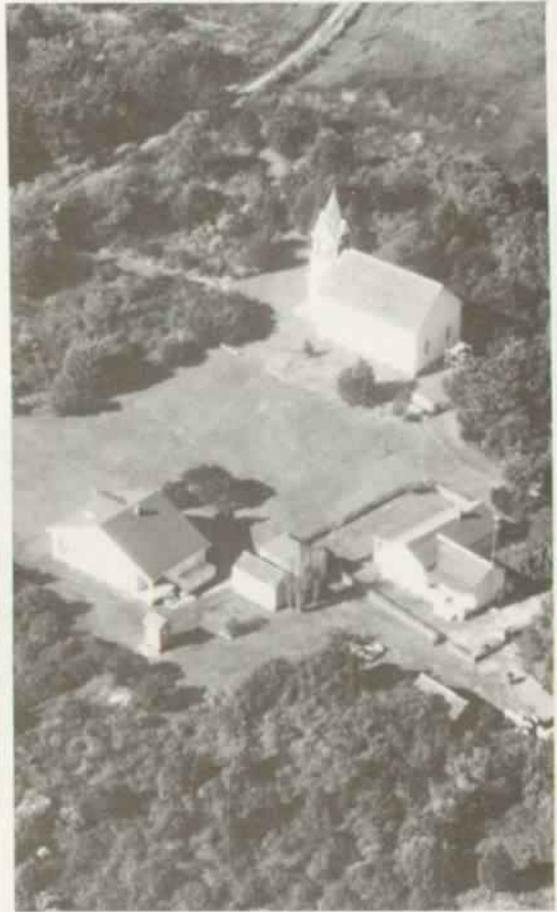
B. History and Cultural Resources

The environment of Cape Lookout National Seashore has deterred man from extensively settling the area, although historically the islands have served as prominent landmarks for mariners and have been busy with maritime activities. Early European sailors knew both the dangerous shoals off Cape Lookout Point and the safe harbor of Lookout Bight. In later years, the Cape Lookout lighthouse warned of the hazards, and life-saving operations rescued seamen in trouble.

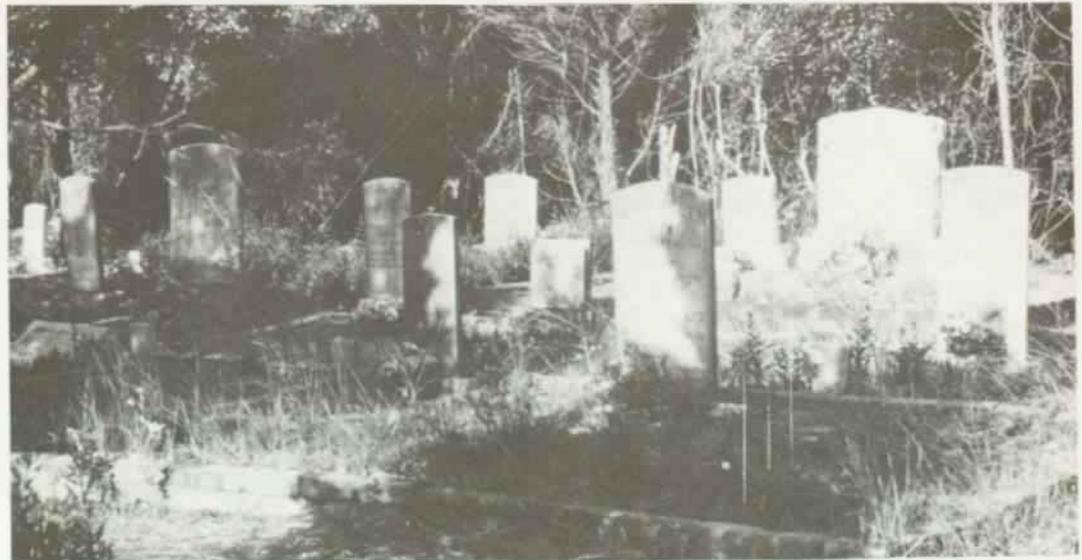


Cape Lookout lighthouse with summer kitchen, keeper's quarters, and coal and wood shed is listed in the National Register of Historic Places.





Portsmouth Village, a historic district of 250 acres, is listed in the National Register of Historic Places.



Fishing has always been the dominant vocation of the Outer Bankers. With increased maritime activity, Portsmouth Village became a transshipment point where cargo was unloaded and reloaded when ships passed through the shallow Ocracoke Inlet. Later, Diamond City was established on Shackleford Banks for whaling, but it was abandoned during a period of hurricanes in the late 19th century. Today virtually nothing remains of Diamond City, but a number of structures survive in Portsmouth Village. The village is a unique reminder of past cultural and economic life on the Outer Banks.

The state historic preservation officer of North Carolina and the Advisory Council on Historic Preservation have been consulted about the seashore's cultural resources. The lighthouse complex (see the Cape Lookout lighthouse photographs) is listed under state significance in the National Register of Historic Places. In addition to the lighthouse, the 25-acre complex includes the keeper's quarters, coal and wood shed, summer kitchen, and fuel storage building. The lighthouse is owned by the U.S. Coast Guard; the other structures belong to the NPS. The existing lighthouse structure dates from 1859, and its diagonal black and white checker pattern dates from 1873. There had been an earlier tower dating from 1812. Portsmouth Village (see the Portsmouth Village photographs) is also entered in the National Register as a 250-acre historic district of state significance. There are 25 structures that are typical of coastal Carolina architecture of the 1820-1930 period, at least 8 cemeteries, and 10 ruins and/or sites of former residences. Earlier periods of the village's history are represented poorly by historic structures or not at all.

In 1976, the report titled Cape Lookout National Seashore: Assessment of Archeological and Historical Resources concluded that no aboriginal sites currently known to exist within the seashore were felt to be culturally and scientifically significant enough to justify their nomination to the National Register. Algonkian-speaking Indians were the area's first known inhabitants. Shell midden sites on the sound side of Shackleford Banks and at Cape Lookout are the only remains of their occupancy. However the sites, most of which are outside the seashore easement, have been reduced to almost unintelligible remains.

C. Existing Seashore Use and Development

1. Visitor Experience

People have been attracted to the barrier islands of Cape Lookout National Seashore for recreation because of the wild and isolated environment and as a place "to get away from it all." There is no similar environment on the adjacent islands.

On the low-lying, narrow islands that comprise Core Banks/Portsmouth Island, the visitor is remote from the mainland and experiences the dominance of the restless sea on one side and the more placid sound waters on the other. (See the photographs of Core Banks and Shackleford Banks.) The dunes on Shackleford Banks near the maritime forest offer an unusual opportunity for the visitor to "become lost" in a unique and undulating topography--where one can discover for oneself the beauties of the coastal landscape. The contrast between the open dunes and the maritime forest is striking. There is also a special



Core banks is a landscape dominated by sandy beaches, low dunes, vegetated sand flats, and marsh.





Shackleford Banks is noted for its maritime forest and high sand dunes.



intrigue with the history of the "lost" Diamond City, Cape Lookout lighthouse, and Portsmouth Village.

Visitors to the national seashore may well experience a feeling of isolation and seclusion. It begins with the boat ride across the sound--the transition from the security of the mainland to the uncertainty of an island. The more a person knows about the barrier islands, the more he can appreciate the marvelous diversity of plant and animal life. It is an excellent place for one to observe and to wonder about natural processes and the interrelationships of living things. Especially if he is on foot, the visitor may feel the thrill of adventure, and experience a sense of self sufficiency, survival, and even danger. For this is a place that provides little or no escape from the hot sun, the blowing and sand-blasting wind, the rainstorms, and the biting insects; and freshwater is very difficult to come by. Yet when weather conditions are right, it is a place of incredible beauty, comfort, and contentment.

2. Visitor Use Data

Records of visitation at Cape Lookout National Seashore have been kept from the time of its establishment in 1976. The number of annual visits was determined by combining the actual number of ferryboat passengers, reported by the concession permittees, and the number of persons reaching the barrier islands in private boats, as observed by the park rangers. This and related data are summarized in table 1.

Table 1: Visitor Use Statistics

	<u>1977</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Annual Visits	37,648	50,725	54,148	70,382	56,404
Number of Vehicles Ferried	--	907	1,218	1,182	1,101
Number of Private Boats	--	5,841	8,072	9,977	8,291
Camper Nights (average stay two nights):					
In Rental Cabins at Fish Camps	--	6,145	10,807	11,831	12,055
In Tents and ORVs	--	5,717	9,482	12,908	10,504

The major season of visitation is from June to November. In 1981, October showed the highest visitation--17.9% of the annual total, and July showed the second highest--16.4%. The months of lowest visitation are December through April.

Visitor activities vary by season, as shown in table 2. Fishing has been the most popular recreational use, with sightseeing/beachcombing second in popularity (30% and 18% respectively, in 1981). The fish camp cabins are available for rent from about April 1 to December 1. At the height of the season, October and November, the occupancy rate on Friday and Saturday nights is usually 100%, with four to eight fishermen sharing each cabin. About 98% of the cabin patrons bring a vehicle with them and use it while on the island.



Recreational uses of the national seashore include surf fishing, hiking, camping, and swimming.



Table 2: Ranking of Activities by Their Popularity
(1 = most popular)

	<u>Fishing</u>	<u>Sightseeing/ Beachcombing</u>	<u>Picnicking</u>	<u>Guided Walks</u>	<u>Hunting</u>
January, February	3	2			1
March, April, May	1	2	3		
June	1		3	2	
July, August		1	3	2	
September, October, November	1	2	3		
December	1		3		2

The average number of hours per day that visitors engage in activities varies with the activity:

- Fishing - 6 hours
- Swimming - 4 hours
- Picnicking - 1 hour
- Sightseeing/Beachcombing - 2 hours
- Surfing - 2 hours
- Guided Walks - 1 hour
- Hunting - 8 hours

In terms of hours that visitors participate in each use during a year, fishing and sightseeing/beachcombing still remain most popular. (See the photographs of recreational uses.)

Characteristics of the seashore visitors were sampled in a survey (field observation guide) during 1977 and 1978, providing an indication of the visitor profile. The majority are from North Carolina, especially those who come in the spring and fall. During the summer, there are more out-of-state visitors. Most visitors come in groups composed of family and friends. The majority have been to the seashore before, having originally learned about Cape Lookout National Seashore because they live locally or their friends told them about it.

Transportation to the islands is now provided by five private ferryboat operators under concession permits issued by the NPS. They serve Cape Lookout Point, Shingle Point, North New Drum Inlet,

and Portsmouth Village from the villages of Harkers Island, Davis, Atlantic, and Ocracoke, respectively. Vehicles are also transported, one or two per trip, on the ferryboats from Davis, and one to three per trip from Atlantic. In addition, people reach the islands by noncommercial private boats. Pleasure boating is common in the surrounding waters, especially at Cape Lookout Bight.

A tractor-drawn, flatbed wagon operated under a concession permit currently provides transportation from near the lighthouse to Cape Lookout Point. Visitors may load and unload at any point en route.

From the fish camps, concentrated at Shingle Point and North New Drum Inlet, anglers drive to favored fishing spots, locate a school of fish swimming along the shore, and then drive ahead of them to fish the school repeatedly. At Portsmouth Island, New Drum Inlet, and Cape Lookout Point, the anglers who drive to these sites usually stay there. Hunters also drive their vehicles along the islands in pursuit of waterfowl.

Commercial fishing from boats occurs in the waters surrounding the national seashore. There is trawling for fish and shrimp in the ocean. Oystering, clamming, crabbing, and scalloping take place on the sound side of the islands, in the marsh creeks, eelgrass beds, and inlets. Fish pound netting, long hauling, gill netting, flounder gigging, shrimping, and crab potting are practiced in the sound. The only commercial fishing from the islands is flounder gigging at Cape Lookout Bight and beach hauling near Portsmouth Village (North Carolina Division of Marine Fisheries, 1975).

3. Existing Development

Prior to the establishment of the national seashore, clusters of fishing shacks had been constructed by third-party interests, and vehicles were driven extensively over the islands. Vehicles which broke down in the past were abandoned in many cases. Some 340 structures and more than 2,500 vehicles cluttered the islands when the seashore was established. The seashore is being cleaned up. Today, most structures and all but 600 of the vehicles have been removed.

Many structures will remain on the seashore, including those in the two historic districts previously described. Scattered along Core Banks, especially near Cape Lookout, there are a number of summer cottages. All of these structures are administered by the NPS under 25-year leases, life estates, or special-use permits.

Near the lighthouse, there is a public comfort station. Approximately a mile south is a ranger station which was converted from a fish camp/store complex initially owned and operated by a private resident. Both the comfort station and ranger station are operated by the NPS. The cabins at Shingle Point and North New Drum Inlet are under concession permits and are presently available to rent. There are now some 59 structures on Shackelford Banks, and their future status will be determined at the time of acquisition.



Shacks, abandoned vehicles, and junk are being removed from the national seashore.



D. Private Rights, Interagency Agreements, and Permits

Interagency agreements and private rights* are recognized in the enabling legislation. Revocable special use permits have also been assigned administratively. Locations where other than NPS interests prevail are shown on the Existing Conditions map.

Section 4 of the enabling legislation (PL 89-366) stipulates that the recreational uses of hunting and fishing be permitted in accordance with the laws of the state of North Carolina and the United States, and that rules and regulations be established in consultation with the North Carolina Wildlife Resources Commission and Department of Conservation and Development. This cooperation is further detailed in a memorandum of understanding between the NPS and the North Carolina Department of Natural and Economic Resources dated 1976.

The state of North Carolina has reserved to its use a 500-foot-wide easement across Core Banks as the possible location for a pipeline to service an offshore deepwater oil port. The easement is located at Hogpen Bay, approximately 4.5 miles north of the lighthouse. The state also reserved to itself the ownership of lands on the ocean side between mean high water and mean low water and ownership on the sound side of all submerged lands within 150 feet of mean low water, but these lands are managed by the NPS under an easement.

The U.S. Army Corps of Engineers can contribute to shore erosion control or beach protection measures (section 6, PL 89-366). The plan for such measures, in accordance with the enabling legislation, must be mutually acceptable to both the secretary of the army and the secretary of the interior. Certain islands north of Barden Inlet, an offshore area west of the light station, and a stretch of ocean beachfront north of the lighthouse have been reserved for spoil disposal from ship channel dredging. New Drum Inlet is shoaling and it may become necessary to reopen it.

The U.S. Coast Guard owns and maintains a light station on 5.39 acres near Cape Lookout Point. It is connected to a sound-side dock by a poured-concrete road. The Cape Lookout lighthouse is owned and operated as an active navigational aid by the Coast Guard; a 1½-mile-long overhead line transmits power from a generator at the station to the lighthouse. An acre of land at the base of the lighthouse is also owned by the Coast Guard.

Rights of occupancy for 25 years or life estates are provided to those persons "who on January 1, 1966 owned property which on July 1, 1963 was developed and used for noncommercial residential purposes" (subparagraph (c), section 2, PL 89-366). The law specifies that the

*Both the state of North Carolina and the United States negotiated leases and life estates, when appropriate.

land at each residence will not exceed 3 acres. In addition, North Carolina developed several 25-year lease agreements prior to the establishment of the seashore. There are nineteen 25-year leases, eight life estates, and nine leases that are pending or under litigation. These rights of occupancy are concentrated at the Cape Lookout Point area and Portsmouth Village, with others distributed along Core Banks and Portsmouth Island. There are also some properties of undetermined status.

Twelve special use permits are in effect for occupancy of structures in Portsmouth Village. These permits are intended to help protect the historic structures in the village.

At the time the seashore was established, several boats were used to ferry people and vehicles to the barrier islands and to the fish camps that provided overnight cabins. As an interim measure, until public use patterns were established and planning could be completed, concession permits were issued to the operators of these services. After adoption of this plan a concession prospectus will be prepared and bids will be sought from those interested in providing the public transportation services and operating the camps.

E. The Region

1. Overview

Carteret County, in which the national seashore is located, is part of the relatively undeveloped coastal plain of North Carolina. (See map, The Region and Developed Zones of North Carolina's Outer Banks.) The area is generally low, flat, tidewater country, and its predominately rural population has traditionally been dependent on farming and commercial fishing. In recent years, tourism, construction trades, real estate, and finance are becoming increasingly important in regional development (North Carolina Coastal Resources Commission, 1978). There is also concern for protection, preservation, and orderly development of the state's coastal resources through the North Carolina Coastal Management Program (1978).

The barrier islands adjacent to Cape Lookout National Seashore are already developed and are accessible by bridges and roads, as shown on the map, The Region and Developed Zones of North Carolina's Outer Banks. Artificially stabilized dunes also line these adjacent islands. In Carteret County, Bogue Banks is developed with condominiums and resorts, restaurants, curio shops, amusement parks, and fishing piers. To the north via a state automobile ferry from Carteret County is Cape Hatteras National Seashore where motels, restaurants, and summer homes are found in the villages.

2. Access

A highway system connects Carteret County with the metropolitan populations of North Carolina and adjoining states; U.S. Highways 70 and 17 and North Carolina Highways 101, 58, 24, and 12 lead into Carteret County. Most visitors arrive by automobile, although limited bus and airline services are also available. An increasing number of visitors enter the area by boat along the Intracoastal Waterway.

3. Socioeconomic Environment

In Carteret County, 8,000 acres of the 340,000 land acres (90,000 acres are federal) are currently urban or built up. The current land uses, along with the population, economy, and estimated future demands, are discussed in the Carteret County Land Use Plan (North Carolina Coastal Resources Commission, 1978).

Several small communities combine with the rural population to give Carteret County 36,000 residents. This population is expected to increase 26% by 1985, coupled with a significant growth in seasonal population. Bogue Banks, with a tourist/resort orientation, is the major center of this growth.

The economy of Carteret County has diversified in recent years with nonmanufacturing and public administration jobs increasing most rapidly. Commercial fishing continues as a major economic factor. In 1973, the county boasted 45% of the state fish landings, including the principal species of croaker, flounder, sea trout, spot, blue crab, shrimp, and menhaden. Much of the fishing activity centers around Morehead City, Beaufort, and the eastern sound-side communities of Harkers Island, Sealevel, Davis, Atlantic, and Cedar Island. Boatbuilding is another traditional economic activity in these communities. With the North Carolina State Port Terminal in Morehead City, ocean shipping is also an important industry. A bulk coal-loading facility was added in 1980. The recent increase in regional marine resources development has been causing expansion of nearby governmental and university research facilities. Several major military installations in the region also contribute significantly to the local economy. Tourism is big business, accounting for approximately one-half of the total 1972 sales in the county, and it is growing steadily (North Carolina Coastal Resources Commission, 1978). The mild weather and diversity of the seashore's attractions create a favorable environment for visitor-related enterprises.

4. Recreational Opportunities

The seashore environment of the region is the primary attraction, and an impressive variety of recreational experiences is available. Water-oriented activities include sport fishing from boats and piers, recreational boating, swimming, surfing, and scuba diving. Head boats, charter boats, and rental boats are available for deep-sea fishing. There are also facilities for launching and anchoring private boats. Picnicking is permitted in numerous public parks along the beaches and on the mainland. Visitors can view birds and game in the wildlife refuges. Elsewhere in the region, hunting of waterfowl and upland game is popular during the fall. Historic sites and marine museums abound--the historic towns of Beaufort, New Bern, Bath, and Belhaven; Fort Macon State Park; Wright Brothers National Memorial; Fort Raleigh National Historic Site; the Hampton Mariners Museum in Beaufort; the Marine Resources Center in Pine Knolls Shore; and others. Art galleries, gift shops, golf courses, tennis courts, and seafood restaurants are numerous.

Most overnight accommodations in Carteret County are located on Bogue Banks, which is intensively developed with motels, condominiums, summer homes, restaurants, curio shops, shopping

centers, and amusement areas. Some modest facilities and services are available in the eastern part of the county--Harkers Island, Davis, Sealevel, Atlantic, and Cedar Island. Carteret County also has several public and private drive-in campgrounds, and there is drive-in camping on the barrier islands of the adjacent Cape Hatteras National Seashore.