



**US Army Corps
of Engineers**
Wilmington District

MASTER PLAN

SNOWS CUT

**ATLANTIC INTRACOASTAL
WATERWAY**

**MYRTLE GROVE SOUND
TO CAPE FEAR RIVER
NORTH CAROLINA**

**DESIGN MEMORANDUM NO. 2B
JANUARY 1994**

1. ~~AA-P~~ SA
2. PM-C

FYI

January 18, 1994

Planning Division

Mr. John N. Morris, Director
Division of Water Resources
North Carolina Department of Environment,
Health, and Natural Resources
Post Office Box 27687
Raleigh, North Carolina 27611-7687

Dear Mr. Morris:

I am enclosing a copy of the Snows Cut Master Plan for your use.

If you have any questions, please contact Mr. Don Henry, Environmental Resources Branch, at (910) 251-4545.

Sincerely,

Lawrence W. Saunders
Chief, Planning Division

Enclosure

BCF (w/encl):
CESAD-PD-A/McGovern (1 cy)
CESAW-CO-R/Grimsley (1 cy)
CESAW-CO-N/Forcinito (2 cys)
~~1/18~~ CESAW-DP/Shuford (1 cy)

SAME LETTER SENT TO:

Mr. Charles R. Fullwood, Executive Director
North Carolina Wildlife Resources Commission
Archdale Building
512 N. Salisbury Street
Raleigh, North Carolina 27604-1188 (3 copies)

Ms. Carol Tingley, Chief
Natural Resources Section
Division of Parks and Recreation
North Carolina Department of Environment,
Health, and Natural Resources
Post Office Box 27687
Raleigh, North Carolina 27611-7687 (3 copies)

Mr. Neal Lewis, Director
New Hanover County Parks and
Recreation
414 Chestnut Street, Room 103
Wilmington, North Carolina 28401-4094 (3 copies)



DEPARTMENT OF THE ARMY

SOUTH ATLANTIC DIVISION, CORPS OF ENGINEERS

ROOM 313, 77 FORSYTH ST., S.W.

ATLANTA, GEORGIA 30335-6801

REPLY TO
ATTENTION OF:

CESAD-PD-A (1110-2-1150a)

6 NOV 1992

MEMORANDUM FOR COMMANDER, WILMINGTON DISTRICT, ATTN: CESAW-PD-E

SUBJECT: Review and Approval of Snows Cut Master Plan Update

Your master plan update is approved subject to changes indicated in our comments, which are enclosed. Please submit a copy of your revised update for our files.

FOR THE COMMANDER:

Encl


MERLIN E. FOREMAN, P.E.
Director of Planning

South Atlantic Division - Leader in Customer Care

CESAW-PD-E (1110-2-1150a)

2 September 1992

MEMORANDUM FOR Commander, South Atlantic Division, ATTN: CESAD-PD-A

SUBJECT: Review and Approval of Snows Cut Master Plan Update

1. Enclosed for your review and approval are 13 copies of the Snows Cut Master Plan Update, DM 1B. Comments from Wilmington District elements, the State of North Carolina, and New Hanover County have been incorporated into this document.
2. Upon your approval, we propose to proceed with final reproduction of this Master Plan and distribute copies to project land lessees for their use.

FOR THE COMMANDER:

Encl (13 cys)

LAWRENCE W. SAUNDERS
Chief, Planning Division

CESAW-PD-E/Henry/an/4545
CESAW-PD-E/Long
CESAW-PD/Saunders/s
Mail
CESAW-PD Files
3002pndr/dhmemsad

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APPENDIX A: Letters received from New Hanover County, Parks and Recreation Department, and the State of North Carolina, Department of Environment, Health, and Natural Resources.

SYLLABUS

The Master Plan for Snows Cut, Atlantic Intracoastal Waterway, Myrtle Grove Sound to Cape Fear River, North Carolina, Design Memorandum No. 2B, has been prepared to serve as a guide for coordinated recreational development of the project lands at Snows Cut in order to ensure that maximum sustained benefit to the public may be attained. The project includes approximately 197 acres of Government fee-owned land.

The project is located approximately 10 miles south of Wilmington, North Carolina, the largest coastal urban center and major port city of North Carolina. It is also located just outside the town limits of Carolina Beach, one of the major ocean resorts in North Carolina. This entire area is renowned for its recreational resources. An estimated 250,000 people live within a 50-mile radius of the project, according to the 1990 census. The zone of influence showed a 17.0-percent increase in population from 1980 to 1990. The 1990 population for New Hanover County was 120,284, up 16.3 percent from 1980. In the year 2000, it is projected that New Hanover County will have a population of 138,000 people, while the 50-mile radius contributing area will have a population of over 300,000 people (see Plate 1).

The project is easily accessible by car on U.S. Highway 421, and the navigation channel between Myrtle Grove Sound and the Cape Fear River, along with the balance of the AIWW, provides excellent water access.

A day-use park on the north shore provides picnicking and footpaths, overlooks, water access and toilet facilities, and related parking. This park is operated and maintained by New Hanover County. The southern shore of Snows Cut is predominantly undeveloped but is under lease to the State of North Carolina. A heavily used boat launching facility is operational at the southeast corner of Snows Cut. This facility is operated and maintained by the North Carolina Wildlife Resources Commission. A marina with docking facilities, launching ramps, and related services has just been upgraded at the southwestern corner of Snows Cut and is operated and maintained by the North Carolina State Parks Department.

This plan shows existing facilities and provides guidelines to meet some of the future recreational needs of the surrounding area on the public lands of Snows Cut.

MASTER PLAN

SNOWS CUT ATLANTIC INTRACOASTAL WATERWAY MYRTLE GROVE SOUND TO CAPE FEAR RIVER NORTH CAROLINA

DESIGN MEMORANDUM NO. 2B

A - INTRODUCTION

1. **AUTHORIZATION.** Snows Cut was authorized by the Navigation Act of January 21, 1927 (House Document 405, 69th Congress, 1st Session), as part of the Atlantic Intracoastal Waterway (AIWW) from Beaufort, North Carolina, to the Cape Fear River, North Carolina. The development of public recreational facilities at navigation projects is authorized by Section 4 of the Flood Control Act approved December 22, 1944, as amended by Section 4 of the Flood Control Act of 1946, Section 209 of the Flood Control Act of 1954, and Section 207 of the Flood Control Act of 1962.
2. **LAND ALLOCATIONS.** The land allocations are intended to guide the overall management of the project's resources. The primary purpose of the project is to provide a navigation channel between Myrtle Grove Sound and the Cape Fear River below Wilmington, North Carolina. All lands are, therefore, allocated as operational.
3. **PROJECT PURPOSES.** Aside from the primary purpose of the project to provide a navigation channel between Myrtle Grove Sound and the Cape Fear River, the project also provides incidental benefits from public use on the Government fee-owned land adjacent to the waterway. This Master Plan provides for the orderly and coordinated development and management of the land and water areas of the project. It recognizes the dominant nature of the primary functions of the project and outlines the routine management requirements of the project for operation purposes and for the use and preservation of the project resources. The plan is to ensure that the maximum, sustained benefit to the public, from all collateral resources, will be realized. It presents recommendations relative to the administration of the project and the development of the resources to fit the particular needs of the immediate locality.
4. **HISTORY OF THE PROJECT.** In the Navigation Act, approved January 21, 1927, provision was made for construction of an intracoastal waterway from Beaufort, North Carolina, to the Cape Fear River in accordance with a project as stated in House Document 405, 69th Congress, 1st Session, subject to the condition that, among other things, local interests furnish, without costs to the United States, a right-of-way, 1,000 feet wide.

The State of North Carolina, by legislative act, assumed the duty of fulfilling this condition and authorized its agencies to acquire and furnish the 1,000-foot-wide right-

of-way required. The Federal Government purchased a 1,000-foot-wide right-of-way for Summit Cut (Snows Cut), between Myrtle Grove Sound and the Cape Fear River, with fee simple title.

Major William A. Snow was District Engineer from 1926 to 1930, and it was during this period that the land cut portion of the AIWW was dredged. It became commonly known as Snows Cut at that time.

The initial construction of the project began in 1929. The channel and a swing-truss bridge, necessitated by the cutting of U.S. Highway 421, were completed in 1931. The North Carolina State Highway Commission assumed the responsibility for operation and maintenance of the bridge in perpetuity at that time. The tidal lock proposed in the project document, to eliminate excessive velocities within the channel resulting from tidal differences in the sound and river, was deferred pending further investigations. In August 1950, the North Carolina State Highway Commission was granted an easement on 1.8 acres to construct SR 1100, known as River Road, across a portion of Government land, and in July 1962, the Commission was granted a lease on 2.4 acres on the north bank adjacent to old U.S. Highway 421 for a roadside park. In March 1961, a grant of 2.6 acres for a right-of-way for a new fixed bridge and approaches was made to the North Carolina State Highway Commission. Upon completion of the new bridge during that same year, the swing-truss bridge was removed. During the past 34 years, Snows Cut has served as a convenient safe inland navigation channel for both commercial and pleasure crafts moving northwardly and southwardly along the coast of North Carolina.

5. PRIOR DESIGN MEMORANDUMS. The initial Master Plan for Snows Cut, Design Memorandum (DM) No. 1B, was completed in October 1965. This DM was prepared to serve as a guide for coordination of recreational development of the project lands at Snows Cut in order to ensure that maximum, sustained benefit to the public may be attained.

6. SCOPE OF WORK. This plan provides a general guide for the conservation, development, and administration of the project resources for project purposes, as well as the continuing development of the recreational potentialities for maximum public benefit, as set forth in DM No. 2B. This update is prepared to reflect current recreation facilities which have been developed since 1965 and to also show how all project lands, water, and other resources will be enhanced, developed, used, and managed in the public interest.

7. PROJECT DESCRIPTION. Snows Cut, a part of the AIWW between Beaufort, North Carolina, and the Cape Fear River, North Carolina, is an authorized navigation channel, 90 feet wide and 12 feet deep, between the Cape Fear River and Myrtle Grove Sound, approximately 9,000 feet in length. The channel centers on a 1,000-foot, fee-owned right-of-way along its entire length. Although the authorized navigation

channel is only 90 feet in width, erosion of the adjacent shoreline has increased the waterway to a width in excess of 400 feet. Strips of high, sandy, and generally wooded land lie within the right-of-way along each side of the project. These strips average 300 feet in width and vary from 6 feet to 25 feet above the average tide elevation. Gentle slopes are the norm, except at the banks where a 10- to 25-foot escarpment has been formed by wave action. These strips are generally heavily wooded with large pines, with the exception of the northwesterly shoreline which is marshy and two areas which were used as borrow pits for the U.S. Highway 421 bridge approaches (see Photo Nos. 1 and 2). The North Carolina State Highway Commission had a lease on 2.4 acres between the old highway and the new bridge on the north bank, which they developed as a roadside park for day use only. This picnic area has been rehabilitated and is included in the parkland now leased by New Hanover County. Sanitary water and picnic facilities are available to the public at no charge. A boat launching facility exists at the southeast corner of the project and is operated by the North Carolina Wildlife Resources Commission (NCWRC). The North Carolina State Parks Department leases over half the southern shoreline. Available facilities include camping, picnicking, and a marina complex with boat launching lanes. The State of North Carolina has two right-of-way easements for public roads on the Government property. Also, Southern Bell Telephone and Telegraph Company has a 20-foot-wide easement for a submerged cable across the channel and over Government lands (see Plate 2).

a. LOCATION. Snows Cut is located on the AIWW, approximately 10 miles south of Wilmington, North Carolina, and 1.0 mile north of Carolina Beach, and extends from Myrtle Grove Sound to a point on the Cape Fear River, approximately 8 miles above its terminus into the Atlantic Ocean at Southport, North Carolina.

b. CLIMATOLOGICAL DATA. Snows Cut is located in a temperate climate, where the temperatures average 47.0 degrees in January to 79.7 degrees in July, with an average annual temperature of 63.4 degrees. July is the wettest month, with an average precipitation of 7.44 inches. The mean average annual precipitation over the Wilmington area is 51 inches per year. Although light snow and freezing temperatures occur occasionally, extremes of either are exceptions. Generally, the climate is very favorable for outdoor activities.

c. VISITATION. Annual visitation occurring on project lands leased to the State of North Carolina and New Hanover County has never been documented. The North Carolina State Parks Department has visitation figures for Snows Cut State Park; however, only a small portion of park development and visitation occurs on project lands. New Hanover County and the NCWRC have not conducted complete visitation surveys or traffic counts at their facilities. To estimate annual visitation on project lands, a methodology was developed utilizing known information and existing recreation facilities.

Estimated annual recreation visitation at the New Hanover park facility and the NCWRC public boat launching facility are as follows:

NEW HANOVER COUNTY PARK

41 - PICNIC TABLES - Assume 1.25 cars per picnic unit. This requires 51 parking spaces for maximum capacity.

80 - PARKING SPACES - As shown above, 51 parking spaces are required during maximum picnic capacity. This leaves 29 spaces available for sightseers and fishing persons. Since fishing activities normally occur during non-peak picnic times, a given parking space can normally be shared by both activities. Also, fishing and picnicking activities will occasionally be by the same visitor(s). Sightseers will/can occupy the remaining parking spaces. It is determined that the available parking spaces (80) are adequate and will prevent unwanted overuse of the park.

VISITOR ESTIMATES:

PICNIC:

41 Tables @ 75% occupancy during weekend days
47 Total summer weekend days, including holidays (May 1 - Sept. 30)
3 Persons/table
1.5 Turnover rate
72% of visits occur on weekend days

Thus: $3 \times 41 \times 1.5 \times .75 = 6,504$ summer weekend day picnic visits
6,504 visits represent 72% of picnic visits

Thus: $6,504 / .72 = \underline{9,033}$ Total Picnic Visits

SHORELINE FISHING:

30 Fishing, "shoreline spaces," available (Assume 15 parking spaces used by fishermen)
1.5 Turnover rate $30 \times 1.5 \times 244 \times .60 = 6,588$
244 Total days (April - November)
.60 Average occupancy rate (60%)

30 Fishing, "shoreline spaces," available $30 \times 1.5 \times 121 \times .10 = 545$
1.5 Turnover rate
121 Total days (December - March) Total fishing visits = 7,133
.10 Average occupancy rate (10%)

SIGHTSEEING:

14 "Available" parking spaces (1/2 of the space available for fishing and sightseeing)
3 Persons/vehicle
47 Total summer weekend days, including holidays (May 1 - Sept. 30)
4 Turnover rate
72% of visits occur on weekend days
75% occupancy during weekend days

Thus: $14 \times 3 \times 47 \times 4 \times .75 = 5,922$
5,922 visits represent 72% of sightseeing visits
Thus: $5,922 / .72 = \underline{8,225 \text{ Total Sightseers}}$

Total annual visits at park: Picnic - 9,033
Shoreline Fishing - 7,033
Sightseers - 8,225
24,391 Annual Visits

NCWRC PUBLIC BOAT LAUNCHING FACILITY

2.5 Persons/boat
100 Parking space capacity
1.5 Turnover rate

Thus: $2.5 \times 100 \times 1.5 = \underline{375 \text{ Maximum daily visits}}$

MAY 1 - SEPTEMBER 30

47 Weekend days $375 \times 47 \times .80 = 14,100$
80% occupancy rate (Judgement Avg.)

APRIL, OCTOBER, NOVEMBER

26 Weekend days $375 \times 26 \times .50 = 4,875$
50% occupancy rate (Judgement Avg.)

DECEMBER 1 - MARCH 31

36 Weekend days 15% occupancy rate (Judgement Avg.)	$375 \times 36 \times .15 = 2,025$
	<u>Total Weekend Visits = 21,000</u>
72% of weekly visits on weekends (21,000/.72)	<u>Total Annual Visits = 29,167</u>

d. SUMMARY OF RECREATIONAL DEVELOPMENT. The Flood Control Act passed December 22, 1944, as amended, by Section 4 of the Flood Control Act of 1946, Section 209 of the Flood Control Act of 1954, and Section 207 of the Flood Control Act of 1962, imposes the condition that recreational developments shall be the concern of the public and that preference shall be given to Federal, State, and local Government agencies for the use of areas for recreational purposes. The Federal Water Project Recreation Act (P.L. 89-72, 89th Congress, Session 1229, dated July 9, 1965) provides that non-Federal public bodies must agree to assume 50 percent of the recreational development cost of a project and all of the cost of operation, maintenance, and replacement of recreational facilities.

The North Carolina Department of Environment, Health, and Natural Resources (NCDEHNR), Division of Parks and Recreation, leases 53.38 acres of land along the southern slope of Snows Cut. A limited number of campsites are available; however, most of this land is presently undeveloped and is scheduled for future overnight facilities when the demand occurs. A small portion of this land is within the boundaries of the existing marina complex which has recently been upgraded and expanded (see Photo No. 3).

The NCWRC operates a four-lane boat launching facility at the southeastern end of project lands. This facility provides much needed boating access at the southern end of New Hanover County (see Photo No. 4).

New Hanover County leased 24.8 acres of land on the north shore of Snows Cut. Day-use facilities in the form of picnic sites, toilet facilities, overlook and gazebo, access to the shoreline, picnic shelters, and parking are available. All planned development at this park was completed in 1990 (see Photo Nos. 5-8).

e. REGIONAL INFLUENCES. Plate 1 shows the relation of Snows Cut to the major recreational areas of coastal southeastern North Carolina. As previously stated, the ocean resorts, Carolina Beach, Wilmington Beach, Kure Beach, and Fort Fisher are the major recreational attractions in the vicinity of Snows Cut. The parks and

freshwater lakes of the surrounding counties are not considered competitive with these ocean sites because of difference in resource conditions and recreation experience. There are 18 fishing piers extending into the ocean in southeastern North Carolina, with 4 being located on the peninsula below Carolina Beach. Carolina Beach also offers an amusement park with a variety of concession games and rides. The town of Carolina Beach owns and operates a municipal dock facility in Myrtle Grove Sound. This facility provides docking for 19 charter boats and 18 smaller pleasure boats. Numerous private docking facilities are located along the sound shoreline and at private subdivision boat basins.

There is one privately owned campground in the area. This campground is located along River Road across from the day-use recreation area operated by the New Hanover County Parks Department. This park has 100 sites with water and electric hookups available. The nightly fees average \$22.50 per night for full hookups. During the summer season, this campground reports 75 percent occupancy on weekend days; however, weekday occupancy is substantially lower. Seventy percent of the yearly visitation occurs in June, July, and August. Yearly camper days average between 7,500 and 10,000 per year.

With the completion of I-40 into New Hanover County in 1990, a major increase in tourism is anticipated. This increase of people into the area will place increased recreational demands upon available facilities. The majority of these people will travel from the northeast Piedmont metropolitan areas of Raleigh and Durham, North Carolina. Records indicate most of these new visits will occur on the weekends. The recreation activities most sought will be beach/ocean related. It is not expected that Snows Cut project lands will provide an appreciable recreation base which will appeal to these new visitors. Once a permanent population base increase occurs in the greater Wilmington area, the demand for additional recreation facilities at Snows Cut may occur.

B - RESOURCE OBJECTIVES

1. To develop and maintain the project to meet authorized purposes.
2. To make lands available to state and county governments for long-term lease agreements.
3. To maintain lands and facilities to help support existing and future overnight and day-use recreation opportunities.
4. To protect wetlands and environmentally sensitive areas from development and degradation.

C - RESOURCE ANALYSIS

1. **GENERAL SUMMARY.** The major attractions to this segment of North Carolina are the long, sandy ocean beaches and the large expanses of sounds and embayments for recreational boating. The area has a favorable climate conducive to a long recreational season extending from May 15 to September 15. Sport fishing is enjoyed throughout the year. Swimming, sunbathing, fishing, and recreational boating are the predominant recreational activities in the region. Camping and picnicking are increasing in popularity. The 9,000-foot-long navigation channel is one of many man-made segments of the inland route for pleasure and commercial vessels moving along the coast of North Carolina. The channel is especially convenient for vessels passing from Wilmington to the resort beaches and to ports to the north. Although the waterway is not of sufficient width to permit the maneuverability required by most recreational boating activities, it does provide access to larger bodies of water where these activities can be safely practiced without interference with commercial vessels. Swimming in Snows Cut is discouraged because of the high velocities and floating debris introduced from the Cape Fear River. Signs are located at both New Hanover County and State Park leased lands warning visitors about dangerous water conditions. Verbal warnings are also given by State and county personnel when swimming is observed. Bank fishing in this area is a favorite pastime for local inhabitants. The high banks of the adjacent shore, with the heavy canopy provided by the large pines, provide an excellent location for picnicking and camping activities. Normally, a cool ocean breeze brings comfort to individuals using the area. The gentle sloping shoreline at the southeast end of the south bank provides a natural setting for boat launching without conflict with commercial vessels on the AIWW. The large expanses of Myrtle Grove Sound provide space for waterskiing, sailboating, and motorboating. Water elevations vary, with tidal changes seldom exceeding 4 feet. The resort towns of Carolina Beach, Wilmington Beach, and Kure Beach attract thousands of visitors weekly during the recreation season. Numerous motels, hotels, and restaurants, as well as privately owned tent and trailer camp areas are available to accommodate the public. Charter boats are available at the nearby Carolina Beach boat basin for deep-sea fishing. Access to the ocean is through Myrtle Grove Sound, which separates the barrier beach from the mainland, and then through Carolina Beach Inlet which is located 3 miles north of Carolina Beach.

2. **ACCESSIBILITY.** The project is accessible over U.S. Highway 421, a four-lane highway which crosses the project approximately at its midpoint (see Plate 4).

3. **ENVIRONMENTALLY SENSITIVE AREAS.** Environmentally sensitive areas at Snows Cut are limited to tidal areas which support brackish marsh communities (see Photo No. 9). These areas, shown on plate 2, should remain undisturbed and utilized for their present biological use and visual qualities.

4. VEGETATION. A great variety in vegetation exists in the vicinity of the project, due primarily to an almost tropical climate provided by the Gulf Stream, which is near the coast at this point on the eastern seaboard. However, to the casual observer the area is characterized by a vegetation cover of various pines (Pinus), oaks (Quercus), bayberry shrubs (Myrica cerifera), cedar (Juniperus), and many species of grasses and perennials, in that order.

On the project, mature pines (Pinus taeda, Pinus rigida, and Pinus palustris) dominate the area southwest of the bridge with a variety of canopy and understory trees such as turkey oak (Quercus laevis), blackjack oak (Quercus marilandica), live oak (Quercus virginiana), black gum (Nyssa sylvatica), sweetbay magnolia (Magnolia virginiana), southern magnolia (Magnolia grandiflora), and flowering dogwood (Cirrus florida). Thicket hawthorn (Crataegus intricata) and common sassafras (Sassafras albidum) prosper in the more open areas and common bald cypress (Taxodium distichum) and carolina cherry-laurel (Prunus caroliniana) occur in the low areas.

The portion of the project northeast of the bridge is dominated mostly by the various oaks (Quercus) with a thick understory of shrubs, vines, and perennials. These shrubs include devils walking stick (Aralia spinosa), eastern red cedar (Juniperus virginiana), red buckeye (Aeculus pavia), sheep laurel (Kalmia angustifolia), fetterbush (Leucothoe axillaris), lyonia (Lyonia lucida and Lyonia mariana), buttonbush (Cephalanthus occidentalis), and groundsel-tree (Baccharis halimifolia). In the open areas, smooth sumac (Rhus glabra), huckleberry (Galussacia sp.), elderberry (Sambucus canadensis), sandmyrtle (Leiphyllum buxifolium), yaupon holly (Ilex vomitoria), dahoon holly (Ilex cassine), daubentonia (Daubentonia punicea), and white mulberry (Morus alba) growing as a small tree-type shrub.

Other plants and perennials include some yucca (Yucca filamentosa), blackberry (Rubus cuneifolius), dog fennel (Anthemis), iris (Iris), sandspurs (Cenchrus), bracken (Pteridium aquilinum), fly poison (Amianthium muscaetoxicum), black snakeroot (Zigadenus glaberrimus), magic lily (Lycoris radiata), redroot (Lachnanthes tinctoria), lupine (Lupinus), water hemlock (Cicuta maculata), and lantana (Lantana).

The above-named vegetation covers all of the project area except for two largely unvegetated disposal areas and tidal areas which are dominated by Spartina alterniflora. The vegetation will provide ample protection from the hot summer sun for both overnight and day-use users, and the vegetation variety will offer excellent opportunities for nature study.

5. CULTURAL RESOURCES. An intensive archaeological reconnaissance of the Snows Cut right-of-way was conducted in 1981 by Dr. Michael Baker, Archaeological Research Consultants, Incorporated. Dr. Baker reported no sites within a 200- to 250-foot-wide area along the cut. No further work is now needed unless erosion or changes in land use require expansion of the right-of-way beyond that of 1981.

6. PHYSIOGRAPHY AND GEOLOGY. Snows Cut is located in the coastal plain of North Carolina, which is the low and partially submerged area varying in widths up to 125 miles and confined between the Piedmont Plateau on the west and the Continental Shelf on the east.

The coastal plain area of North Carolina was submerged in early Pleistocene times. With each emergence and subsequent submergence, increasingly larger areas were left above the sea. Several well-defined terraces have been recognized in North Carolina. The seaward part of the coastal plain was covered by a thin mantle of the lowest of these terraces, the Pamlico. This covering, composed almost entirely of fine sand, loams, clays, sand, and some gravel was deposited by waves and currents during the floods attending the last interglacial State (Wisconsin); it never emerged again to a level higher than its present one. Deposits of recent age overlie the Pamlico formation. These are chiefly tidal marsh, beach sand, and dunes. In the swamp area, the soil consists largely of accumulations of peaty matter. The thickness of the deposits varies from 15 feet to 25 feet. Drainage within the area consists of sluggish creeks and drainage canals.

7. FISH AND WILDLIFE. Sport fishing in ocean and embayments of southeastern North Carolina is a popular activity during the spring, summer, and early fall months of each year. Best angling months, however, are September and October. Species of game fish that can be taken from inshore ocean waters include bluefish (Pomatomus saltatrix), Spanish mackerel (Scomberomorus maculatus), trout (Cynoscion ragalis or C. nebulosus), sea bass (Centropristis striata or C. philadelphia), and mullets (Mugil cephalus or M. curema). Larger game fish that can be taken from offshore ocean waters in or near the Gulf Stream, about 50 miles off Carolina Beach, include white marlin (Tetrapturus albidus), blue marlin (Makaira nigricans), sailfish (Istiophorus platypterus), wahoo (Acanthocybium solanderi), albacore (Thunnus alauunga), bonito (Sarda sarda), amberjack (Seriola), and barracuda (Sphyraena borealis or S. guachancho). Various types of charterfishing boats and head boats operate out of Carolina Beach Harbor. Flounder (Paralichthys dentatus), croakers (Micropogonias undulatus), and spots (Leiostomus xanthurus), are some of the other varieties taken by inshore anglers. Numerous species of migratory birds frequent this area yearly. Brown pelican and cormorants are the most frequently viewed migratory birds in this area.

Game in the Snows Cut area is scarce, principally consisting of squirrels, foxes, and rabbits. Waterfowl are seldom encountered in this area.

D - RECREATION PROGRAM ANALYSIS

1. GENERAL. A lease, designed to grant to the State of North Carolina the use and occupancy of approximately 8.9 acres of land within the AIWW, North Carolina, for

public park and recreational purposes, was approved by the Assistant Secretary of the Army on October 26, 1967.

The North Carolina Department of Conservation and Development (NCDCCD), currently known as the NCDEHNR passed a resolution on August 6, 1968, which, in effect, stated that the Snows Cut area of the AIWW affords opportunity for launching, boating, camping, and picnicking and could be operated in connection with Fort Fisher. It further emphasized that the Masonboro Island area, along with other lands adjacent to Snows Cut be acquired by the North Carolina Department of Administration and developed and operated by the Division of State Parks.

The State of North Carolina acting at the request of NCDCCD, on March 20, 1969, applied for a lease or license for park and recreational purposes at Snows Cut.

2. RECREATION USE ON PROJECT LANDS. Land-use activities on project land vary from intensive to passive. Areas of boating activities receive heavy concentrated use. Both the NCWRC boat launching facility and the North Carolina State Park boat launching/marina complex are designed to minimize negative impacts on the resource.

The carrying capacity analysis at Snows Cut shows that the critical factor in development is the highly erodible soils. New Hanover County has designed their day-use park to require minimal grading and vegetation removal. Pedestrian walkways and activity areas such as picnic sites, parking areas, waterway access points, and pedestrian walkway systems have been designed to minimize erosion. The ultimate controlling factor in preventing overuse is limited parking, which limits the number of visitors that may use the facilities at any one time, thus preventing overcrowding and resource degradation. Access to the remaining lands is limited to foot traffic at State Park leased lands and Corps lands. By confining vehicle traffic to authorized areas only, degradation of non-developed project lands has been limited to foot path erosion.

3. FUTURE RECREATION OPPORTUNITIES. Public day-use facilities not related to boating or beach activities are somewhat limited in this area of New Hanover County. Public demand, however, has not pressured public officials to provide additional facilities of this type. Most visitors and permanent residents of this area are looking for, and content with, water-based activities related to the natural resources provided by the ocean, bays, and salt marshes in this area. Project lands not yet developed or leased to the State or county have limited recreation potential. Operational lands for dredged disposal and/or borrow material and marsh (wetlands) are not available or suited for development. The northeast quadrant of the project is undeveloped and is available for limited development. Due to the dredge material disposal site located in the center of this tract of land, it is recommended that only limited to low density recreation facilities be provided at this site, unless land use changes occur at a later date. Day-

use facilities such as designated trails/footpaths, water access points, limited parking, minimal structures, and required utilities would be permitted. In 1985 and 1986, the Cape Fear Council of the Boy Scouts of America considered leasing this parcel and developing a "seabase" for scouting activities. Preliminary plans were developed by the Boy Scouts of America; however, this venture never materialized.

E - PUBLIC INVOLVEMENT AND COORDINATION

COOPERATION WITH STATE AND LOCAL GOVERNMENTS. The authorizing documents for developing recreation facilities at Snows Cut imposed the conditions that recreational developments shall be the concern of the public and that preference shall be given to Federal, State, and local governmental agencies for the use of areas for recreational purposes.

Available tracts have been and additional tracts could be leased to responsible State, county, and municipal agencies operating in the interest of public use or recreation. Long-term leases of 25 years have and may be granted. Responsible Federal, State, or local governmental agencies may be permitted to enter normal concession agreements with a third party or parties, subject to the approval of the District Engineer.

F - LAND CLASSIFICATION

THE CLASSIFICATION PROCESS. "The land classification process refines the land allocations to fully utilize project lands and must consider public desires, legislative authority, regional and project-specific resource requirements and suitability" (ER 1130-2-435). The land allocation, as discussed in the report introduction, takes precedent over land classification categories. The allocated project lands are classified to provide for development and resource management consistent with authorized project purposes and the provisions of NEPA and other Federal laws.

The lands at Snows Cut are classified as follows (see Plate 2):

1. PROJECT OPERATIONS. These lands are required for dredge disposal and/or borrow material.
2. RECREATION. Land developed for intensive recreational activities. Future areas will be classified as multiple resource management until initiation of the development.

3. ENVIRONMENTALLY SENSITIVE AREAS. Areas where scientific, ecological, cultural, or aesthetic features have been identified. Normally, limited or no development is contemplated on lands in this classification. No agricultural or grazing uses are permitted on this land.

4. MULTIPLE RESOURCE MANAGEMENT. Lands managed for one or more of, but not limited to, the following activities.

a. RECREATION - LOW DENSITY. Low density recreation activities such as hiking, primitive camping, wildlife observing, hunting, or similar low density recreation activities.

b. WILDLIFE MANAGEMENT GENERAL. Fish and wildlife management activities.

c. VEGETATIVE MANAGEMENT. Management activities for the protection and development of forest and vegetative cover.

d. INACTIVE AND/OR FUTURE RECREATION AREAS. Recreation areas planned for the future or that have been temporarily closed.

G - RESOURCE PLAN

1. RESOURCE CHARACTERISTICS AND OBJECTIVES AS RELATED TO LAND CLASSIFICATION (see Plate 2).

a. PROJECT OPERATIONS. The Snows Cut project was authorized to provide a navigation channel between Myrtle Grove Sound and the Cape Fear River as part of the AIWW. Certain project lands are, therefore, set aside to provide dredge material disposal areas when removal of sand from the navigation channel is required. The existing dredged material disposal areas at Snows Cut are an important element to maintaining the adjacent Federal Navigation Channel. The material removed from the navigation channel is normally transported to the beach by hydraulic pipeline dredge. Should shoaling occur outside the dredging environmental window (October 1 through March 31), the disposal areas would be used to store the dredged material. The stored material in the disposal areas could then be used for renourishment of local beaches. We would also use the disposal areas when the quantity of material to be removed is too small to justify beach disposal or if dredging occurs during tourist season. The capacity of the disposal areas is ± 1,000,000 cubic yards. Gated dirt roads provide access to the dredge material disposal areas.

b. RECREATION. To meet secondary project purposes, lands have been made available to State and county governments for the development of recreation facilities to meet recreational needs of the area. Both the State of North Carolina and New

Hanover County have entered into cost-sharing agreements to develop recreation facilities at Snows Cut. The developed facilities were fully coordinated with, and reviewed by, Corps officials and meet all requirements set forth in guiding regulations and lease agreements. Care was taken during planning and construction to limit vegetation removal, minimize grading, provide erosion control features, and plan the facilities to minimize potential resource degradation due to overuse.

c. ENVIRONMENTALLY SENSITIVE AREAS. These areas have been identified and classified within this category to ensure land-use activities do not destroy this valuable resource. All lands within this classification are marshlands and should receive the highest form of protection under wetland mandates. These areas are valuable because they (1) provide nursery habitat for fish and wildlife species, (2) provide the fragile buffer between open waters and upland land masses, (3) provide habitat and forage areas for both wildlife and fish species, and (4) enhance the aesthetics of the project. It is the intent of this plan that these lands remain in their present state and only be altered by natural circumstances.

d. MULTIPLE RESOURCE MANAGEMENT LANDS. The remaining lands at Snows Cut are classified as Multiple Resource Management Lands and managed for the following activities: (1) Recreation - Low Density and (2) Inactive and/or Future Recreation Areas. These lands consist of approximately 50 percent of the total project. The lands operated by the North Carolina Division of State Parks are presently included within this classification, with the exception of a corner of the marina complex and the entrance channel to the marina. The other large block of land within this classification lies on the north shore of the cut and includes all the area east of the operational lands to the waters of Myrtle Grove Sound. Preliminary plans were developed for this block of land by the Boy Scouts of America in the mid 1980's; however, a lease agreement and site development plans were never finalized. Presently, there are no plans to develop this block of land. Gated woods roads are used by day hikers and the shoreline of the cut is used by fishermen.

The Snow's Cut area has been surveyed for endangered and threatened species during previous biological surveys. Due to the intensity of past use and alteration of ground water levels resulting from the cut, no listed species have been documented to occur. Open-water portions of the cut could be used by shortnose sturgeon (Acipenser brevirostrum) or the West Indian Manatee (Trichechus manatus), both listed as endangered species. Both of these species have been documented to occur in the Cape Fear River and nearby ocean waters. Low density recreational development and recreation activity along the banks of Snow's Cut should not have any effect on either species.

2. EXISTING RECREATION FACILITIES. The Division of State Parks operates Carolina Beach State Park, which is located to the southwest boundary of Snows Cut. A family campground contains 83 tent and trailer sites, each containing a table and grill. There

are no water or electric hookups for travelers; however, drinking water and washhouse facilities are available to all registered campers. The nightly fee is \$7 for a maximum of six persons and two vehicles. During the summer/fall season and during holiday weekends, this campground reports full occupancy. Occupancy rates vary during normal weekends and seldom reach 50 percent for any given weekday. A picnic area is also adjacent to the campground and utilizes leased lands of the Snows Cut project. This area is equipped with drinking water, tables, grills, and toilet facilities. Trails connect the picnic area with the campground. No permanent facilities such as washhouses or toilet buildings are located on leased lands. The annual visitation at Carolina Beach State Park in 1990 (January 1 - December 31) was 173,692. This was a 90-percent increase from 1989. This large increase is attributed to the opening of the new marina complex. A 32-percent increase has occurred through October 1991 for the same reason.

Boat launching facilities exist at both the southeast corner and the southwest corner of Snow's Cut. The southwestern location is operated by the North Carolina Division of Parks and Recreation and also includes a marina complex which was upgraded and expanded in 1990. The facility located at the southeast corner is a four-lane launching facility and is operated by the NCWRC. This facility was upgraded in 1988 and can accommodate between 80 and 100 boat trailer units (see Photo No. 4). Prior to this renovation, parking occurred in unauthorized areas and long lines were commonplace on summer weekend days.

New Hanover County has developed a day-use park on 24 acres of leased land on the northern side of Snows Cut. This park was completed and opened to the public in 1990. Facilities provided include picnic tables with grills, toilet facilities, picnic shelters, access to the water, a foot trail system, and gazebos and benches (see Photo Nos. 5-8). This park has proven to be very popular with both out-of-town and local visitors (see Plate 4).

The continuing use of project lands by recreating individuals indicates that the project lands are satisfying some portion of the surrounding area's overall recreation demand. Recreation-demand studies for the surrounding area have not been performed by any agencies, companies, or individuals. Costly, time consuming recreation-demand studies are not considered necessary since public use/recreation is incidental to the navigation aspect of the channel.

3. FUTURE RECREATION FACILITIES. All future recreational development at Snows Cut will be at 100-percent, non-Federal costs. All development proposed by a lessee will be coordinated with the Wilmington District, U.S. Army Corps of Engineers. Prior to District approvals of all proposed recreation facilities, the lessee or sublessee will agree to bear 100 percent of the cost of the recreation facility construction and also agree to operate and maintain all facilities at 100-percent, non-Federal cost.

a. ENVIRONMENTAL CONSIDERATIONS. Any future recreational development must be reviewed for compliance with applicable Federal and State environmental laws and regulations. These laws and regulations include:

- (1) National Environmental Policy Act (NEPA) of 1969, as amended.
- (2) Endangered Species Act of 1975, as amended.
- (3) National Historic Preservation Act of 1966.
- (4) Federal Coastal Zone Management Act of 1972, as amended.
- (5) Executive Order 11990, Protection of Wetlands.
- (6) Executive Order 11988, Flood Plain Management.
- (7) North Carolina Sedimentation Erosion Control Act.
- (8) Clean Water Act.

b. CONCEPTUAL DESIGN CRITERIA. Existing roads and trails should be utilized to the maximum extent practicable, usually with some improvement in alignment and drainage. Circulation and camp roads should be 18 feet in width, with 3-foot shoulders. Loop service drives and one-way circulation roads will be 10 feet in width, with minimal shoulders. All access and circulation roads are to be ultimately surfaced with asphalt or other acceptable, hard-surface paving. Initially, these roads, as well as service roads, may be earth and shell rock. Parking spaces will be surfaced to conform to the construction method used for their access roads. Parking spaces will be limited in day-use areas to a quantity which will prevent overuse of the resource.

Campsites and picnic sites will be constructed in such a manner to include a timber-bordered impact area. Tables, grills, fire rings, lantern holders, and tent pads will be located within the impact areas. The impact areas will be surfaced with fine gravel and sloped to drain (\pm 2 percent). Facilities will be accessible to persons with disabilities. All future development will adhere to guidelines set forth in the Americans With Disabilities Act of 1990 (Public Law 101-336).

Site clearing will be limited to brush removal, dead and damaged trees, and conifers up to 3 inches in diameter. All roads and recreation facilities will be sited to minimize tree removal. Foot paths will be sited and/or field adjusted to ensure no vegetation over 3 inches in diameter is removed or damaged. All marketable timber that cannot be saved will be sold and the proceeds turned over to the Federal Government.

H - SPECIAL PROGRAMS

1. LAW ENFORCEMENT. The enforcement of civil and criminal laws within the project limits will be the responsibility of duly authorized law enforcement officers of Federal, State, County, and local governments. Education and persuasion will be used to

obtain compliance with rules and regulations. Court procedures will ordinarily be reserved as a last resort after other methods have failed. Under no circumstances will Corps employees use force to obtain compliance with rules and regulations.

2. **FIRE CONTROL.** Both the N.C. Division of Parks and Recreation and New Hanover County maintain fire suppression agreements with the N.C. Division of Forestry. Fire fighting assistance is available from the Forest Service upon request. The Division of Parks and Recreation contracts the Forest Service to conduct control burns on project land when conditions warrant. New Hanover County has installed a sprinkler system in developed areas of the park where turf is being established. The park has also been cleared of underbrush in all developed areas. Yearly maintenance efforts keep the park free of underbrush growth. Fire hydrants are not available for fire control efforts adjacent to project lands. The Carolina Beach Fire Department and New Hanover County Volunteer Departments are located within 5 miles of project lands which allows for quick response time if fires occur.

3. **WATER SAFETY.** Safety in all water activities will be promoted by the U.S. Coast Guard and boating law enforcement agencies of the State of North Carolina and New Hanover County. The Division of Parks and Recreation and the New Hanover County Parks Department both promote water safety programs at Snows Cut. Signs are located within the parks and along the waters edge discouraging swimming. Verbal warnings are also given by Park Rangers to any visitors found violating no swimming warnings.

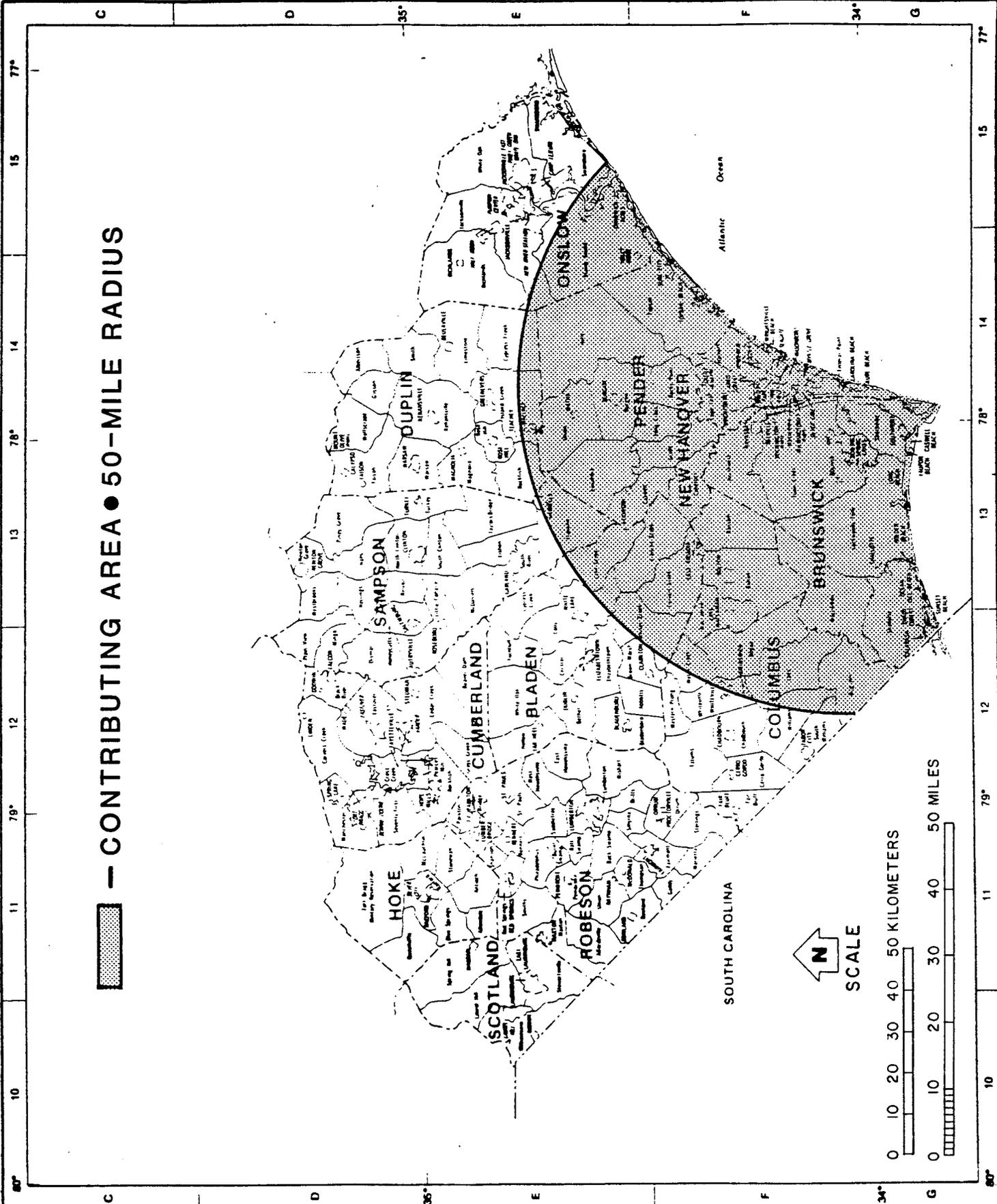
I - SPECIAL PROBLEMS

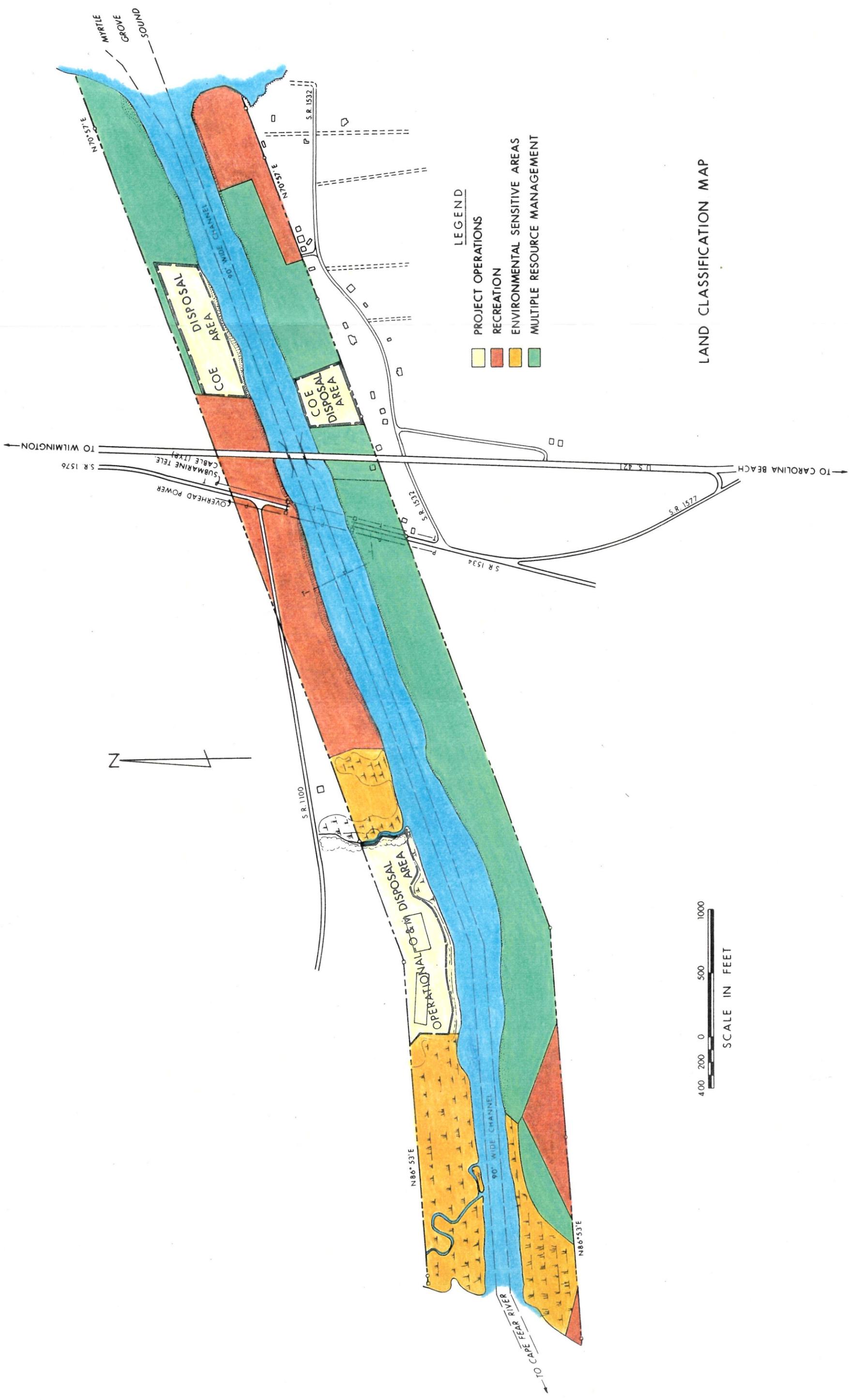
SLOPE EROSION. The 90-foot-wide authorized navigation channel has expanded to a width of 400 feet along much of the length of the cut. This expansion has occurred due to wind-blown wave action, tidal currents, and boat wakes. Escarpments, 10 to 25 feet high, occur along most of the water frontage of both Carolina Beach State Park and New Hanover County Park. Root systems of large trees are continually being exposed and accelerated bank erosion occurs when these trees fall. These high sandy banks will continue to erode unless erosion control measures are developed (see Photo Nos. 2 and 8). Modification of the Snows Cut Navigation Project to include erosion control may be possible under Section 1135(b) of the Water Resources Development Act 1986, as amended. However, an Initial Appraisal and Feasibility Level Studies, which may take several years to complete, would be required to determine project potential. In the interim, we are investigating alternative authorities to address this problem. In accordance with the National Oceanic and Atmospheric Administration - Department of the Army Cooperative Agreement for Restoring and Creating Fish Habitat dated January 31, 1991, the Wilmington District

and the National Marine Fisheries Service are investigating opportunities for creation of fish habitat associated with potential erosion control along the Snows Cut shoreline. A potential plan includes the creation of substrate for marsh establishment by toe of the bank disposal of dredged material from maintenance dredging of Snows Cut and subsequent planting of suitable marsh vegetation. It is expected that this proposal would be effective along only limited reaches of Snows Cut and that other structural features would also be required to combat the severe erosion in this area. Areas of potential marsh establishment are shown on Plate 3.

J - RECOMMENDATION

It is recommended that this Master Plan be approved as a basis for the proper development, operation, and management of Snows Cut to best serve the public's interest.



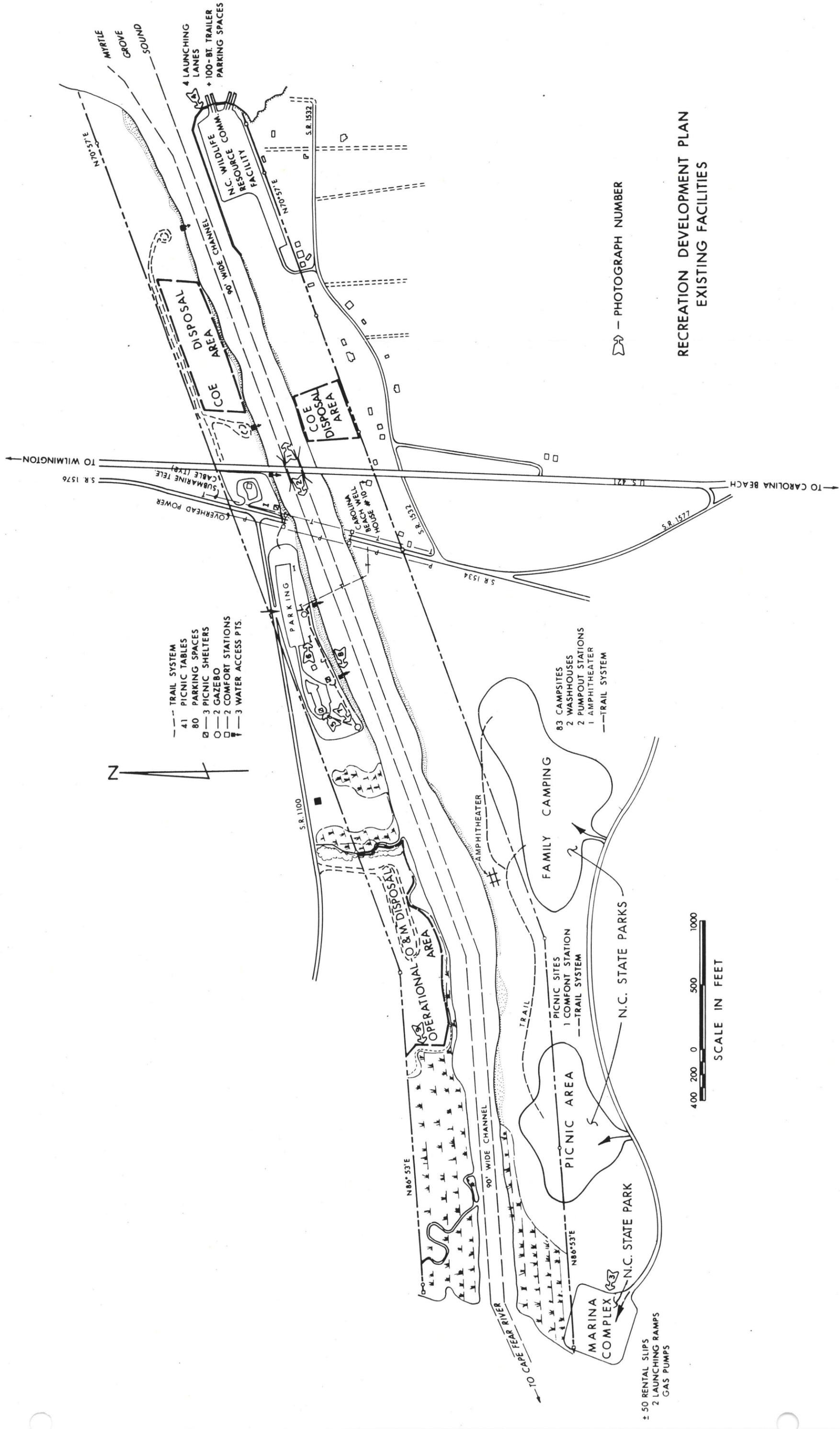


LEGEND

- PROJECT OPERATIONS
- RECREATION
- ENVIRONMENTAL SENSITIVE AREAS
- MULTIPLE RESOURCE MANAGEMENT

LAND CLASSIFICATION MAP

400 200 0 500 1000
SCALE IN FEET



- TRAIL SYSTEM
- 41 PICNIC TABLES
- 80 PARKING SPACES
- 3 PICNIC SHELTERS
- 2 GAZEBO
- 2 COMFORT STATIONS
- 3 WATER ACCESS PTS.

- 83 CAMPSITES
- 2 WASHHOUSES
- 2 PUMPOUT STATIONS
- 1 AMPHITHEATER
- TRAIL SYSTEM

- ± 50 RENTAL SLIPS
- 2 LAUNCHING RAMPS
- GAS PUMPS

⊞ — PHOTOGRAPH NUMBER

RECREATION DEVELOPMENT PLAN
EXISTING FACILITIES



SNOWS CUT--LOOKING EAST



PHOTOGRAPH NO.1

SNOWS CUT--LOOKING WEST



PHOTOGRAPH NO.2

N.C. STATE PARKS--MARINA COMPLEX



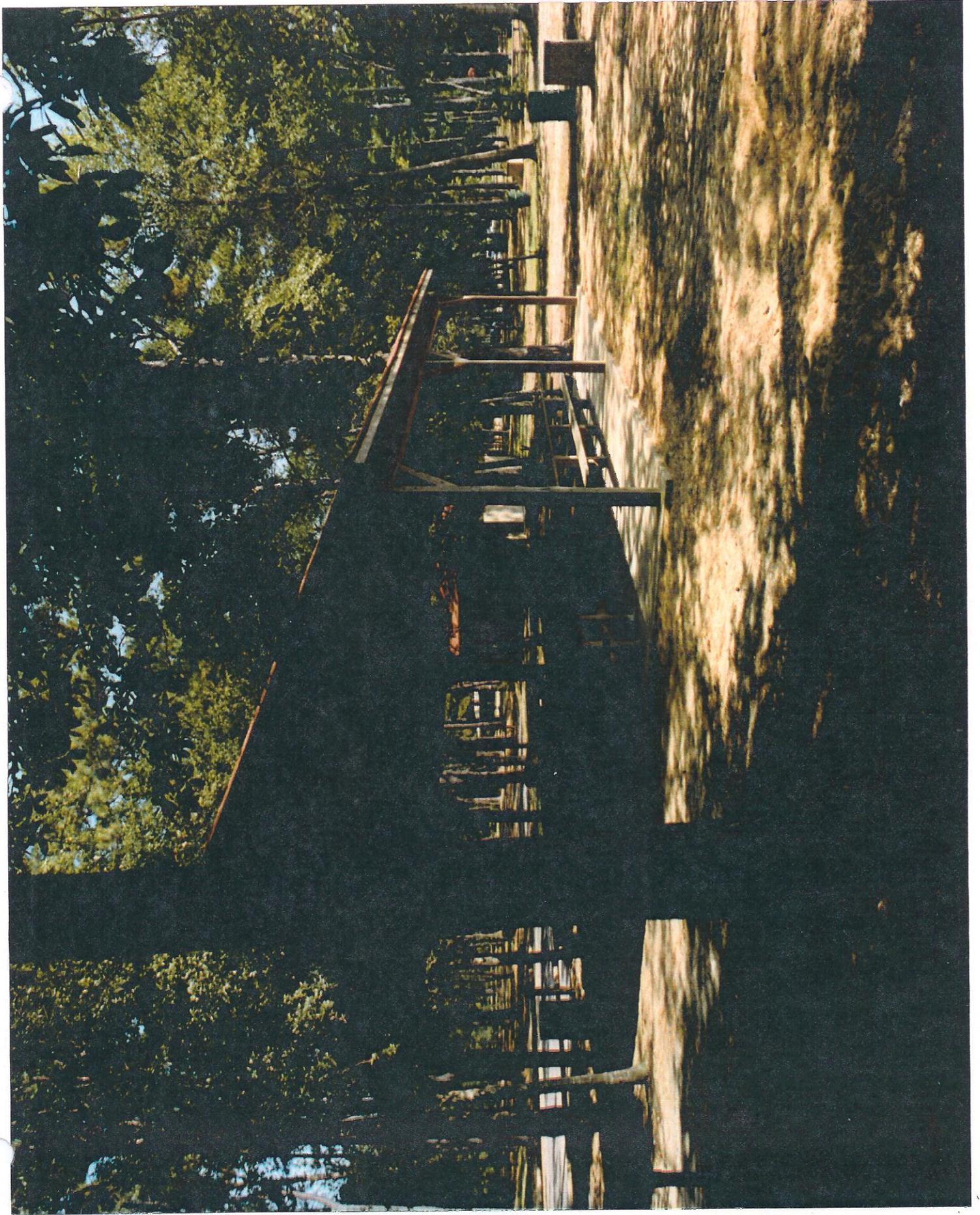
PHOTOGRAPH NO.3

NCWRC BOAT LAUNCHING AREA



PHOTOGRAPH NO.4

NEW HANOVER COUNTY PARK



PHOTOGRAPH NO.5

NEW HANOVER COUNTY PARK



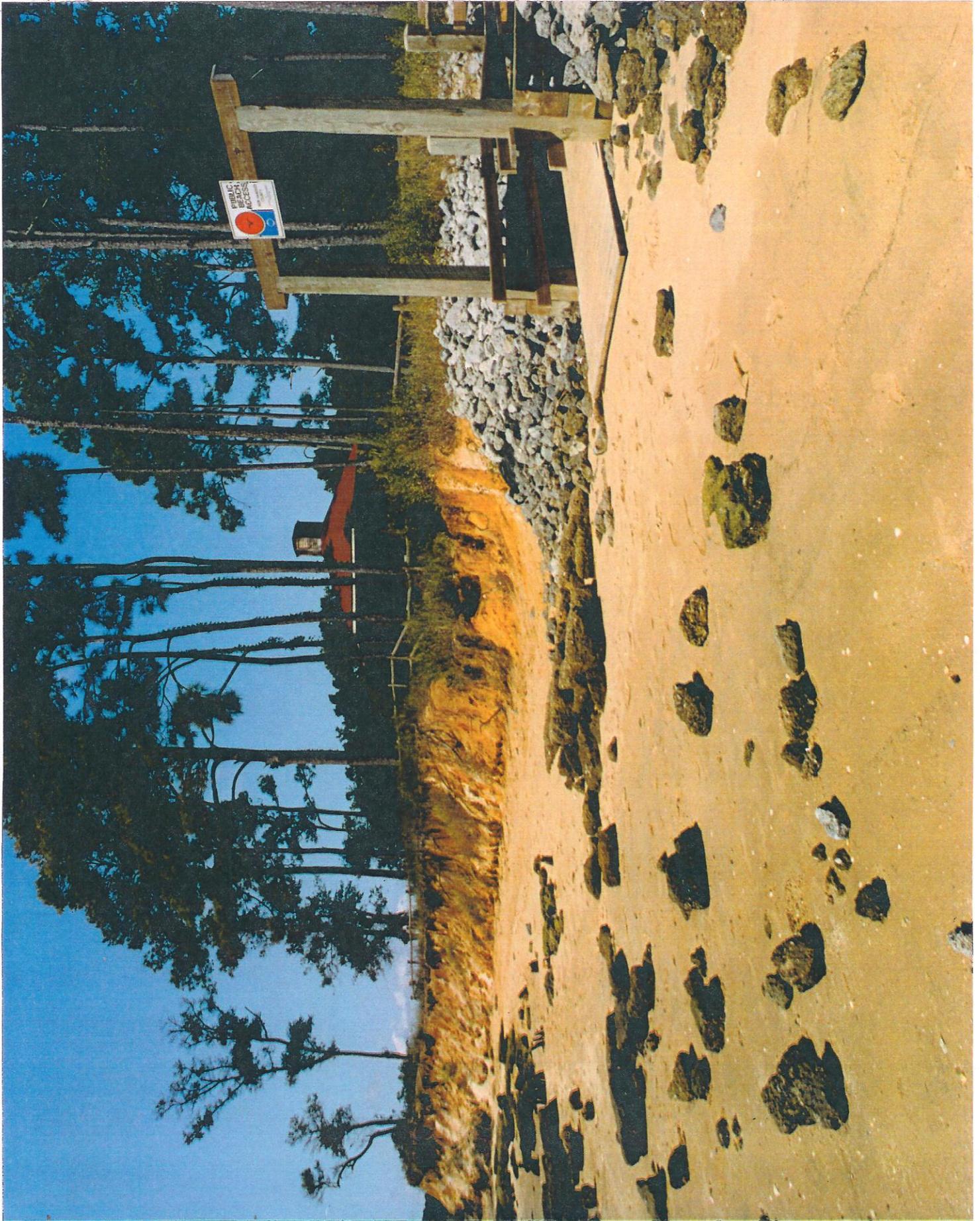
PHOTOGRAPH NO.6

NEW HANOVER COUNTY PARK



PHOTOGRAPH NO.7

NEW HANOVER COUNTY PARK



PHOTOGRAPH NO.8

TIDAL MARSH



PHOTOGRAPH NO.9

APPENDIX A

**LETTERS RECEIVED FROM NEW HANOVER COUNTY,
PARKS AND RECREATION DEPARTMENT
AND
THE STATE OF NORTH CAROLINA,
DEPARTMENT OF ENVIRONMENT, HEALTH,
AND NATURAL RESOURCES.**



MIKE WATERS
Director

NEW HANOVER COUNTY

PARKS AND RECREATION DEPARTMENT
414 CHESTNUT STREET, ROOM 103
WILMINGTON, NORTH CAROLINA 28401-4094
TELEPHONE (919) 341-7198

October 30, 1992

Don Henry
U. S. Army Corps of Engineers
Wilmington District Office
P. O. Box 1890
Wilmington, North Carolina 28402

RE: Preliminary Master Plan: Snows Cut Park

Dear Mr. Henry:

We concur with the master plan as drafted. We do; however, have major concerns relative to controlling erosion of the banks along Snows Cut. I have been Parks Superintendent for approximately two years. During this 2-year period, this department has moved the fences along the bank several times due to erosion. As stated in your report, erosion is caused by tidal currents, boat wakes, and wave action. In addition to this, we are having problems with surface run-off over banks creating erosion. There is a serious problem near shelter #2 shown in photograph #5 of your preliminary draft. If some action is not taken soon, we could lose this shelter due to erosion. So that you can better understand the seriousness of this problem, I am enclosing photographs of the bank erosion that has occurred during the past twelve months.

Your attention in this matter would be greatly appreciated. Should you desire additional information, please call me at 452-6383.

Sincerely,

H. Wayne Mohr
Parks Superintendent
New Hanover County Parks

HWM/jw-r

cc: Jim Craig, Civil Engineer, NHC Engineering
Mary Gornto, Deputy County Manager



State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Parks and Recreation
512 North Salisbury Street • Raleigh, North Carolina 27611

James G. Martin, Governor
William W. Cobey, Jr., Secretary

Dr. Philip K. McKnelly
Director

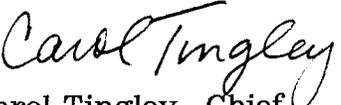
November 10, 1992

Mr. Donald A. Henry
U.S. Corps of Engineers
P.O. Box 1890
Wilmington, NC 28402-1890

Dear Mr. Henry:

We have reviewed the updated Snows Cut Master Plan and have no comments on this document. We appreciate the opportunity to review this information, and we apologize for the delay in responding.

Sincerely,


Carol Tingley, Chief
Natural Resources Section

CT/dh