

1993 Atlas of  
Colonial Waterbirds of  
North Carolina Estuaries



by

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by

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## Introduction

Twenty-five species of colonial waterbirds can be found nesting in North Carolina. Anhingas, Double-crested Cormorants and Great Blue Herons nest almost exclusively in swamp forests. Yellow-crowned Night-Herons, Green Herons and Great Egrets can be found nesting in both swamp forests and coastal estuaries (Parnell and Soots 1979, Parnell and Shields 1990, Soots and Parnell 1979). All other species of colonial waterbirds nest primarily along the coast.

Periodic surveys and censuses of nesting waterbirds are necessary to determine population trends, distribution of species and colony sites, condition of nesting habitats, threats to species and habitats and other factors that are important to the development of successful management strategies (Parnell et al. 1988, Parnell and Shields 1990). North Carolina's first coastwide surveys and censuses of nesting pelicans, wading birds, gulls, terns and skimmers were conducted during the spring and summer of 1976 and 1977 and were published as the *Atlas of Colonial Waterbirds of North Carolina Estuaries* (Parnell and Soots 1979). A second complete survey and census was conducted in 1983 and published as the *1983 Supplement to the Atlas of Colonial Waterbirds of North Carolina Estuaries* (Parnell and McCrimmon 1984). This atlas updates the 1979 and 1983 publications and presents results from censuses conducted during the 1993 nesting season.

In North Carolina, several agencies are involved in the management of waterbirds. The North Carolina Wildlife Resources Commission and the National Audubon Society manage many colony sites along the coast, and other agencies manage sites within their jurisdiction. All coordinate efforts through a multiagency management committee. See *Management of North Carolina's Colonial Waterbirds* (Parnell and Shields 1990) for details.

This atlas provides current state or federal status; general breeding biology; diet; habitats occupied; estimates of the number of nests; and locations of colony sites for each waterbird species that nested within the coastal zone of North Carolina during the 1993 nesting season. It also provides information on immediate and potential threats and the agency responsible for each colony site. We hope this information will be useful to wildlife managers, researchers and others interested in waterbirds along North Carolina's coast.

## Methods

Survey and census methodologies were patterned after those used in earlier studies (Parnell and Soots 1979, Parnell and McCrimmon 1984). Initially, aerial surveys of North Carolina's coastal zone were completed in early May with a fixed-wing aircraft flying at altitudes ranging from 50 to 200 meters. Two observers, one on each side of the aircraft, located all active colonies and possible colony sites, which were then plotted on a map. In addition, suitable nesting habitats were checked for possible colonies during ground surveys.

In 1975 and 1976, a series of censuses was conducted during each nesting season (Parnell and Soots 1979). An initial census was conducted at the peak of incubation, and subsequent censuses were conducted at intervals slightly longer than the incubation period of the species being censused. Results from these censuses may have been inflated if some nests failed and were counted a second time if the adults renested. Censuses in 1983 and 1993 were conducted only once, at or near the peak of incubation. It was recognized that peak nest counts are likely underestimates of the total nesting population because the counts miss nests that are abandoned or destroyed early and those initiated late in the season. This technique should, however, provide comparable estimates from year to year and should allow trends to be detected. Single counts are also much less expensive than multiple counts.

All active colony sites were visited at least once at or near the peak of incubation, when most individuals were presumed to be nesting. A team of trained observers, occasionally assisted by volunteers, systematically traversed each colony and identified and counted all active nests containing eggs or chicks. Censuses were conducted primarily during early morning and late afternoon hours under suitable weather conditions. Observers moved through each colony as quickly as possible to minimize disturbance of the colony. Active nests were recorded, along with site and colony habitats, dominant vegetation, physical features, current and potential threats, and other site or colony characteristics.

Total nest counts were obtained for most colonies of ground-nesting waterbirds. Occasionally, total nest counts were not possible due to a colony's large size or the presence of so many chicks that serious disruption might occur. In these cases, partial nest counts were used to project the total number of nests present. A few small Forster's Tern colonies occur along the western edge of barrier island marshes at sites almost impossible to reach from land or water. In these few cases, estimates were based on counts of incubating adults taken during aerial surveys.

Hérons and egrets usually nest in mixed-species colonies with nests 10 meters or more above the ground. The three-dimensional nature of these colo-

nies and the very similar appearance of some species' eggs and chicks made it impossible to match all nests to species under field conditions. Eggs and nests of Tricolored Herons, Little Blue Herons, Snowy Egrets and Cattle Egrets are similar in size and color, and chicks of Little Blue Herons, Snowy Egrets and Cattle Egrets are similar in appearance. In these cases, eggs or chicks were identified as accurately as possible when nests were counted. This resulted in some nests being counted as "unknown nest with eggs" or "unknown nest with chicks." To apportion these, a series of adult counts was made during and immediately after the census. It was assumed that the proportion of adults of each species included in these adult counts was identical to the proportion of nests in the unknown categories, and nests were apportioned accordingly. These techniques were the same as those used in earlier censuses (Parnell and Soots 1979, Parnell and McCrimmon 1984).

All active colony sites are located on a series of maps beginning on page 57. The facing pages provide a list of species nesting at each site and the number of nests counted in 1993. These maps were updated from the 1983 atlas (Parnell and McCrimmon 1984).

The coast of North Carolina has been divided into five management regions (Figure 1) (Parnell and Shields 1990). The North Carolina management plan calls for the maintenance of suitable colony habitat in each region for those species that have historically nested in each region.

All data collected were incorporated into the North Carolina Colonial Waterbird database maintained at the University of North Carolina at Wilmington.



## Results and Discussion

Eighty-two active colony sites were found along North Carolina's coast during the 1993 nesting season. These sites were divided into four major types: natural beach, natural estuarine, diked dredged-material island and undiked dredged-material island. The majority of North Carolina's colony sites were natural estuarine islands and natural beaches, 36 and 22 sites, respectively. Eighteen colony sites were undiked dredged-material islands, but these sites supported nearly 60 percent of the state's nests. This was largely due to Royal Tern, White Ibis and Laughing Gull colonies. With the exception of Morgan Island (NC-CR-017-01), very few waterbirds were found nesting on diked dredged-material islands.

Twenty-three species of colonial waterbirds were found nesting along North Carolina's coast. The total number of waterbird nests, estimated at the peak of incubation, was 66,730. The majority of nesting waterbirds were found on sites in Pamlico Sound (Management Region 2), Core Sound and vicinity (Management Region 3) and the lower Cape Fear River (Management Region 5) (Figure 1). Pages 6 to 51 provide accounts of each species.

Active protection and management of nesting sites have increased greatly over the past 10 years. The National Audubon Society and the North Carolina Wildlife Resources Commission have initiated coastwide programs to protect colonial waterbird nesting sites. The National Park Service, North Carolina Division of State Parks, North Carolina National Estuarine Research Reserve and U.S. Fish and Wildlife Service have initiated or increased their efforts to protect waterbird nesting sites within their jurisdiction. Agencies such as the U.S. Army Corps of Engineers have increased their assistance and cooperation with management efforts for nesting colonial waterbirds. Nearly three-fourths of the active colony sites found along North Carolina's coast in 1993 were under the jurisdiction of federal, state or private management agencies and most were afforded at least minimal protection. Nevertheless, significant threats to North Carolina's waterbird population continue to exist. Human disturbances and loss of nesting habitat were found to be the most frequent threats to the state's nesting colonial waterbirds.

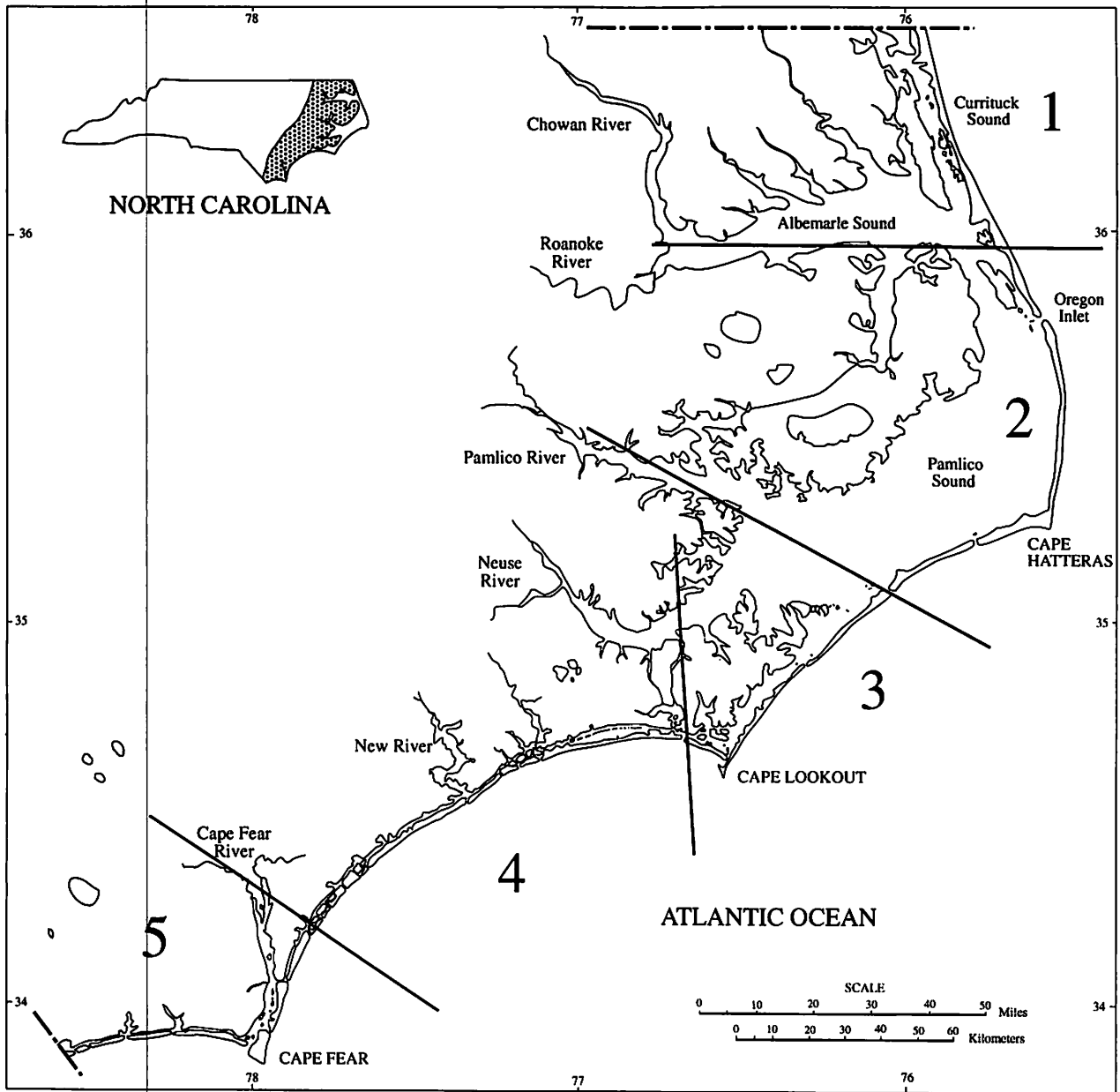


Figure 1. Colonial waterbird management regions

# Brown Pelican

(*Pelecanus occidentalis*)

**Status:** No special status in North Carolina.



**Identification:** Brown Pelicans are large, grayish-brown birds (107 to 137 cm) with a distinctive, large throat pouch. Adults have a dark brown neck (summer) and mostly white head. Juveniles have a brownish head and neck. Underparts are dark gray on the adults and light brown on the juveniles (Farrand 1983).

**Range (North America):** Breeds along the Atlantic Coast from Maryland to Florida, along the Gulf Coast from Florida to southern Texas, in the Greater Antilles, Virgin Islands and West Indies and on islands off Belize and the Yucatan Peninsula. Breeds along the Pacific Coast from central California to Tres Marias Islands and at scattered locations along the coast of Central America (AOU 1983).

**Breeding Biology:** Brown Pelicans nest on natural and dredged-material islands along the coast. This species also nests on offshore islands, natural shoals and barrier islands in other regions (Clapp et al. 1982). Adults begin to gather at colony sites and initiate nesting activities in March, and this can continue as late as June.

Adults begin to breed at three to five years of age, but occasionally two-year-old individuals will nest (Schreiber 1982). Nests are usually located on the ground, in grasses or marsh, and occasionally in small shrubs or trees. Brown Pelican nests are bulky structures that measure up to 1 meter in diameter and as much as one-half meter in height, built of sticks, marsh grass stems and/or other vegetation. The females lay one to three large, chalky-white eggs (75 x 50 mm) (Palmer 1962), usually one every other day. Both parents share in incubation, which lasts about 28 days (Palmer 1962). Chicks are naked and blind at hatching, then develop a coat of white down at about two weeks of age. Nestlings begin to fly at 10 to 11 weeks of age (Schreiber 1976). North Carolina colony sites are occupied from March to early September. Adult and immature pelicans may continue to roost at nesting sites throughout the fall and winter, while some individuals migrate south for the winter.

**Food:** Brown Pelicans feed primarily on fish. Atlantic Menhaden (*Brevoortia tyrannus*) is an important food source for this species in North Carolina.

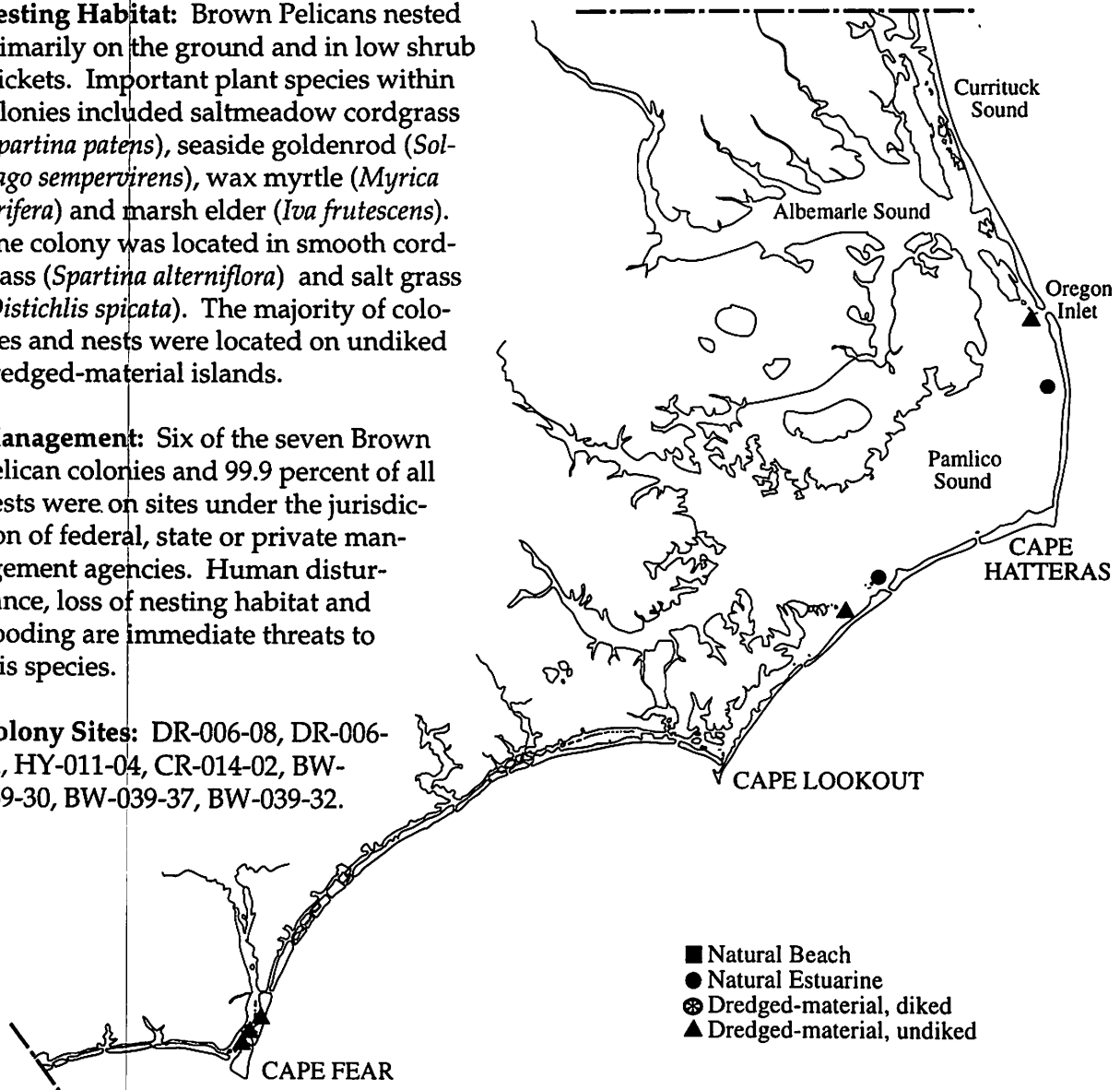
# 1993 Nesting Season

**Distribution and Abundance:** Brown Pelicans were found nesting at seven colony sites located from Cape Fear to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 3,327. The greatest concentration of nests was found in Management Region 2. The mean number of nests per colony site was 475 and varied from two to 957. Brown Pelicans were found nesting in single and mixed-species colonies, occasionally in association with Laughing Gulls and wading birds.

**Nesting Habitat:** Brown Pelicans nested primarily on the ground and in low shrub thickets. Important plant species within colonies included saltmeadow cordgrass (*Spartina patens*), seaside goldenrod (*Solidago sempervirens*), wax myrtle (*Myrica cerifera*) and marsh elder (*Iva frutescens*). One colony was located in smooth cordgrass (*Spartina alterniflora*) and salt grass (*Distichlis spicata*). The majority of colonies and nests were located on undiked dredged-material islands.

**Management:** Six of the seven Brown Pelican colonies and 99.9 percent of all nests were on sites under the jurisdiction of federal, state or private management agencies. Human disturbance, loss of nesting habitat and flooding are immediate threats to this species.

**Colony Sites:** DR-006-08, DR-006-12, HY-011-04, CR-014-02, BW-039-30, BW-039-37, BW-039-32.



Site Type	Colonies	Nests
Natural Beach	0	0
Natural Estuarine	2	574
Dredged-material, diked	0	0
Dredged-material, undiked	5	2,753
<b>Total</b>	<b>7</b>	<b>3,327</b>

# Great Egret

(*Casmerodius albus*)

**Status:** No special status in North Carolina.

**Identification:** Great Egrets are the largest (85 to 102 cm) of the white wading birds found in North Carolina. The legs and feet are black, and the bill is yellow. The lores are yellow, but turn bright green during courtship (Hancock and Kushlan 1984).

**Range (North America):** Breeds along the Atlantic Coast from Maine to Florida, along the entire Gulf Coast, in the upper Mississippi Valley and Great Lakes. Breeds along the Pacific Coast from California to Oregon (AOU 1983).

**Breeding Biology:** Great Egrets nest on estuarine and barrier islands and in swamp forests, often in association with other wading birds. In early March, adults begin to gather at colony sites and initiate nesting activities, which can continue through May.

Great Egrets construct large platform nests, up to 1 meter in diameter, of interwoven stems and twigs. They usually build nests in the upper canopy of trees or shrubs but may also choose sites in low shrubs and grasses. The female lays three to four pale blue eggs (56 x 41 mm) (Palmer 1962). Both parents participate in incubation, which lasts 23 to 24 days, and nestlings begin to fly at about six weeks of age (Palmer 1962). Great Egrets occupy North Carolina colony sites from early March to mid-August.

**Food:** Food for this species is diverse, but consists primarily of fish. Great Egrets also feed on crustaceans, reptiles, amphibians, insects, small mammals and birds (Kushlan 1978).



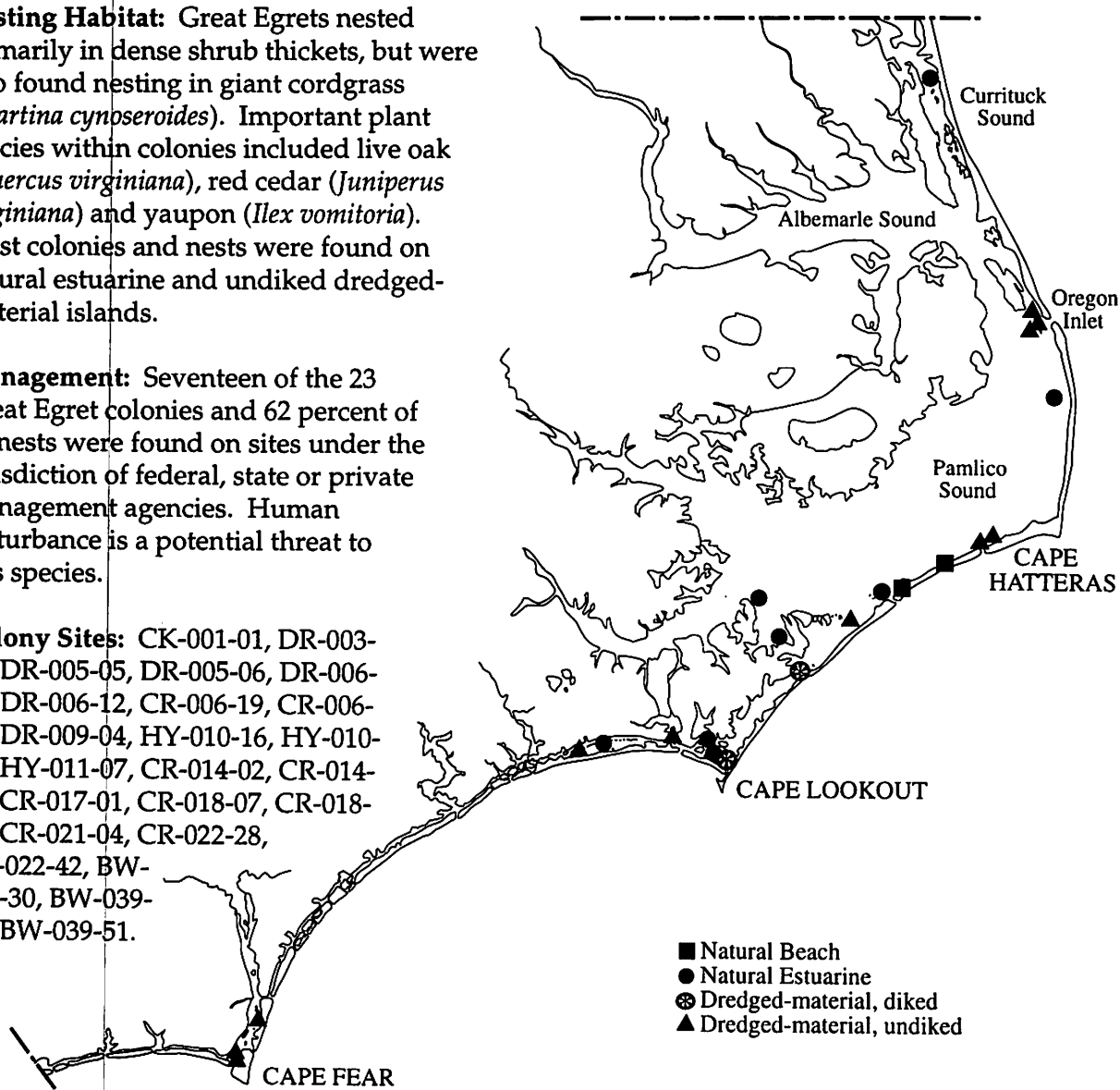
# 1993 Nesting Season

**Distribution and Abundance:** Great Egrets were found nesting at 23 colony sites from Cape Fear to Currituck Sound. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 1,945. The greatest concentrations of nests were found in Management Regions 2 and 3. The mean number of nests per colony site was 85 and varied from one to 332. An unknown, but likely substantial, number of Great Egrets nests in coastal swamps and was not included in this census. Great Egrets were usually found nesting in association with other wading bird species.

**Nesting Habitat:** Great Egrets nested primarily in dense shrub thickets, but were also found nesting in giant cordgrass (*Spartina cynosuroides*). Important plant species within colonies included live oak (*Quercus virginiana*), red cedar (*Juniperus virginiana*) and yaupon (*Ilex vomitoria*). Most colonies and nests were found on natural estuarine and undiked dredged-material islands.

**Management:** Seventeen of the 23 Great Egret colonies and 62 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance is a potential threat to this species.

**Colony Sites:** CK-001-01, DR-003-09, DR-005-05, DR-005-06, DR-006-10, DR-006-12, CR-006-19, CR-006-20, DR-009-04, HY-010-16, HY-010-17, HY-011-07, CR-014-02, CR-014-04, CR-017-01, CR-018-07, CR-018-15, CR-021-04, CR-022-28, CR-022-42, BW-039-30, BW-039-46, BW-039-51.



Site Type	Colonies	Nests
Natural Beach	2	110
Natural Estuarine	8	843
Dredged-material, diked	2	172
Dredged-material, undiked	11	820
<b>Total</b>	<b>23</b>	<b>1,945</b>

# Snowy Egret

(*Egretta thula*)

**Status:** State-listed as a species of "special concern."

**Identification:** Snowy Egrets (56 to 66 cm) are entirely white, with black legs and bill. Feet and lores are yellow, but may turn reddish orange for a short period when courting (Hancock and Kushlan 1984).

**Range (North America):** Breeds along the Atlantic Coast from Maine to Florida, along the Gulf Coast, Mississippi River Valley and in the Great Lakes. Also breeds inland from Oregon to Colorado and southward to Texas and New Mexico (AOU 1983).

**Breeding Biology:** Snowy Egrets nest primarily on estuarine and barrier islands. This species is also known to nest in swamp forests (Pearson et al. 1942). Initiation of nesting activities in North Carolina colonies begins in April and may continue until June.

Snowy Egrets may begin to breed at one year of age (Palmer 1962). Adults construct platform nests, usually less than one-half meter in diameter, of interwoven stems and twigs. Nests are usually elevated in trees, shrubs or marsh grasses and rarely on the ground. The female lays three to five pale bluish-green eggs (43 x 32 mm), one every other day (Palmer 1962). Both sexes participate in incubation, which lasts 18 days. Nestlings begin to fly at 30 days of age (Palmer 1962). Snowy Egrets occupy North Carolina colony sites from April to early August.

**Food:** Food consists primarily of fish, crustaceans and insects. Other food items include reptiles and amphibians (Kushlan 1978).



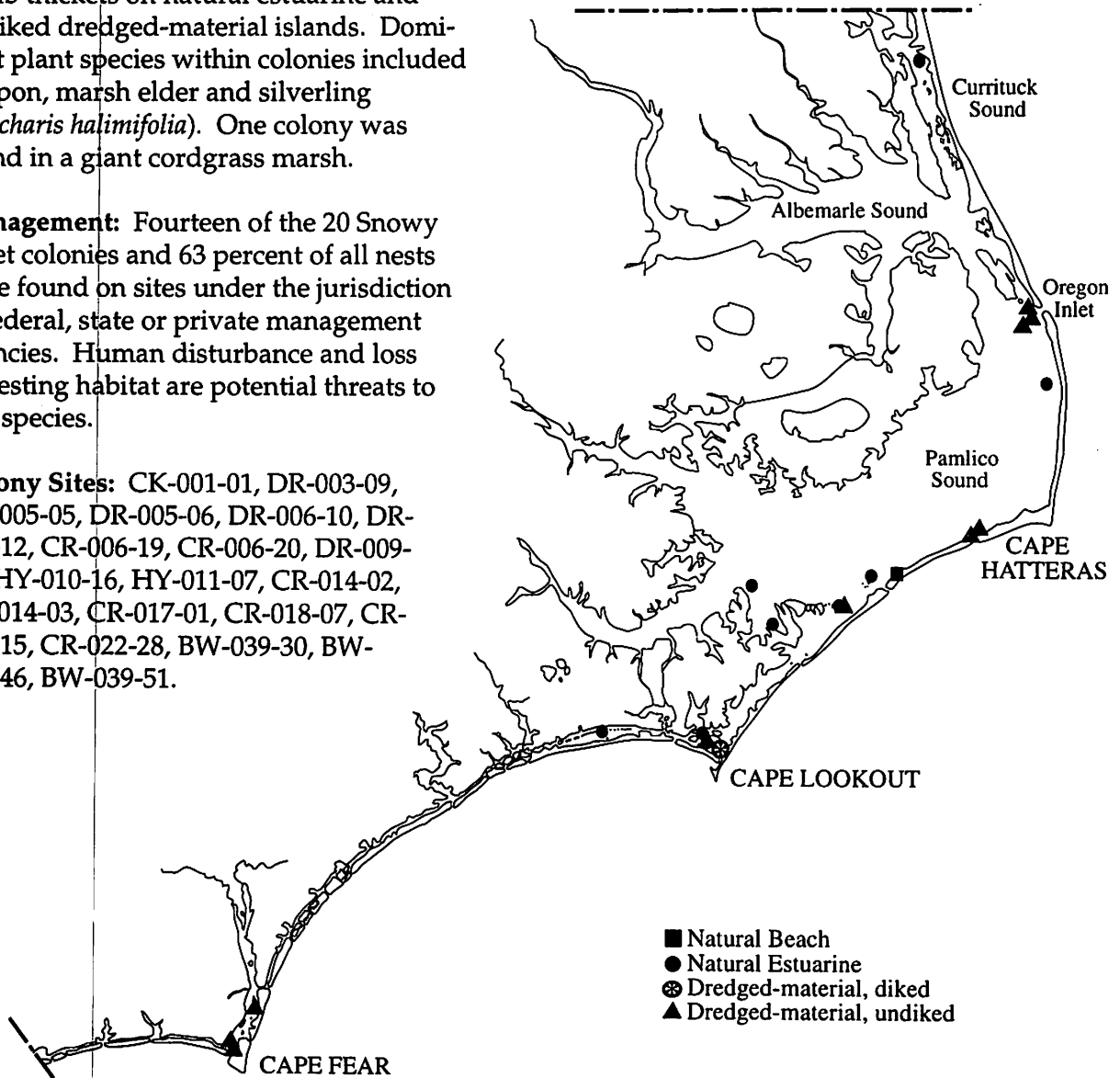
# 1993 Nesting Season

**Distribution and Abundance:** Snowy Egrets were found nesting at 20 colony sites from Cape Fear to Currituck Sound. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 904. The greatest concentration of nests was found in Management Region 5. The mean number of nests per colony site was 45 and varied from two to 191. Snowy Egrets were always found nesting in mixed-species colonies with other wading birds.

**Nesting Habitat:** Snowy Egrets nested primarily in shrub thickets on natural estuarine and undiked dredged-material islands. Dominant plant species within colonies included yaupon, marsh elder and silverling (*Baccharis halimifolia*). One colony was found in a giant cordgrass marsh.

**Management:** Fourteen of the 20 Snowy Egret colonies and 63 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance and loss of nesting habitat are potential threats to this species.

**Colony Sites:** CK-001-01, DR-003-09, DR-005-05, DR-005-06, DR-006-10, DR-006-12, CR-006-19, CR-006-20, DR-009-04, HY-010-16, HY-011-07, CR-014-02, CR-014-03, CR-017-01, CR-018-07, CR-018-15, CR-022-28, BW-039-30, BW-039-46, BW-039-51.



Site Type	Colonies	Nests
Natural Beach	1	24
Natural Estuarine	9	371
Dredged-material, diked	1	23
Dredged-material, undiked	9	486
<i>Total</i>	20	904



# Little Blue Heron

(*Egretta caerulea*)

**Status:** State-listed as a species of "special concern."

**Identification:** Adult Little Blue Herons (64 to 74 cm) are entirely dark. The back, wings and belly are slate blue; the head and neck are rusty maroon. The bill is gray at the base and tipped with black, and the legs are gray. Immatures are entirely white with greenish-yellow legs. Immatures molt into their adult plumage at one to two years of age and appear mottled white and blue during their molt. At this stage, Little Blue Herons have been referred to as "Calico Herons" (Hancock and Kushlan 1984).

**Range (North America):** Breeds along the Atlantic Coast from Maine to Florida, along the Gulf Coast from Florida to southern Texas and up the Mississippi River Valley to Missouri (AOU 1983).

**Breeding Biology:** Little Blue Herons nest in mixed-species colonies on estuarine islands, on barrier islands and in swamp forests. Initiation of nesting activities in North Carolina colonies usually begins in April and can continue until June.



Little Blue Herons construct platform nests of stems and twigs, usually less than one-half meter in diameter. Nests are usually elevated in shrubs, trees or marsh grasses. The female lays four to five pale bluish-green eggs (45 x 33 mm), one every other day (Palmer 1962). Both parents participate in incubation for 22 to 23 days. Nestlings begin to fly at about four weeks of age (Palmer 1962). Little Blue Herons occupy North Carolina colony sites from April to late August.

**Food:** Food consists primarily of fish, crustaceans, reptiles, amphibians and insects (Kushlan 1978). This species often forages in freshwater habitats (Palmer 1962).

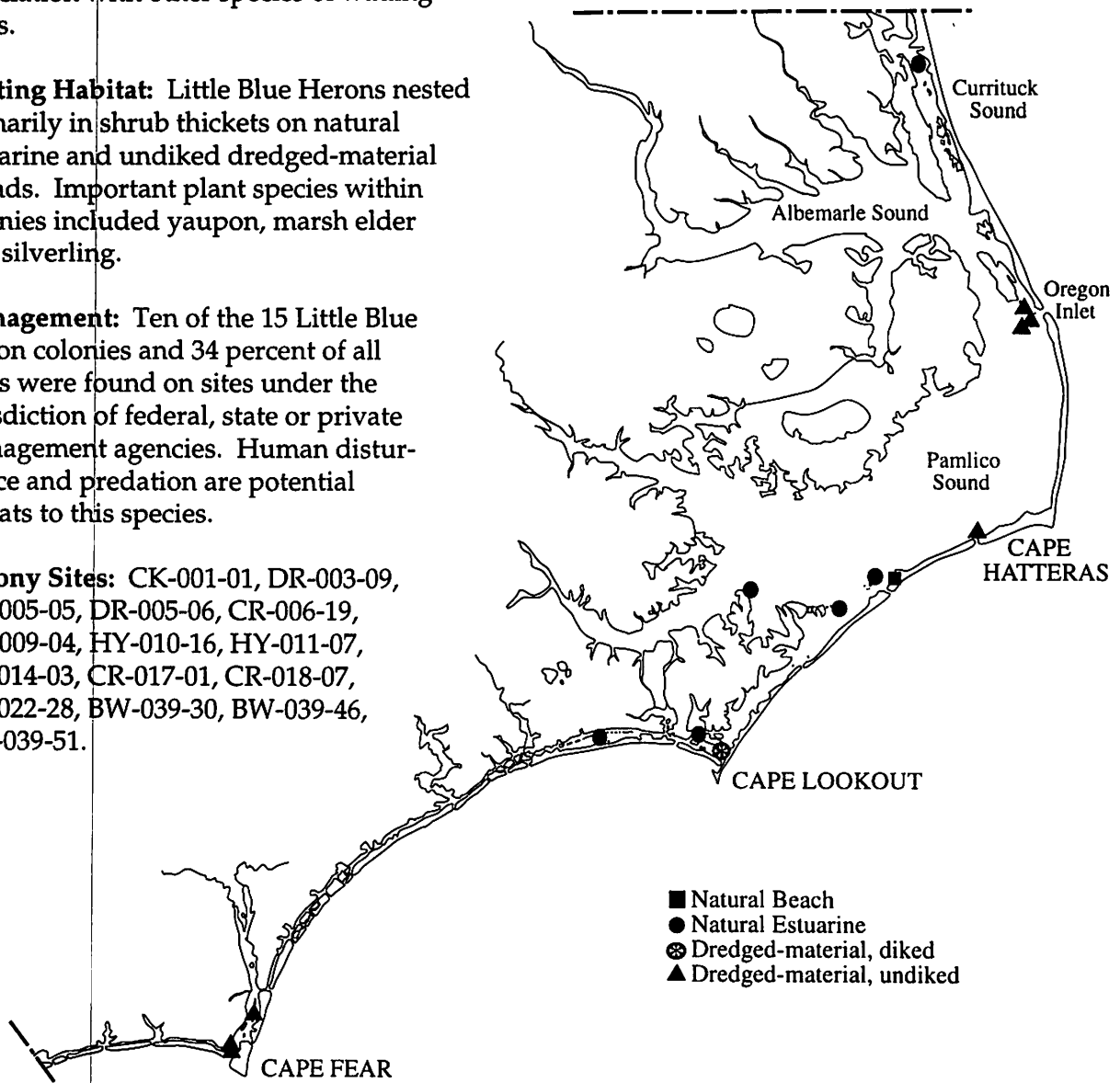
# 1993 Nesting Season

**Distribution and Abundance:** Little Blue Herons were found nesting at 15 colony sites located from Cape Fear to Currituck Sound. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 1,727. The greatest concentration of nests was found in Management Region 1. The mean number of nests per colony site was 115 and varied from two to 775. Little Blue Herons were always found nesting in association with other species of wading birds.

**Nesting Habitat:** Little Blue Herons nested primarily in shrub thickets on natural estuarine and undiked dredged-material islands. Important plant species within colonies included yaupon, marsh elder and silverling.

**Management:** Ten of the 15 Little Blue Heron colonies and 34 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance and predation are potential threats to this species.

**Colony Sites:** CK-001-01, DR-003-09, DR-005-05, DR-005-06, CR-006-19, DR-009-04, HY-010-16, HY-011-07, CR-014-03, CR-017-01, CR-018-07, CR-022-28, BW-039-30, BW-039-46, BW-039-51.



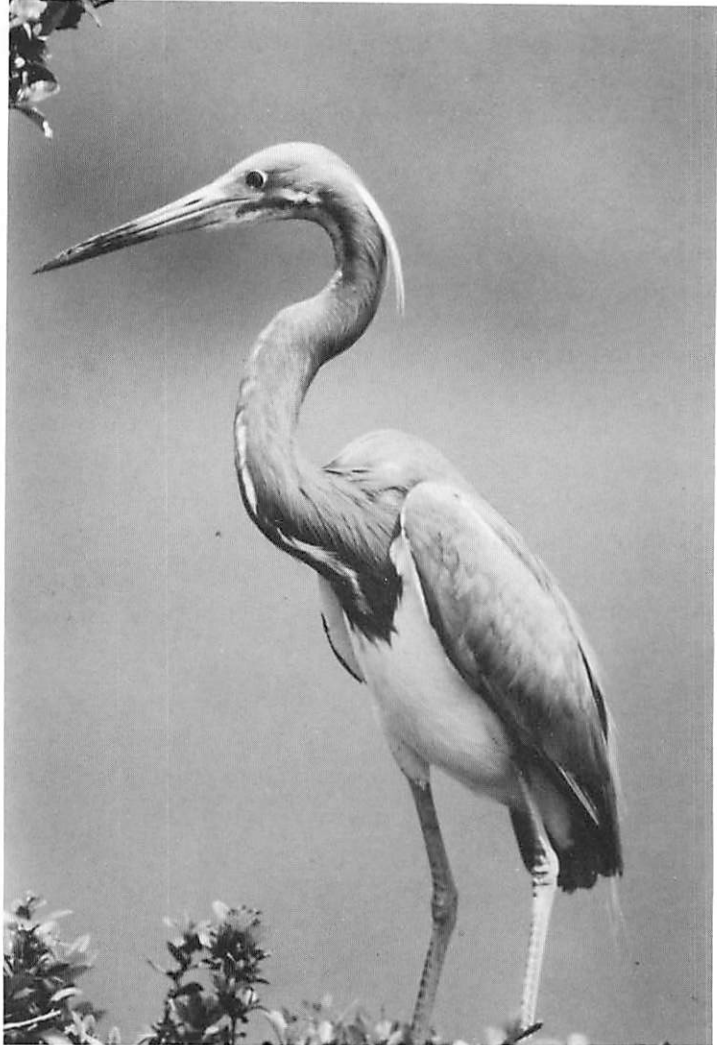
Site Type	Colonies	Nests
Natural Beach	1	83
Natural Estuarine	6	1,120
Dredged-material, diked	1	121
Dredged-material, undiked	7	403
<i>Total</i>	<i>15</i>	<i>1,727</i>

# Tricolored Heron

(*Egretta tricolor*)

**Status:** No special status in North Carolina.

**Identification:** The Tricolored Heron (60 to 70 cm) has dark slate-gray head, neck and wings and a white belly. A whitish line extends down the front of the neck. The back is rusty gray but turns tan during breeding. The bill and legs are brownish yellow, with the upper mandible often appearing darker than the lower. The lores are yellowish but turn bright blue during courtship (Hancock and Kushlan 1984).



**Range (North America):** Breeds along the Atlantic Coast from Maine through Florida and along the Gulf of Mexico to South America. Also breeds from southern Baja California along the Pacific Coast of Mexico to South America (AOU 1983).

**Breeding Biology:** Tricolored Herons nest primarily in mixed-species colonies on coastal islands, although some may nest in swamp forests. Adults arrive at colony sites and initiate nesting activities in April. Egg-laying soon follows and can continue until late May.

Tricolored Herons construct platform nests of interwoven stems and twigs that are occasionally lined with grasses or plant stems. Nests are usually elevated in trees, shrubs or marsh grasses. The female lays three to four pale bluish eggs (45 x 33 mm), one every other day (Palmer 1962). Both parents participate in incubation for 21 days. Nestlings begin to fly at about five weeks of age (Hancock and Kushlan 1984). Tricolored Herons occupy North Carolina colony sites from early April through August.

**Food:** Food consists primarily of fish, but also includes crustaceans, reptiles, amphibians, insects, snails and other invertebrates (Kushlan 1978).

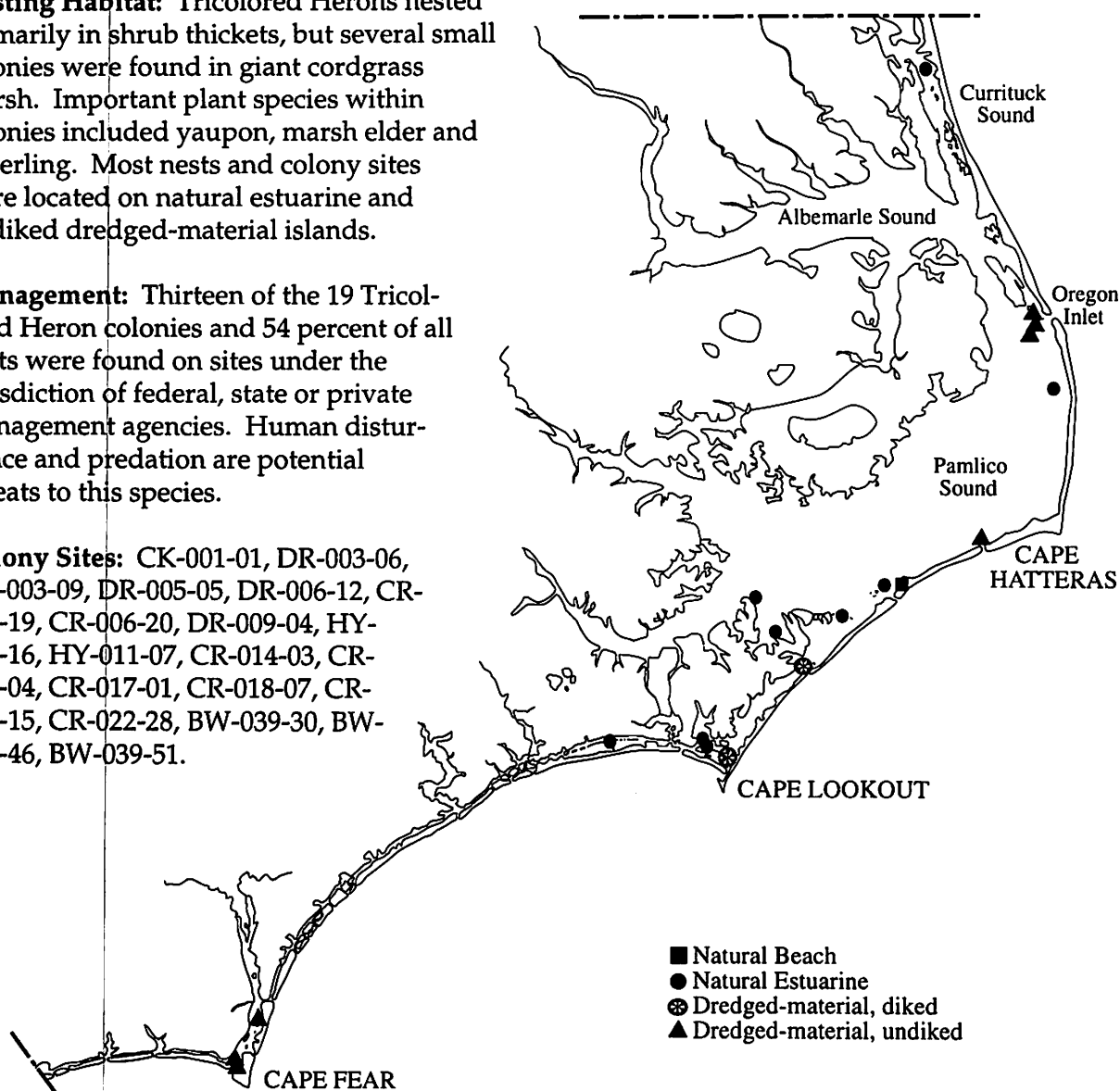
## 1993 Nesting Season

**Distribution and Abundance:** Tricolored Herons were found nesting at 19 colony sites located from Cape Fear to Currituck Sound. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 1,938. The greatest concentration of nests was found in Management Region 3. The mean number of nests per colony site was 102 and varied from four to 466. Tricolored Herons were always found nesting in association with other species of wading birds.

**Nesting Habitat:** Tricolored Herons nested primarily in shrub thickets, but several small colonies were found in giant cordgrass marsh. Important plant species within colonies included yaupon, marsh elder and silverling. Most nests and colony sites were located on natural estuarine and undiked dredged-material islands.

**Management:** Thirteen of the 19 Tricolored Heron colonies and 54 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance and predation are potential threats to this species.

**Colony Sites:** CK-001-01, DR-003-06, DR-003-09, DR-005-05, DR-006-12, CR-006-19, CR-006-20, DR-009-04, HY-010-16, HY-011-07, CR-014-03, CR-014-04, CR-017-01, CR-018-07, CR-018-15, CR-022-28, BW-039-30, BW-039-46, BW-039-51.



Site Type	Colonies	Nests
Natural Beach	1	39
Natural Estuarine	9	1068
Dredged-material, diked	2	174
Dredged-material, undiked	7	657
<b>Total</b>	<b>19</b>	<b>1,938</b>

# Cattle Egret

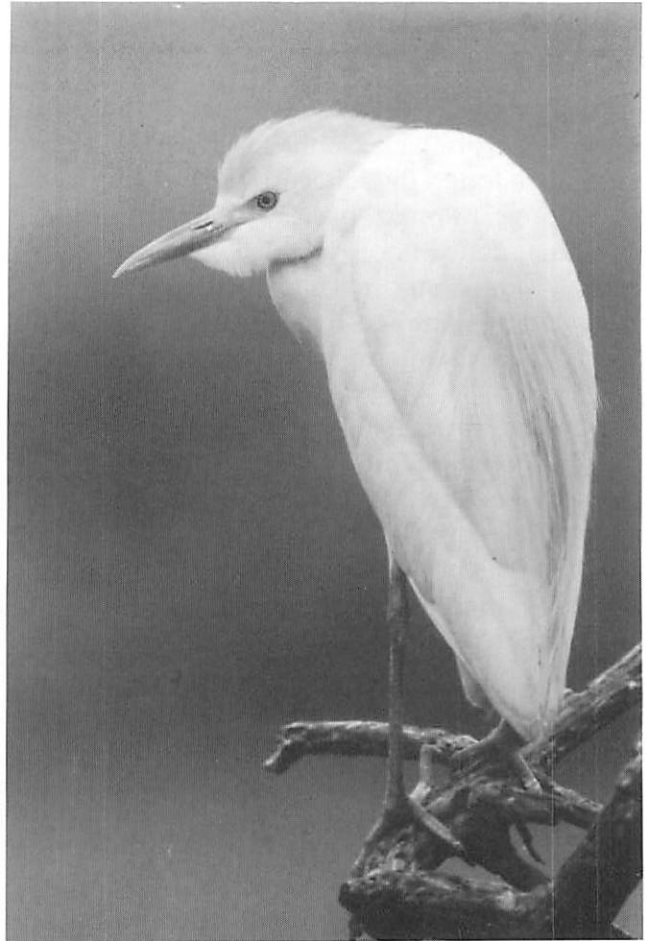
(*Bubulcus ibis*)

**Status:** No special status in North Carolina.

**Identification:** This small, stocky egret (50 to 56 cm) is easily distinguished by its white plumage and relatively short neck (Hancock and Kushlan 1984). Adults have a rusty-orange crown, back and upper chest when breeding. The bill and legs are yellowish to yellow-orange.

**Range (North America):** Cattle Egrets breed along the Atlantic Coast from Maine to Florida and along the Gulf Coast. They also breed locally and scattered from the Great Lakes and southern Canada to central California (AOU 1983).

**Breeding Biology:** Cattle Egrets nest primarily on estuarine islands and barrier islands, although some may nest in swamp forests. They often arrive at North Carolina colony sites later than other species of wading birds. Initiation of nesting activities begins in mid- to late April, but it may occur until late June or early July.



Cattle Egrets construct small platform nests of interwoven stems and twigs. Nests are elevated in shrubs or trees. Females lay four to five small, pale blue eggs (45 x 34 mm) (Palmer 1962). The incubation period is 22 to 23 days, and nestlings fly at about six to seven weeks of age (Palmer 1962). Cattle Egrets may occupy North Carolina colony sites from April to mid-September.

**Food:** Food consists primarily of insects; frogs, toads and other small amphibians; and reptiles. Cattle Egrets also eat small mammals, birds, snails and freshwater fish (Kushlan 1978).

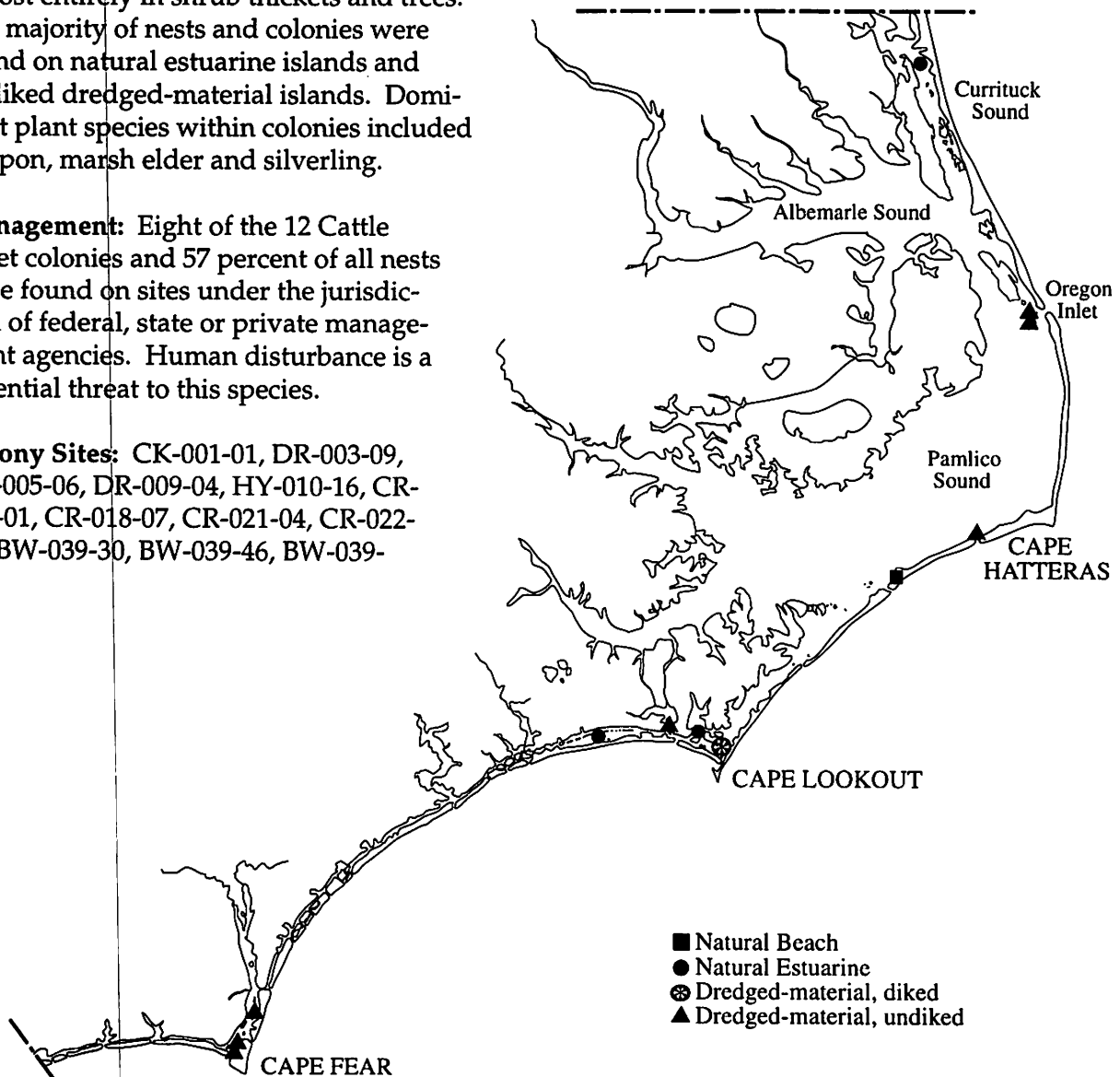
# 1993 Nesting Season

**Distribution and Abundance:** Cattle Egrets were found nesting at 12 colony sites from Cape Fear to Currituck Sound. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 2,271. The greatest concentration of nests was located in Management Region 5. The mean number of nests per colony site was 189 and varied from three to 536. Cattle Egrets were always found nesting in association with other wading birds.

**Nesting Habitat:** Cattle Egrets nested almost entirely in shrub thickets and trees. The majority of nests and colonies were found on natural estuarine islands and undiked dredged-material islands. Dominant plant species within colonies included yaupon, marsh elder and silverling.

**Management:** Eight of the 12 Cattle Egret colonies and 57 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance is a potential threat to this species.

**Colony Sites:** CK-001-01, DR-003-09, DR-005-06, DR-009-04, HY-010-16, CR-017-01, CR-018-07, CR-021-04, CR-022-28, BW-039-30, BW-039-46, BW-039-51.



Site Type	Colonies	Nests
Natural Beach	1	16
Natural Estuarine	3	977
Dredged-material, diked	1	462
Dredged-material, undiked	7	816
<i>Total</i>	12	2,271

## Green Heron (*Butorides virescens*)

**Status:** No special status in North Carolina.



**Identification:** This small heron (approximately 40 cm) has a dark greenish back and wings with brownish-gray underparts. The neck and head are maroon, and the crest is greenish black. Legs and feet are yellowish to yellow-green but turn bright orange during courtship. The upper mandible is brownish black, and the lower is yellowish. The lores are greenish yellow, but turn blue-black during courtship (Hancock and Kushlan 1984).

**Range (North America):** Green Herons breed across central and eastern North America, in the west from British Columbia to northern California, and in the West Indies (AOU 1983).

**Breeding Biology:** Green Herons can be found nesting in a variety of habitats, including coastal shrub thickets, upland and swamp forests, marshes and even in suburbs where habitat is suitable. This species is less colonial than other wading birds and may nest singly or in small colonies. Green Herons usually initiate nesting activities in April that can continue until July.

Green Herons build small platform nests of interwoven stems and twigs. Nests are elevated and may be over water or far from water. The female lays four to five pale greenish-blue eggs at two-day intervals, although up to seven eggs have been recorded (Hancock and Kushlan 1984). Eggs average 43 x 36 mm (Palmer 1962). Both parents participate in incubation, which lasts 21 to 25 days, and nestlings begin to fly at 34 to 35 days of age (Hancock and Kushlan 1984). Green Herons occupy colony sites in North Carolina from April through August.

**Food:** Food consists primarily of fish and insects. Other food items include crustaceans, mollusks, other invertebrates, amphibians and reptiles (Kushlan 1978, Palmer 1962).

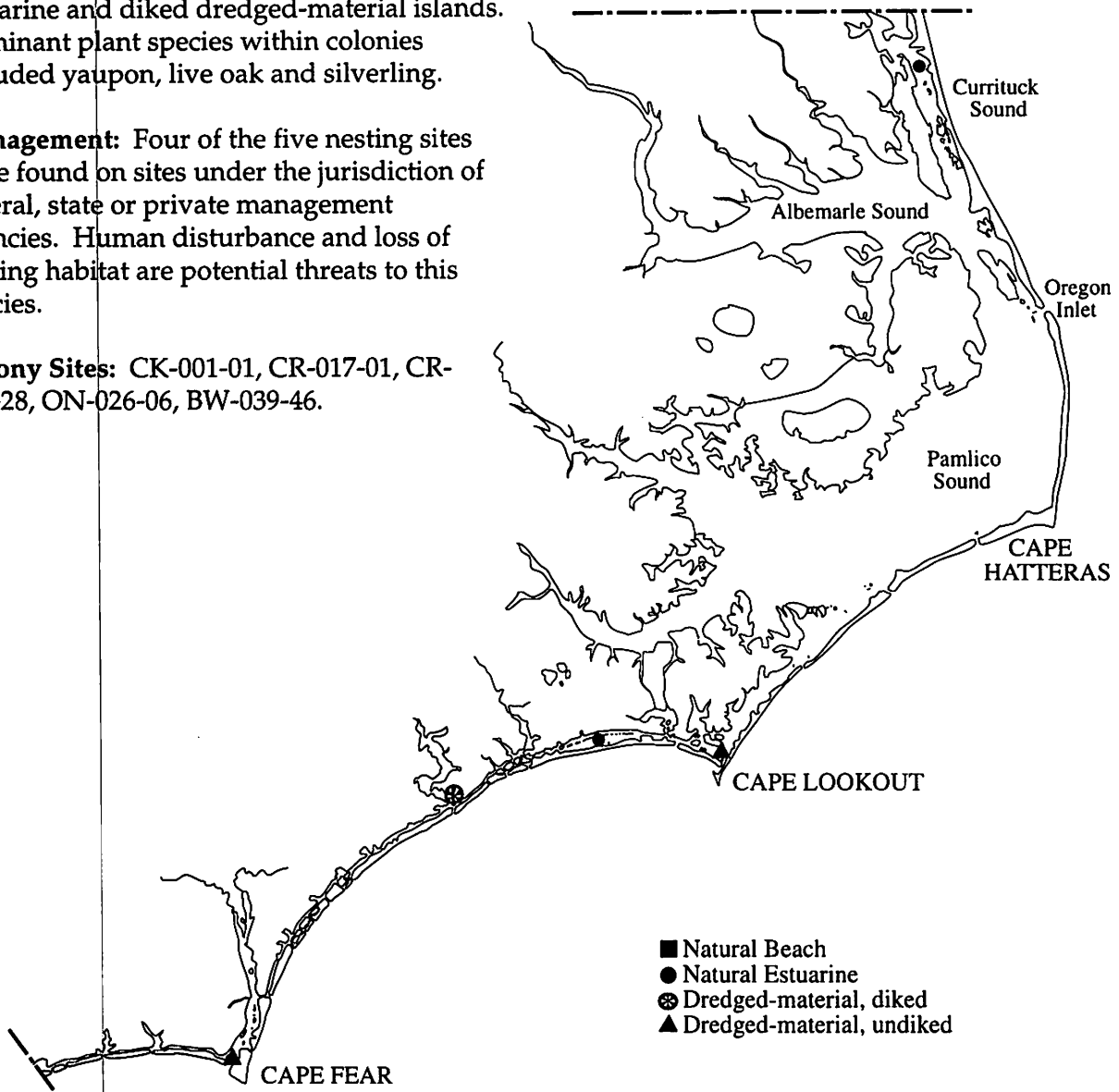
# 1993 Nesting Season

**Distribution and Abundance:** Green Herons were found nesting at five colony sites located from Cape Fear to Cape Lookout. Nesting sites are scattered along North Carolina's coast and inland and are difficult to locate. The number of nesting sites and nests reported here are not representative of the total number of nests in North Carolina.

**Nesting Habitat:** Green Heron nests were found primarily in shrub thickets on natural estuarine and diked dredged-material islands. Dominant plant species within colonies included yaupon, live oak and silverling.

**Management:** Four of the five nesting sites were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance and loss of nesting habitat are potential threats to this species.

**Colony Sites:** CK-001-01, CR-017-01, CR-022-28, ON-026-06, BW-039-46.



Site Type	Colonies	Nests
Natural Beach	0	0
Natural Estuarine	2	4
Dredged-material, diked	2	3
Dredged-material, undiked	1	1
<i>Total</i>	5	8



# Black-crowned Night-Heron

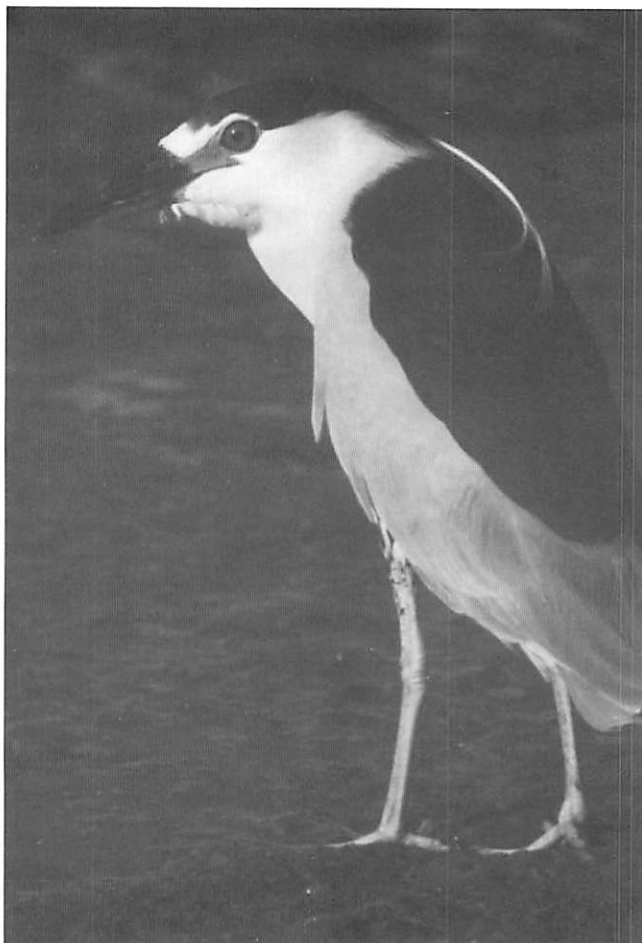
(*Nycticorax nycticorax*)

**Status:** No special status in North Carolina.

**Identification:** Black-crowned Night-Herons (58 to 66 cm) are distinguished from other wading birds by their short, stocky appearance, black back and gray wings, white-grayish neck and belly and distinctive black crown. Two to three long white plumes extend from the back of the head. The bill is thick and black in color, and the legs are yellowish (Hancock and Kushlan 1984).

**Range (North America):** Black-crowned Night-Herons are the more widespread of the two Night-Heron species. This species breeds along the Atlantic Coast from New Brunswick to south Florida, along the Gulf Coast from south Florida to south Texas and northward to the Great Plains and central Saskatchewan. Along the West Coast, the species breeds from Washington to Central America and inland to the Rocky Mountains (AOU 1983).

**Breeding Biology:** Black-crowned Night-Herons nest in a variety of habitats including shrub thickets, coastal and swamp forests, and marshes. This species nests singly, in small colonies or in mixed-species colonies with other wading birds. Initiation of nesting activities usually begins in late March and can continue until June.



Adults begin to breed when two or three years of age (Hancock and Kushlan 1984). Black-crowned Night-Herons construct platform nests in trees, shrubs or marsh, usually beneath the canopy. Nests are often elevated but may be on the ground. The female lays three to five pale greenish-blue eggs (53 x 37 mm) (Palmer 1962). Both parents participate in 21 to 22 days of incubation. Nestlings begin to fly at six to seven weeks of age (Palmer 1962). Adults and juveniles may remain at colony sites until late August.

**Food:** Black-crowned Night-Herons often forage from early evening to early morning. Food consists primarily of fish, crustaceans, amphibians, reptiles and insects. This species will also prey on nestling birds of other species, mollusks and small mammals (Palmer 1962, Kushlan 1978).

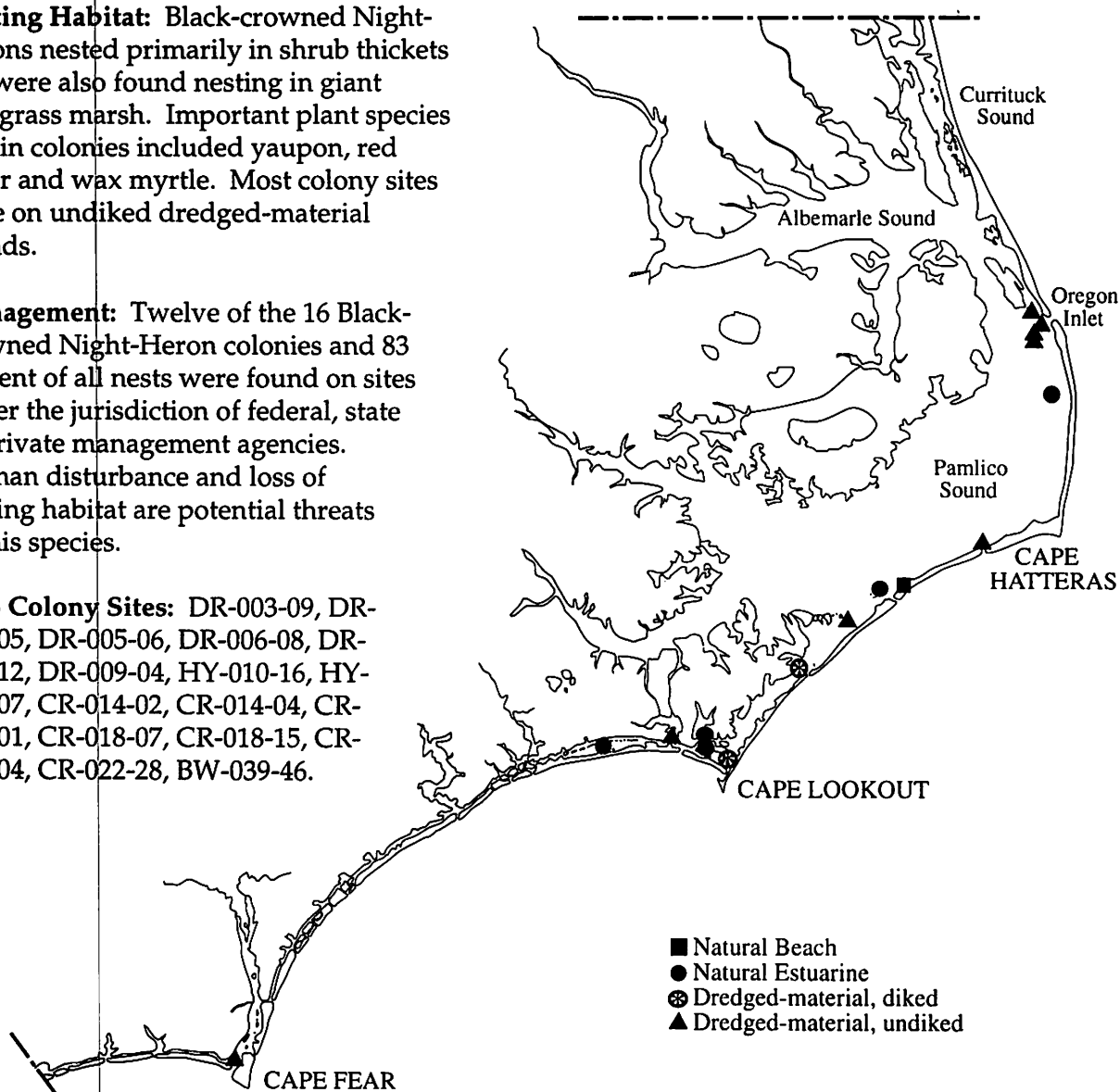
# 1993 Nesting Season

**Distribution and Abundance:** Black-crowned Night-Herons nested at 16 colony sites from Cape Fear to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 251. The greatest concentration of nests was in Management Region 3. The mean number of nests per colony site was 16 and varied from one to 48. Black-crowned Night-Herons were usually found nesting in association with other species of wading birds. This species sometimes nests in small isolated colonies that are very difficult to locate. It is possible that several small colonies may have gone undetected.

**Nesting Habitat:** Black-crowned Night-Herons nested primarily in shrub thickets but were also found nesting in giant cordgrass marsh. Important plant species within colonies included yaupon, red cedar and wax myrtle. Most colony sites were on undiked dredged-material islands.

**Management:** Twelve of the 16 Black-crowned Night-Heron colonies and 83 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance and loss of nesting habitat are potential threats to this species.

**1993 Colony Sites:** DR-003-09, DR-005-05, DR-005-06, DR-006-08, DR-006-12, DR-009-04, HY-010-16, HY-011-07, CR-014-02, CR-014-04, CR-017-01, CR-018-07, CR-018-15, CR-021-04, CR-022-28, BW-039-46.



Site Type	Colonies	Nests
Natural Beach	1	13
Natural Estuarine	5	75
Dredged-material, diked	2	48
Dredged-material, undiked	8	115
<i>Total</i>	16	251

# Yellow-crowned Night-Heron

(*Nyctanassa violaceus*)

**Status:** No special status in North Carolina.

**Identification:** Adult Yellow-crowned Night-Herons are short, stocky herons (55 to 70 cm) with a gray neck and belly, black and gray mottled back, and black head with a distinctive white-yellowish crown and cheek patch. The bill is black with a yellowish base, and the legs are yellow. The lores are also yellow (Hancock and Kushlan 1984).

**Range (North America):** Breeds along the Atlantic Coast from Massachusetts to southern Florida, along the Gulf Coast from Florida to Texas, inland from central Texas to Kansas and up the Mississippi River Valley to Minnesota and Michigan. Along the Pacific Coast, the species breeds from Baja California to South America (AOU 1983).

**Breeding Biology:** Very little is known about the breeding biology of Yellow-crowned Night-Herons in North Carolina. This species nests in shrub thickets and coastal and swamp forests in both freshwater and saltwater habitats (Palmer 1962). Initiation of nesting activities at North Carolina colony sites usually begins in late March.



Yellow-crowned Night-Herons construct platform nests of interwoven stems and twigs, occasionally lined with grasses or leaves (Hancock and Kushlan 1984). Nests are usually elevated and may be over water. The female lays three to four bluish-green eggs (51 x 37 mm) that are incubated by both parents for about 24 days (Palmer 1962). Nestlings are fed by both parents and begin to fly at four to five weeks of age (Hancock and Kushlan 1984). Yellow-crowned Night-Herons occupy North Carolina colony sites from March to August.

**Food:** Food consists primarily of crustaceans, but includes fish, reptiles, amphibians, eels, insects and mollusks (Palmer 1962, Kushlan 1978).

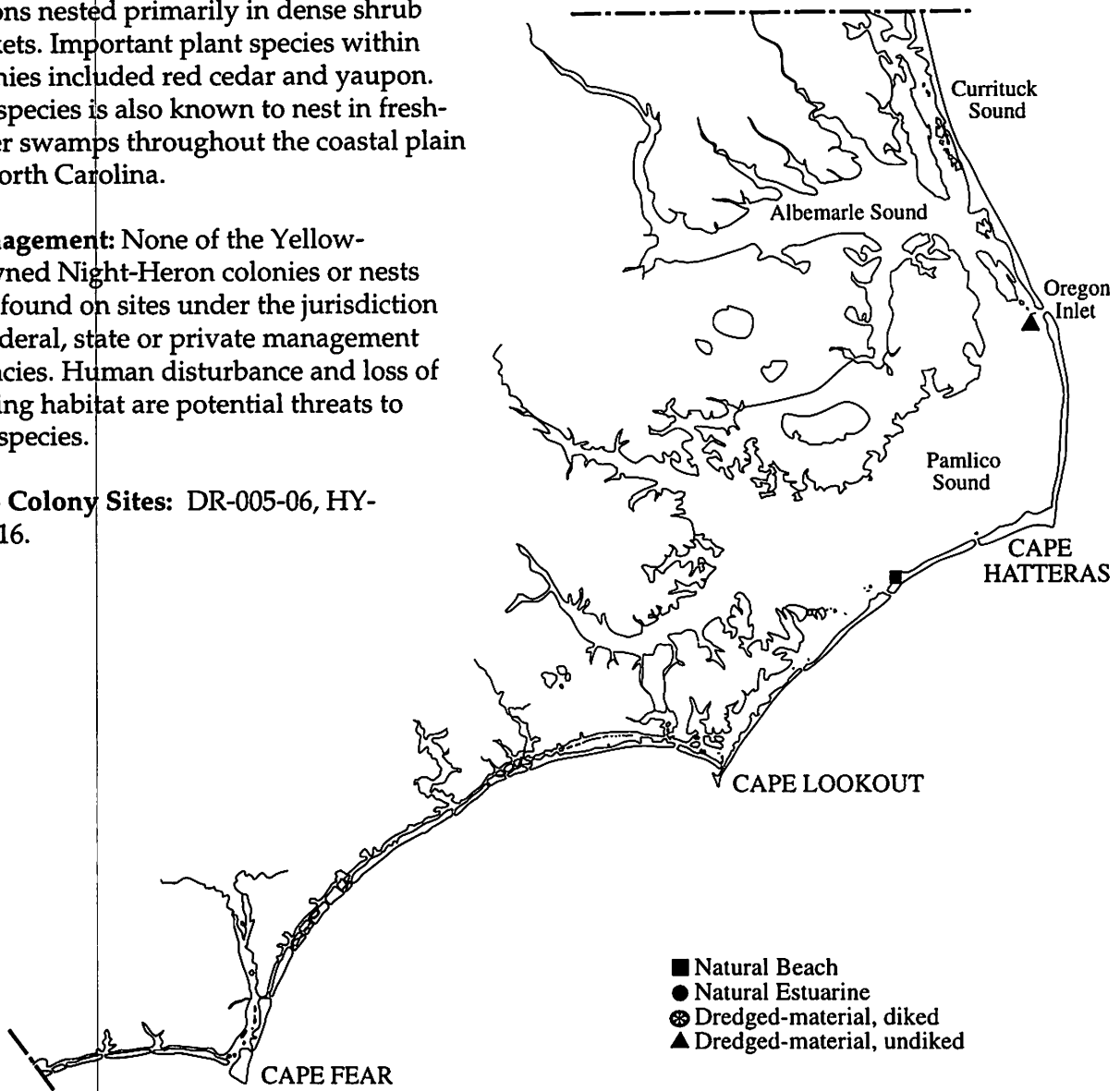
# 1993 Nesting Season

**Distribution and Abundance:** Yellow-crowned Night-Herons were found nesting at two colony sites on Ocracoke Island in Management Region 2. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 18. This species often nests singly or in very small, scattered colonies that are difficult to locate; thus the nesting population is likely higher than indicated.

**Nesting Habitat:** Yellow-crowned Night-Herons nested primarily in dense shrub thickets. Important plant species within colonies included red cedar and yaupon. The species is also known to nest in freshwater swamps throughout the coastal plain of North Carolina.

**Management:** None of the Yellow-crowned Night-Heron colonies or nests was found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance and loss of nesting habitat are potential threats to this species.

**1993 Colony Sites:** DR-005-06, HY-010-16.



Site Type	Colonies	Nests
Natural Beach	1	17
Natural Estuarine	0	0
Dredged-material, diked	0	0
Dredged-material, undiked	1	1
<b>Total</b>	<b>2</b>	<b>18</b>

# White Ibis

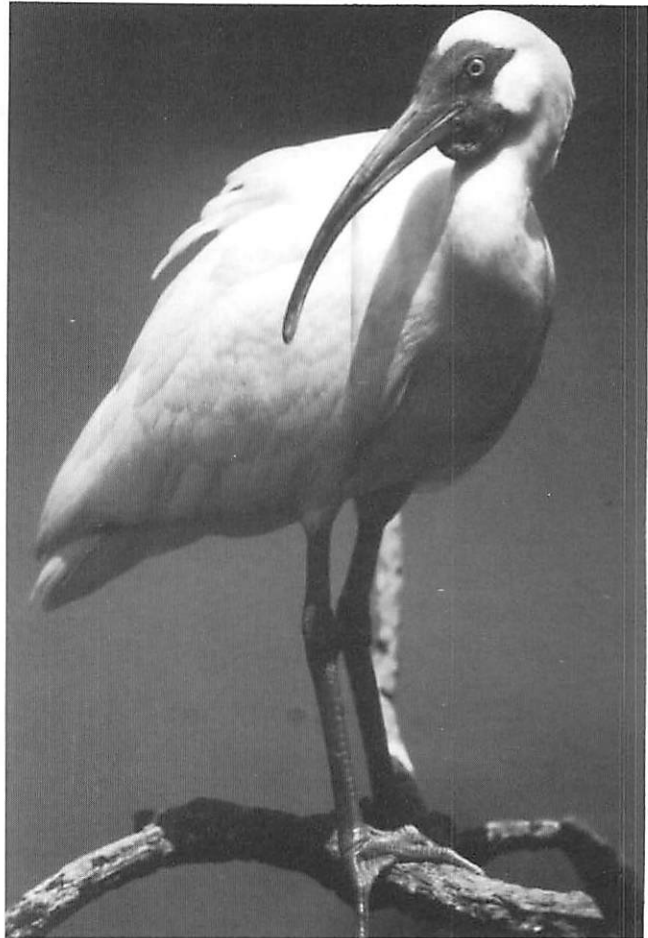
(*Eudocimus albus*)

**Status:** No special status in North Carolina.

**Identification:** Adult White Ibis (56 to 68 cm) are easily identified by their white plumage and long, decurved bill. The fleshy parts of the face and legs are reddish to pink but turn bright red when the birds are breeding. The bill is red to pink at the base and is tipped with black. Wing tips are black. Females are smaller and have shorter bills than males (Kushlan and Bildstein 1992).

**Range (North America):** Breeds along the coast from Virginia to Louisiana and inland from South Carolina through Florida. Also breeds along both coasts of Mexico (AOU 1983).

**Breeding Biology:** White Ibis nest primarily on estuarine and barrier islands in North Carolina but will nest in swamp forests and marshes in other regions. Initiation of nesting activities at North Carolina colony sites usually begins in mid-April and may continue until late May.



White Ibis usually begin to breed at two or three years of age (Kushlan and Bildstein 1992). Adults construct platform nests of plant stems, twigs or occasionally marsh grasses. Nests may be on the ground or elevated in shrubs or trees. Eggs vary in color from tan to light brownish-green with dark, blotchy markings. Females lay two to four eggs (58 x 39 mm), one every other day (Palmer 1962, Allen-Grimes 1982, Shields 1985). Occasionally six or seven eggs are present, but this is probably the result of "egg dumping" by more than one female (Kushlan and Bildstein 1992). Both the male and female participate in incubation, which lasts 21 to 23 days. Nestlings require prey found in nonsaline habitats to achieve normal growth (Bildstein et al. 1990, Johnston and Bildstein 1990). Nestlings begin to fly at about five weeks of age (Palmer 1962). Adults and juveniles may remain at the colony site from April to mid-August.

**Food:** Food consists primarily of aquatic crustaceans. Fiddler crabs (*Uca* spp.) and crayfish (Cambaridae) are important food for White Ibis (Kushlan and Kushlan 1975, Bildstein 1983, Bildstein et al. 1990). Other food items include insects, snails, other invertebrates, fish, small reptiles and amphibians (Kushlan 1978).

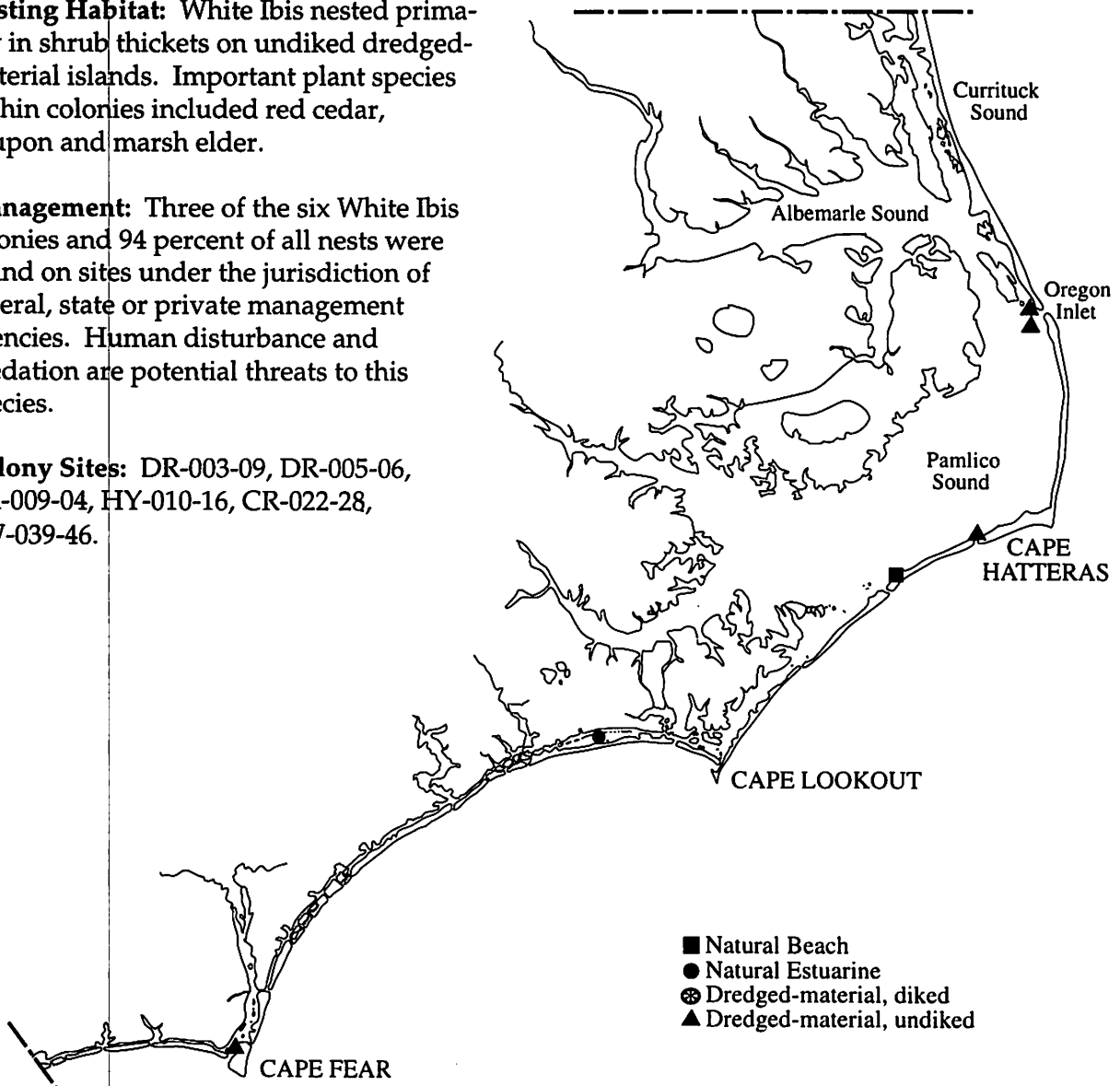
# 1993 Nesting Season

**Distribution and Abundance:** White Ibis were found nesting at six colony sites located from Cape Fear to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 10,453. The majority of nests (93 percent) were on Battery Island in Management Region 5. The mean number of nests per colony site, excluding Battery Island, was 153 and varied from two to 570. White Ibis were always found nesting in association with other species of wading birds.

**Nesting Habitat:** White Ibis nested primarily in shrub thickets on undiked dredged-material islands. Important plant species within colonies included red cedar, yaupon and marsh elder.

**Management:** Three of the six White Ibis colonies and 94 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance and predation are potential threats to this species.

**Colony Sites:** DR-003-09, DR-005-06, DR-009-04, HY-010-16, CR-022-28, BW-039-46.



Site Type	Colonies	Nests
Natural Beach	1	570
Natural Estuarine	1	41
Dredged-material, diked	0	0
Dredged-material, undiked	4	9,842
<i>Total</i>	6	10,453

## Glossy Ibis

(*Plegadis falcinellus*)

**Status:** State-listed as a species of "special concern."



**Identification:** Glossy Ibis (48 to 66 cm) are easily identified by their entirely dark plumage, which appears black in the shade but looks iridescent bronze in sunlight (Pearson et al. 1942). The long, decurved bill and legs are dark gray to black.

**Range (North America):** Breeds along the Atlantic Coast from Maine to Florida, along the Gulf Coast from Florida to Louisiana and inland to Arkansas (AOU 1983).

**Breeding Biology:** Glossy Ibis nest primarily on estuarine and barrier islands, usually in association with other wading birds. Initiation of nesting activities in North Carolina colonies begins in mid- to late April and may continue until late June.

Glossy Ibis construct bulky platform nests of interwoven plant stems, twigs or marsh grasses. Nests are usually elevated in shrubs, trees or marsh grasses, or they may be on the ground. The female lays four dark blue-green eggs (52 x 37 mm), one each day (Palmer 1962). The incubation period is 21 days, and nestlings begin to fly at about six weeks of age (Palmer 1962). Adults and juveniles occupy North Carolina colony sites from April to early August.

**Food:** Food consists primarily of crustaceans, insects and other invertebrates. Other food items include small reptiles and amphibians (Kushlan 1978).

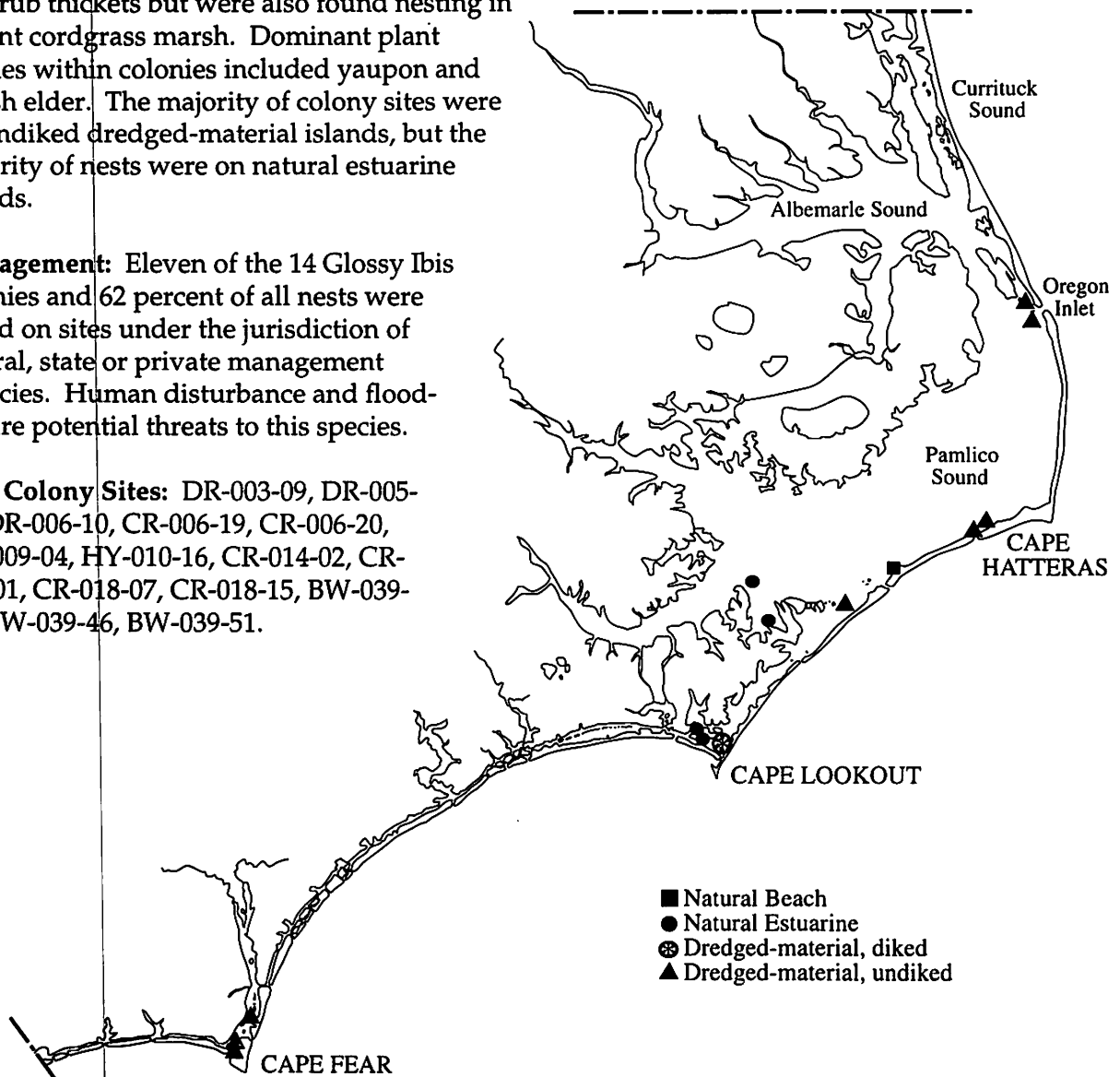
# 1993 Nesting Season

**Distribution and Abundance:** Glossy Ibis were found nesting at 14 colony sites from Cape Fear to Currituck Sound. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 502. The greatest concentration of nests was found in Management Region 3. The mean number of nests per colony site was 36 and varied from one to 141. Glossy Ibis were always found nesting in association with other species of wading birds.

**Nesting Habitat:** Glossy Ibis nested primarily in shrub thickets but were also found nesting in a giant cordgrass marsh. Dominant plant species within colonies included yaupon and marsh elder. The majority of colony sites were on undiked dredged-material islands, but the majority of nests were on natural estuarine islands.

**Management:** Eleven of the 14 Glossy Ibis colonies and 62 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance and flooding are potential threats to this species.

**1993 Colony Sites:** DR-003-09, DR-005-06, DR-006-10, CR-006-19, CR-006-20, DR-009-04, HY-010-16, CR-014-02, CR-017-01, CR-018-07, CR-018-15, BW-039-30, BW-039-46, BW-039-51.



Site Type	Colonies	Nests
Natural Beach	1	37
Natural Estuarine	4	289
Dredged-material, diked	1	9
Dredged-material, undiked	8	167
<i>Total</i>	14	502



# Laughing Gull

(*Larus atricilla*)

**Status:** No special status in North Carolina.



**Identification:** The Laughing Gull (38 to 43 cm) is the only common summer gull with a black hood found along North Carolina's coast (Pearson et al. 1942). It loses its hood in winter. The chest and underparts are white, and the mantle is dark gray. The legs and bill are dark but turn reddish when breeding.

**Range (North America):** Breeds along much of the Atlantic Coast from New Brunswick and southern Nova Scotia to south Florida, along the Gulf Coast from Florida to southern Texas and in the West Indies. Also breeds along the western coast of Mexico (AOU 1983).

**Breeding Biology:** Laughing Gulls nest on estuarine islands with moderate to dense herbaceous vegetation (Parnell and Soots 1979, Parnell and McCrimmon 1984). They also nest on barrier beaches in other regions (Clapp et al. 1983).

Adults arrive at North Carolina colony sites and initiate nesting activities in April. Egg-laying usually peaks in late April and early May but can continue until late June. They build nests on the ground, in low vegetation or on wrack (dead plant material), and line them with grasses or wrack. The female lays two to three greenish to olive-brown eggs (54 x 39 mm) with dark blotches (Harrison 1975). Both parents participate in incubation, which requires 21 to 25 days (Segre et al. 1968, Schreiber et al. 1979). Young begin to make their first flights at four to six weeks of age (Schreiber and Schreiber 1980). Laughing Gulls occupy colony sites in North Carolina from April through August.

**Food:** Laughing Gulls, like other gull species, are opportunistic feeders. Food includes fish, insects and various marine invertebrates (Clapp et al. 1983). Laughing Gulls frequently forage around garbage dumps.

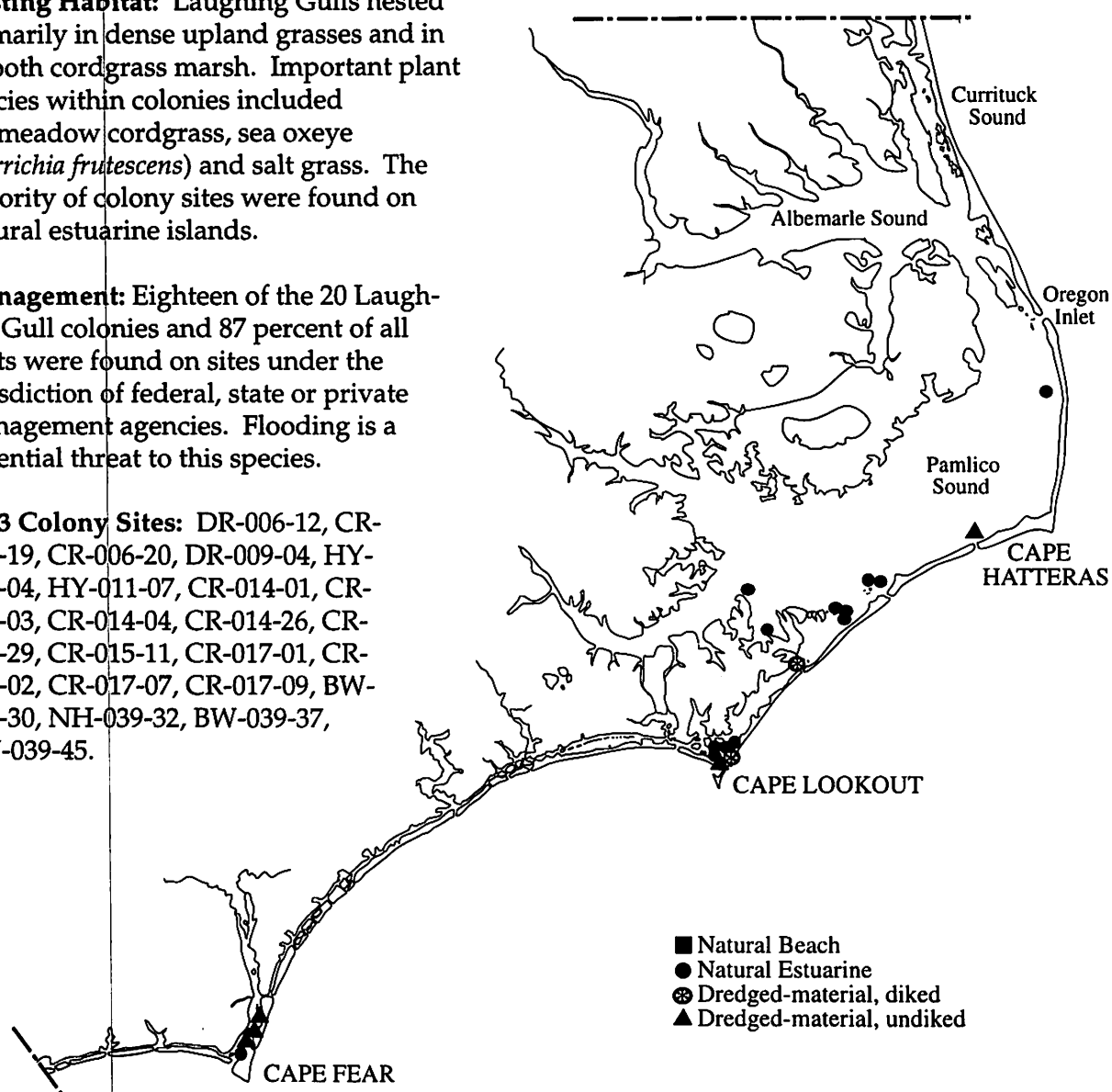
# 1993 Nesting Season

**Distribution and Abundance:** Laughing Gulls were found nesting at 20 colony sites from Cape Fear to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 17,970. The greatest concentration of nests was found in Management Region 3. The mean number of nests per colony site was 899 and varied from one to 3,909. Laughing Gulls were found nesting in single-species colonies and in association with other gulls, terns and Brown Pelicans.

**Nesting Habitat:** Laughing Gulls nested primarily in dense upland grasses and in smooth cordgrass marsh. Important plant species within colonies included saltmeadow cordgrass, sea oxeye (*Borrchia frutescens*) and salt grass. The majority of colony sites were found on natural estuarine islands.

**Management:** Eighteen of the 20 Laughing Gull colonies and 87 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Flooding is a potential threat to this species.

**1993 Colony Sites:** DR-006-12, CR-006-19, CR-006-20, DR-009-04, HY-011-04, HY-011-07, CR-014-01, CR-014-03, CR-014-04, CR-014-26, CR-014-29, CR-015-11, CR-017-01, CR-017-02, CR-017-07, CR-017-09, BW-039-30, NH-039-32, BW-039-37, BW-039-45.



Site Type	Colonies	Nests
Natural Beach	0	0
Natural Estuarine	13	9,273
Dredged-material, diked	2	3,942
Dredged-material, undiked	5	4,755
<b>Total</b>	<b>20</b>	<b>17,970</b>

# Herring Gull

(*Larus argentatus*)

**Status:** No special status in North Carolina.



**Identification:** The Herring Gull (57 to 66 cm) is slightly smaller than the Great Black-backed Gull (Pearson et al. 1942). Adults have a white head, neck and underparts and a gray mantle. The legs are pinkish, and the bill is yellow with a reddish spot on the lower mandible.

**Range (North America):** Herring Gulls breed across much of northern North America from Alaska to northeastern Canada, on the Great Lakes and along the Atlantic Coast to North Carolina (AOU 1983).

**Breeding Biology:** Herring Gulls nest on a variety of sites and habitats, including natural and dredged-material islands, natural shoals and marshes. In other regions the species will nest on wooded islands and stabilized dunes (Clapp et al. 1983).

Adults begin to gather at North Carolina colony sites and initiate nesting activities in April. Egg-laying usually begins in early May and can continue through June. Nests are built on the ground, usually among grasses (Parnell and Soots 1979), and are lined with grass or dried seagrass. The females lay two to three olive-colored eggs with dark brown-black blotches (72 x 51 mm) (Harrison 1975). Both parents participate in incubation, which lasts about 26 days. Chicks often move away from the nest site within a few days after hatching and begin to fly at 35 to 40 days of age (Cramp 1983). Colony sites are occupied from April to mid-August.

**Food:** Herring Gulls are opportunistic and have a varied diet consisting largely of animal matter such as fish, birds, bird eggs, mammals, crustaceans, amphibians, bivalves, mollusks, insects and other invertebrates. They will also feed on fruit and berries and will forage at garbage dumps (Clapp et al. 1983).

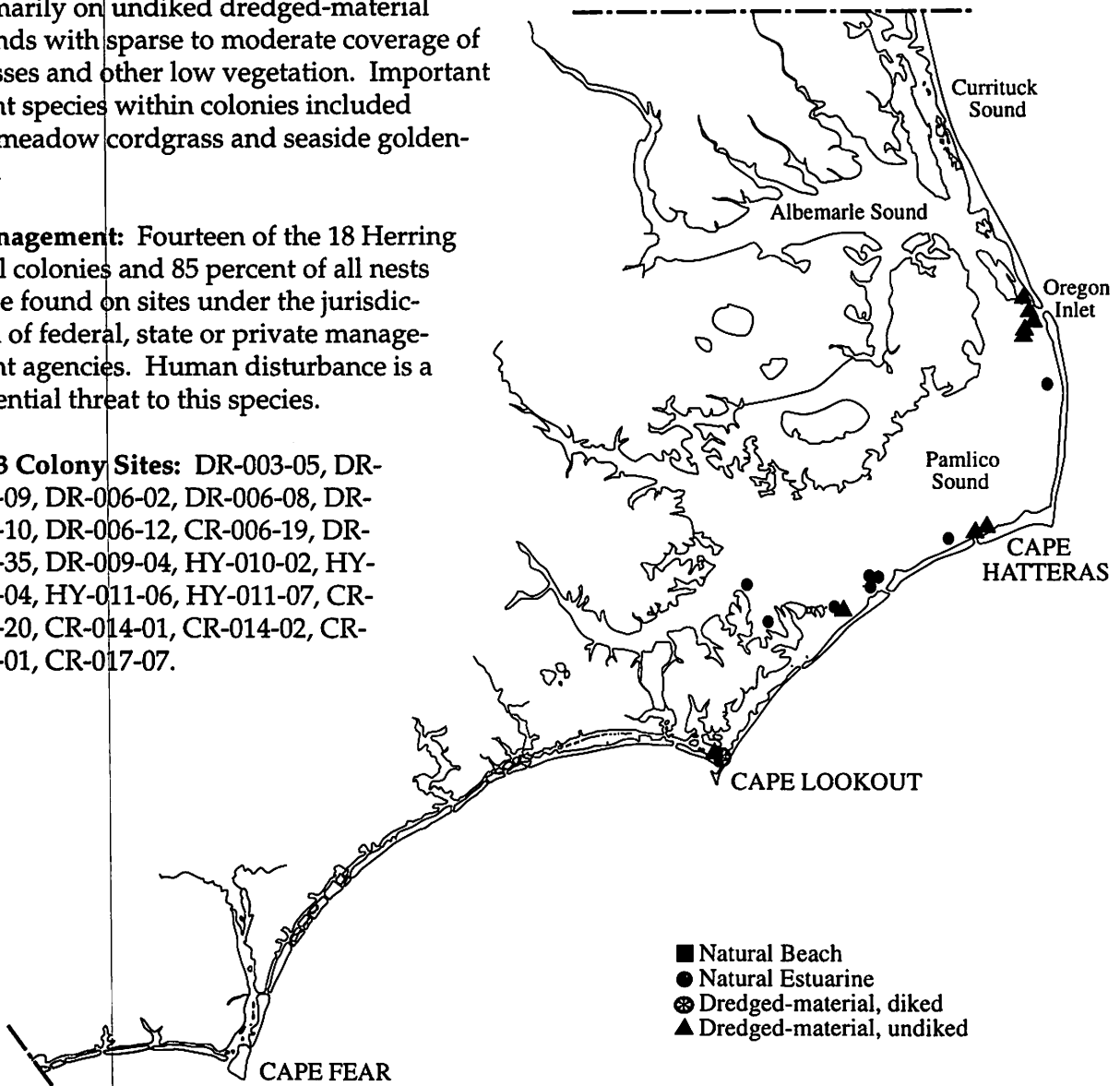
# 1993 Nesting Season

**Distribution and Abundance:** Herring Gulls were found nesting at 18 colony sites from Core Sound to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 960. The greatest concentration of nests was in Management Region 2. The mean number of nests per colony site was 53 and varied from one to 212. Herring Gulls were occasionally found nesting in association with Laughing Gulls and Royal Terns.

**Nesting Habitat:** Herring Gulls nested primarily on undiked dredged-material islands with sparse to moderate coverage of grasses and other low vegetation. Important plant species within colonies included saltmeadow cordgrass and seaside golden-rod.

**Management:** Fourteen of the 18 Herring Gull colonies and 85 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance is a potential threat to this species.

**1993 Colony Sites:** DR-003-05, DR-003-09, DR-006-02, DR-006-08, DR-006-10, DR-006-12, CR-006-19, DR-006-35, DR-009-04, HY-010-02, HY-011-04, HY-011-06, HY-011-07, CR-006-20, CR-014-01, CR-014-02, CR-017-01, CR-017-07.



Site Type	Colonies	Nests
Natural Beach	0	0
Natural Estuarine	8	175
Dredged-material, diked	1	1
Dredged-material, undiked	9	784
<i>Total</i>	18	960

# Great Black-backed Gull

(*Larus marinus*)

**Status:** No special status in North Carolina.



**Identification:** Great Black-backed Gulls (71 to 79 cm) are the largest of the gulls along the Atlantic Coast (Pearson et al. 1942). Adults have a white head, neck and underparts and a black mantle. The legs are pinkish, and the bill is yellow with a reddish and a dark spot on the lower mandible.

**Range (North America):** Breeds from northern Quebec, Labrador and Newfoundland to the St. Lawrence River and along the Atlantic Coast to North Carolina (AOU 1983).

**Breeding Biology:** The Great Black-backed Gull is primarily a marine species that nests on low islands (Spendelov and Patton 1988). In North Carolina, this species nests on natural islands and shoals and on dredged-material islands. Adults begin to gather on colony sites and initiate nesting activities in mid-April.

Nests are built on the ground and are usually lined with grasses. The females lay two to three olive-colored eggs (78 x 54 mm) with uneven, dark brown-black blotches (Harrison 1975). Both parents participate in incubation, which lasts about 26 days. Chicks often leave the nest a few days after hatching and begin to make their first flights at seven to eight weeks of age (Cramp 1983). North Carolina colony sites are occupied from April to mid-August.

**Food:** Great Black-backed Gulls are opportunistic feeders. Food consists of fish, birds, mammals, crustaceans, mollusks, bivalves, amphibians, insects, other invertebrates, seeds and berries. This species will regularly scavenge food at garbage dumps, fish-cleaning stations and other locations (Clapp et al. 1983).

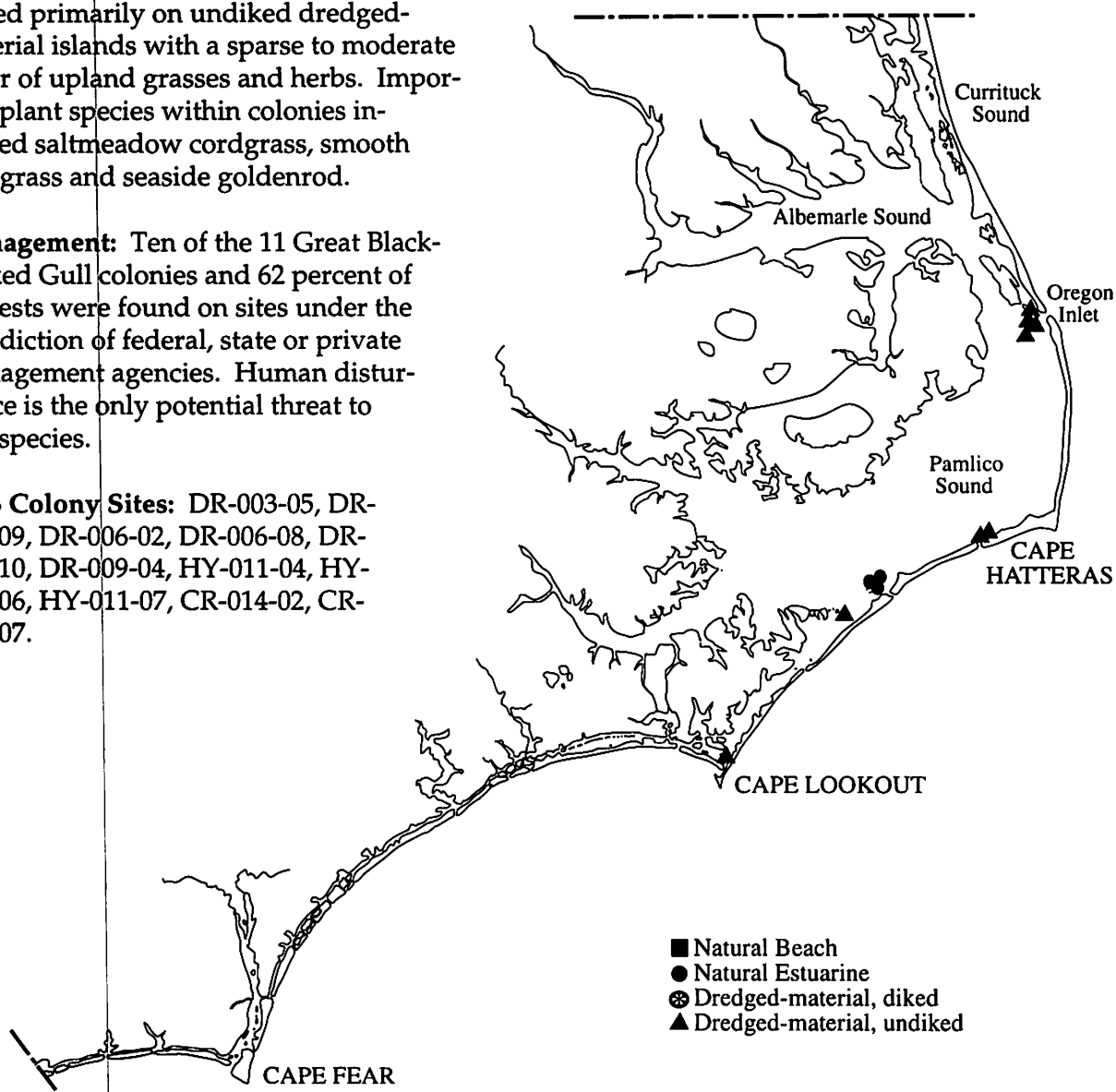
# 1993 Nesting Season

**Distribution and Abundance:** Great Black-backed Gulls were found nesting at 11 colony sites from Core Sound to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 47. The greatest concentration of nests was found in Management Region 2. The mean number of nests per colony site was 11 and varied from one to 18. Great Black-backed Gulls were always found nesting in association with Herring Gulls.

**Nesting Habitat:** Great Black-backed Gulls nested primarily on undiked dredged-material islands with a sparse to moderate cover of upland grasses and herbs. Important plant species within colonies included saltmeadow cordgrass, smooth cordgrass and seaside goldenrod.

**Management:** Ten of the 11 Great Black-backed Gull colonies and 62 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance is the only potential threat to this species.

**1993 Colony Sites:** DR-003-05, DR-003-09, DR-006-02, DR-006-08, DR-006-10, DR-009-04, HY-011-04, HY-011-06, HY-011-07, CR-014-02, CR-017-07.



Site Type	Colonies	Nests
Natural Beach	0	0
Natural Estuarine	3	4
Dredged-material, diked	0	0
Dredged-material, undiked	8	43
<i>Total</i>	11	47

# Gull-billed Tern

(*Sterna nilotica*)

**Status:** State-listed as a species of "special concern."



**Identification:** This medium-sized tern (33 to 38 cm) has a black cap, a stubby black bill and black legs (Pearson et al. 1942). The mantle is gray, and the underparts are white. The species lacks a crest and has a shallowly forked tail. Overall the appearance is of a pale, short-billed tern (Harrison 1983).

**Range:** Breeds along the Atlantic Coast from New York to Florida, along the Gulf Coast from Florida to southern Texas, the Bahamas, the Virgin Islands and scattered along the Pacific Coast from southern California to Mexico (AOU 1983).

**Breeding biology:** Gull-billed Terns nest on barrier beaches, natural islands or shoals and dredged-material islands (Parnell and Soots 1979). Colony substrate is usually sand or a mixture of sand and shell. Colony sites are usually devoid of vegetation or are very sparsely covered with low, herbaceous plants (Everhart et al. 1980).

Gull-billed Terns arrive in North Carolina between mid-April and early May. Courtship begins quickly, and by mid-May, egg-laying is under way. If early nesting attempts fail, egg-laying may extend into July. Nests are shallow scrapes usually lined with broken shell fragments or sometimes plant material. The females lay two to four light buff-colored eggs (47 x 34 mm) with numerous irregular, brown blotches (Harrison 1975). The incubation period is 22 to 23 days and chicks fly at four to five weeks of age (Reilly 1968). North Carolina colony sites may be occupied from April to August.

**Food:** Unlike other tern species, Gull-billed Terns feed largely on terrestrial prey. Food consists primarily of insects and crustaceans, but occasionally may include reptiles, amphibians, birds and small rodents (Clapp et al. 1983).

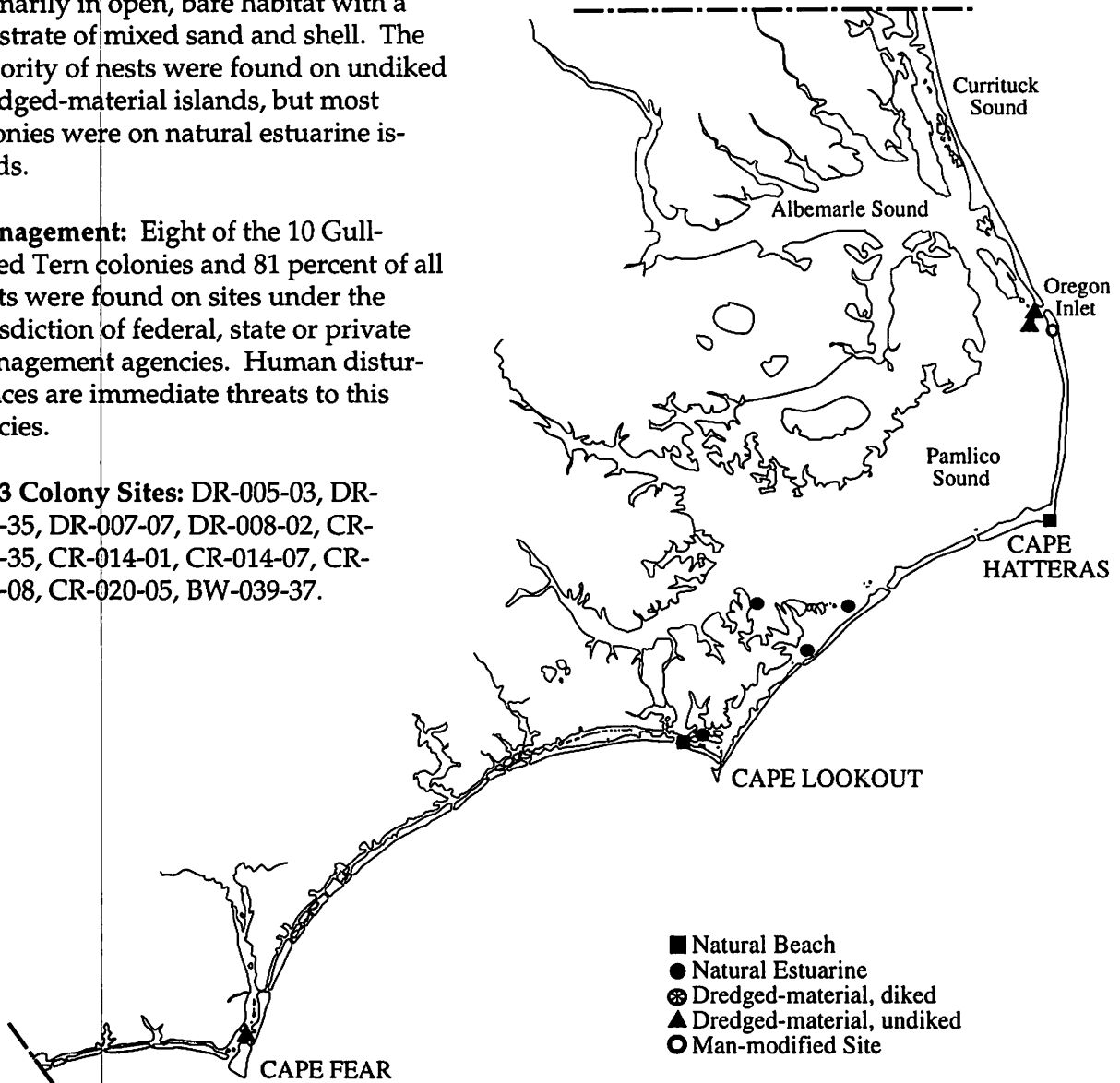
# 1993 Nesting Season

**Distribution and Abundance:** Gull-billed Terns were found nesting at 10 sites from Cape Fear to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 155. The greatest concentration of nests was found in Management Region 2. The mean number of nests per colony site was 16 and varied from one to 41. This species usually nested in association with Common Terns and Black Skimmers.

**Nesting Habitat:** Gull-billed Terns nested primarily in open, bare habitat with a substrate of mixed sand and shell. The majority of nests were found on undiked dredged-material islands, but most colonies were on natural estuarine islands.

**Management:** Eight of the 10 Gull-billed Tern colonies and 81 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbances are immediate threats to this species.

**1993 Colony Sites:** DR-005-03, DR-006-35, DR-007-07, DR-008-02, CR-006-35, CR-014-01, CR-014-07, CR-018-08, CR-020-05, BW-039-37.



Site Type	Colonies	Nests
Natural Beach	2	48
Natural Estuarine	4	32
Dredged-material, diked	0	0
Dredged-material, undiked	3	74
Man-modified	1	1
<i>Total</i>	10	155



# Caspian Tern

(*Sterna caspia*)

**Status:** No special status in North Carolina.



**Identification:** Caspian terns are the largest of the North American terns (48 to 57 cm) and similar in appearance to the Royal Tern (Pearson et al. 1942). This crested tern retains its full, black cap throughout the year. The bill is heavier than that of the Royal Tern and is reddish rather than orange. The tail is not as deeply forked as the Royal Tern's.

**Range (North America):** Breeds in the Great Lakes region, at scattered locations along the Atlantic Coast from Newfoundland to South Carolina and along the Gulf Coast from Florida to Texas. Breeds at scattered locations across Canada and locally in western North America (AOU 1983).

**Breeding Biology:** Very little is known about the breeding biology of Caspian Terns in North Carolina. Caspian Terns nest on barrier beaches, natural islands and shoals and dredged-material islands where there is a substrate of sand or shell and little or no vegetation. In North Carolina, Caspian Terns nest singly or in small colonies, usually in the vicinity of other tern species. Timing and initiation of nesting activities is similar to that of the Royal Tern.

Caspian Tern nests are shallow depressions in the sand, which are often lined with shell fragments. The females lay two to three eggs. Eggs average 65 x 45 mm and are similar in color and appearance to those of Royal Terns, but markings are not as distinct (Harrison 1975). Incubation requires 20 days (Bent 1963), and chicks fledge at four to five weeks of age (Reilly 1968). North Carolina colony sites are occupied from April to August.

**Food:** Caspian Terns feed almost entirely on fish (Clapp et al. 1983).

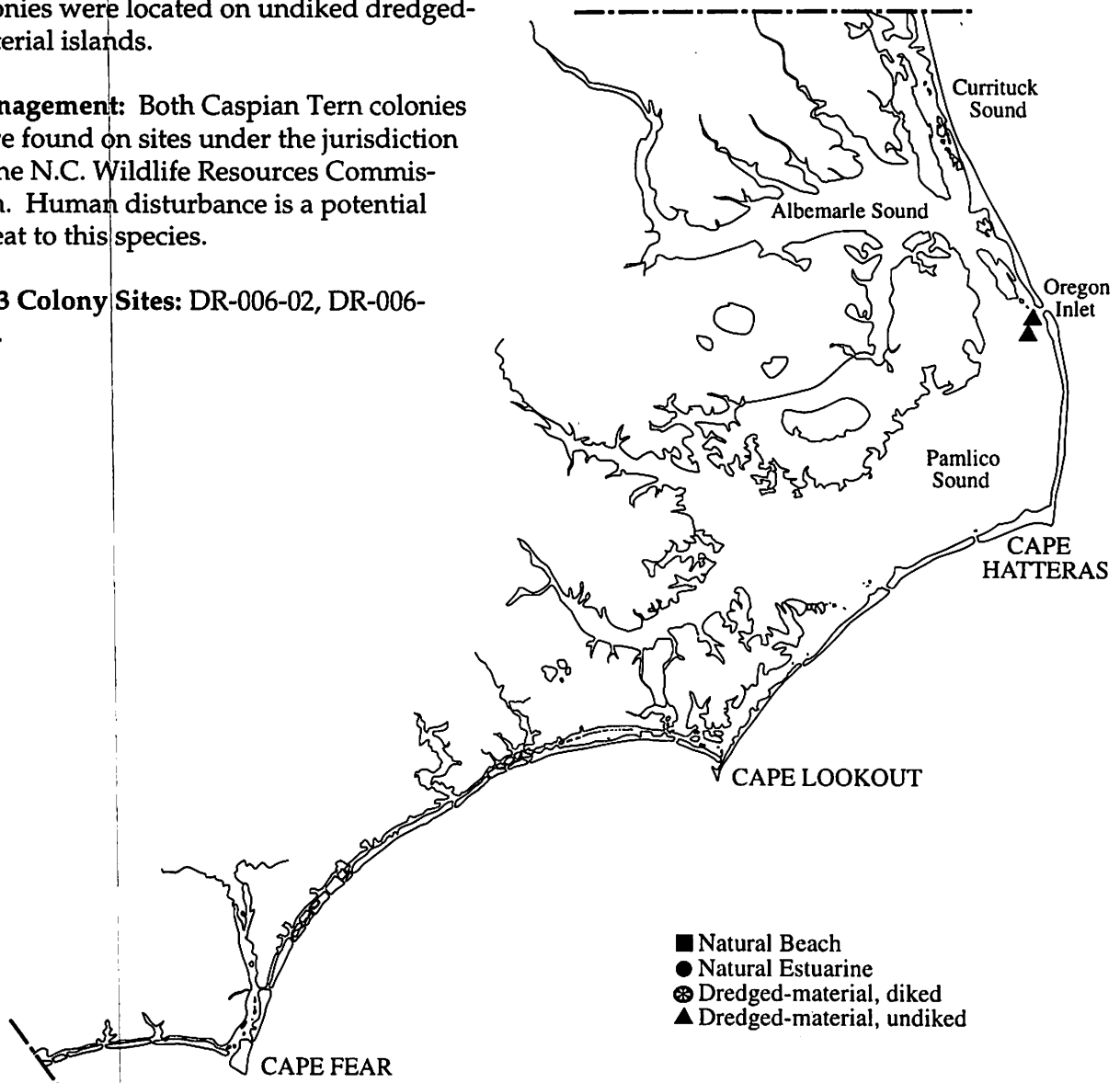
# 1993 Nesting Season

**Distribution and Abundance:** Caspian Terns were found nesting at two sites located near Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 33. Both colonies were located in Management Region 2. The largest colony had 19 nests, while the other had 14 nests. Caspian Terns nested in single-species colonies.

**Nesting Habitat:** Caspian Terns nested on open, bare sand with no vegetation. Both colonies were located on undiked dredged-material islands.

**Management:** Both Caspian Tern colonies were found on sites under the jurisdiction of the N.C. Wildlife Resources Commission. Human disturbance is a potential threat to this species.

**1993 Colony Sites:** DR-006-02, DR-006-354.



Site Type	Colonies	Nests
Natural Beach	0	0
Natural Estuarine	0	0
Dredged-material, diked	0	0
Dredged-material, undiked	2	33
<i>Total</i>	2	33

## Royal Tern (*Sterna maxima*)

**Status:** No special status in North Carolina.



**Identification:** This large, crested tern (46 to 53 cm) is easily identified by its size, orange bill and deeply forked tail (Pearson et al. 1942). The species has a black cap in spring and early summer that turns to white with black fringes by midsummer.

**Range (North America):** Breeds along the Atlantic Coast from Maryland to Florida, along the Gulf Coast from Florida to Texas and through the Caribbean, the Bahamas and the West Indies. Breeds along the Pacific Coast from southern California to Tres Marias Islands (AOU 1983).

**Breeding Biology:** Royal Terns are present in North Carolina all year, but numbers peak in spring and summer. This species nests on natural islands and shoals and dredged-material islands (Parnell and Soots 1979, Parnell and McCrimmon 1984). Royal Terns will also nest on barrier beaches in other regions (Clapp et al. 1983). Sites without vegetation seem to be preferred, but these terns will tolerate some herbaceous vegetation. The species is gregarious; colonies range from a few hundred to over 5,000 nesting pairs.

Courtship begins in mid-April and is soon followed by egg-laying in late April and early May. Nests are unlined, shallow depressions, usually containing a single egg (occasionally two eggs are laid). This species nests in dense colonies with six or seven nests per square meter. Eggs are buff-colored to whitish with brown blotches and average 63 x 45 mm (Harrison 1975). Incubation requires 30 to 31 days. Chicks leave their nests when less than one week of age and gather in large groups. They continue to be fed by their parents until they begin to fly at about 30 days of age (Buckley and Buckley 1972). Colony sites in North Carolina are occupied from April to mid-August.

**Food:** Food consists primarily of fish (Clapp et al. 1983).

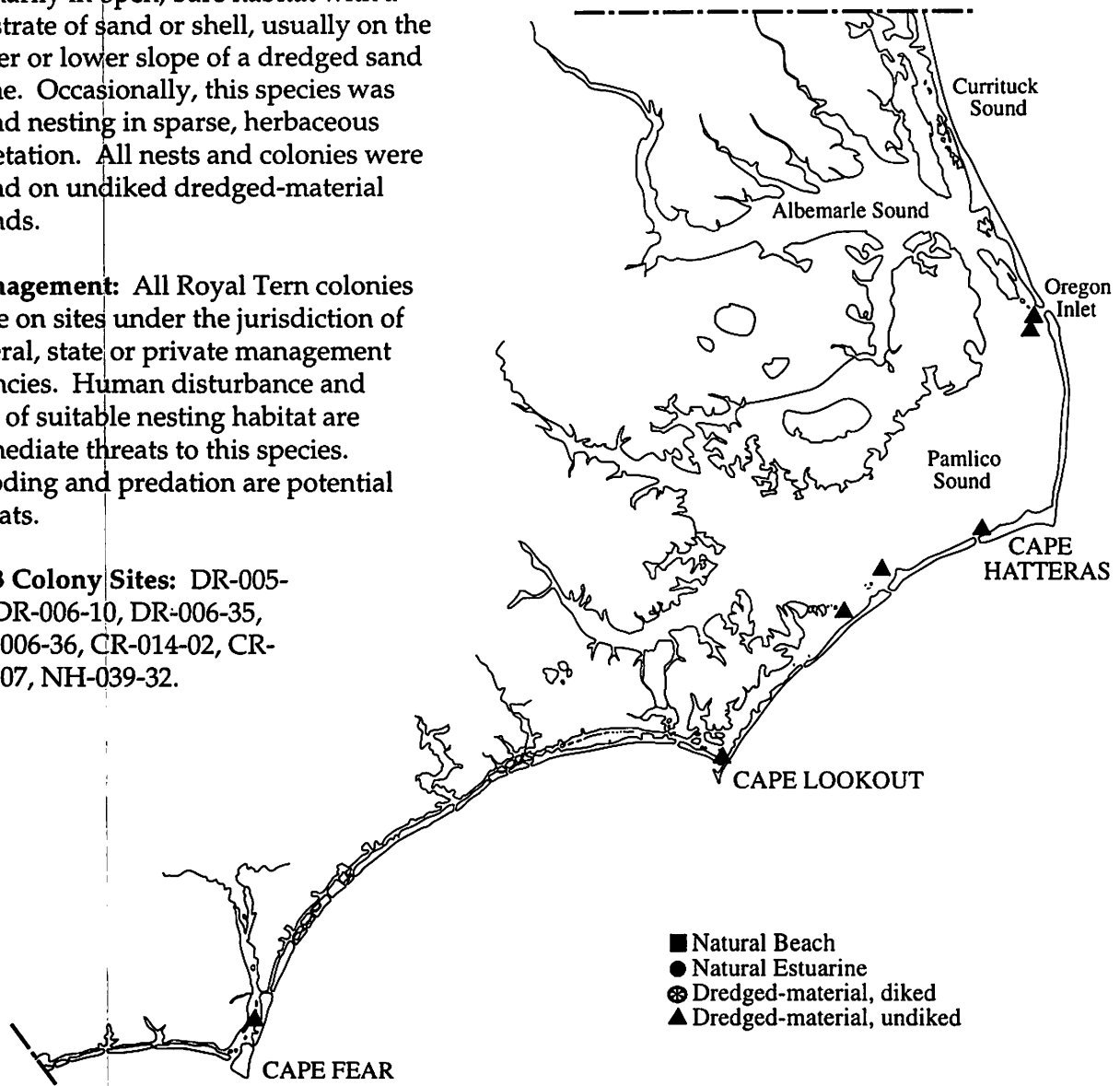
# 1993 Nesting Season

**Distribution and Abundance:** Royal Terns were found nesting at seven colony sites from Cape Fear to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 14,611. The greatest concentration of nests was found in Management Region 2. Colonies varied from 88 to 4,656 nests and averaged 2,087 nests. Royal Terns usually nested in association with Sandwich Terns.

**Nesting Habitat:** Royal Terns nested primarily in open, bare habitat with a substrate of sand or shell, usually on the upper or lower slope of a dredged sand dome. Occasionally, this species was found nesting in sparse, herbaceous vegetation. All nests and colonies were found on undiked dredged-material islands.

**Management:** All Royal Tern colonies were on sites under the jurisdiction of federal, state or private management agencies. Human disturbance and lack of suitable nesting habitat are immediate threats to this species. Flooding and predation are potential threats.

**1993 Colony Sites:** DR-005-03, DR-006-10, DR-006-35, HY-006-36, CR-014-02, CR-017-07, NH-039-32.



Site Type	Colonies	Nests
Natural Beach	0	0
Natural Estuarine	0	0
Dredged-material, diked	0	0
Dredged-material, undiked	7	14,611
<i>Total</i>	7	14,611

# Sandwich Tern

(*Sterna sandvicensis*)

**Status:** No special status in North Carolina.



**Identification:** This crested tern (35 to 40 cm) is slightly smaller than the Royal Tern with a similar black cap and crest (Pearson et al. 1942). The bill is black with a yellow tip; the mantle is gray; and underparts are white. Legs are black.

**Range (North America):** Breeds locally along the Atlantic Coast from Maryland (Weske et al. 1977) to northern Florida, along the Gulf Coast from northern Florida to southern Texas, at Dry Tortugas and at scattered locations from the Bahamas to the West Indies (AOU 1983).

**Breeding Biology:** Sandwich Terns are often found nesting with Royal Terns, usually in groups from a few nests to 1,000 or more (Clapp et al. 1983). See habitat descriptions for Royal Terns. Adults begin to arrive at colonies in North Carolina in late April.

Timing and initiation of nesting activities are similar to those of Royal Terns. Clutch size varies from one to two eggs; occasionally there are three (Clapp et al. 1983). Nests and eggs are similar in color and appearance to those of Royal Terns. However, Sandwich Tern eggs are noticeably smaller and average 51 x 36 mm (Harrison 1975). Incubation requires 20 to 23 days, and chicks begin to fly at about five weeks of age (Reilly 1968). North Carolina colony sites are occupied from April to August.

**Food:** Food consists primarily of fish but also includes shrimp and squid (Clapp et al. 1983, Blus et al. 1979, Bent 1921).

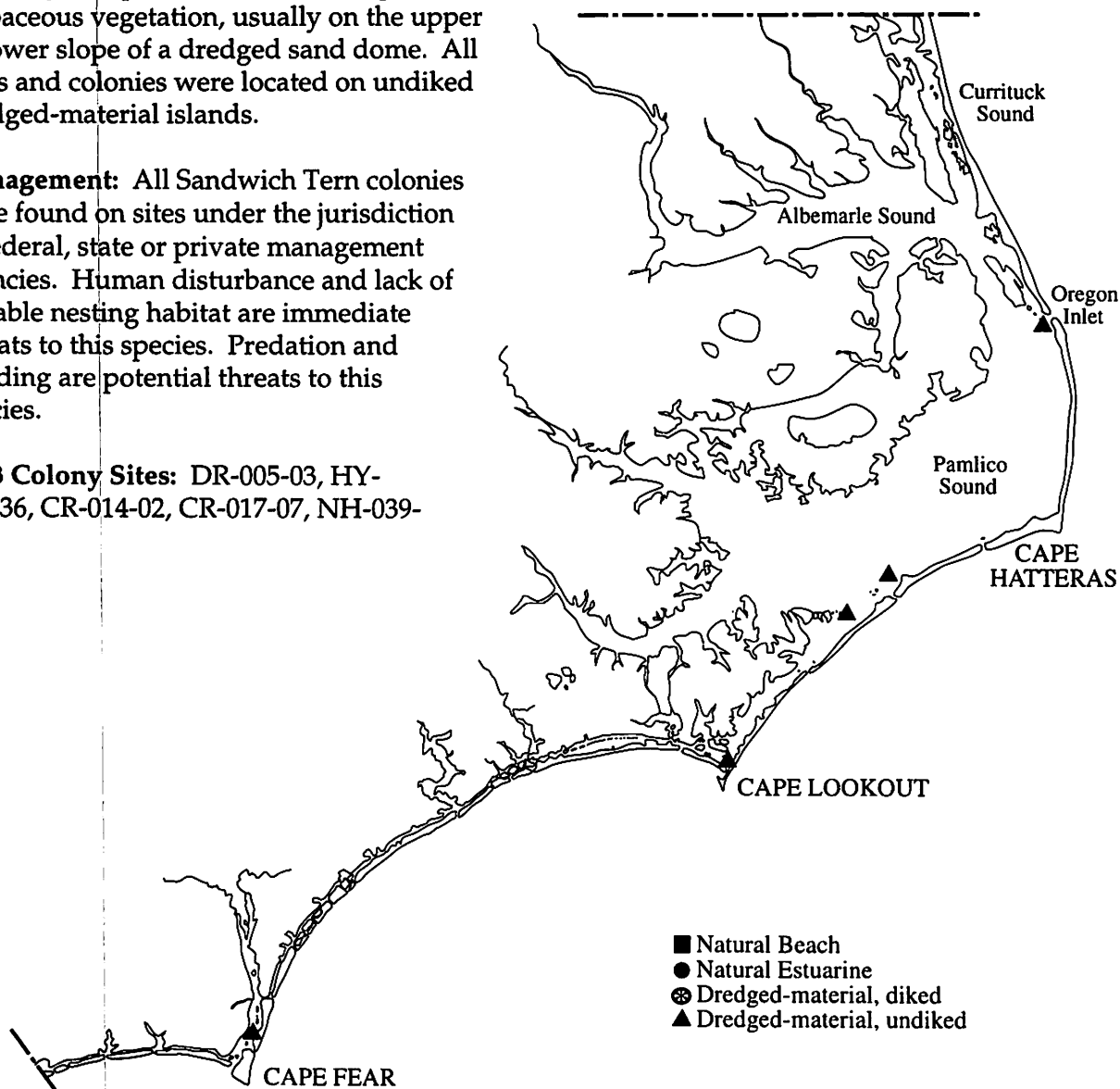
# 1993 Nesting Season

**Distribution and Abundance:** Sandwich Terns were found nesting at five colony sites from Cape Fear to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 2,700. The greatest concentration of nests was in Management Region 3. Colonies varied in size from 253 to 1,135 nests and averaged 540 nests. Sandwich Terns were always found nesting in association with Royal Terns.

**Nesting Habitat:** Sandwich Terns nested primarily on open, bare sand with sparse, herbaceous vegetation, usually on the upper or lower slope of a dredged sand dome. All nests and colonies were located on undiked dredged-material islands.

**Management:** All Sandwich Tern colonies were found on sites under the jurisdiction of federal, state or private management agencies. Human disturbance and lack of suitable nesting habitat are immediate threats to this species. Predation and flooding are potential threats to this species.

**1993 Colony Sites:** DR-005-03, HY-006-36, CR-014-02, CR-017-07, NH-039-32.



Site Type	Colonies	Nests
Natural Beach	0	0
Natural Estuarine	0	0
Dredged-material, diked	0	0
Dredged-material, undiked	5	2,700
<i>Total</i>	5	2,700

# Common Tern

(*Sterna hirundo*)

**Status:** No special status in North Carolina.



**Identification:** This medium-sized tern (33 to 40 cm) has a black cap; a gray mantle that becomes noticeably darker toward the wing tips; and white underparts (Pearson et al. 1942). The legs are red, and the bill has a red base and black tip. The upper primaries are gray, rather than silver like the Forster's Tern. In late summer the bill fades to black, and the tern's black cap is reduced in size.

**Range (North America):** Breeds primarily across north-central and northeastern North America. Breeds along the Atlantic Coast from southern Labrador to North Carolina, locally along the Gulf Coast from western Florida to Texas, Bermuda and scattered locations in the Caribbean (AOU 1983).

**Breeding Biology:** Common Terns nest on barrier beaches, natural islands and shoals, marsh islands, wrack and dredged-material islands. Adults begin to arrive and initiate nesting activities at North Carolina colony sites in late April and early May. Egg-laying often begins by mid-May. If early nesting attempts fail, this species will renest until early July.

Nests are shallow depressions, usually lined with shell fragments or vegetation, and are often adjacent to debris. The extent of nest-lining varies greatly. The females lay two to four olive, brown or pale greenish-brown eggs (42 x 30 mm) with dark brown blotches (Harrison 1975). Incubation requires 21 days (Jones 1906), and chicks begin to fly at about four weeks of age (Reilly 1968). North Carolina colony sites are occupied from April to mid-August.

**Food:** Food consists primarily of small fish and shrimp, but can include insects, mollusks and the occasional small lizard or tadpole (Clapp et al. 1983).

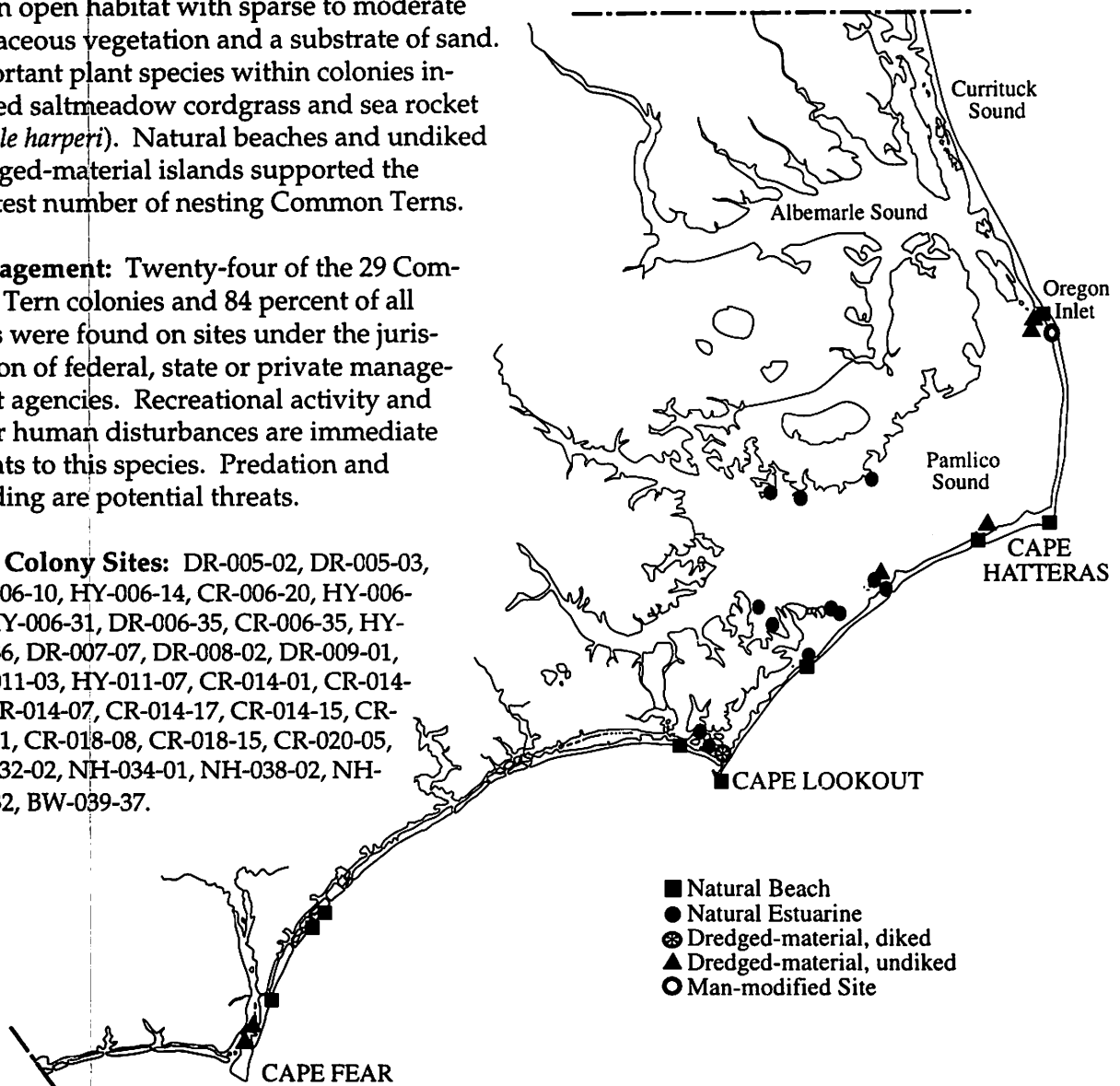
# 1993 Nesting Season

**Distribution and Abundance:** Common Terns were found nesting at 29 sites from Cape Fear to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 2,122. The greatest concentration of nests was found in Management Region 2. The mean number of nests per colony site was 73 and varied from one to 498. Common Terns were usually found nesting in association with Least Terns, Gull-billed Terns, Black Skimmers and occasionally Forster's Terns.

**Nesting Habitat:** Common Terns nested primarily in open habitat with sparse to moderate herbaceous vegetation and a substrate of sand. Important plant species within colonies included saltmeadow cordgrass and sea rocket (*Cakile harperi*). Natural beaches and undiked dredged-material islands supported the greatest number of nesting Common Terns.

**Management:** Twenty-four of the 29 Common Tern colonies and 84 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Recreational activity and other human disturbances are immediate threats to this species. Predation and flooding are potential threats.

**1993 Colony Sites:** DR-005-02, DR-005-03, DR-006-10, HY-006-14, CR-006-20, HY-006-30, HY-006-31, DR-006-35, CR-006-35, HY-006-36, DR-007-07, DR-008-02, DR-009-01, HY-011-03, HY-011-07, CR-014-01, CR-014-03, CR-014-07, CR-014-17, CR-014-15, CR-017,01, CR-018-08, CR-018-15, CR-020-05, PD-032-02, NH-034-01, NH-038-02, NH-039-32, BW-039-37.



- Natural Beach
- Natural Estuarine
- ⊗ Dredged-material, diked
- ▲ Dredged-material, undiked
- Man-modified Site

Site Type	Colonies	Nests
Natural Beach	9	903
Natural Estuarine	12	340
Dredged-material, diked	1	1
Dredged-material, undiked	6	832
Man-modified	1	46
<b>Total</b>	<b>29</b>	<b>2,122</b>



## Forster's Tern

(*Sterna forsteri*)

**Status:** No special status in North Carolina.



**Identification:** Forster's Terns are sometimes confused with Common Terns. This medium-sized tern (35 to 38 cm) is most easily identified by the silvery color on the upper wing primaries, as compared to the dull gray primaries of the Common Tern (Pearson et al. 1942). The bill has an orange base and black tip during the breeding season. Forster's Terns can also be distinguished by their voice, which is an insectlike buzz.

**Range (North America):** Breeds at scattered locations across Canada, along the Atlantic Coast from New York to South Carolina, along the Gulf Coast from Alabama to Texas, from Washington to southern California and at scattered locations from Michigan to Idaho and Utah (AOU 1983).

**Breeding Biology:** In North Carolina, Forster's Terns nest entirely in estuarine systems, usually on marsh islands. Elsewhere they nest in both freshwater and saltwater marshes (Bergman et al. 1970, McNicholl 1971).

Adults begin to arrive and initiate nesting activities on island nesting sites in North Carolina in late April and early May. Egg-laying usually peaks from mid-May to June. Nests are built on mats of wrack that accumulate in marshes during spring and storm tides or on sandy beaches. Nests are built of wrack and are often slightly elevated above the surface of the wrack mat. The females lay three to four eggs averaging 43 x 31 mm (Harrison 1975). The eggs are olive to greenish-brown with uneven dark blotches and are very difficult to distinguish from the eggs of the Common Tern. The incubation period is about 23 days (Bent 1921), and chicks fledge at about 40 days. Forster's Terns may occupy colony sites in North Carolina from late April to August.

**Food:** Food consists primarily of fish but includes insects, frogs and crustaceans (McNicholl 1971).

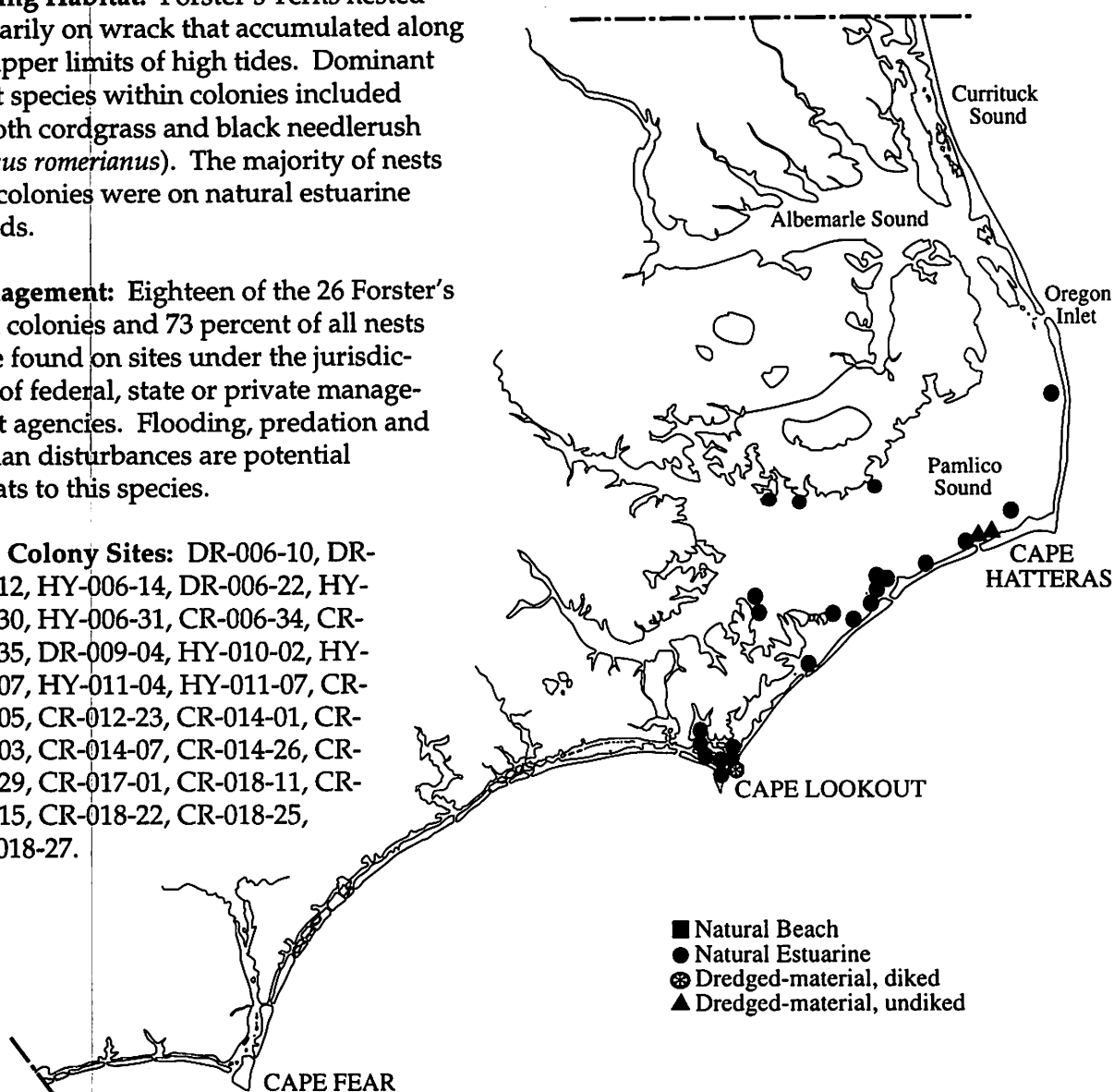
# 1993 Nesting Season

**Distribution and Abundance:** Forster's Terns were found nesting at 26 sites from Cape Lookout to Salvo and along the western edge of Pamlico Sound. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 1,548. The greatest concentration of nests was in Management Region 2. The mean number of nests per colony site was 60 and varied from one to 345. Forster's Terns usually nested in single-species colonies, but were occasionally found nesting in association with Common Terns and Laughing Gulls.

**Nesting Habitat:** Forster's Terns nested primarily on wrack that accumulated along the upper limits of high tides. Dominant plant species within colonies included smooth cordgrass and black needlerush (*Juncus roemerianus*). The majority of nests and colonies were on natural estuarine islands.

**Management:** Eighteen of the 26 Forster's Tern colonies and 73 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Flooding, predation and human disturbances are potential threats to this species.

**1993 Colony Sites:** DR-006-10, DR-006-12, HY-006-14, DR-006-22, HY-006-30, HY-006-31, CR-006-34, CR-006-35, DR-009-04, HY-010-02, HY-010-07, HY-011-04, HY-011-07, CR-012-05, CR-012-23, CR-014-01, CR-014-03, CR-014-07, CR-014-26, CR-014-29, CR-017-01, CR-018-11, CR-018-15, CR-018-22, CR-018-25, CR-018-27.



Site Type	Colonies	Nests
Natural Beach	0	0
Natural Estuarine	23	1,408
Dredged-material, diked	1	10
Dredged-material, undiked	2	130
<i>Total</i>	26	1,548

## Least Tern

(*Sterna antillarum*)

**Status:** No special status in North Carolina.



**Identification:** This is the smallest of the terns (21 to 24 cm), about the size of a Purple Martin (*Progne subis*) (Pearson et al. 1942). The species is easily identified by its small size and yellow bill. Least Terns also have a black cap, a white chevron on the forehead and black legs. The mantle is pale gray, and the undersides are white.

**Range (North America):** Breeds along the Atlantic Coast from Maine to south Florida, along the Gulf Coast from south Florida to Texas and throughout the Bahamas, Lesser and Greater Antilles and Bermuda. Breeds along the Pacific Coast from southern California to Chiapas, Mexico. Also breeds inland at scattered locations along major river systems (AOU 1983).

**Breeding Biology:** Least Terns nest on barrier beaches, natural islands or dredged-material islands with a substrate of mixed sand and shell and little or no vegetation (Jernigan et al. 1978). This species is also known to nest on flat, gravel rooftops (Cooper 1994).

Adults usually arrive along the North Carolina coast in April. Courtship often begins before the end of the month, followed by egg-laying in early May. Least Terns will re-nest until early July if early nesting attempts fail. Nests are shallow, saucer-shaped depressions in the sand often lined with shell fragments. The females lay one to three eggs. The eggs average 31 x 26 mm and are pale olive-buff to whitish with uneven brown blotches (Harrison 1975). Eggs are extremely well camouflaged and can be difficult to locate. Incubation requires 19 days, and chicks fledge at about three weeks of age (Massey 1974). Colony sites may be occupied from late April through August.

**Food:** Food consists primarily of fish (Mosley 1976) but includes crustaceans and insects (Clapp et al. 1983).

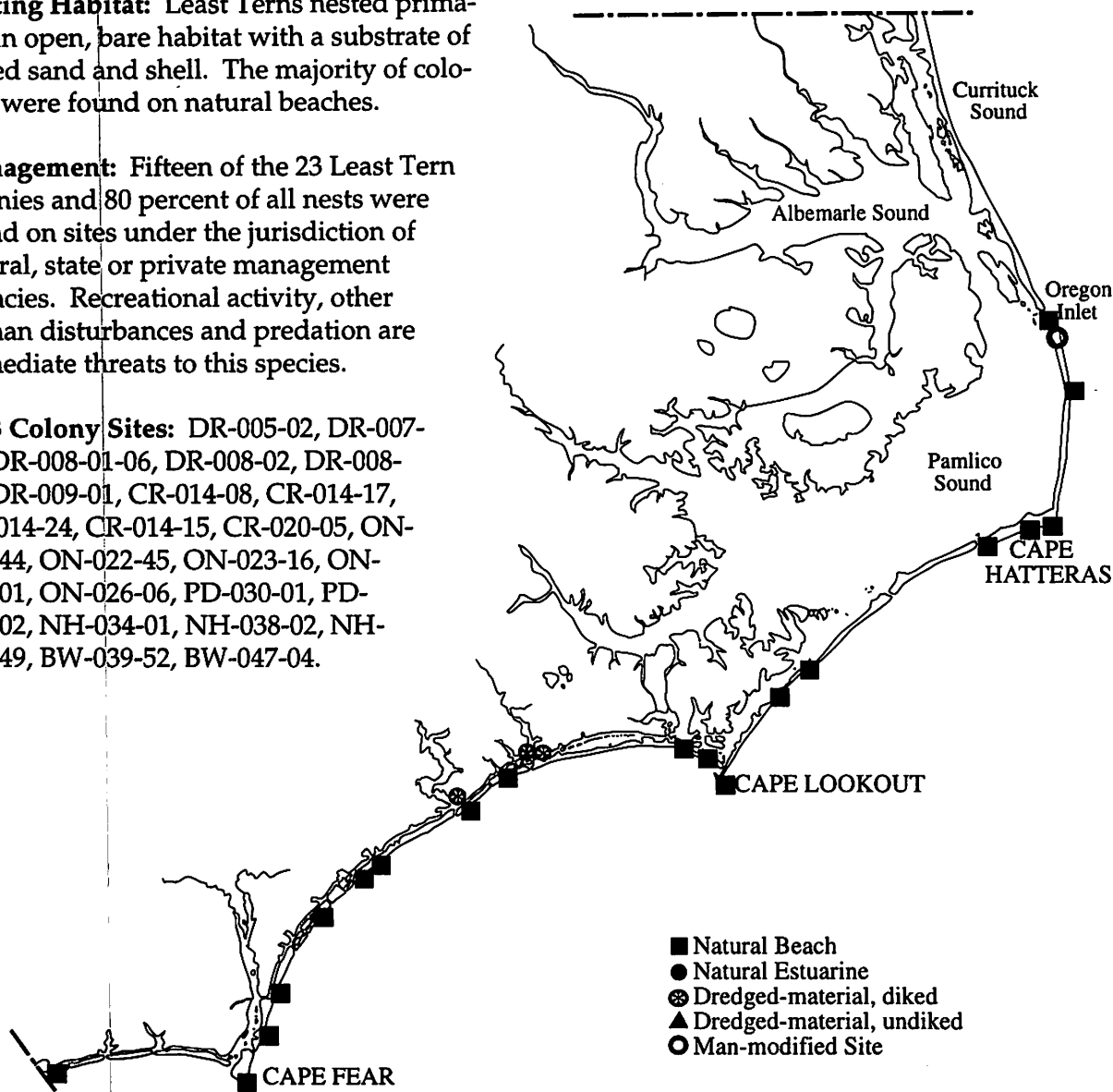
# 1993 Nesting Season

**Distribution and Abundance:** Least Terns were found nesting at 23 sites from Sunset Beach to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 2,154. The greatest concentration of nests was in Management Region 2. The mean number of nests per colony site was 86 and varied from one to 404. Least Terns were found nesting in single and mixed-species colonies, often in association with Common Terns and Black Skimmers.

**Nesting Habitat:** Least Terns nested primarily in open, bare habitat with a substrate of mixed sand and shell. The majority of colonies were found on natural beaches.

**Management:** Fifteen of the 23 Least Tern colonies and 80 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Recreational activity, other human disturbances and predation are immediate threats to this species.

**1993 Colony Sites:** DR-005-02, DR-007-07, DR-008-01-06, DR-008-02, DR-008-03, DR-009-01, CR-014-08, CR-014-17, CR-014-24, CR-014-15, CR-020-05, ON-022-44, ON-022-45, ON-023-16, ON-026-01, ON-026-06, PD-030-01, PD-032-02, NH-034-01, NH-038-02, NH-039-49, BW-039-52, BW-047-04.



Site Type	Colonies	Nests
Natural Beach	19	1,989
Natural Estuarine	0	0
Dredged-material, diked	3	14
Dredged-material, undiked	0	0
Man-modified	1	151
<b>Total</b>	<b>23</b>	<b>2154</b>

# Sooty Tern

(*Sterna fuscata*)

**Status:** No special status in North Carolina.



**Identification:** Sooty Terns (38 to 43 cm) are most easily identified by their contrasting black-and-white plumage (Pearson et al. 1942). Their cap, back and wings are black, and their underparts are white. Their bill and legs are black, and the tail is deeply forked.

**Range:** The majority of North America's Sooty Terns nest in the Dry Tortugas. These terns also breed at scattered locations throughout the Caribbean, the Yucatan Peninsula and locally on small islands along the coast of Texas, Louisiana, Florida and North Carolina (AOU 1983).

**Breeding Biology:** Sooty Terns are rare breeders in North Carolina; thus very little is known about their breeding biology in the state. Sooty terns have been found nesting on barrier beaches, natural shoals and dredged-material islands. They usually nest in association with Common Terns and Black Skimmers.

Arrival and initiation of nesting activities is probably similar to that of Common Terns. Sooty Terns lay one egg in a simple, unlined scrape, usually in or adjacent to a sparse cover of herbaceous vegetation. Eggs average 50 x 35 mm and are similar in appearance to those of Royal Terns but have burnt sienna-colored blotches (Bent 1921). Incubation requires about 26 days (Bent 1921), and chicks begin to fly at eight to 10 weeks of age (Robertson 1978). Sooty terns usually fail in their efforts to produce young in North Carolina, but in 1993 the first chicks were recorded by Steve Dinsmore (Davis 1993).

**Food:** Food consists primarily of fish (Bent 1921).

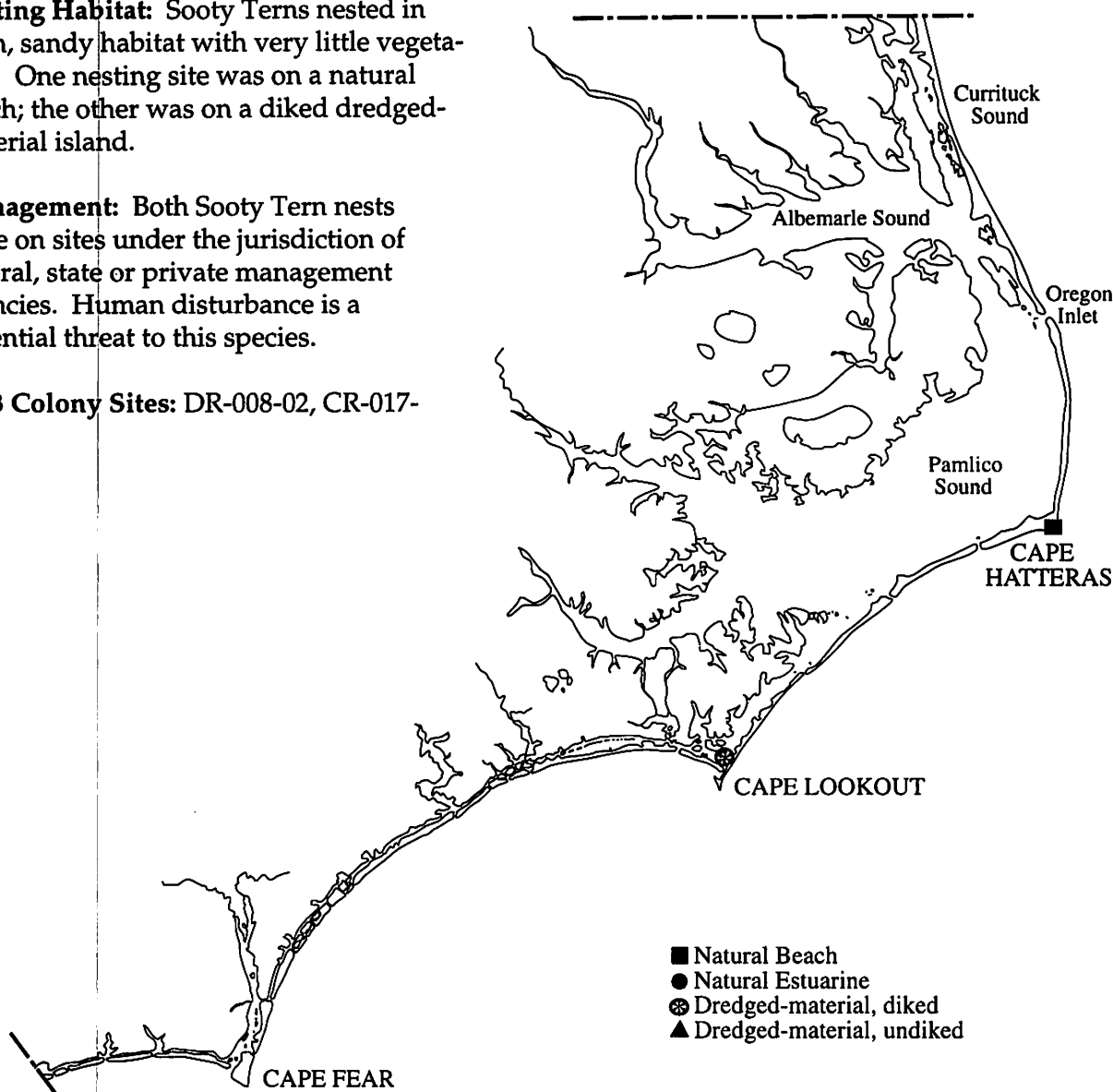
## 1993 Nesting Season

**Distribution and Abundance:** Sooty Terns were found nesting at two sites, one near Cape Lookout and the other at Cape Hatteras. One nest was found at each location. This species nested in association with Least Terns, Common Terns and Black Skimmers. Nesting Sooty Terns are very unusual along North Carolina's coast, but one to four active nests are usually found each year. The success of these nesting terns is unknown, but at least one nest hatched a chick in 1993.

**Nesting Habitat:** Sooty Terns nested in open, sandy habitat with very little vegetation. One nesting site was on a natural beach; the other was on a diked dredged-material island.

**Management:** Both Sooty Tern nests were on sites under the jurisdiction of federal, state or private management agencies. Human disturbance is a potential threat to this species.

**1993 Colony Sites:** DR-008-02, CR-017-01.



Site Type	Colonies	Nests
Natural Beach	1	1
Natural Estuarine	0	0
Dredged-material, diked	1	1
Dredged-material, undiked	0	0
<i>Total</i>	2	2

# Black Skimmer

(*Rynchops niger*)

**Status:** No special status in North Carolina.



**Identification:** Black Skimmers (43 to 51 cm) are easily identified by their black cap and mantle, which contrasts with their white underparts (Pearson et al. 1942). The most striking feature is the bicolored bill (orange at the base with a black tip), whose lower mandible is noticeably longer than the upper mandible. Skimmers feed by flying low over the water with their lower mandible slicing through the water's surface. When skimmers encounter prey, they snap their bill shut.

**Range (North America):** Breeds along the Atlantic Coast from Massachusetts to southern Florida and along the Gulf Coast from central Florida to the Yucatan Peninsula. Breeds along the Pacific Coast on the Salton Sea and locally along the west coast of Mexico (AOU 1983).

**Breeding Biology:** Black Skimmers appear along North Carolina's coast throughout the year. They usually nest on barrier beaches, natural islands and shoals and dredged-material islands. In other regions Black Skimmers will also nest on berms along highways (Schreiber and Schreiber 1978), wrack on marsh islands (Frohling 1965, Burger 1982) and gravel rooftops (Fisk 1978).

Adults begin to arrive and initiate nesting activities in May, usually in mixed-species colonies with Common, Least and/or Gull-billed terns. The initiation of nesting activities is asynchronous, and egg-laying may continue until August. Nests are simple, saucer-shaped depressions in the sand, usually in areas with little or no plant cover. The females lay four to five white to buff-colored eggs (45 x 34 mm) with bold, dark brown blotches (Harrison 1975). Incubation requires about 23 days (Erwin 1977), and chicks fledge at 23 to 25 days. Colony sites may be occupied through mid-September.

**Food:** Food consists primarily of small fish and shrimp (Clapp et al. 1983).

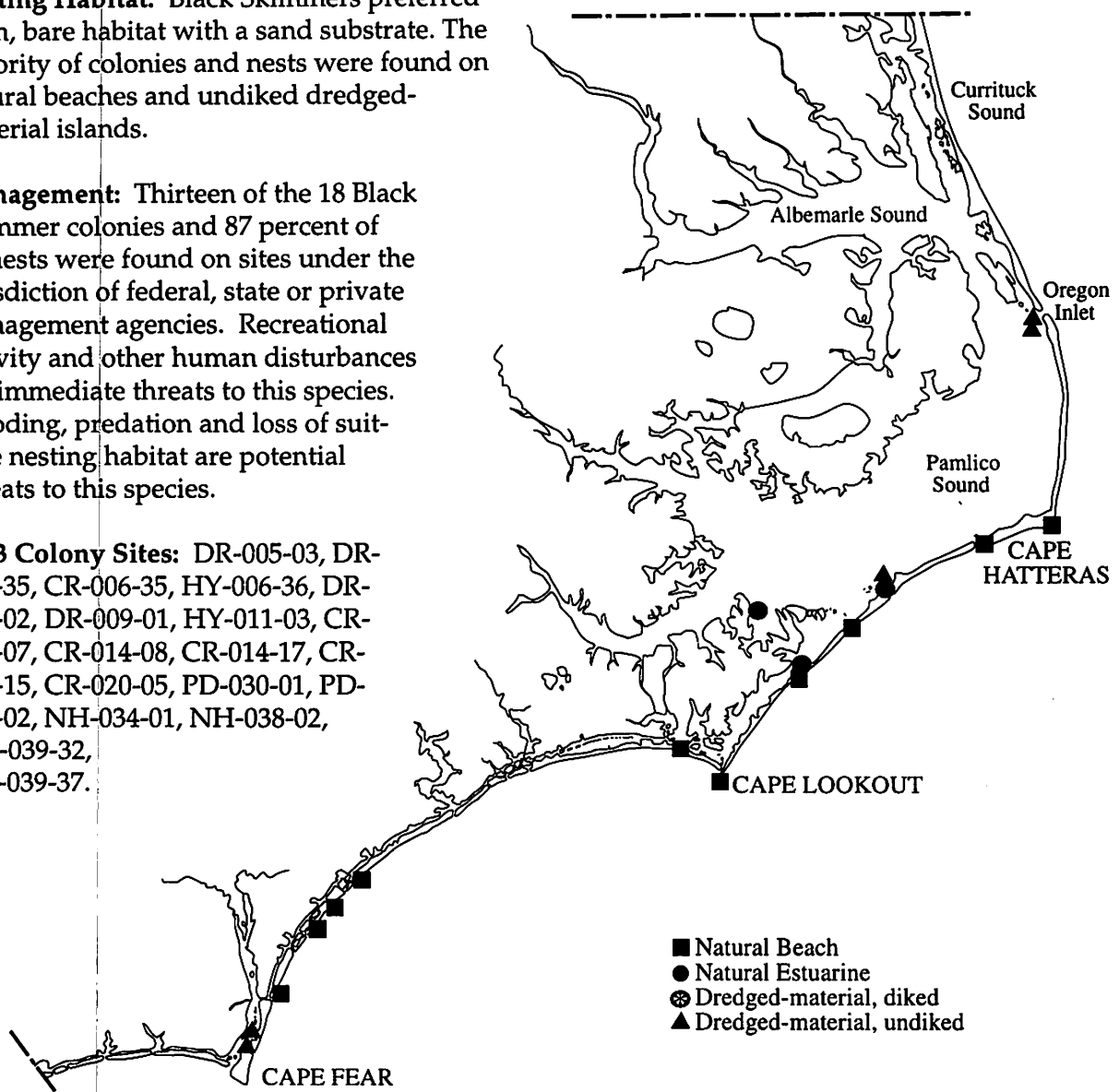
# 1993 Nesting Season

**Distribution and Abundance:** Black Skimmers were found nesting at 18 colony sites located from Cape Fear to Oregon Inlet. The total number of nests along North Carolina's coast, estimated at the peak of incubation, was 1,084. The greatest concentration of nests was found in Management Region 2. The mean number of nests per colony site was 60 and varied from two to 206. Black Skimmers were usually found nesting in association with Least and Common terns.

**Nesting Habitat:** Black Skimmers preferred open, bare habitat with a sand substrate. The majority of colonies and nests were found on natural beaches and undiked dredged-material islands.

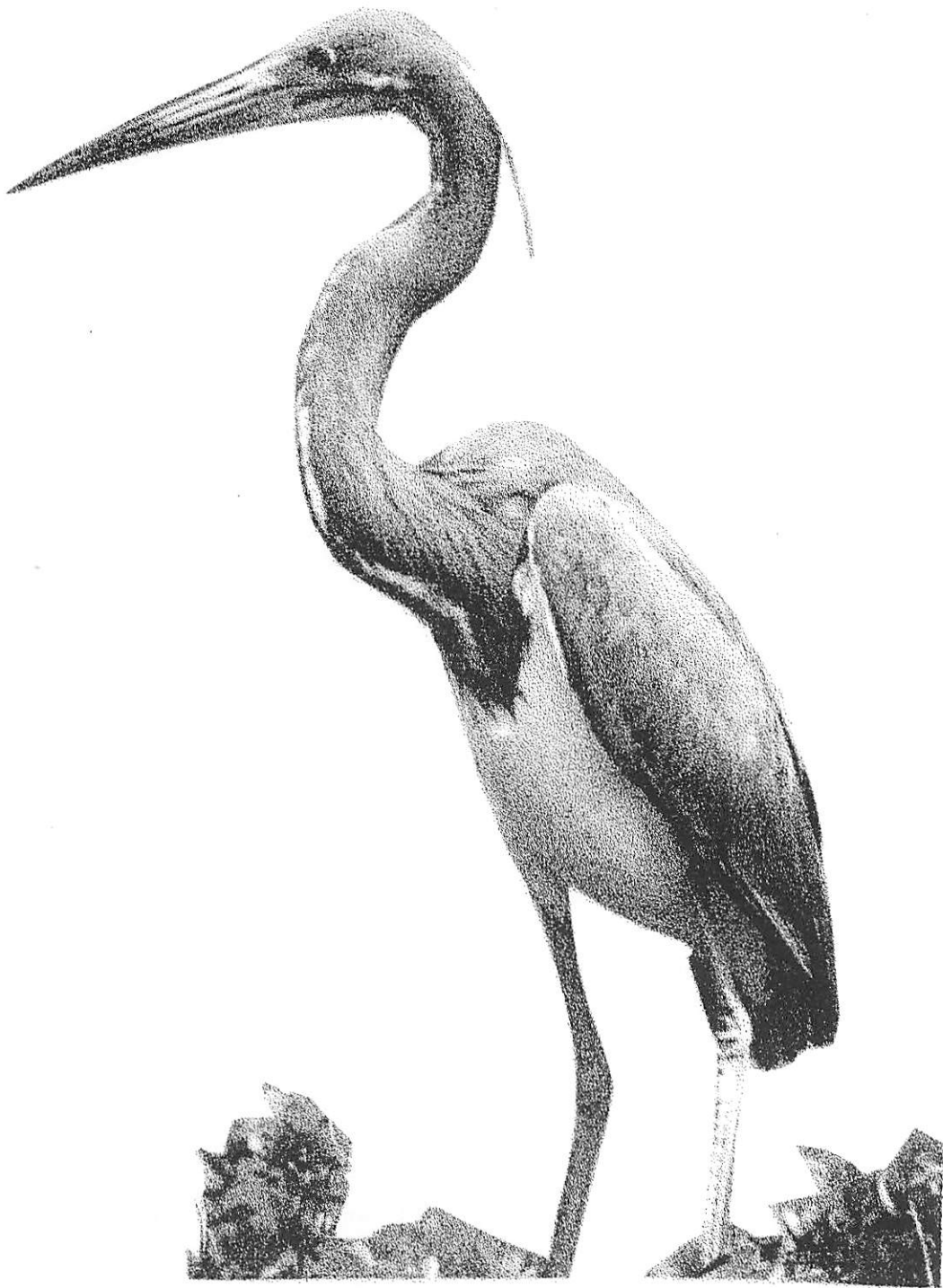
**Management:** Thirteen of the 18 Black Skimmer colonies and 87 percent of all nests were found on sites under the jurisdiction of federal, state or private management agencies. Recreational activity and other human disturbances are immediate threats to this species. Flooding, predation and loss of suitable nesting habitat are potential threats to this species.

**1993 Colony Sites:** DR-005-03, DR-006-35, CR-006-35, HY-006-36, DR-008-02, DR-009-01, HY-011-03, CR-014-07, CR-014-08, CR-014-17, CR-014-15, CR-020-05, PD-030-01, PD-032-02, NH-034-01, NH-038-02, NH-039-32, BW-039-37.



Site Type	Colonies	Nests
Natural Beach	10	529
Natural Estuarine	3	142
Dredged-material, diked	0	0
Dredged-material, undiked	5	413
<i>Total</i>	<i>18</i>	<i>1084</i>





## Regional Maps

Figures 2 and 3 provide an index to a series of 27 regional maps adapted from the U.S. Department of Commerce National Oceanographic and Atmospheric Administration Nautical Charts. Each regional map, coded to the indices by letter designation, shows all colony sites within the region covered by the map. Each map also includes at least one feature usually present on road maps to allow the reader to locate the vicinity more easily.

All colony site descriptions begin with the standard North Carolina two-letter code for county. This is followed by a three-number sequence code for the major region, such as an inlet or body of water. The final two-number code indicates the colony site within the region indicated by the three-number code. Thus, CK-001-01 is located in Currituck County (CK) in Currituck Sound (001) and was the first site numbered (01).

All sites that were active in recent years are shown on the maps. Sites that were active in 1993 are summarized on the opposing pages. Site type and responsible management agency, if any, are provided for each site, along with a list of nesting species and numbers of nests counted at the peak of incubation.

Management agencies are coded as follows: National Audubon Society (NAS), National Park Service (NPS), North Carolina National Estuarine Research Reserve (NCNERR), North Carolina State Parks (NCSP), North Carolina Wildlife Resources Commission (NCWRC), United States Fish and Wildlife Service (USFWS) and United States Marine Corps (USMC).

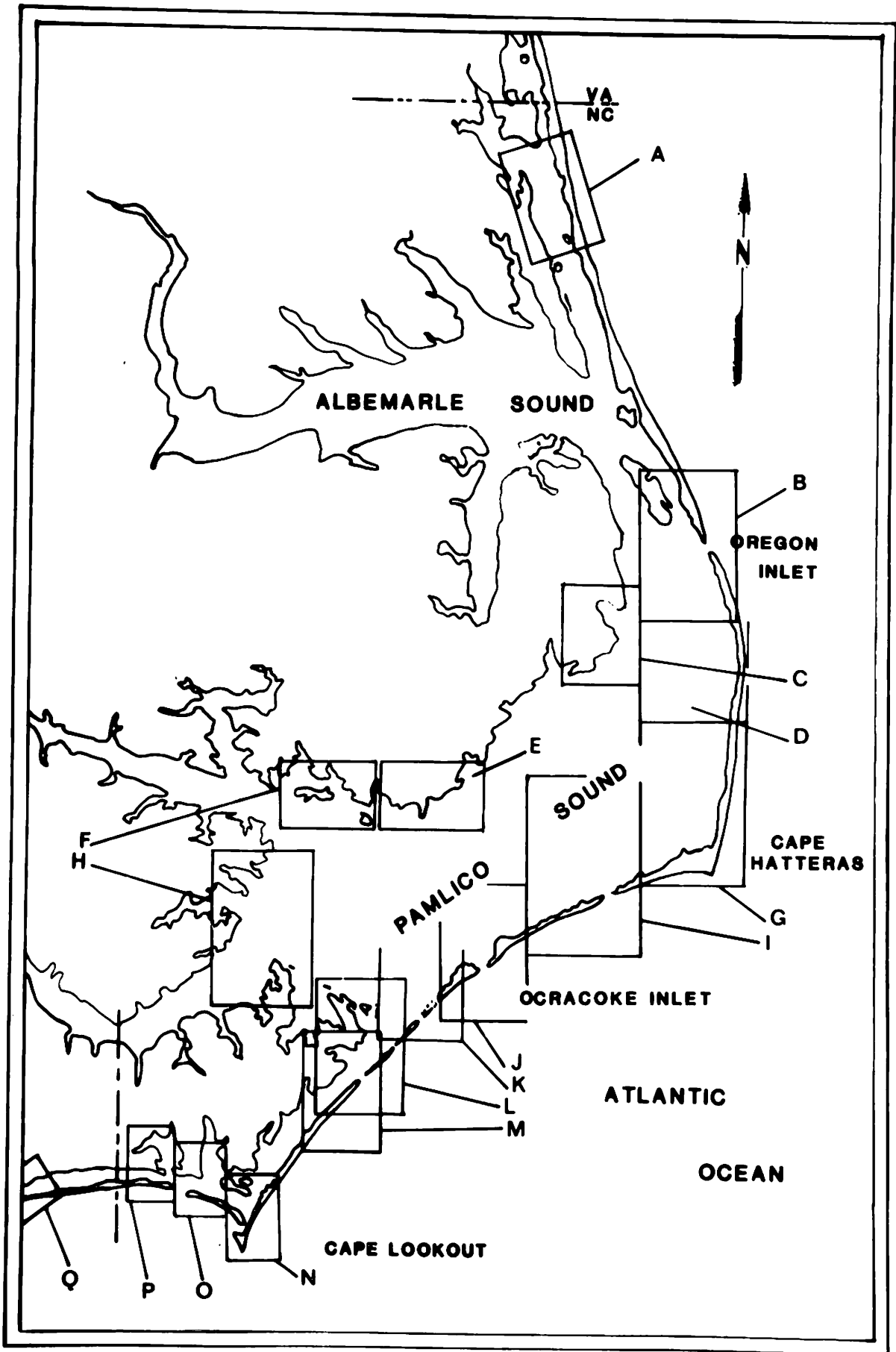


Figure 2. Index Map 1

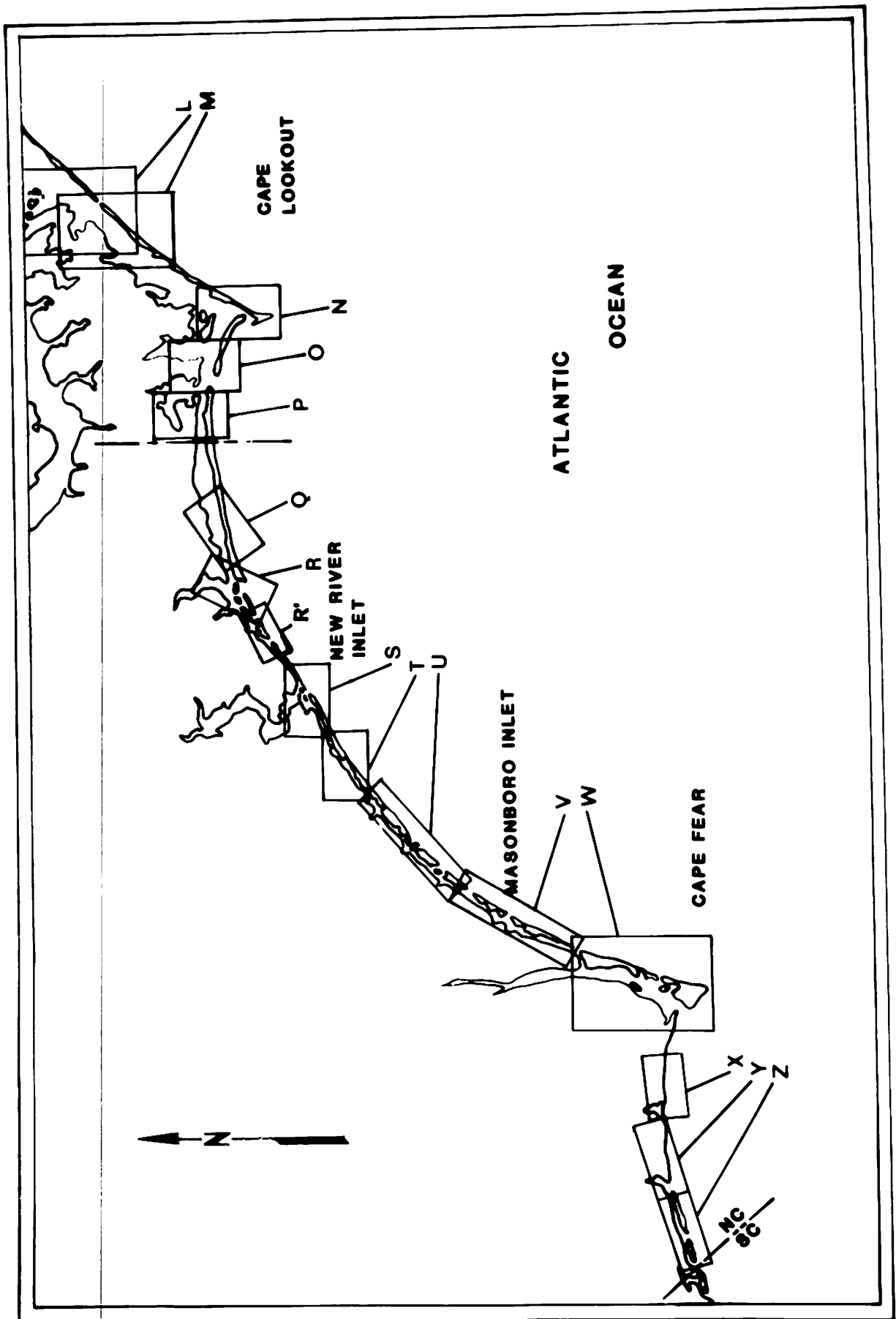


Figure 3. Index Map 2

## Map A

**Site #:** NC-CK-001-01

**Site Type:** Natural Estuarine

**Site Name:** Monkey Island

**Management Agency:** None

Great Egret.....	332
Snowy Egret.....	41
Little Blue Heron.....	14
Tricolored Heron.....	775
Cattle Egret.....	536
Green Heron.....	2

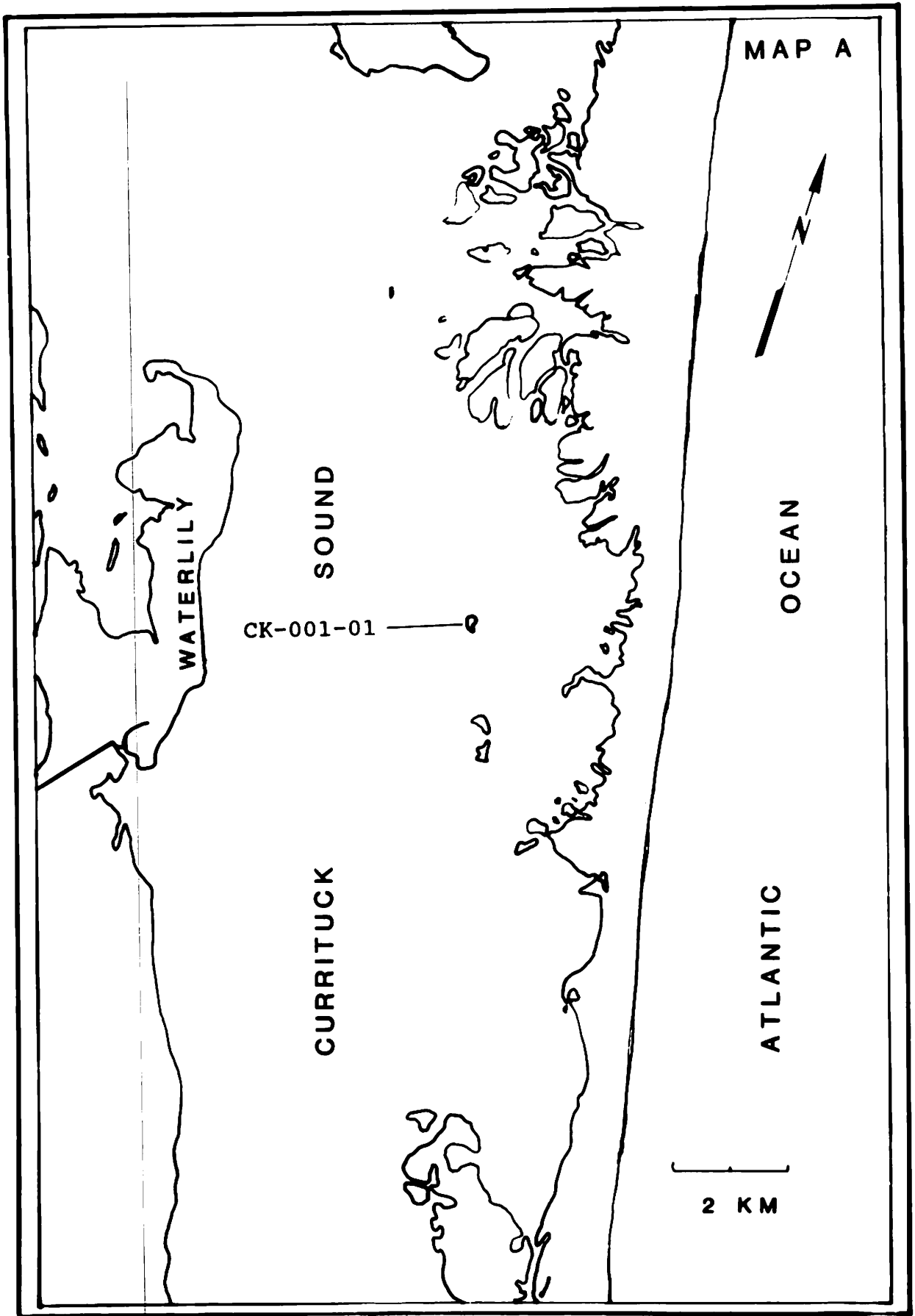


Figure 3. Map A, Currituck Sound and vicinity

## Map B

**Site #:** NC-DR-003-05  
**Site Type:** Dredged-material, undiked  
**Site Name:** Roanoke Sound, Island F  
**Management Agency:** None  
 Herring Gull..... 124  
 Great Black-backed Gull..... 18

**Site #:** NC-DR-003-09  
**Site Type:** Dredged-material, undiked  
**Name:** Roanoke Sound, Island G  
**Management Agency:** NCWRC  
 Great Egret..... 163  
 Snowy Egret..... 7  
 Little Blue Heron..... 114  
 Tricolored Heron..... 34  
 Cattle Egret..... 13  
 Black-cr. Night-Heron..... 17  
 White Ibis..... 131  
 Glossy Ibis..... 4  
 Herring Gull..... 2  
 Great Black-backed Gull..... 3

**Site #:** NC-DR-005-02  
**Site Type:** Natural Beach  
**Site Name:** Oregon Inlet Beach, South  
**Management Agency:** USFWS  
 Common Tern..... 16  
 Least Tern..... 256

**Site #:** NC-DR-005-03  
**Site Type:** Dredged-material, undiked  
**Site Name:** Sand Shoal Island  
**Management Agency:** NCWRC  
 Gull-billed Tern..... 26  
 Royal Tern..... 1401  
 Sandwich Tern..... 253  
 Common Tern..... 253  
 Black Skimmer..... 309

**Site #:** NC-DR-005-05  
**Site Type:** Dredged-material, undiked  
**Site Name:** Oregon Inlet, Island B  
**Management Agency:** NCWRC  
 Great Egret..... 46  
 Snowy Egret..... 2  
 Little Blue Heron..... 2  
 Tricolored Heron..... 9  
 Black-cr. Night-Heron..... 8

**Site #:** NC-DR-005-06  
**Site Type:** Dredged-material, undiked  
**Site Name:** Oregon Inlet, Island C  
**Management Agency:** None  
 Great Egret..... 30  
 Snowy Egret..... 28  
 Little Blue Heron..... 81  
 Tricolored Heron..... 85  
 Cattle Egret..... 9  
 Black-cr. Night-Heron..... 11  
 Yellow-cr. Night-Heron..... 1  
 White Ibis..... 2  
 Glossy Ibis..... 14

**Site #:** NC-DR-006-02  
**Site Type:** Dredged-material, undiked  
**Site Name:** Old House Channel, Island L  
**Management Agency:** NCWRC  
 Herring Gull..... 207  
 Great Black-backed Gull..... 8  
 Caspian Tern..... 19

**Site #:** NC-DR-006-08  
**Site Type:** Dredged-material, undiked  
**Site Name:** Old House Channel, Is. MN  
**Management Agency:** NCWRC  
 Brown Pelican..... 957  
 Black-cr. Night-Heron..... 1  
 Herring Gull..... 212  
 Great Black-backed Gull..... 8

**Site #:** NC-DR-006-35  
**Site Type:** Dredged-material, undiked  
**Site Name:** Well's Island  
**Management Agency:** NCWRC  
 Herring Gull..... 1  
 Gull-billed Tern..... 41  
 Caspian Tern..... 14  
 Royal Tern..... 88  
 Common Tern..... 498  
 Black Skimmer..... 12

**Site #:** NC-DR-007-07  
**Site Type:** Man-modified  
**Site Name:** Pea Island South Pond  
**Management Agency:** USFWS  
 Gull-billed Tern..... 1  
 Common Tern..... 46  
 Least Tern..... 151

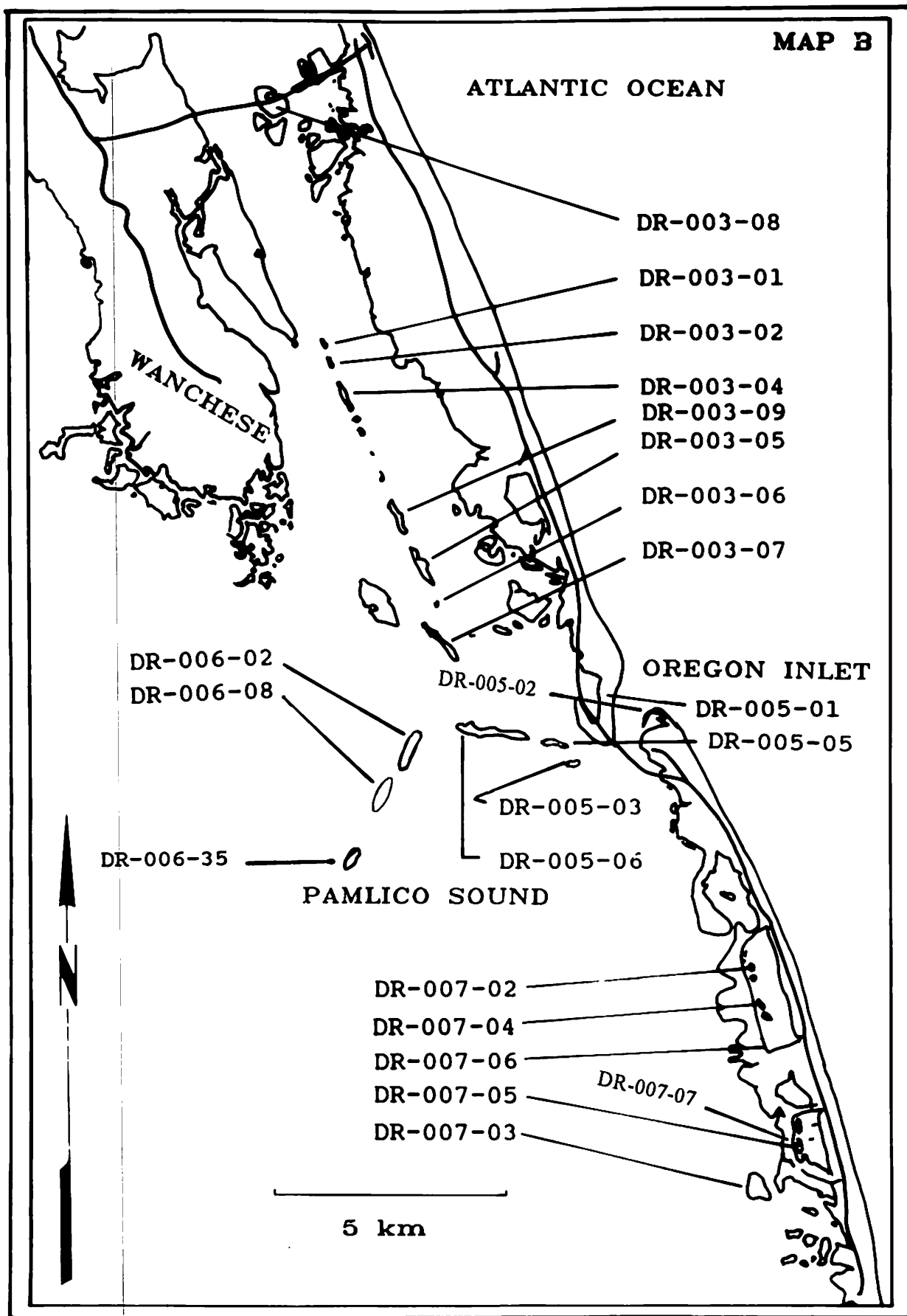


Figure 5. Map B, Oregon Inlet and vicinity



## Map C

No active colonies in 1993.

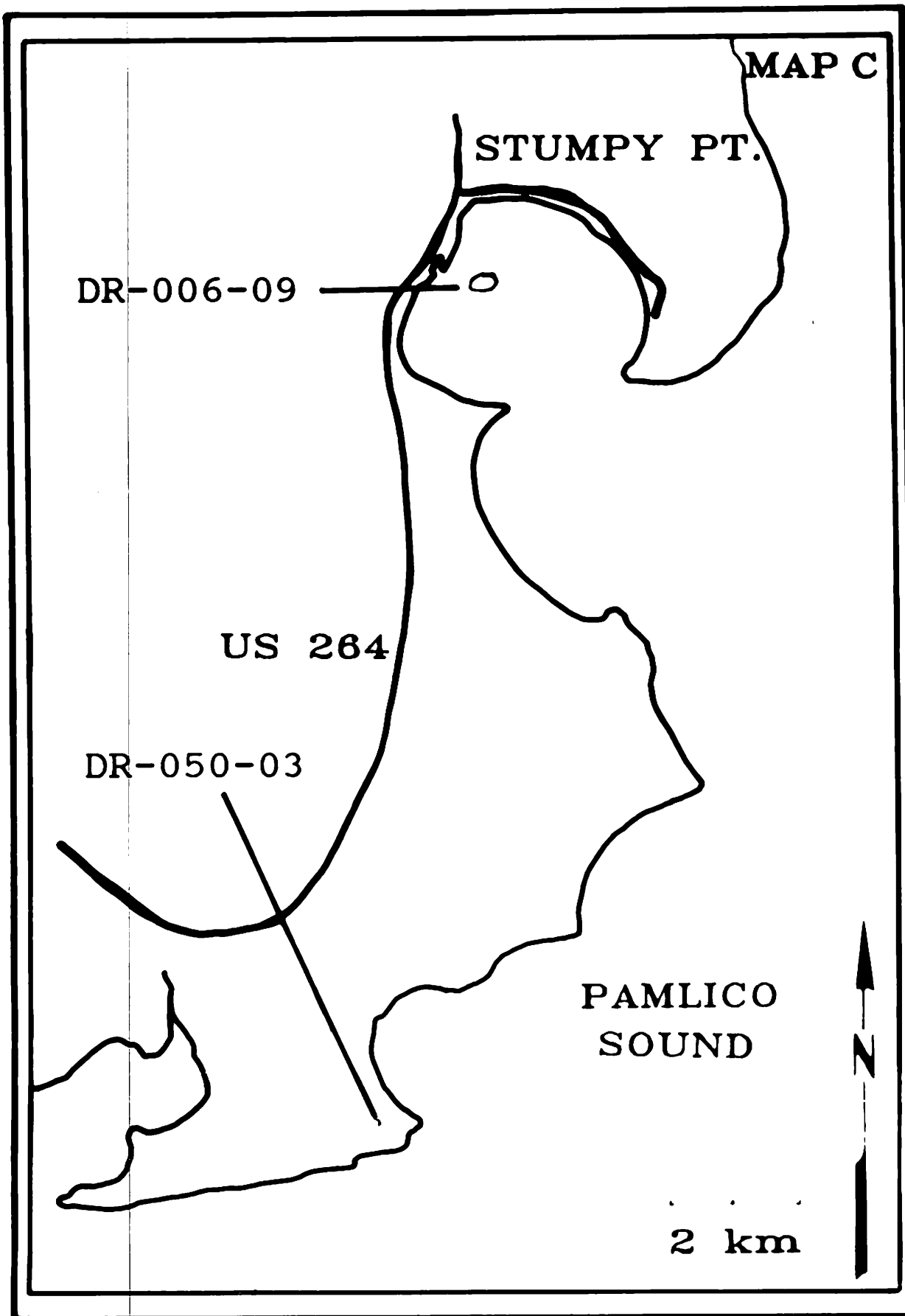


Figure 6. Map C, Stumpy Point and vicinity

## Map D

**Site #: NC-DR-006-12**

**Site Type:** Natural Estuarine

**Site Name:** Gull Island

**Management Agency:** None

Brown Pelican.....	2
Great Egret.....	20
Snowy Egret.....	5
Tricolored Heron.....	8
Black-cr. Night-Heron.....	11
Laughing Gull.....	2400
Herring Gull.....	3
Forster's Tern.....	51

**Site #: NC-DR-008-01-06**

**Site Type:** Natural Beach

**Site Name:** Hatteras Beach, # 6

**Management Agency:** NPS

Least Tern.....	58
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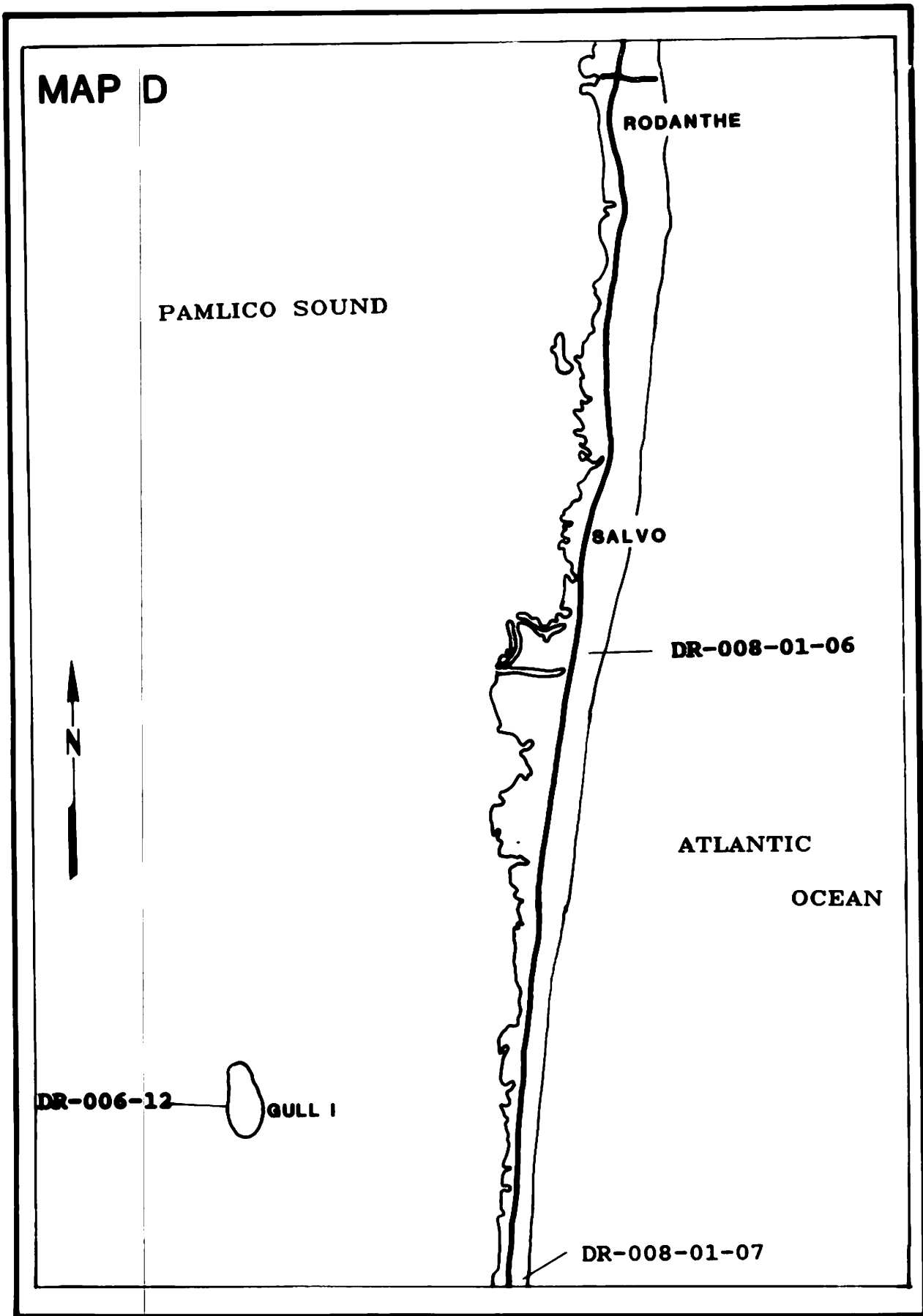


Figure 7. Map D, Pamlico Sound, Rodanthe/Salvo region

## Map E

**Site #:** NC-HY-006-30  
**Site Type:** Natural Estuarine  
**Site Name:** Hog Island  
**Management Agency:** NCWRC  
Common Tern..... 38  
Forster's Tern..... 345

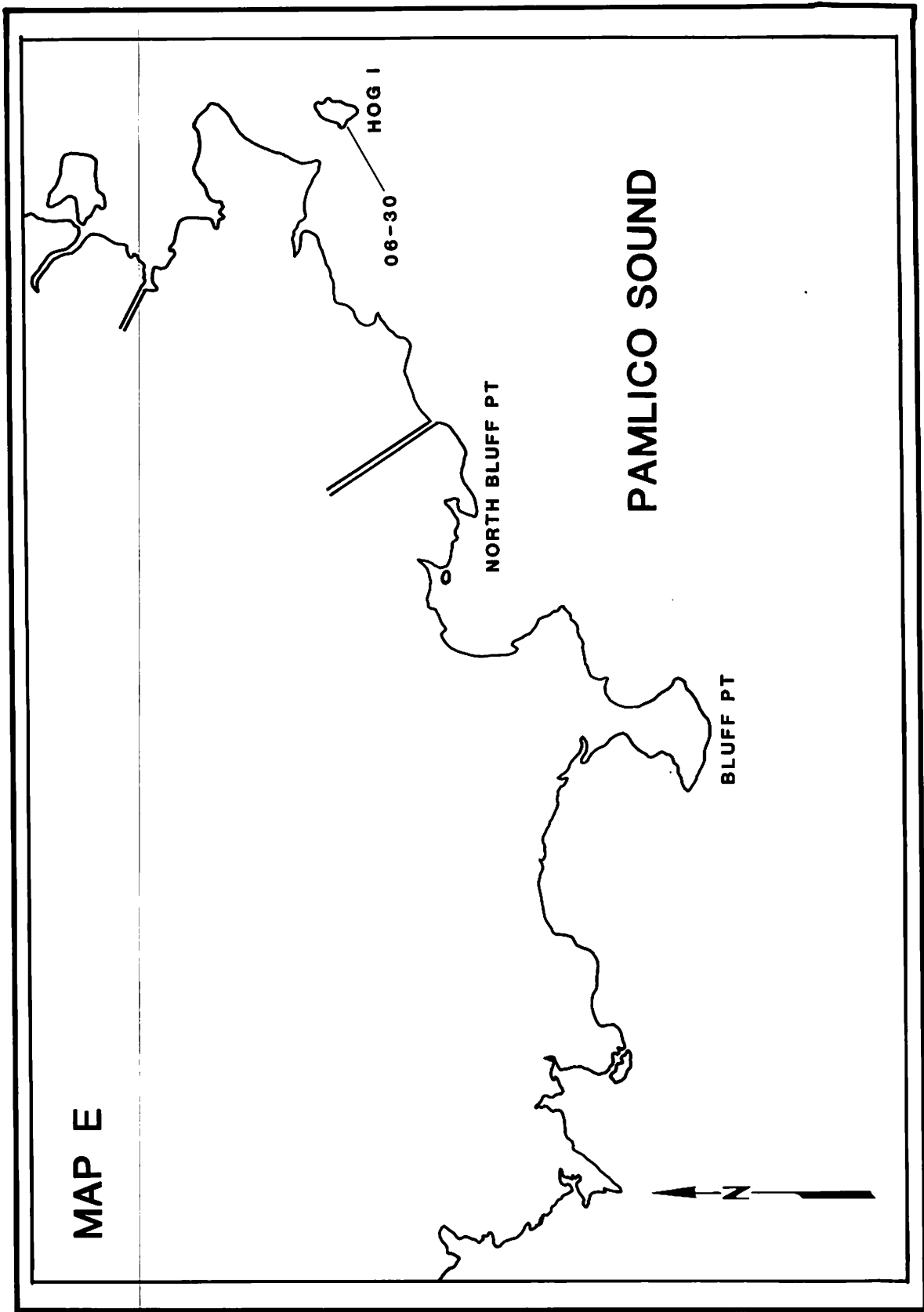


Figure 8. Map E, Pamlico Sound, Hyde County

# Map F

**Site #:** NC-HY-006-14  
**Site Type:** Natural Estuarine  
**Site Name:** Judith Island Point  
**Management Agency:** USFWS  
Common Tern..... 88  
Forster's Tern..... 88

**Site #:** NC-HY-006-31  
**Site Type:** Natural Estuarine  
**Site Name:** Great Island  
**Management Agency:** NCWRC  
Common Tern..... 10  
Forster's Tern..... 134



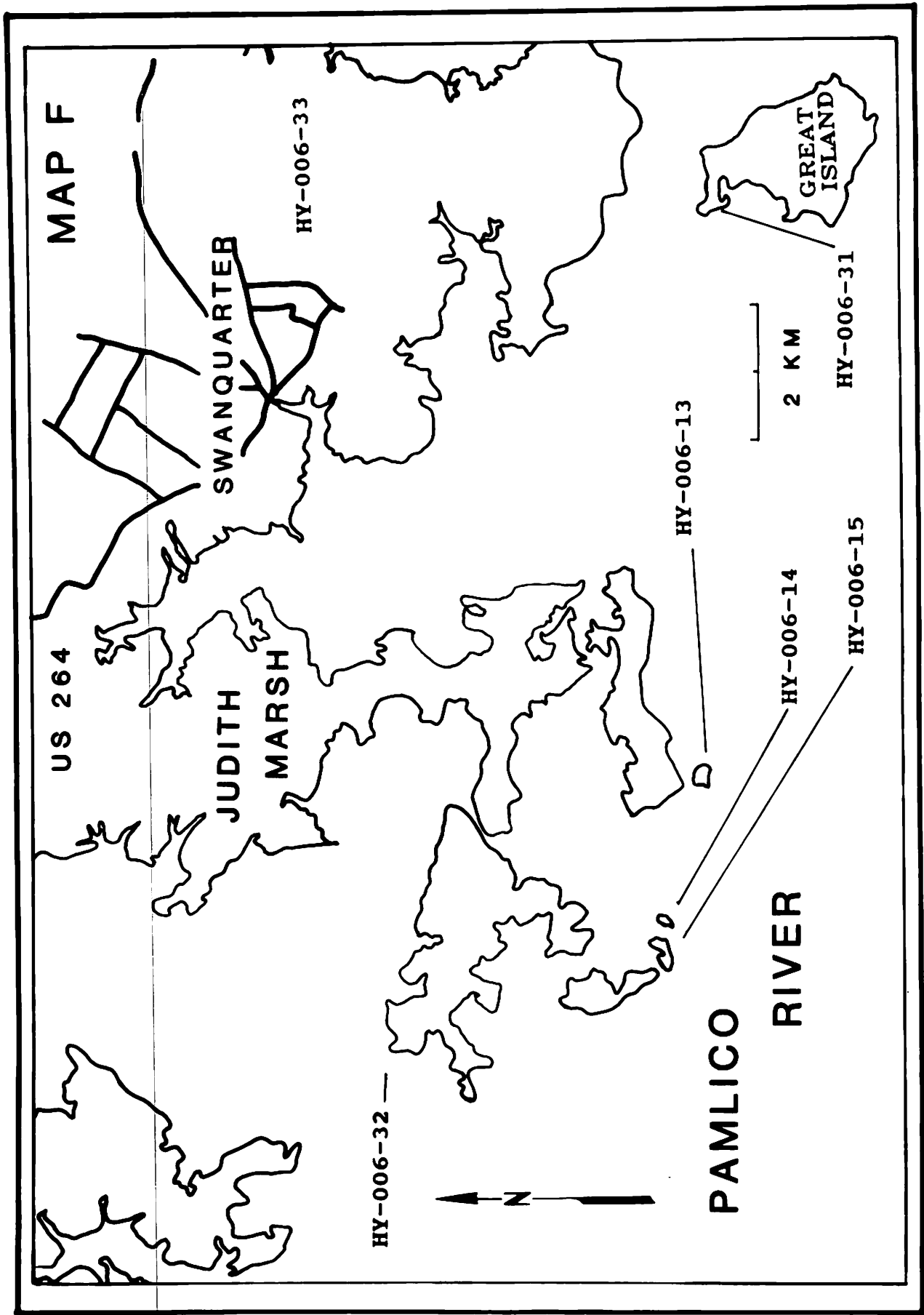


Figure 9. Map F, Swan Quarter and vicinity



## Map G

**Site #:** NC-DR-006-22  
**Site Type:** Natural Estuarine  
**Site Name:** Clam Shoal  
**Management Agency:** None  
Forster's Tern..... 30

**Site #:** NC-DR-008-02  
**Site Type:** Natural Beach  
**Site Name:** Cape Point  
**Management Agency:** NPS  
Gull-billed Tern..... 11  
Common Tern..... 376  
Sooty Tern..... 1  
Least Tern..... 404  
Black Skimmer..... 206

**Site#:** NC-DR-008-03  
**Site Type:** Natural Beach  
**Site Name:** Cape Point, South Beach  
**Management Agency:** NPS  
Least Tern..... 98



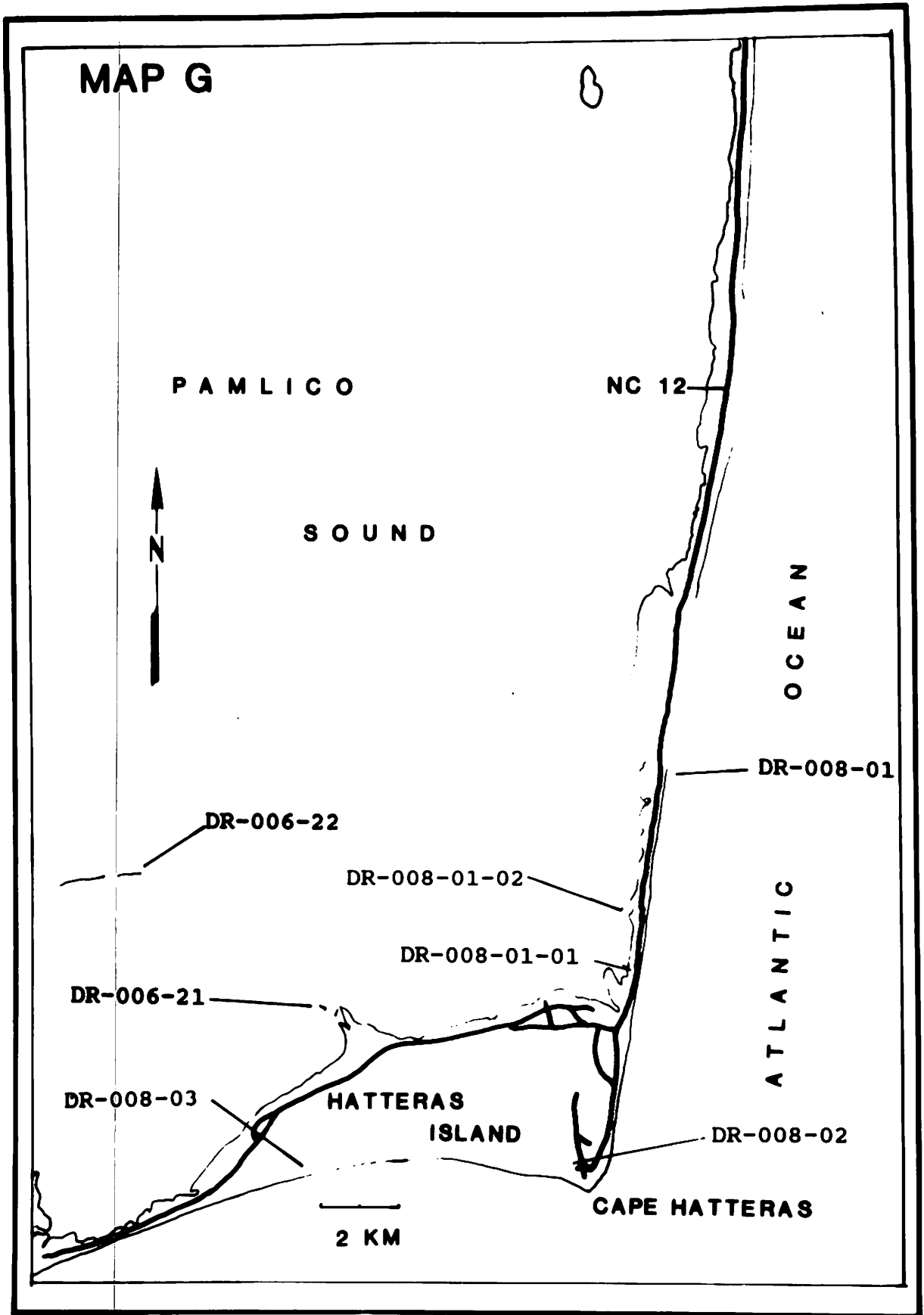


Figure 10. Map G, Pamlico Sound, Buxton/Cape Point and vicinity

## Map H

**Site #:** NC-CR-006-19  
**Site Type:** Natural Estuarine  
**Site Name:** Swan Island  
**Management Agency:** None

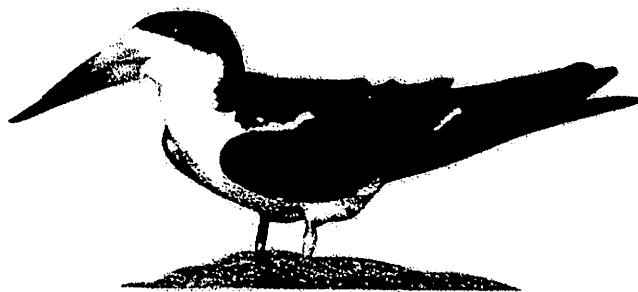
Great Egret.....	3
Snowy Egret.....	140
Little Blue Heron.....	21
Tricolored Heron.....	282
Glossy Ibis.....	141
Laughing Gull.....	9
Herring Gull.....	11

**Site #:** NC-CR-006-34  
**Site Type:** Natural Estuarine  
**Site Name:** Raccoon Island  
**Management Agency:** None

Forster's Tern.....	65
---------------------	----

**Site #:** NC-CR-006-35  
**Site Type:** Natural Estuarine  
**Site Name:** Newstump Point  
**Management Agency:** None

Gull-billed Tern.....	10
Common Tern.....	53
Forster's Tern.....	106
Black Skimmer.....	88



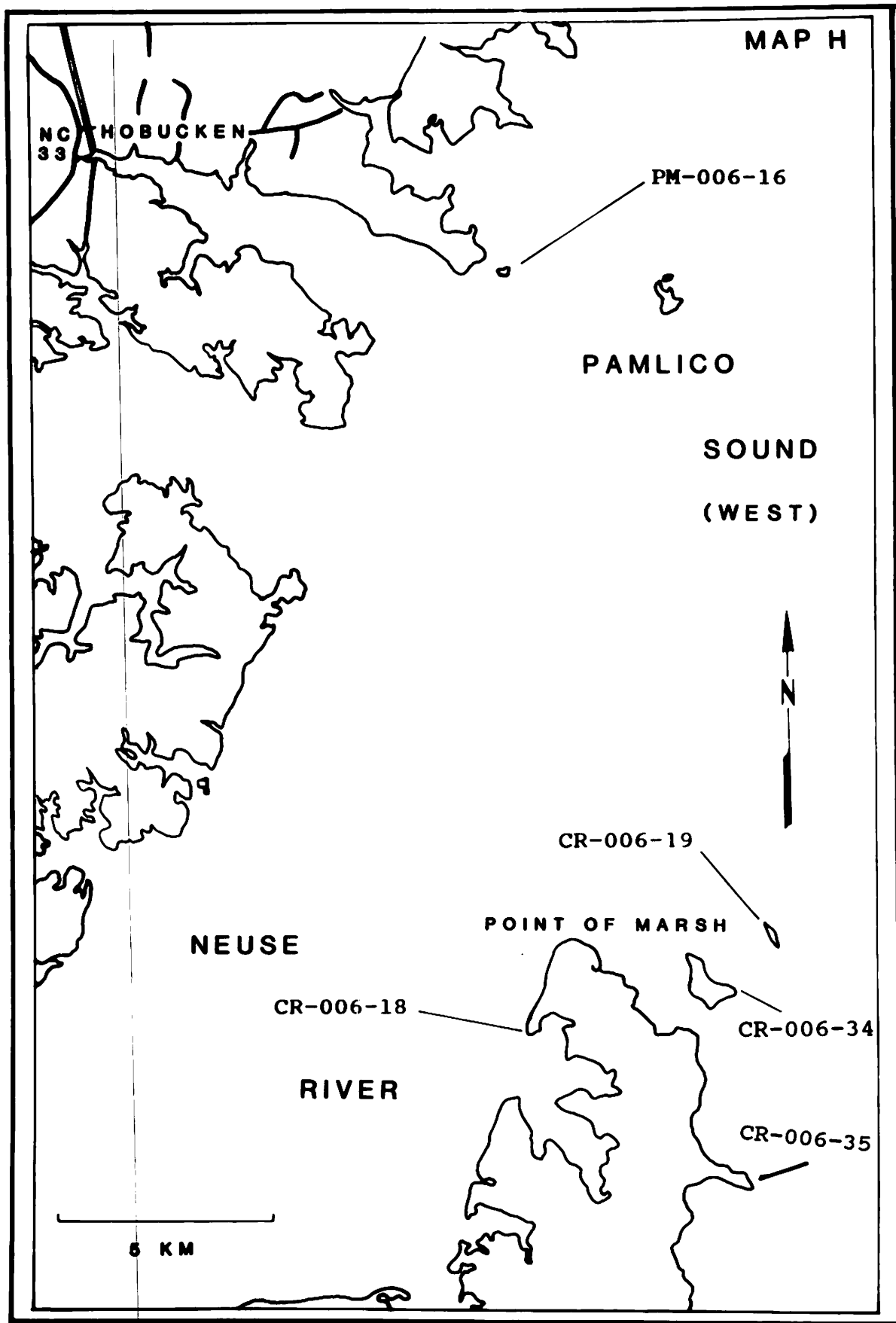


Figure 11. Map H, Pamlico Sound, mouth of Neuse River and vicinity

## Map I

**Site #:** NC-DR-006-10  
**Site Type:** Dredged-material, undiked  
**Site Name:** Hatteras Ferry Channel, #1  
**Management Agency:** NCWRC  
 Great Egret..... 20  
 Snowy Egret..... 7  
 Glossy Ibis..... 10  
 Herring Gull..... 47  
 Great Black-backed Gull..... 2  
 Royal Tern..... 436  
 Common Tern..... 41  
 Forster's Tern..... 33

**Site #:** NC-HY-010-02  
**Site Type:** Natural Estuarine  
**Site Name:** Outer Green Island  
**Management Agency:** None  
 Herring Gull..... 4  
 Forster's Tern..... 12

**Site #:** NC-HY-010-17  
**Site Type:** Natural Beach  
**Site Name:** Pony Pen South  
**Management Agency:** NPS  
 Great Egret..... 14

**Site #:** NC-DR-009-01  
**Site Type:** Natural Beach  
**Site Name:** Hatteras Inlet B, North  
**Management Agency:** NPS  
 Common Tern..... 9  
 Least Tern..... 50  
 Black Skimmer..... 10

**Site #:** NC-DR-009-04  
**Site Type:** Dredged-material, undiked  
**Site Name:** Old DOT Island  
**Management Agency:** NCWRC  
 Great Egret..... 47  
 Snowy Egret..... 47  
 Little Blue Heron..... 25  
 Tricolored Heron..... 59  
 Cattle Egret..... 60  
 Black-cr. Night-Heron..... 29  
 White Ibis..... 19  
 Glossy Ibis..... 27  
 Laughing Gull..... 1268  
 Herring Gull..... 8  
 Great Black-backed Gull..... 1  
 Forster's Tern..... 97

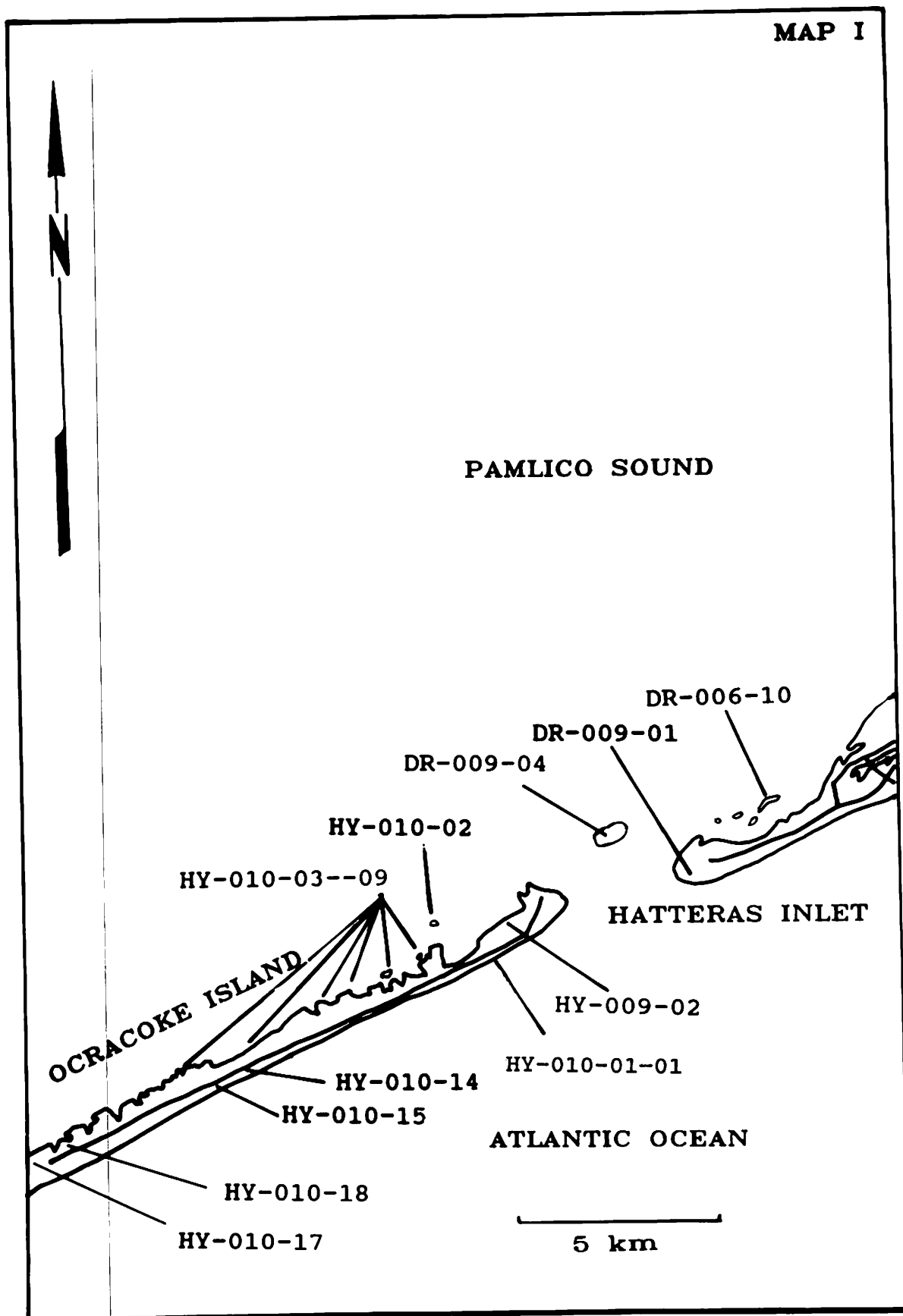


Figure 12. Map I, Hatteras Inlet and vicinity

## Map J

**Site #:** NC-HY-010-07  
**Site Type:** Natural Estuarine  
**Site Name:** Hammock Creek  
**Management Agency:** NPS  
 Forster's Tern..... 50

**Site #:** NC-HY-010-16  
**Site Type:** Natural Beach  
**Site Name:** Ocracoke Village  
**Management Agency:** None  
 Great Egret..... 96  
 Snowy Egret..... 24  
 Little Blue Heron..... 83  
 Tricolored Heron..... 39  
 Cattle Egret..... 16  
 Black-cr. Night-Heron..... 13  
 Yellow-cr. Night-Heron..... 17  
 White Ibis..... 570  
 Glossy Ibis..... 37

**Site #:** NC-HY-011-03  
**Site Type:** Natural Beach  
**Site Name:** Ocracoke Inlet, Shoal  
**Management Agency:** NPS  
 Common Tern..... 1  
 Black Skimmer..... 4

**Site #:** NC-CR-011-04  
**Site Type:** Natural Estuarine  
**Site Name:** Beacon Island  
**Management Agency:** NAS  
 Brown Pelican..... 572  
 Laughing Gull..... 2188  
 Herring Gull..... 44  
 Great Black-backed Gull..... 1  
 Forster's Tern..... 1

**Site #:** NC-HY-011-06  
**Site Type:** Natural Estuarine  
**Site Name:** Shell Castle, West  
**Management Agency:** NAS  
 Herring Gull..... 51  
 Great Black-backed Gull..... 1

**Site #:** NC-HY-011-07  
**Site Type:** Natural Estuarine  
**Site Name:** North Rock Island  
**Management Agency:** None  
 Great Egret..... 15  
 Snowy Egret..... 13  
 Little Blue Heron..... 81  
 Tricolored Heron..... 71  
 Black-cr. Night-Heron..... 2  
 Laughing Gull..... 1080  
 Herring Gull..... 48  
 Great Black-backed Gull..... 2  
 Common Tern..... 13  
 Forster's Tern..... 77

**Site #:** NC-CR-012-05  
**Site Type:** Natural Estuarine  
**Site Name:** Portsmouth Island Marsh  
**Management Agency:** NPS  
 Forster's Tern..... 60

**Site #:** NC-CR-012-23  
**Site Type:** Natural Estuarine  
**Site Name:** Casey Island  
**Management Agency:** None  
 Forster's Tern..... 91

PAMLICO

SOUND

DR-010-07

HY-010-10

HY-011-07

HY-006-36

HY-011-06

HY-011-05

HY-011-04

HY-010-16

HY-010-01-02

HY-011-08

CR-012-02

CR-012-23

CR-012-05

HY-011-01

OCRACOKE

INLET

HY-011-03

CR-011-02

CR-012-03

CR-012-24

CR-012-01

ATLANTIC

OCEAN

5 KM

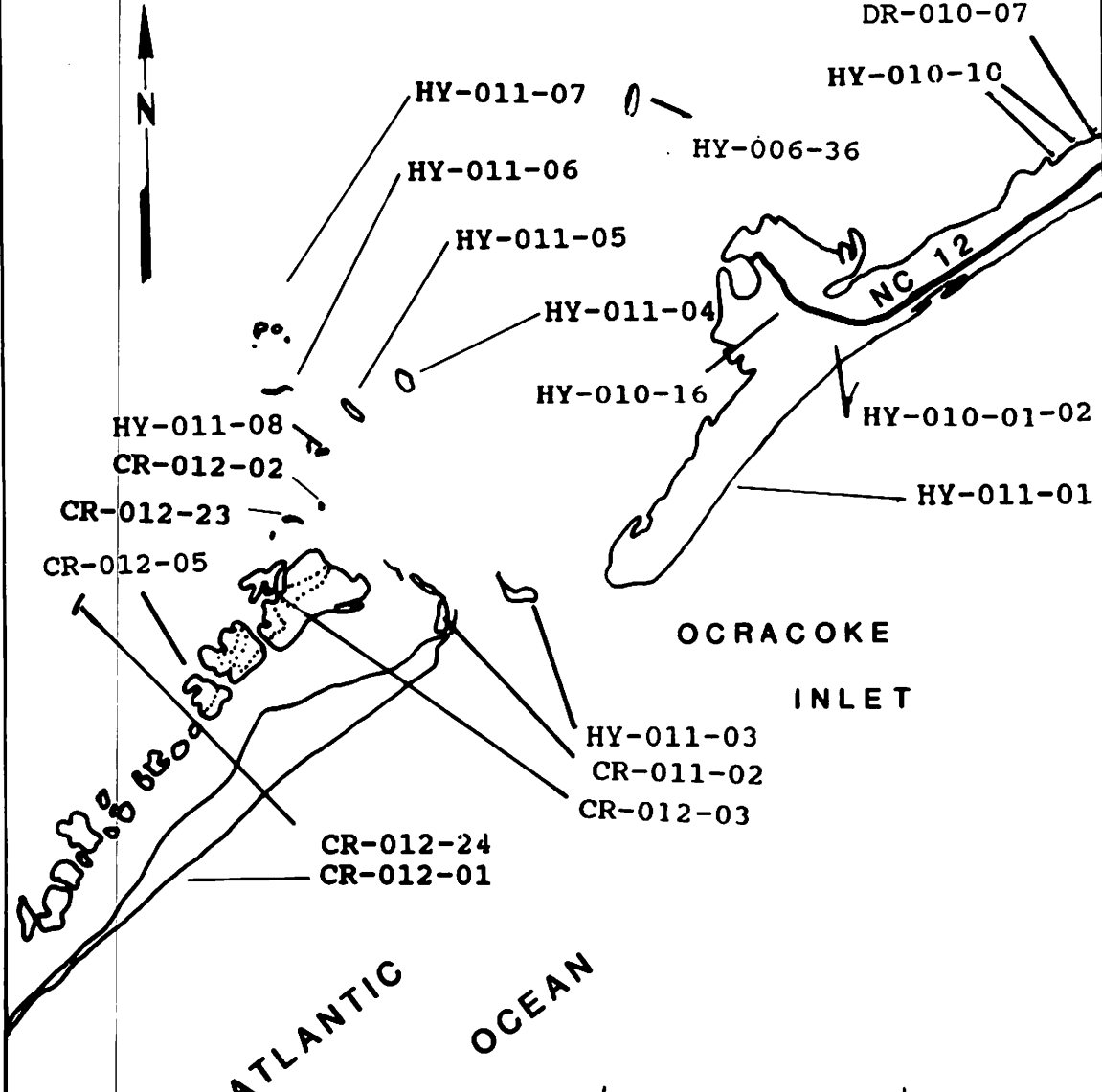


Figure 13. Map J, Ocracoke Inlet and vicinity



## **Map K**

No active colonies in 1993.

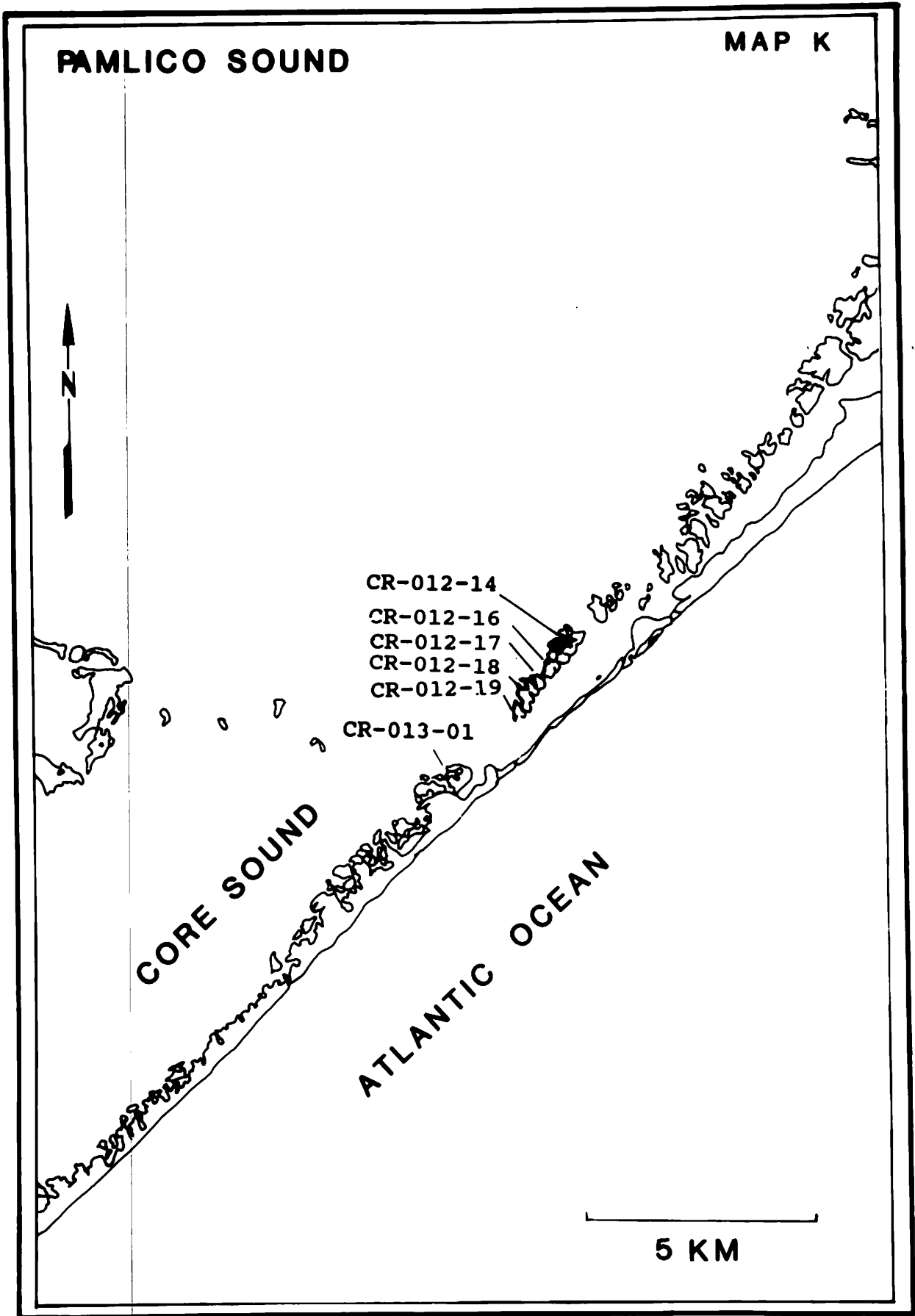


Figure 14. Map K, upper Core Sound, vicinity of Swash Inlet

## Map L

**Site #:** NC-CR-006-20

**Site Type:** Natural Estuarine

**Site Name:** Tump Island

**Management Agency:** USFWS

Great Egret.....	1
Snowy Egret.....	3
Tricolored Heron.....	76
Glossy Ibis.....	114
Laughing Gull.....	2748
Herring Gull.....	2
Common Tern.....	13

**Site #:** NC-CR-014-01

**Site Type:** Natural Estuarine

**Site Name:** Shell Island

**Management Agency:** NAS

Laughing Gull.....	19
Herring Gull.....	12
Gull-billed Tern.....	2
Common Tern.....	6
Forster's Tern.....	81

**Site #:** NC-CR-014-02

**Site Type:** Dredged-material, undiked

**Site Name:** Wainwright Island

**Management Agency:** NAS

Brown Pelican.....	850
Great Egret.....	110
Snowy Egret.....	3
Black-cr. Night-Heron.....	34
Glossy Ibis.....	23
Herring Gull.....	138
Great Black-backed Gull.....	2
Royal Tern.....	1924
Sandwich Tern.....	337

**Site #:** NC-CR-014-03

**Site Type:** Natural Estuarine

**Site Name:** Harbor Island

**Management Agency:** NAS

Snowy Egret.....	11
Little Blue Heron.....	41
Tricolored Heron.....	26
Laughing Gull.....	4
Common Tern.....	5
Forster's Tern.....	13

**Site #:** NC-CR-014-04

**Site Type:** Dredged-material, diked

**Site Name:** New Dump Island

**Management Agency:** NCWRC

Great Egret.....	34
Tricolored Heron.....	42
Black-cr. Night-Heron.....	30
Laughing Gull.....	33

**Site #:** NC-CR-014-07

**Site Type:** Natural Estuarine

**Site Name:** New Drum Inlet Shoal

**Management Agency:** NPS

Gull-billed Tern.....	1
Common Tern.....	96
Forster's Tern.....	23
Black Skimmer.....	54

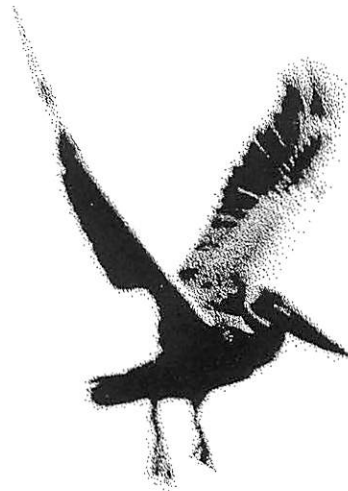
**Site #:** NC-CR-015-11

**Site Type:** Natural Estuarine

**Site Name:** Chain Shot Island

**Management Agency:** NAS

Laughing Gull.....	1
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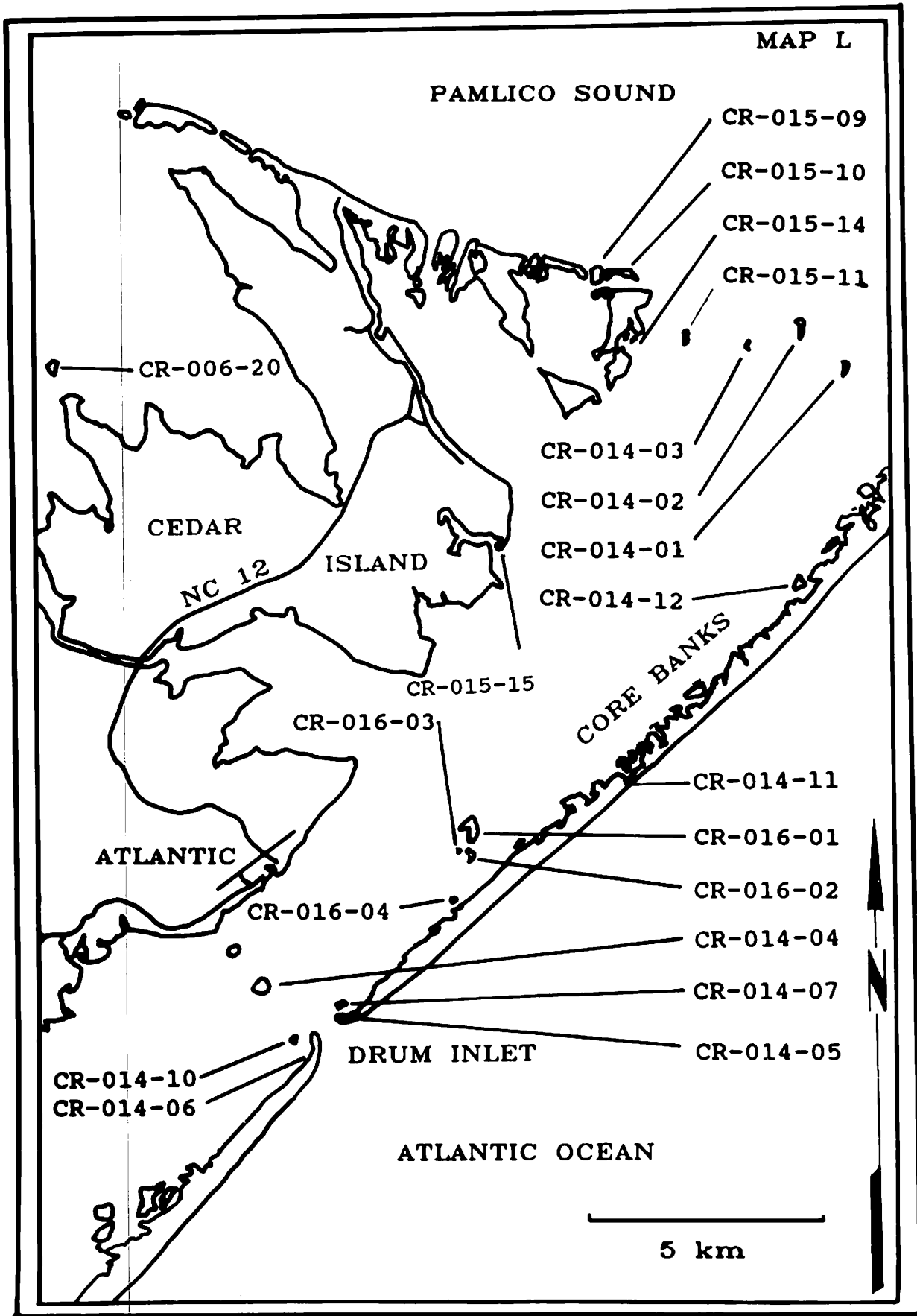


Figure 15. Map L, Core Sound, Drum Inlet to Pamlico Sound

## Map M

**Site #:** NC-CR-014-08  
**Site Type:** Natural Beach  
**Site Name:** Core Banks Beach  
**Management Agency:** NPS

Least Tern.....	225
Black Skimmer.....	68

**Site #:** NC-CR-014-17  
**Site Type:** Natural Beach  
**Site Name:** Core Banks, Drum Inlet S.  
**Management Agency:** NPS

Common Tern.....	2
Least Tern.....	3
Black Skimmer.....	10

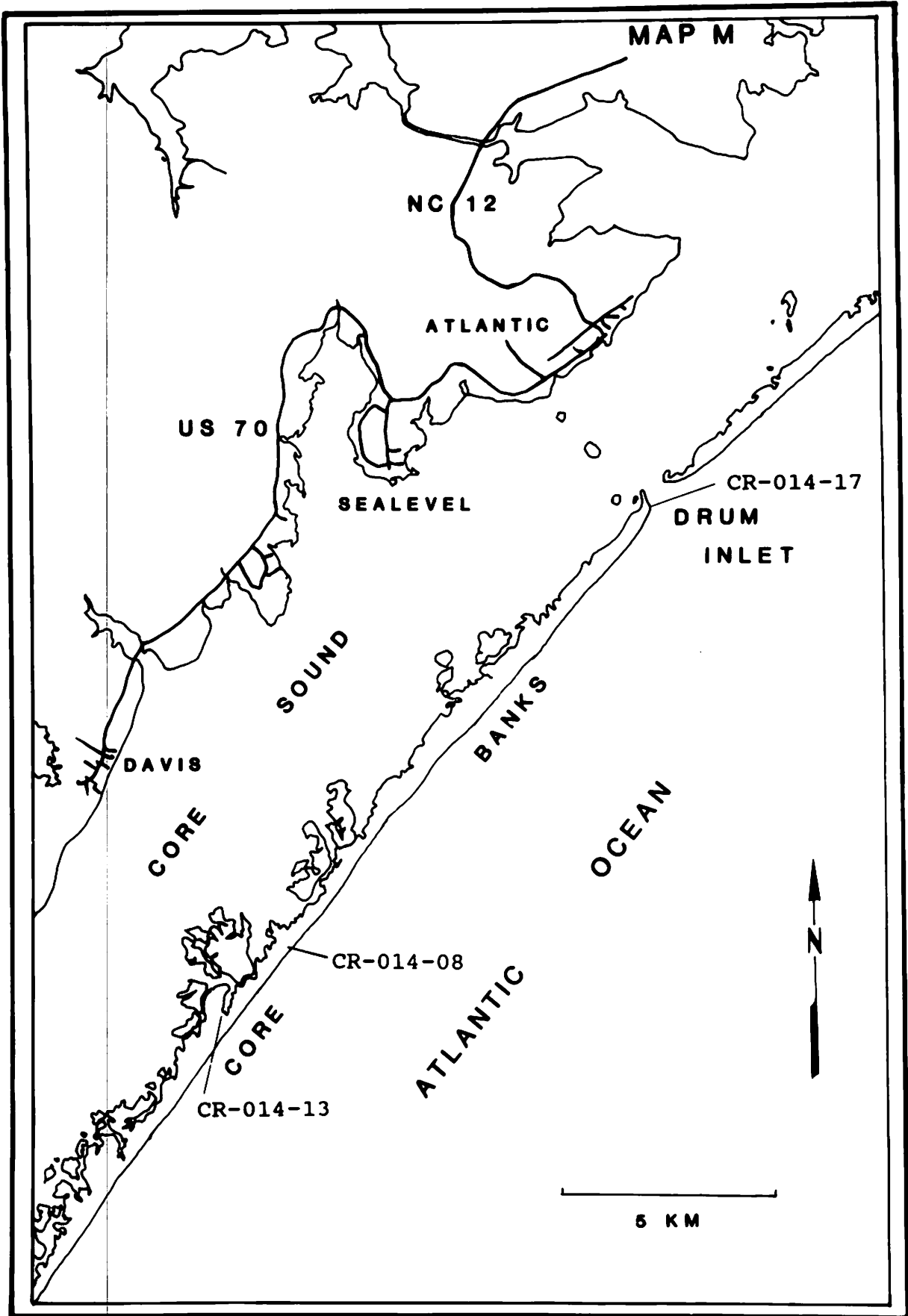


Figure 16. Map M, Core Sound, Davis to Atlantic

## Map N

**Site #: NC-CR-014-15**  
**Site Type:** Natural Beach  
**Site Name:** Cape Lookout Point  
**Management Agency:** NPS  
 Common Tern..... 78  
 Least Tern..... 242  
 Black Skimmer..... 18

**Site #: NC-CR-014-24**  
**Site Type:** Natural Beach  
**Site Name:** Power Squadron Spit  
**Management Agency:** NPS  
 Least Tern..... 61

**Site #: NC-CR-014-26**  
**Site Type:** Natural Estuarine  
**Site Name:** Rush Island  
**Management Agency:** NPS  
 Laughing Gull..... 340  
 Forster's Tern..... 41

**Site#: NC-CR-014-29**  
**Site Type:** Natural Estuarine  
**Site Name:** Big Deep Marsh Island  
**Management Agency:** NPS  
 Laughing Gull..... 81  
 Forster's Tern..... 9

**Site #: NC-CR-017-01**  
**Site Type:** Dredged-material, diked  
**Site Name:** Morgan Island  
**Management Agency:** NPS  
 Great Egret..... 138  
 Snowy Egret..... 23  
 Little Blue Heron..... 121  
 Tricolored Heron..... 132  
 Cattle Egret..... 462  
 Black-cr. Night-Heron..... 18  
 Green Heron..... 1  
 Glossy Ibis..... 9  
 Laughing Gull..... 3909  
 Herring Gull..... 1  
 Sooty Tern..... 1  
 Common Tern..... 1  
 Forster's Tern..... 10

**Site #: NC-CR-017-02**  
**Site Type:** Natural Estuarine  
**Site Name:** Whitehurst Island  
**Management Agency:** NPS  
 Laughing Gull..... 278

**Site #: NC-CR-017-07**  
**Site Type:** Dredged-material, undiked  
**Site Name:** Sand Bag Island  
**Management Agency:** NCWRC  
 Laughing Gull..... 2001  
 Herring Gull..... 45  
 Great Black-backed Gull..... 1  
 Royal Tern..... 2468  
 Sandwich Tern..... 1135

**Site #: NC-CR-017-09**  
**Site Type:** Natural Estuarine  
**Site Name:** Barden Inlet Channel  
**Management Agency:** NPS  
 Laughing Gull..... 40

**Site #: NC-CR-018-11**  
**Site Type:** Natural Estuarine  
**Site Name:** UNI, Back Sound #1  
**Management Agency:** NPS  
 Forster's Tern..... 6

**Site #: NC-CR-018-22**  
**Site Type:** Natural Estuarine  
**Site Name:** Sheep Island  
**Management Agency:** NPS  
 Forster's Tern..... 34

**Site #: NC-CR-018-25**  
**Site Type:** Natural Estuarine  
**Site Name:** UNI Back Sound, # 4  
**Management Agency:** NPS  
 Forster's Tern..... 11

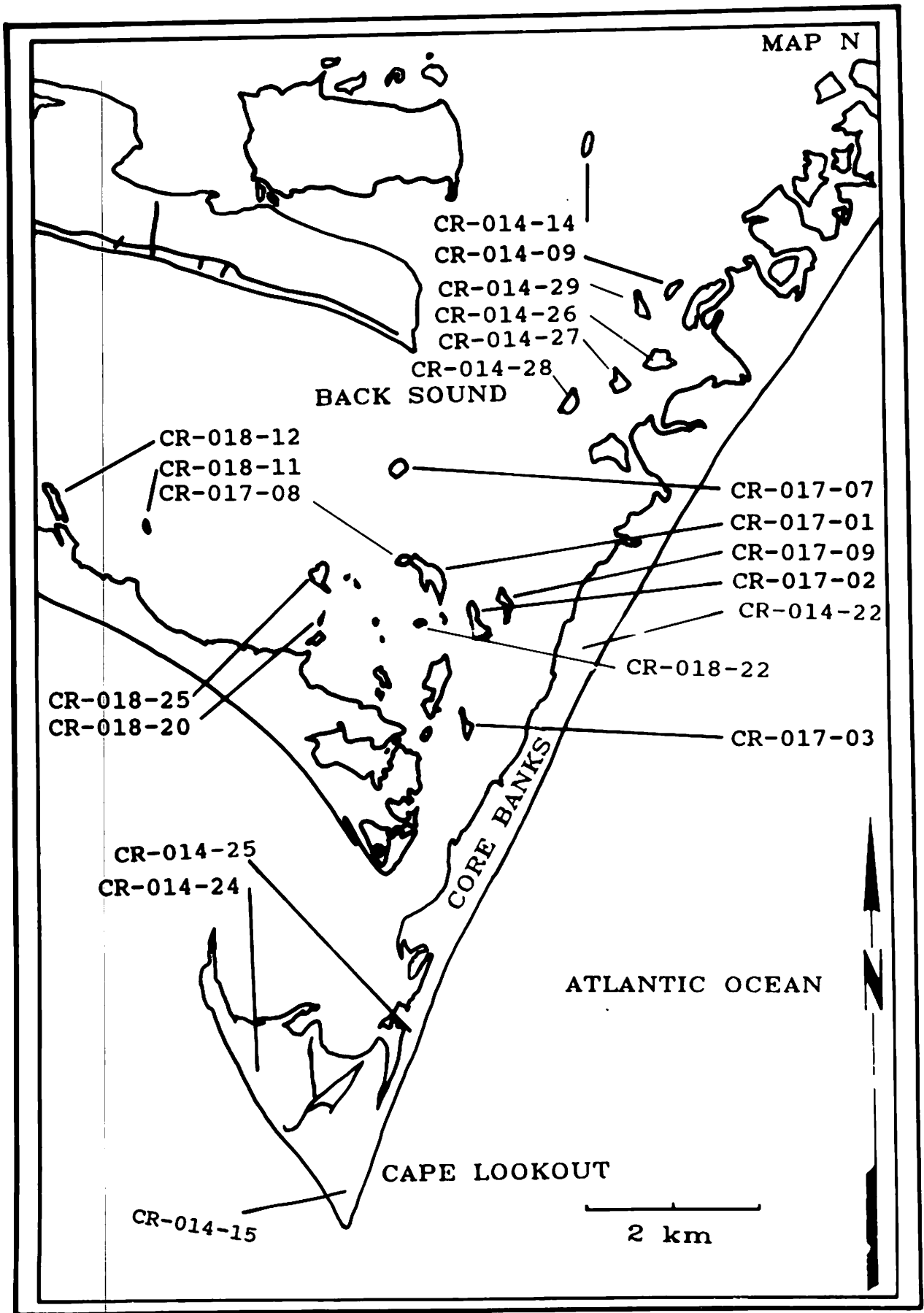


Figure 17. Map N, Cape Lookout and vicinity



## Map O

**Site #: NC-CR-018-07**

**Site Type:** Natural Estuarine

**Site Name:** Middle Marsh, South

**Management Agency:** NCNERR

Great Egret.....	28
Snowy Egret.....	26
Little Blue Heron.....	26
Tricolored Heron.....	69
Cattle Egret.....	31
Black-cr. Night-Heron.....	5
Glossy Ibis.....	20

**Site #: NC-CR-018-08**

**Site Type:** Natural Estuarine

**Site Name:** Bottle Run Point

**Management Agency:** None

Gull-billed Tern.....	19
Common Tern.....	14

**Site #: NC-CR-018-15**

**Site Type:** Natural Estuarine

**Site Name:** Middle Marsh, North

**Management Agency:** NCNERR

Great Egret.....	176
Snowy Egret.....	34
Tricolored Heron.....	56
Black-cr. Night-Heron.....	48
Glossy Ibis.....	14
Common Tern.....	4
Forster's Tern.....	74

**Site #: NC-CR-018-27**

**Site Type:** Natural Estuarine

**Site Name:** North River Marsh

**Management Agency:** None

Forster's Tern.....	6
---------------------	---

**Site #: NC-CR-020-05**

**Site Type:** Natural Beach

**Site Name:** Shackleford Point

**Management Agency:** NPS

Gull-billed Tern.....	37
Common Tern.....	391
Least Tern.....	7
Black Skimmer.....	157

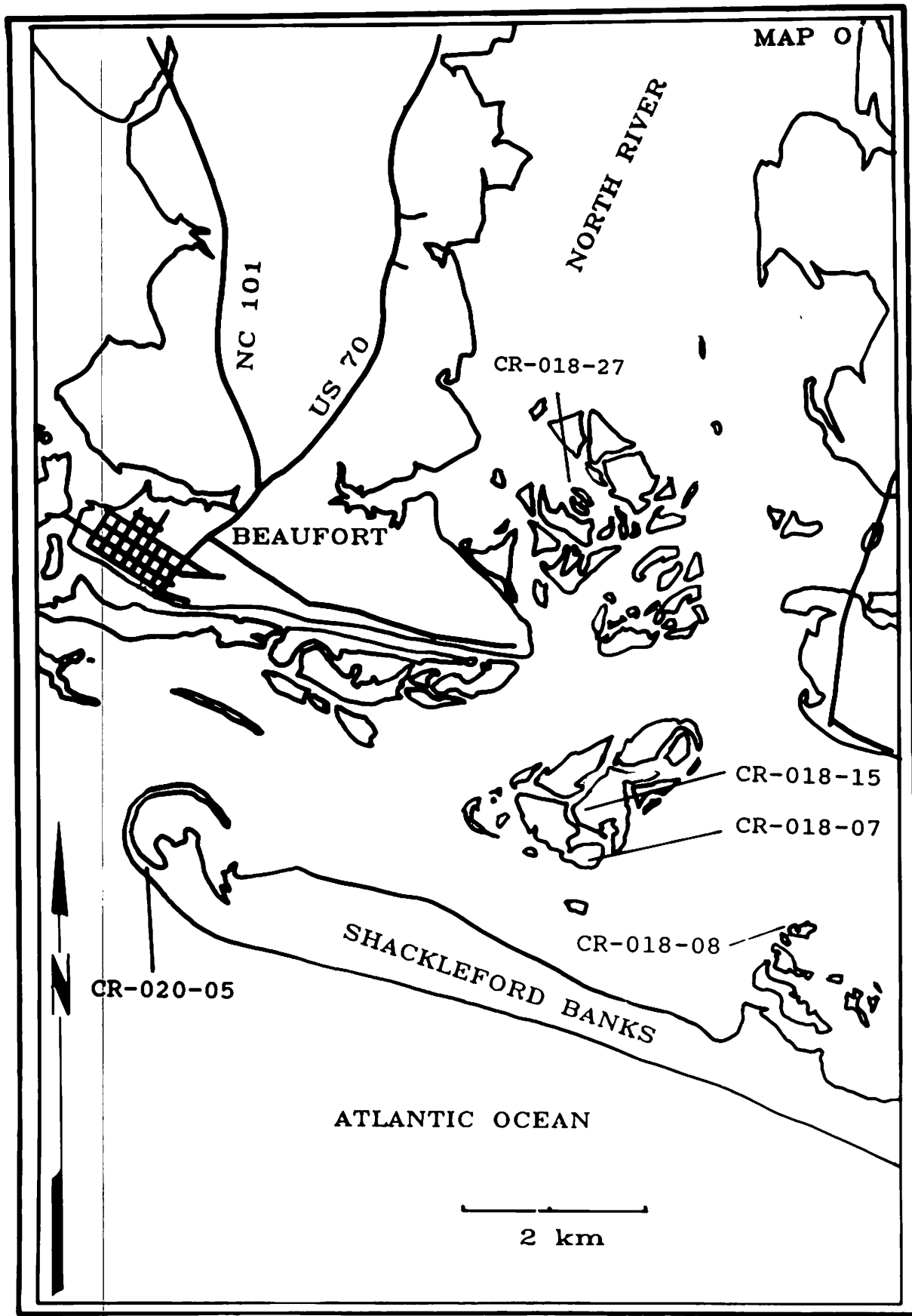


Figure 18. Map O, North River to Shackleford Banks

## Map P

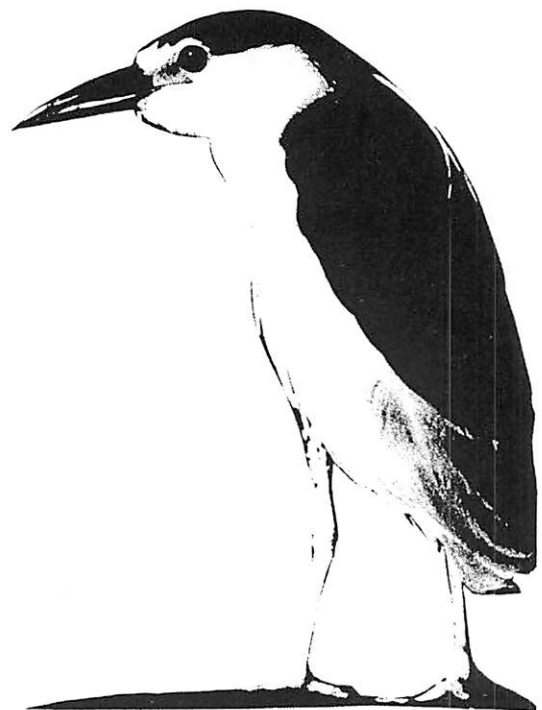
**Site #:** NC-CR-021-04

**Site Type:** Dredged-material, undiked

**Site Name:** Phillips Island

**Management Agency:** NAS

Great Egret.....	47
Cattle Egret.....	3
Black-cr. Night-Heron.....	1



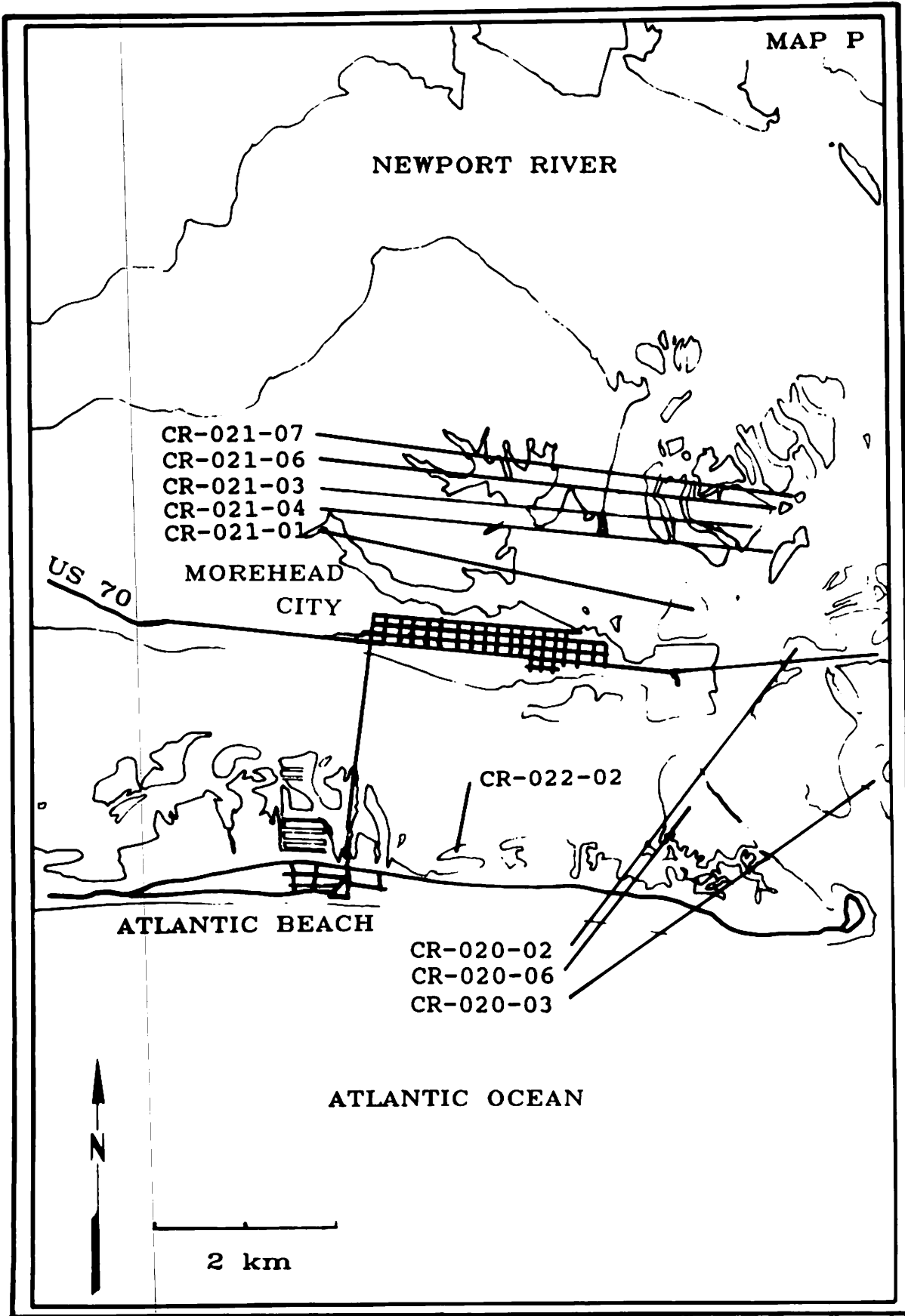


Figure 19. Map P, Morehead City and vicinity

## Map Q

**Site #:** NC-CR-022-28

**Site Type:** Natural Estuarine

**Site Name:** Cat Island

**Management Agency:** None

Great Egret.....	268
Snowy Egret.....	98
Little Blue Heron.....	176
Tricolored Heron.....	466
Cattle Egret.....	410
Black-cr. Night-Heron.....	9
Green Heron.....	2
White Ibis.....	41

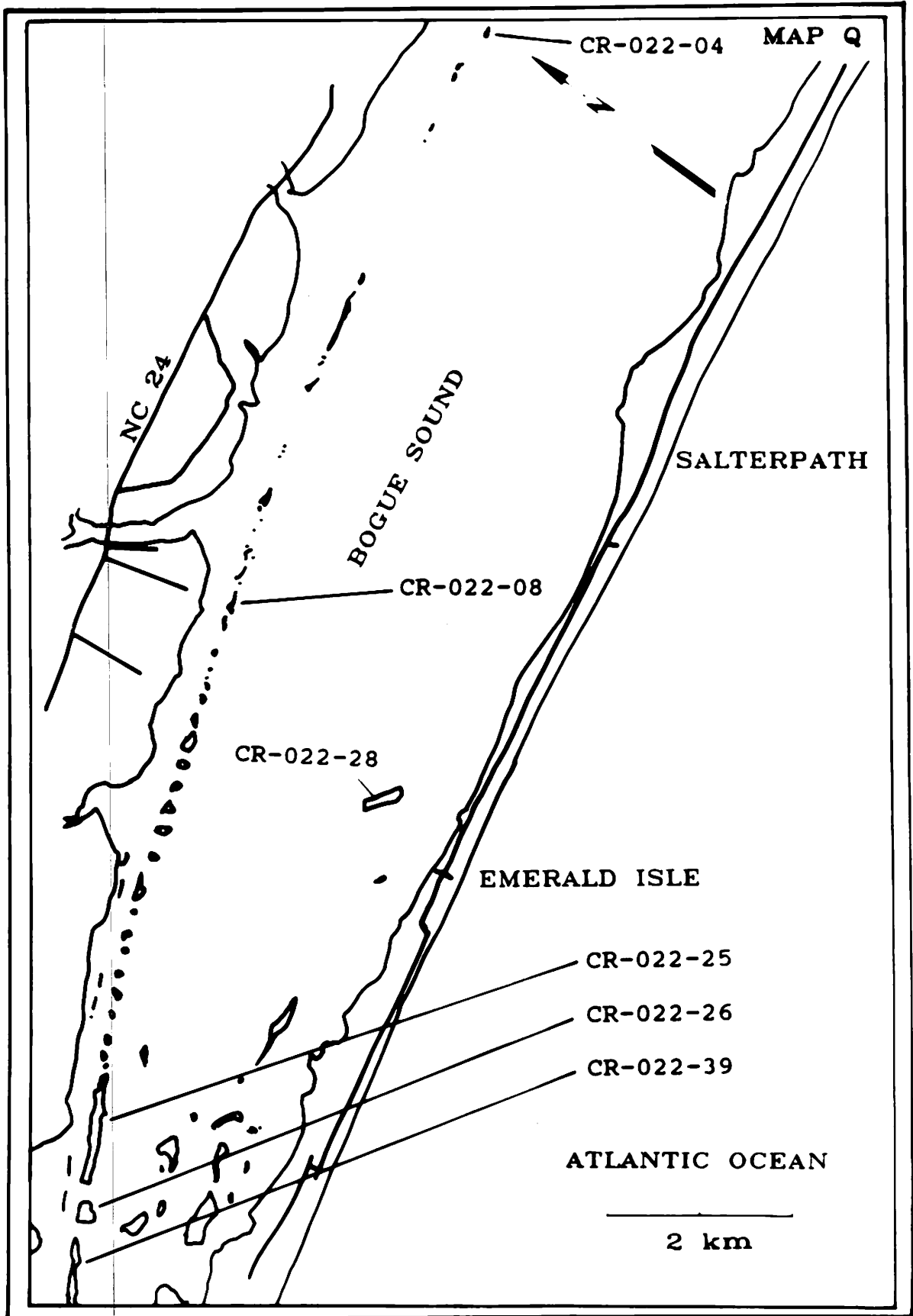


Figure 20. Map Q, Bogue Sound

## Map R

**Site #:** NC-CR-022-42

**Site Type:** Dredged-material, undiked

**Site Name:** Emerald Isle Heronry, #2

**Management Agency:** NAS

Great Egret..... 1

**Site #:** NC-ON-022-44

**Site Type:** Dredged-material, diked

**Site Name:** UNI, Ent. Bogue Inlet #1

**Management Agency:** None

Least Tern..... 2

**Site #:** NC-ON-022-45

**Site Type:** Dredged-material, diked

**Site Name:** UNI, Ent. Bogue Inlet #2

**Management Agency:** None

Least Tern..... 11

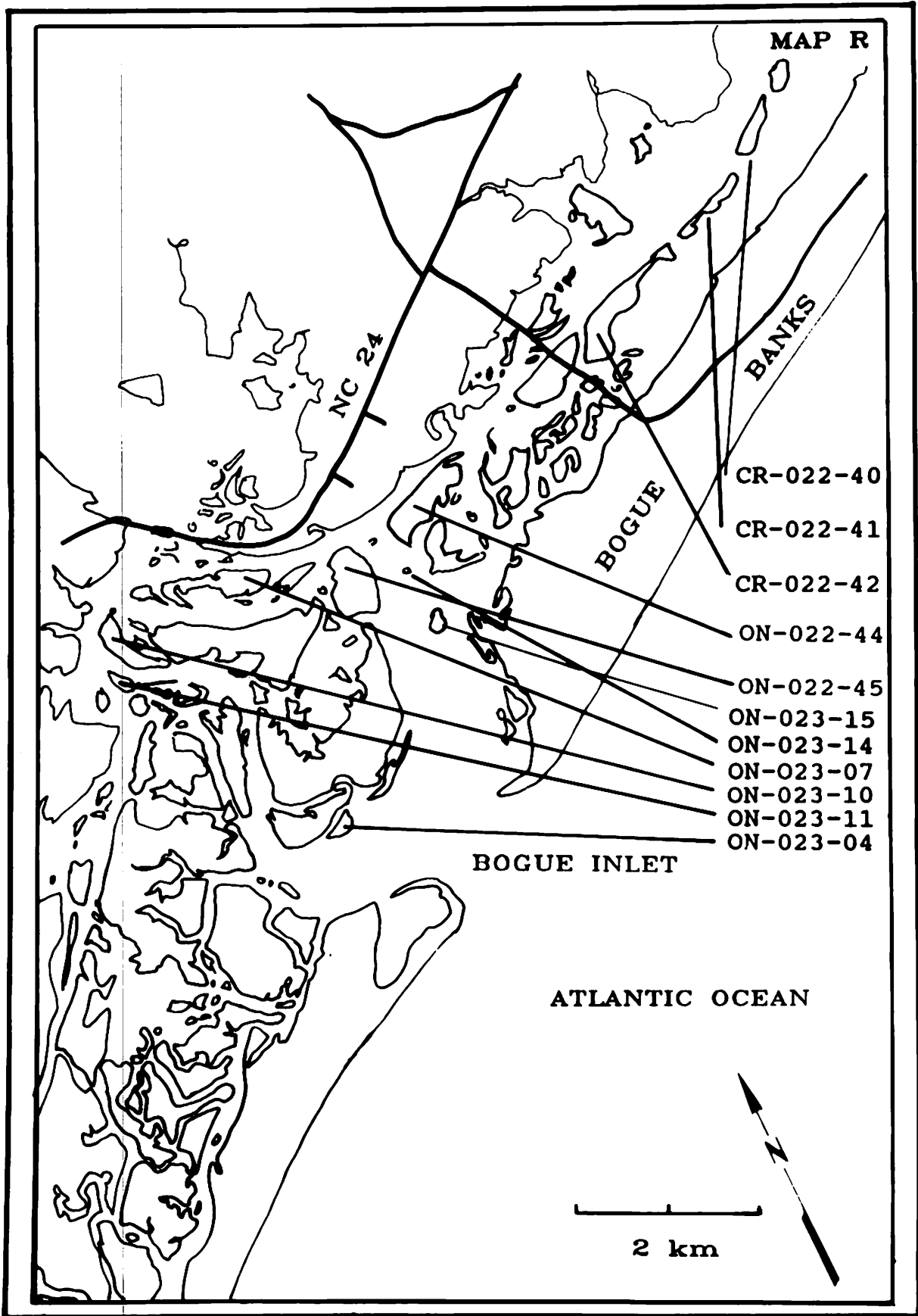


Figure 21. Map R, Bogue Inlet and vicinity



## Map R'

**Site #:** NC-ON-023-16  
**Site Type:** Natural Beach  
**Site Name:** Bear Inlet, Northside  
**Management Agency:** NCSP  
Least Tern..... 25

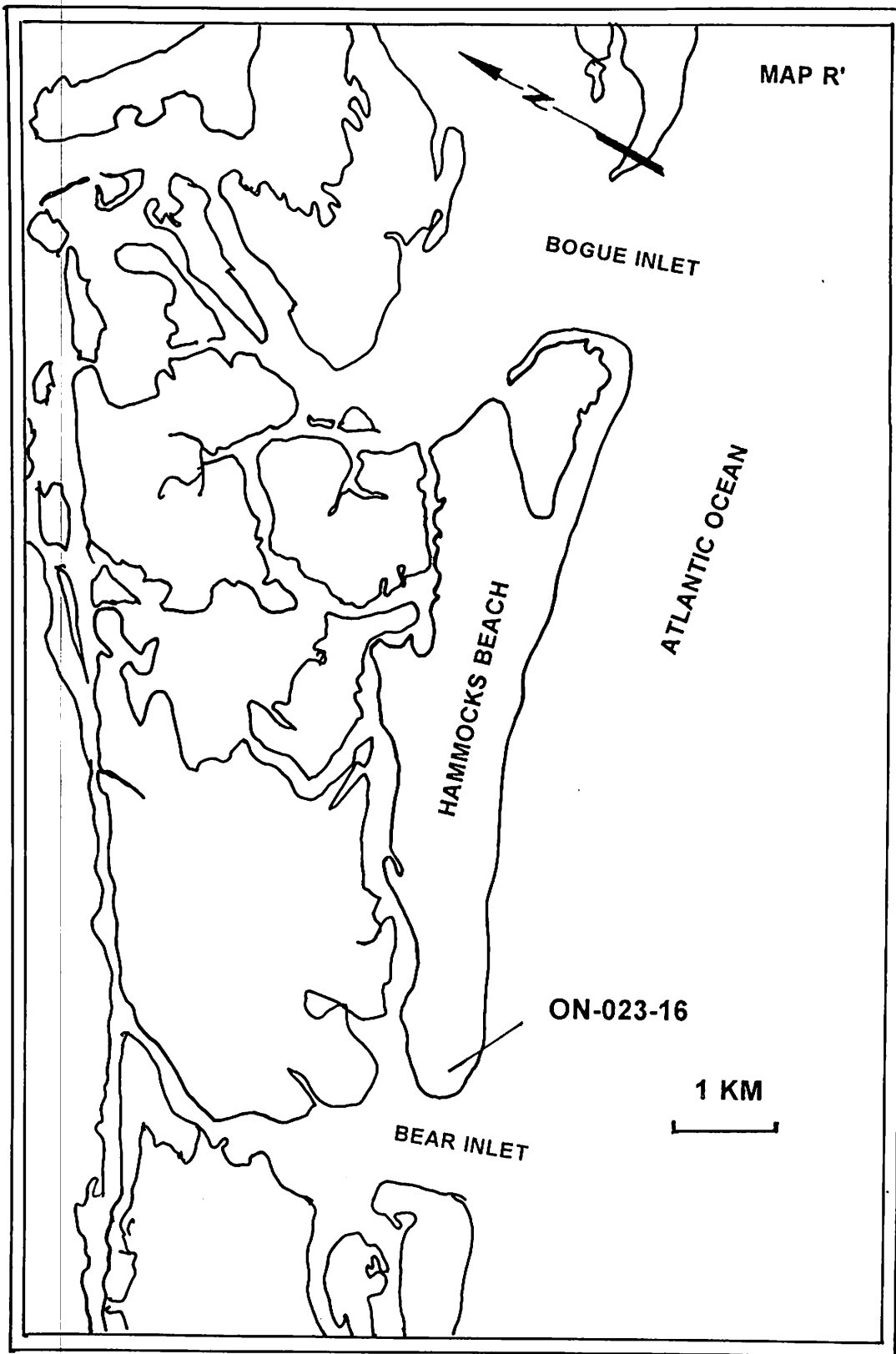


Figure 22. Map R', Hammocks Beach and vicinity

## Map S

**Site #: NC-ON-026-01**

**Site Type:** Natural Beach

**Site Name:** New River Inlet, North

**Management Agency:** USMC

Least Tern..... 1

**Site #: NC-ON-026-06**

**Site Type:** Dredged-material, diked

**Site Name:** UNI, New River Ch., #1

**Management Agency:** NCWRC

Green Heron..... 2

Least Tern..... 1

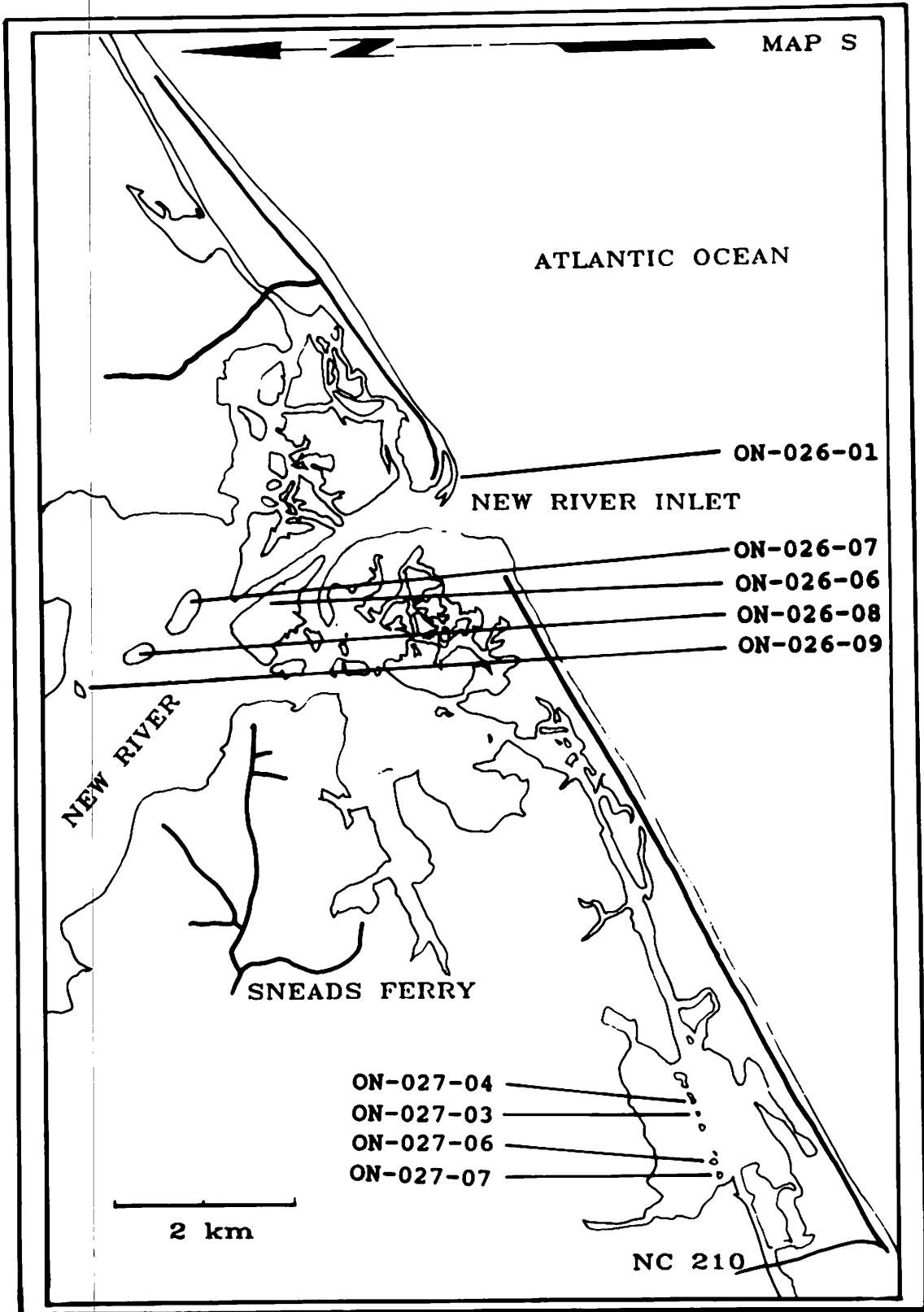


Figure 23. Map S, New River Inlet and vicinity

## Map T

No active colonies in 1993.

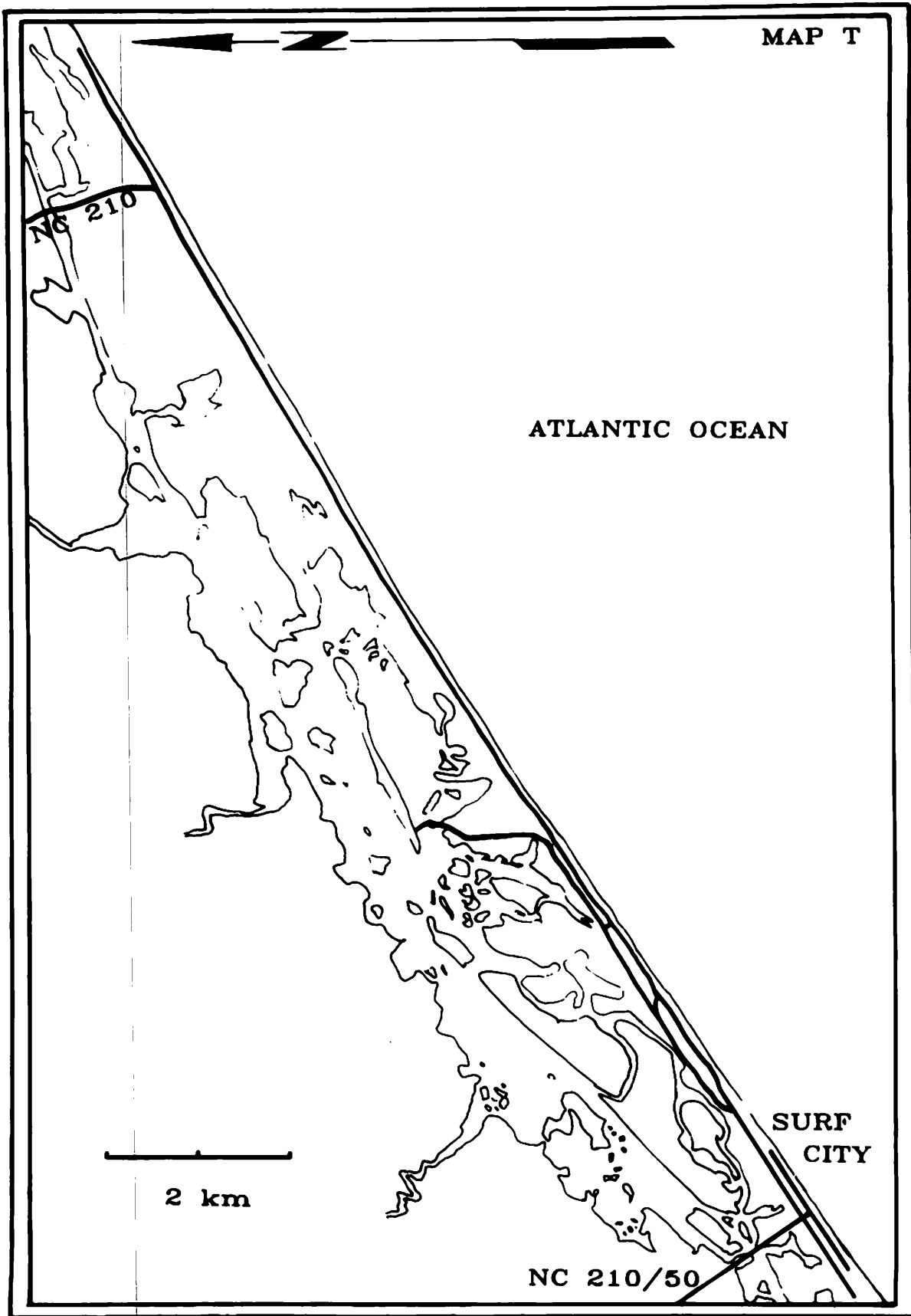


Figure 24. Map T, Topsail Island and vicinity

## Map U

**Site #:** NC-PD-030-01  
**Site Type:** Natural Beach  
**Site Name:** New Topsail Inlet, North  
**Management Agency:** None  
Least Tern..... 70  
Black Skimmer..... 18

**Site #:** NC-PD-032-02  
**Site Type:** Natural Beach  
**Site Name:** Rich Inlet, South  
**Management Agency:** None  
Common Tern..... 14  
Least Tern..... 100  
Black Skimmer..... 4

## Map V

**Site #:** NC-NH-034-01  
**Site Type:** Natural Beach  
**Site Name:** Mason Inlet, North  
**Management Agency:** None  
Common Tern..... 2  
Least Tern..... 10  
Black Skimmer..... 10

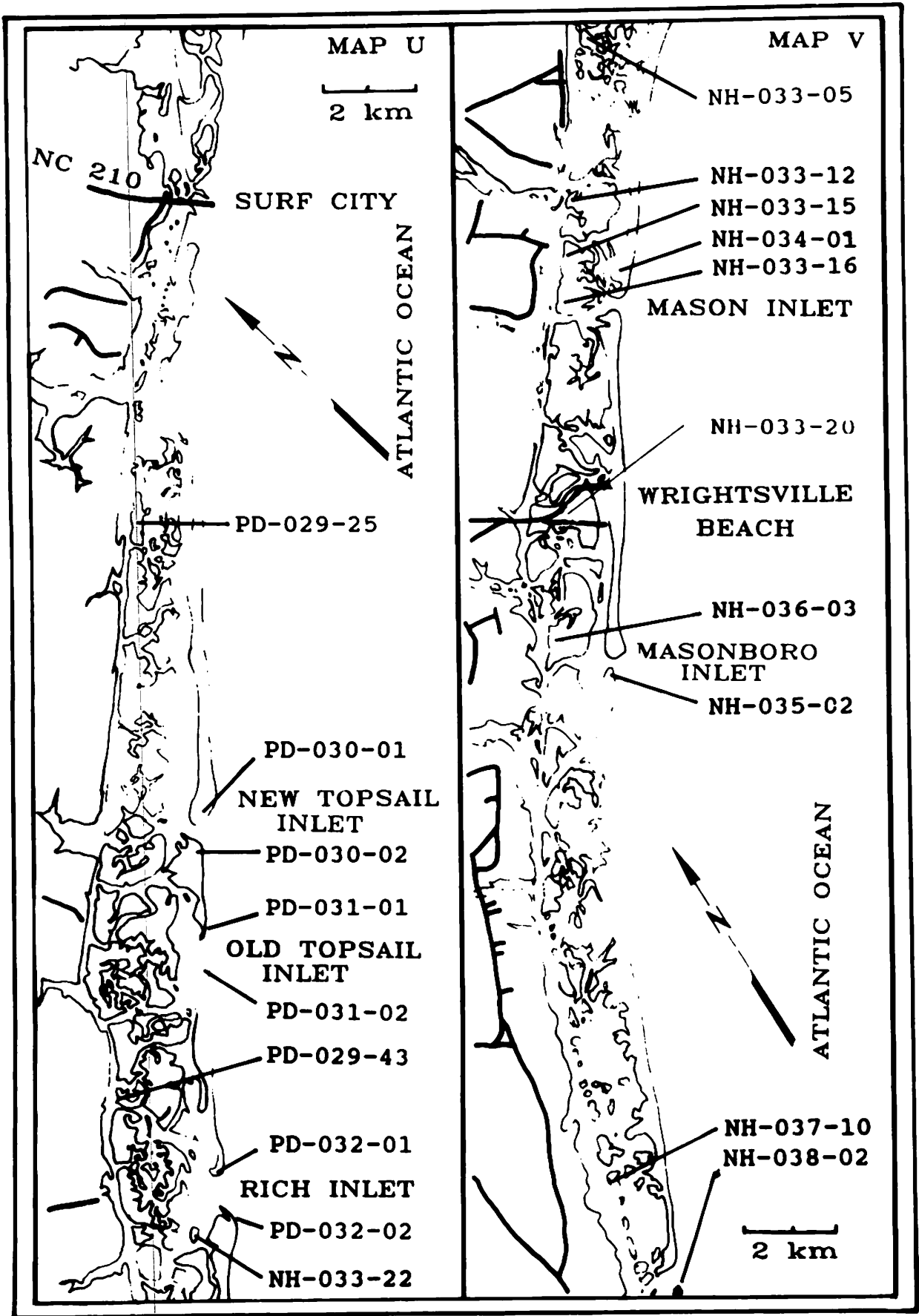


Figure 25. Maps U and V, Surf City to Masonboro Inlet



## Map W

**Site #: NC-NH-038-02**  
**Site Type:** Natural Beach  
**Site Name:** Carolina Beach Inlet, South  
**Management Agency:** None

Common Tern.....	14
Least Tern.....	242
Black Skimmer.....	24

**Site #: NC-BW-039-30**  
**Site Type:** Dredged-material, undiked  
**Site Name:** North Pelican Island, #2  
**Management Agency:** NCWRC/NAS

Brown Pelican.....	651
Great Egret.....	90
Snowy Egret.....	191
Little Blue Heron.....	129
Tricolored Heron.....	104
Cattle Egret.....	71
Glossy Ibis.....	76
Laughing Gull.....	259

**Site #: NC-NH-039-32**  
**Site Type:** Dredged-material, undiked  
**Site Name:** Ferry Slip Island  
**Management Agency:** NCWRC/NAS

Brown Pelican.....	201
Laughing Gull.....	411
Royal Tern.....	3638
Sandwich Tern.....	361
Common Tern.....	3
Black Skimmer.....	2

**Site #: NC-BW-039-37**  
**Site Type:** Dredged-material, undiked  
**Site Name:** South Pelican Island  
**Management Agency:** NCWRC/NAS

Brown Pelican.....	94
Laughing Gull.....	816
Gull-billed Tern.....	7
Common Tern.....	33
Black Skimmer.....	87

**Site #: NC-BW-039-45**  
**Site Type:** Natural Estuarine  
**Site Name:** Striking Island  
**Management Agency:** NAS

Laughing Gull.....	85
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**Site #: NC-NH-039-49**  
**Site Type:** Natural Beach  
**Site Name:** Fort Fisher Beach  
**Management Agency:** NCSP

Least Tern.....	130
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**Site #: NC-BW-039-46**  
**Site Type:** Dredged-material, undiked  
**Site Name:** Battery Island, South  
**Management Agency:** NAS

Great Egret.....	90
Snowy Egret.....	182
Little Blue Heron.....	50
Tricolored Heron.....	305
Cattle Egret.....	505
Black-cr. Night-Heron.....	14
Green Heron.....	1
White Ibis.....	9690
Glossy Ibis.....	12

**Site #: NC-BW-039-51**  
**Site Type:** Dredged-material, undiked  
**Site Name:** Battery Island, North  
**Management Agency:** NAS

Great Egret.....	176
Snowy Egret.....	19
Little Blue Heron.....	2
Tricolored Heron.....	61
Cattle Egret.....	155
Glossy Ibis.....	1

**Site#: NC-BW-039-52**  
**Site Type:** Natural Beach  
**Site Name:** Bald Head, River Beach  
**Management Agency:** None

Least Tern.....	3
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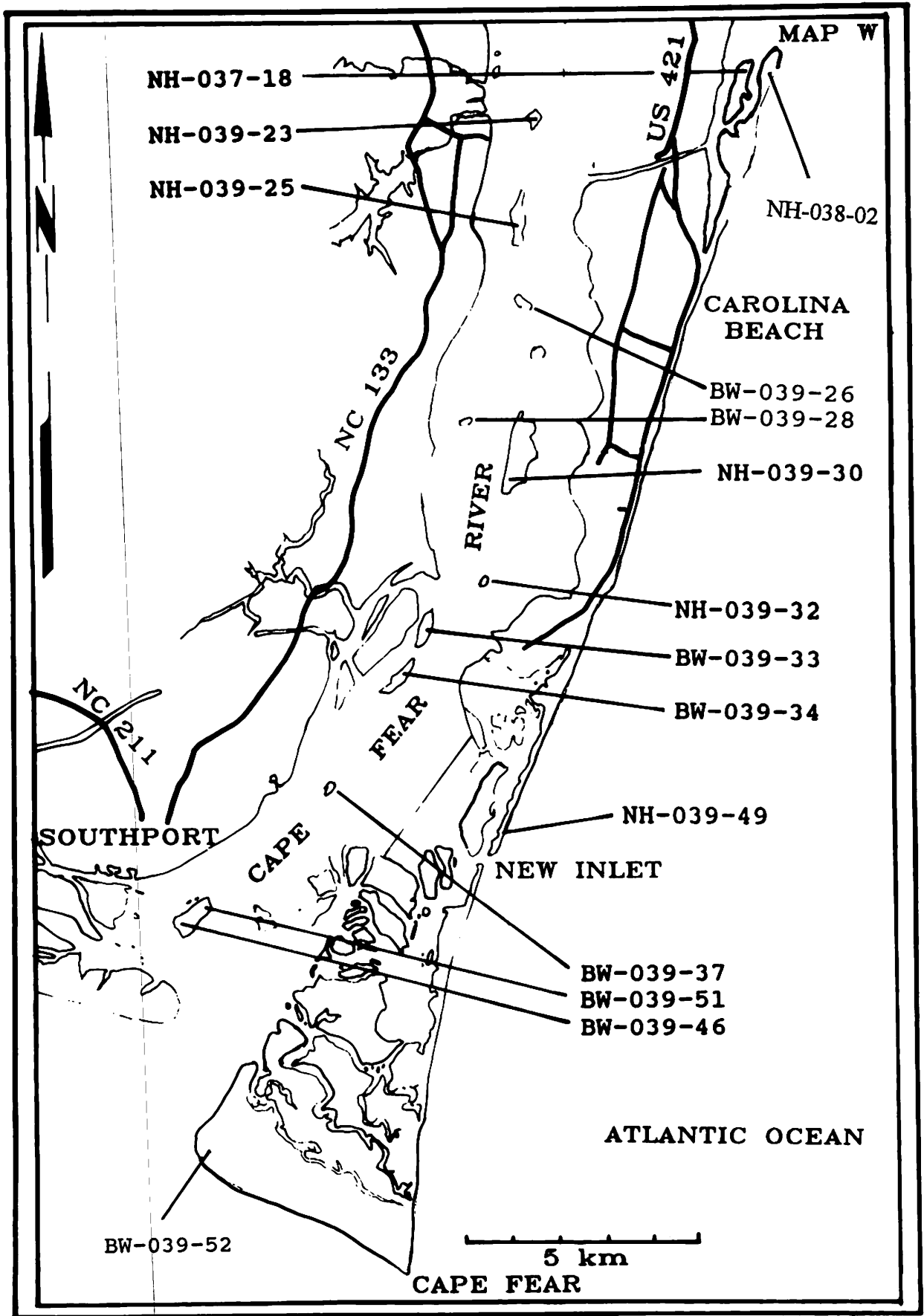


Figure 26. Map W, Cape Fear River region

## **Map X**

**No active colonies in 1993.**

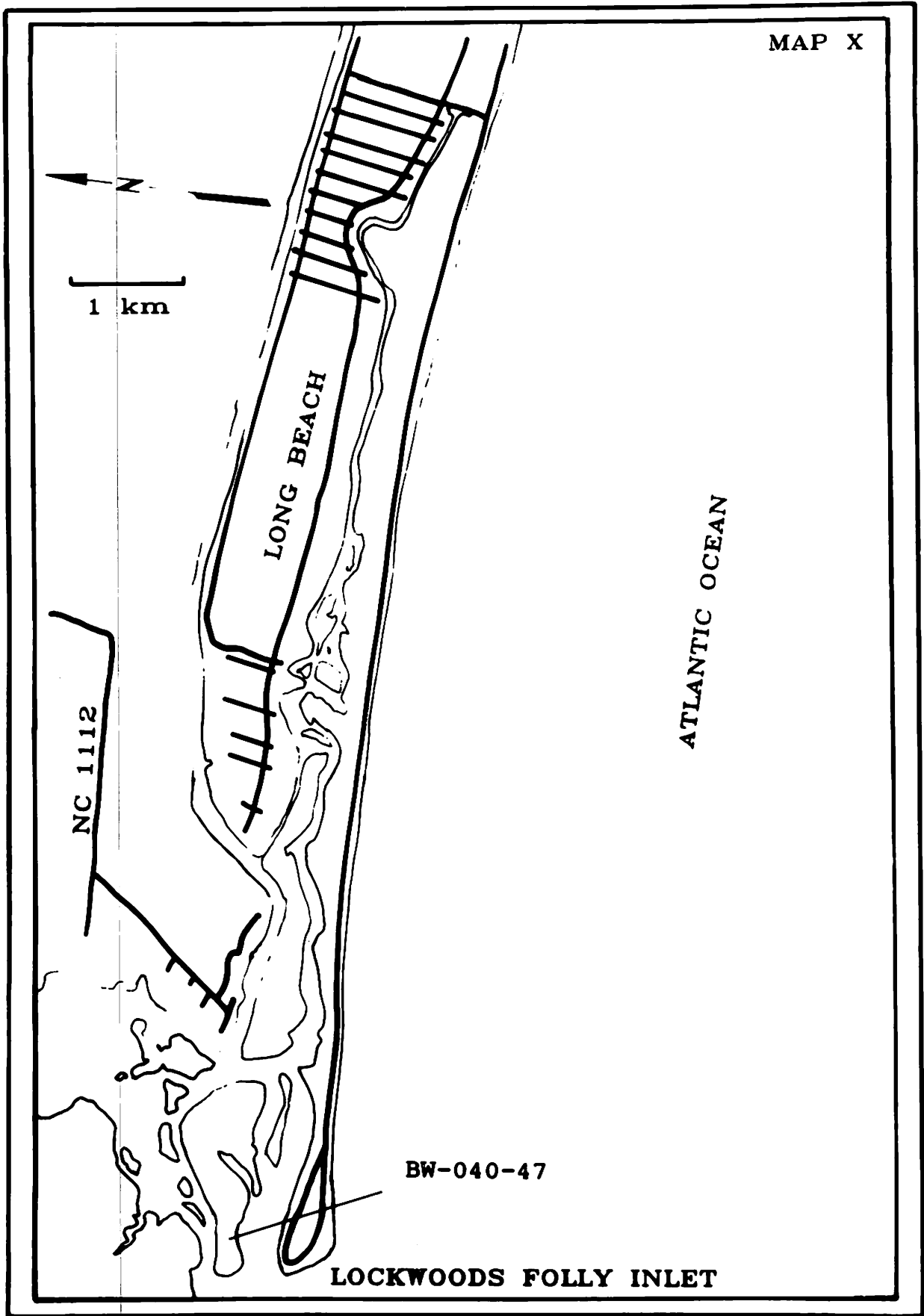


Figure 27. Map X, Long Beach and vicinity

**Map Y**

No active colonies in 1993.

**Map Z**

**Site #:** NC-BW-047-04  
**Site Type:** Natural Beach  
**Site Name:** Mad Inlet, North  
**Management Agency:** None  
Least Tern..... 4

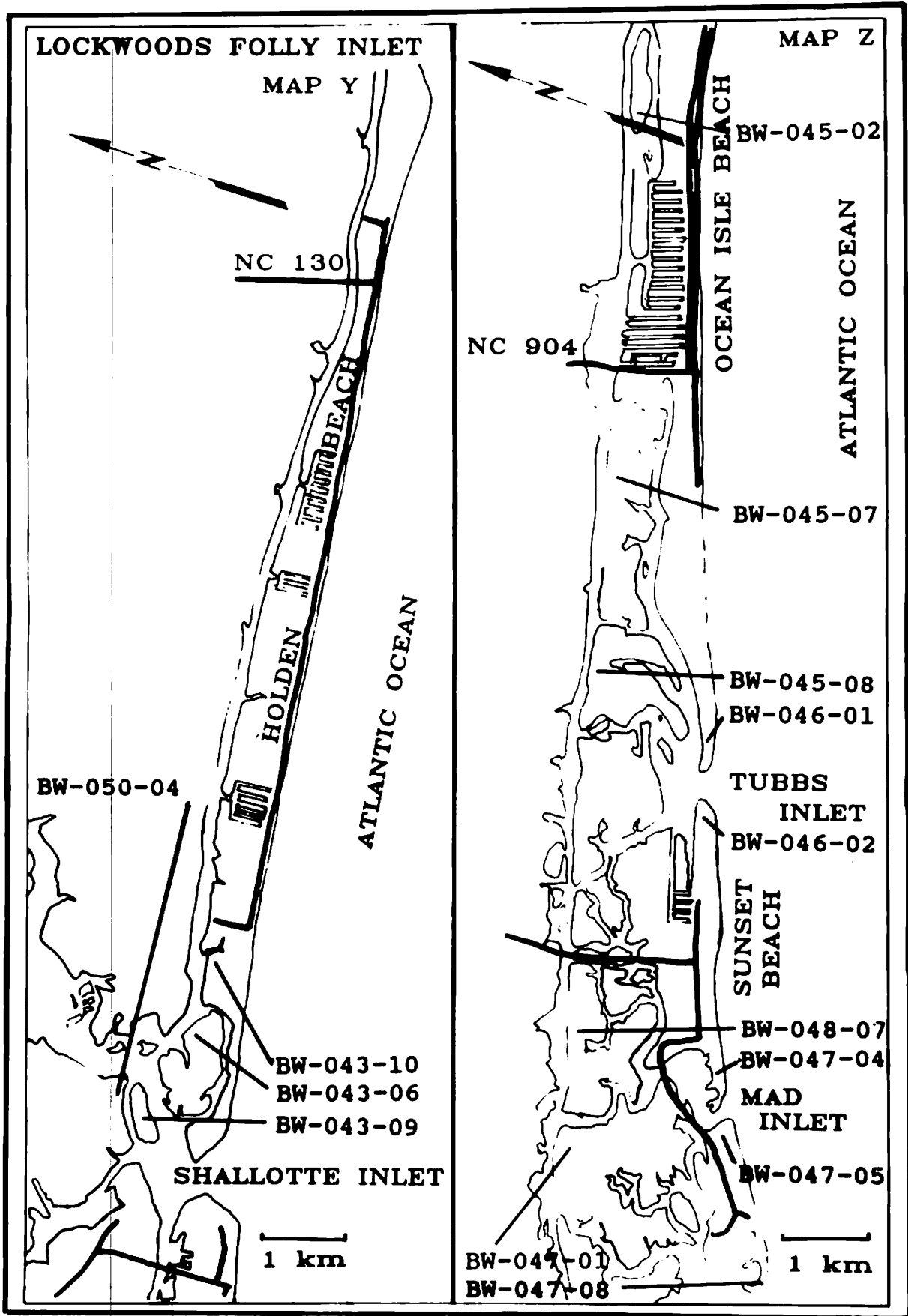


Figure 28. Map Y and Z, Lockwoods Folly Inlet to Mad Inlet

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Appendix A. Names and numbers of colonial waterbird nesting sites along North Carolina's coast.

<b>County</b>	<b>Site Number</b>	<b>Site Name</b>
BRUNSWICK	NC-BW-039-01	EAGLE ISLAND*
BRUNSWICK	NC-BW-039-26	UNI-OLD BRUNSWICK
BRUNSWICK	NC-BW-039-28	UNI, SUNNY POINT
BRUNSWICK	NC-BW-039-33	UNI, SNOWS MARSH #1
BRUNSWICK	NC-BW-039-35	UNI, CAPE FEAR RIVER #2
BRUNSWICK	NC-BW-039-36	UNI, CAPE FEAR RIVER
BRUNSWICK	NC-BW-039-37	SOUTH PELICAN ISLAND
BRUNSWICK	NC-BW-039-46	BATTERY ISLAND-SOUTH
BRUNSWICK	NC-BW-039-51	BATTERY ISLAND-NORTH
BRUNSWICK	NC-BW-039-52	BALDHEAD-RIVER BEACH
BRUNSWICK	NC-BW-043-06	UNI, LONG POINT #1
BRUNSWICK	NC-BW-043-09	UNI, MONKS ISLAND, BOWEN POINT
BRUNSWICK	NC-BW-043-10	UNI, LONG POINT #2
BRUNSWICK	NC-BW-045-02	UNI, OCEAN ISLE #1
BRUNSWICK	NC-BW-045-07	UNI, GAUSE LANDING
BRUNSWICK	NC-BW-045-08	UNI, NORTH SEASIDE
BRUNSWICK	NC-BW-046-01	TUBBS INLET, NORTHSIDE
BRUNSWICK	NC-BW-046-02	TUBBS INLET, SOUTHSIDE
BRUNSWICK	NC-BW-047-01	UNI, CORKINS NECK
BRUNSWICK	NC-BW-047-04	MAD INLET, NORTHSIDE
BRUNSWICK	NC-BW-047-05	MAD INLET, SOUTHSIDE
BRUNSWICK	NC-BW-047-08	UNI, SC LINE
BRUNSWICK	NC-BW-048-07	UNI, SUNSET BEACH #1
BRUNSWICK	NC-BW-050-04	BOWEN POINT
CARTERET	NC-CR-006-18	UNI, RATTAN BAY
CARTERET	NC-CR-006-19	SWAN ISLAND
CARTERET	NC-CR-006-20	TUMP ISLAND
CARTERET	NC-CR-006-34	RACCOON ISLAND
CARTERET	NC-CR-006-35	NEWSTUMP POINT
CARTERET	NC-CR-011-02	OCRACOCKE INLET BEACH-S
CARTERET	NC-CR-012-01	SWASH INLET, BEACH
CARTERET	NC-CR-012-02	AVERS ROCK
CARTERET	NC-CR-012-03	UNI, OCRACOCKE INLET #1
CARTERET	NC-CR-012-05	PORTSMOUTH ISLAND MARSH
CARTERET	NC-CR-012-14	UNI, MERKLE HAMMOCK #1

CARTERET	NC-CR-012-16	UNI, PORTSMOUTH, MARSH ISL. #1
CARTERET	NC-CR-012-17	UNI, PORTSMOUTH, MARSH ISL. #2
CARTERET	NC-CR-012-18	UNI, PORTSMOUTH MARSH ISL. #3
CARTERET	NC-CR-012-19	UNI, PORTSMOUTH MARSH ISL. #3
CARTERET	NC-CR-012-23	CASEY ISLAND
CARTERET	NC-CR-012-24	UNI, WEST PORTSMOUTH VILLAGE
CARTERET	NC-CR-013-01	UNI, CORE BANKS, SWASH INLET
CARTERET	NC-CR-014-01	SHELL ISLAND
CARTERET	NC-CR-014-02	WAINWRIGHT ISLAND
CARTERET	NC-CR-014-03	HARBOR ISLAND
CARTERET	NC-CR-014-04	NEW DUMP ISLAND
CARTERET	NC-CR-014-05	DRUM INLET, NORTH
CARTERET	NC-CR-014-07	NEW DRUM INLET, SHOAL
CARTERET	NC-CR-014-08	CORE BANKS BEACH, OP. DAVIS
CARTERET	NC-CR-014-09	UNI, CORE SOUND #1
CARTERET	NC-CR-014-10	UNI, BEHIND NEW DRUM INLET
CARTERET	NC-CR-014-11	CORE BANKS BEACH, DRUM INLET-N
CARTERET	NC-CR-014-12	UNI, CORE SOUND #2
CARTERET	NC-CR-014-13	CORE BANKS BEACH, OP. GREAT I.
CARTERET	NC-CR-014-14	UNI, CORE SOUND #1
CARTERET	NC-CR-014-15	CAPE LOOKOUT POINT
CARTERET	NC-CR-014-17	CORE BANKS BEACH, DRUM INLET-S
CARTERET	NC-CR-014-22	CORE BEACH, CAPE LOOKOUT
CARTERET	NC-CR-014-24	CORE BANKS, POWER SQUAD SPIT
CARTERET	NC-CR-014-25	CORE BANKS, CAPE POINT
CARTERET	NC-CR-014-26	RUSH ISLAND
CARTERET	NC-CR-014-27	LITTLE DEEP MARSH ISLAND
CARTERET	NC-CR-014-28	COCKLE MARSH ISLAND
CARTERET	NC-CR-014-29	BIG DEEP MARSH ISLAND
CARTERET	NC-CR-015-09	HOG ISLAND #1
CARTERET	NC-CR-015-10	HOG ISLAND #2
CARTERET	NC-CR-015-11	CHAIN SHOT ISLAND
CARTERET	NC-CR-015-14	CAMP POINT
CARTERET	NC-CR-015-15	LEWIS CREEK
CARTERET	NC-CR-016-01	OLD DUMP ISLAND
CARTERET	NC-CR-016-02	UNI, OLD DUMP, SOUTH #1
CARTERET	NC-CR-016-03	UNI, OLD DUMP, SOUTH 32
CARTERET	NC-CR-016-04	UNI, OLD DUMP, SOUTH #3
CARTERET	NC-CR-017-01	MORGAN ISLAND
CARTERET	NC-CR-017-02	WHITEHURST ISLAND
CARTERET	NC-CR-017-03	UNI, ADJACENT LIGHTHOUSE BAY
CARTERET	NC-CR-017-07	SAND BAG ISLAND

CARTERET	NC-CR-017-08	UNI, SOUTH OF MORGAN ISLAND
CARTERET	NC-CR-017-09	UNI, BARDEN INLET CHANNEL
CARTERET	NC-CR-018-07	MIDDLE MARSH
CARTERET	NC-CR-018-08	BOTTLE RUN POINT
CARTERET	NC-CR-018-11	UNI, BACK SOUND #1
CARTERET	NC-CR-018-12	MIDDLE MARSH-NORTH
CARTERET	NC-CR-018-15	UNI, BACK SOUND #3
CARTERET	NC-CR-018-20	BAREGRASS ISLAND
CARTERET	NC-CR-018-22	SHEEP ISLAND
CARTERET	NC-CR-018-25	UNI, BACK SOUND #4
CARTERET	NC-CR-018-27	NORTH RIVER MARSH
CARTERET	NC-CR-020-02	BEAUFORT CAUSEWAY
CARTERET	NC-CR-020-03	WEST END-BIRD SHOAL
CARTERET	NC-CR-020-05	SHACKLEFORD POINT
CARTERET	NC-CR-020-06	BRANT ISLAND
CARTERET	NC-CR-021-01	UNI, NEWPORT RIVER, #1
CARTERET	NC-CR-021-03	ANNEX, NEWPORT RIVER
CARTERET	NC-CR-021-04	PHILLIPS ISLAND
CARTERET	NC-CR-021-06	UNI, NORTH OF ANNEX #1
CARTERET	NC-CR-021-07	UNI, NORTH OF ANEX #2
CARTERET	NC-CR-022-02	ATLANTIC BEACH AREA
CARTERET	NC-CR-022-04	UNI, BOGUE SOUND #1
CARTERET	NC-CR-022-08	UNI, BOGUE SOUND #3
CARTERET	NC-CR-022-25	UNI, BOGUE SOUND #4
CARTERET	NC-CR-022-26	UNI, BOGUE SOUND #5
CARTERET	NC-CR-022-28	CAT ISLAND
CARTERET	NC-CR-022-39	UNI, BOGUE SOUND #6
CARTERET	NC-CR-022-40	UNI, EMERALD ISLE
CARTERET	NC-CR-022-41	EMERALD ISLE HERONRY #1
CARTERET	NC-CR-022-42	EMERALD ISLE HERONRY #2
CRAVEN	NC-CV-050-16	TWIN RIVERS MALL, NEW BERN*
CURRITUCK	NC-CK-001-01	MONKEY ISLAND
DARE	NC-DR-003-01	ROANOKE SOUND, ISLAND J
DARE	NC-DR-003-02	ROANOKE SOUND, ISLAND I
DARE	NC-DR-003-04	ROANOKE SOUND, ISLAND H
DARE	NC-DR-003-05	ROANOKE SOUND, ISLAND F
DARE	NC-DR-003-06	ROANOKE SOUND, ISLAND E
DARE	NC-DR-003-07	ROANOKE SOUND, ISLAND D
DARE	NC-DR-003-08	ROANOKE SOUND, NC 64 BRIDGE

DARE	NC-DR-003-09	ROANOKE SOUND, ISLAND G
DARE	NC-DR-005-01	BEACH NORTHSIDE OREGON INLET
DARE	NC-DR-005-03	SAND SHOAL ISLAND
DARE	NC-DR-005-05	OREGON INLET, ISLAND B
DARE	NC-DR-005-06	OREGON INLET, ISLAND C
DARE	NC-DR-006-02	OLD-HOUSE CHANNEL, ISLAND L
DARE	NC-DR-006-07	OLD-HOUSE CHANNEL, ISLAND M**
DARE	NC-DR-006-08	OLD-HOUSE CHANNEL, ISLAND MN
DARE	NC-DR-006-09	UNI, STUMPY POINY BAY
DARE	NC-DR-006-10	UNI, HATTERAS FERRY CHANNEL #1
DARE	NC-DR-006-11	UNI, HATTERAS FERRY CHANNEL #2***
DARE	NC-DR-006-12	GULL ISLAND
DARE	NC-DR-006-21	KINGS ISLAND
DARE	NC-DR-006-22	CLAM SHOAL
DARE	NC-DR-006-22-01	CLAM SHOAL NE
DARE	NC-DR-006-22-02	CLAM SHOAL SW
DARE	NC-DR-006-23	UNI, OLD HOUSE CHANNEL***
DARE	NC-DR-006-35	WELL'S ISLAND
DARE	NC-DR-007-02	UNI, PEA ISLAND, NORTH POND #1
DARE	NC-DR-007-03	JACK SHOAL
DARE	NC-DR-007-04	UNI, PEA ISLAND, NORTH POND #2
DARE	NC-DR-007-05	UNI, PEA ISLAND MARSH #1
DARE	NC-DR-007-06	UNI PEA ISLAND MARSH #2
DARE	NC-DR-008-01	BEACH SITES ON HATTERAS ISLAND
DARE	NC-DR-008-01-01	HATTERAS BEACH SITE #1
DARE	NC-DR-008-01-02	HATTERAS BEACH SITE #2
DARE	NC-DR-008-01-06	HATTERAS BEACH SITE #6
DARE	NC-DR-008-01-07	HATTERAS BEACH SITE #7
DARE	NC-DR-008-02	CAPE POINT
DARE	NC-DR-008-03	CAPE POINT-SOUTH BEACH
DARE	NC-DR-009-01	BEACH NORTHSIDE HATTERAS INLET
DARE	NC-DR-009-03	DOT ISLAND***
DARE	NC-DR-009-04	OLD DOT ISLAND
DARE	NC-DR-010-07	HAMMOCK CREEK
DARE	NC-DR-050-03	LONG SHOAL POINT
HYDE	NC-HY-006-13	SWAN QUARTER ISLAND
HYDE	NC-HY-006-14	JUDITH ISLAND POINT
HYDE	NC-HY-006-15	JUDITH ISLAND, JUDITH NARROWS
HYDE	NC-HY-006-30	HOG ISLAND
HYDE	NC-HY-006-31	GREAT ISLAND
HYDE	NC-HY-006-32	UNI, WEST TIP JUDITH ISLAND

HYDE	NC-HY-006-33	JUNIPER BAY
HYDE	NC-HY-006-36	BIG FOOT ISLAND
HYDE	NC-HY-009-02	BEACH SOUTHSIDE HATTERAS INLET
HYDE	NC-HY-010-01-01	OCRACOKE BEACH
HYDE	NC-HY-010-01-02	OCRACOKE BEACH AIRPORT
HYDE	NC-HY-010-02	OUTER GREEN ISLAND
HYDE	NC-HY-010-03	UNI, OCRACOKE MARSH #9
HYDE	NC-HY-010-04	GREEN ISLAND
HYDE	NC-HY-010-06	UNI, OCRACOKE MARSH #1
HYDE	NC-HY-010-07	UNI, OCRACOKE MARSH #2
HYDE	NC-HY-010-08	UNI, OCRACOKE MARSH #3
HYDE	NC-HY-010-09	UNI, OCRACOKE MARSH #4
HYDE	NC-HY-010-10-01	UNI, OCRACOKE MARSH #5
HYDE	NC-HY-010-10-02	UNI, OCRACOKE MARSH #6
HYDE	NC-HY-010-14	UNI, OCRACOKE MARSH #7
HYDE	NC-HY-010-15	UNI, OCRACOKE MARSH #8
HYDE	NC-HY-010-16	OCRACOKE VILLAGE
HYDE	NC-HY-010-17	PONY PEN SOUTH
HYDE	NC-HY-010-18	PONY PEN NORTH
HYDE	NC-HY-011-01	OCRACOKE INLET BEACH-N
HYDE	NC-HY-011-03	NATURAL SHOAL OCRACOKE INLET
HYDE	NC-HY-011-04	BEACON ISLAND
HYDE	NC-HY-011-05	SHELL CASTLE ISLAND, EAST
HYDE	NC-HY-011-06	SHELL CASTLE ISLAND, WEST
HYDE	NC-HY-011-07	NORTH ROCK ISLAND
HYDE	NC-HY-011-08	UNI, WALLACE CAHNNEL #1
HYDE	NC-HY-012-20	UNI, OCRACOKE INLET #2***
HYDE	NC-HY-050-15	NEBRASKA*

NEW HANOVER	NC-NH-032-02	CAROLINA BEACH-NORTH
NEW HANOVER	NC-NH-033-05	UNI, NIXON CHANNEL
NEW HANOVER	NC-NH-033-12	UNI, PAGES CREEK
NEW HANOVER	NC-NH-033-15	UNI, MASON INLET #1
NEW HANOVER	NC-NH-033-16	UNI, MASON INLET #2
NEW HANOVER	NC-NH-033-20	HARBOR ISLAND APRK
NEW HANOVER	NC-NH-033-22	UNI, MOUTH OF RICH INLET
NEW HANOVER	NC-NH-034-01	MASON INLET, NORTHSIDE
NEW HANOVER	NC-NH-035-02	MASONBORO INLET, SOUTHSIDE
NEW HANOVER	NC-NH-036-03	UNI, MONEY POINT
NEW HANOVER	NC-NH-037-10	PICKETT ROCK ISALND
NEW HANOVER	NC-NH-037-18	UNI, CAROLINA NEACH INLET #1
NEW HANOVER	NC-NH-038-02	CAROLINA BEACH INLET, SOUTH



NEW HANOVER	NC-NH-039-23	UNI, CAPE FEAR, ORTON POINT
NEW HANOVER	NC-NH-039-25	UNI, ANDERSON LANDING
NEW HANOVER	NC-NH-039-29	NORTH PELICAN ISLAND #1
NEW HANOVER	NC-NH-039-30	NORTH PELICAN ISLAND #2
NEW HANOVER	NC-NH-039-32	FERRY SLIP ISLAND
NEW HANOVER	NC-NH-039-49	FORT FISHER BEACH
ONSLOW	NC-ON-022-44	UNI, ENTRANCE BOGUE INLET #1
ONSLOW	NC-ON-022-45	UNI, ENTRANCE BOGUE INLET #2
ONSLOW	NC-ON-023-04	UNI, SWANSBORO #2
ONSLOW	NC-ON-023-07	UNI, SWANSBORO #3
ONSLOW	NC-ON-023-10	UNI, SWANSBORO #4
ONSLOW	NC-ON-023-11	UNI, SWANSBORO #5
ONSLOW	NC-ON-023-14	UNI, SWANSBORO #6
ONSLOW	NC-ON-023-15	UNI, BOGUE INLET
ONSLOW	NC-ON-023-16	BEAR INLET, NORTHSIDE
ONSLOW	NC-ON-026-01	NEW RIVER INLET, NORTHSIDE
ONSLOW	NC-ON-026-06	UNI, NEW RIVER CHANNEL #1
ONSLOW	NC-ON-026-07	UNI, NEW RIVER CHANNEL #2
ONSLOW	NC-ON-026-08	UNI, NEW RIVER CHANNEL #3
ONSLOW	NC-ON-026-09	UNI, ALLIGATOR BAY #1
ONSLOW	NC-ON-027-04	UNI, ALLIGATOR BAY #2
ONSLOW	NC-ON-027-06	UNI, ALLIGATOR BAY #3
ONSLOW	NC-ON-027-07	UNI, ALLIGATOR BAY #4
PAMLICO	NC-PM-006-16	SOW ISLAND
PENDER	NC-PD-029-25	UNI, SLOOP POINT
PENDER	NC-PD-029-43	UNI, GREEN CHANNEL
PENDER	NC-PD-030-01	NEW TOPSAIL INLET, NORTHSIDE
PENDER	NC-PD-030-02	NEW TOPSAIL INLET, SOUTHSIDE
PENDER	NC-PD-031-01	OLD TOPSAIL INLET, NORTH
PENDER	NC-PD-031-02	OLD TOPSAIL INLET, SOUTH
PENDER	NC-PD-032-31	RICH INLET, NORTHSIDE
PENDER	NC-PD-032-02	RICH INLET, SOUTHSIDE

- \* Sites not on maps
- \*\* Sites joined to adjacent island, MN
- \*\*\* Sites gone, eroded away

# NOTES

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