

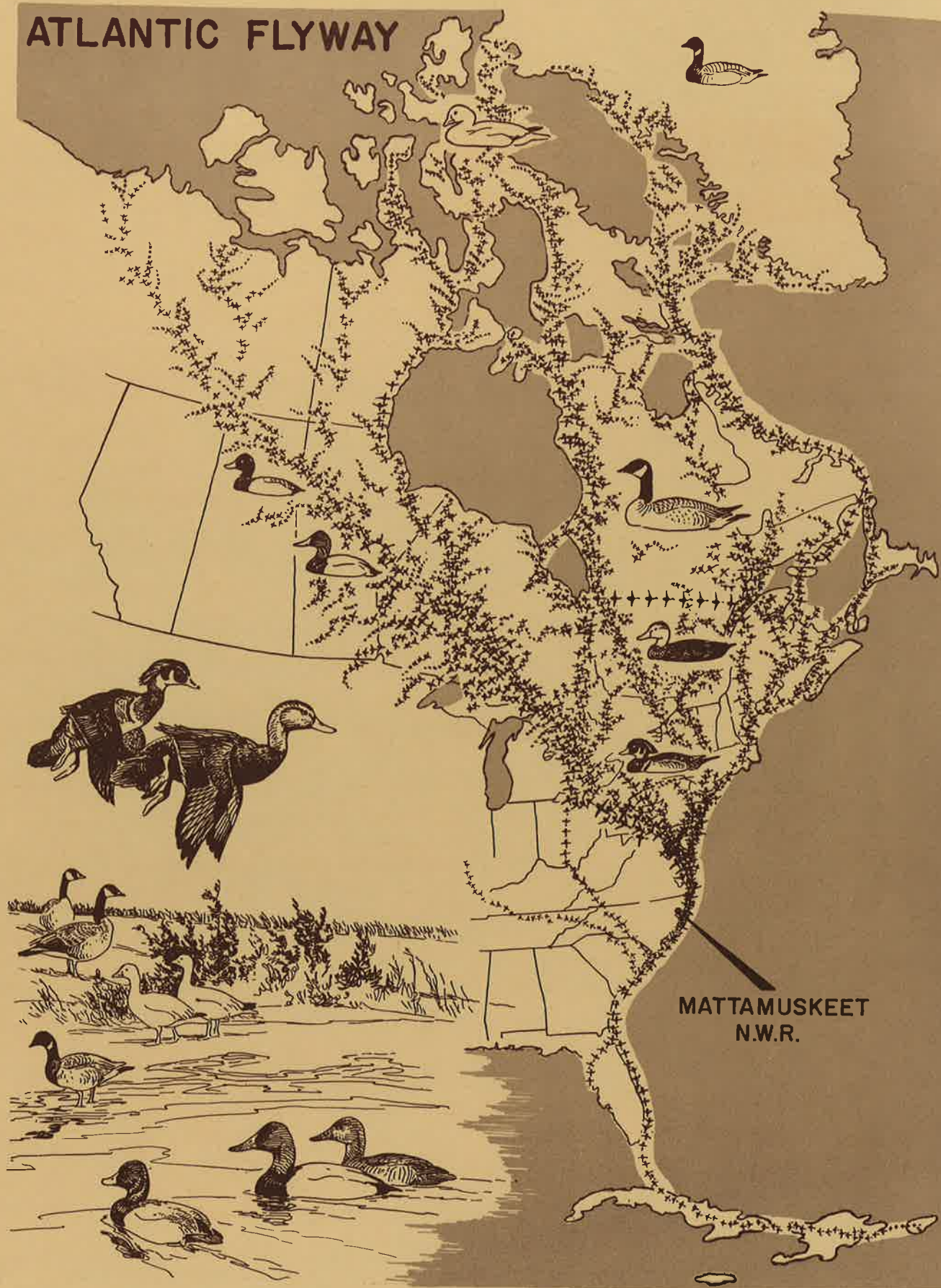
# MATTAMUSKEET NATIONAL WILDLIFE REFUGE



HYDE COUNTY, NORTH CAROLINA



# ATLANTIC FLYWAY



# MATTAMUSKEET NATIONAL WILDLIFE REFUGE

Hyde County, North Carolina

## A PLAN

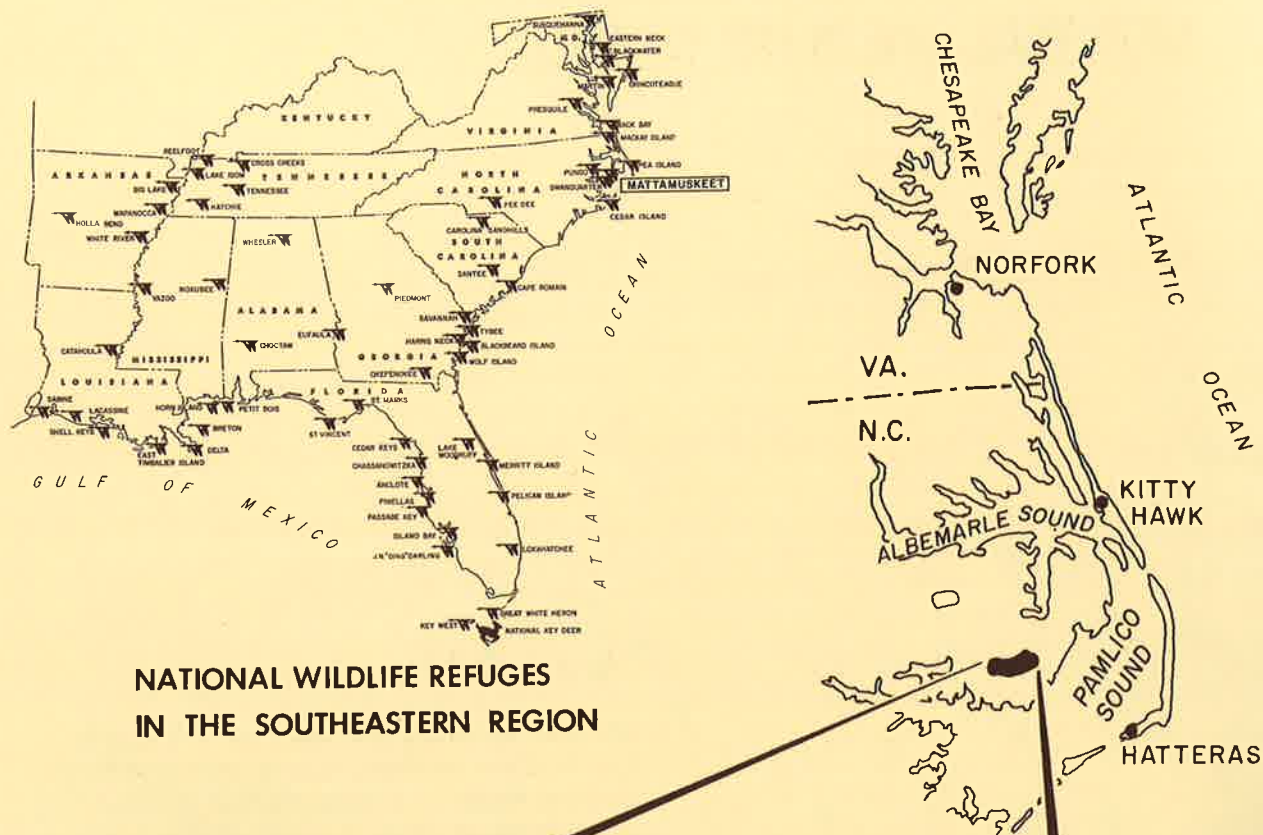
*This plan presents broad objectives, management guidelines, and development proposals for the Mattamuskeet Refuge. Its purposes are to promote public understanding of refuge programs, to provide continuity in management, and to assure that Mattamuskeet fulfills the requirements not only of a major sanctuary for waterfowl but also as a place for public enjoyment of the fish and wildlife resources.*

U. S. DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
BUREAU OF SPORT FISHERIES AND WILDLIFE

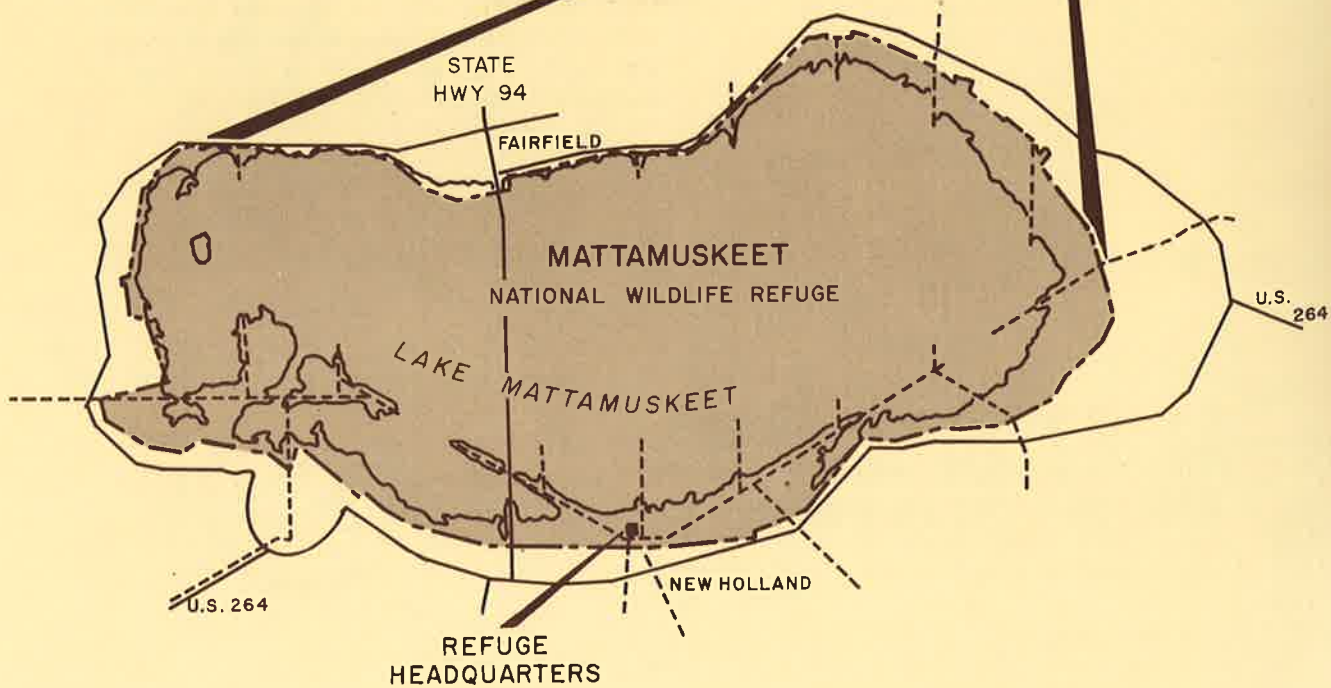




## VICINITY MAP



## NATIONAL WILDLIFE REFUGES IN THE SOUTHEASTERN REGION



## PREFACE

Perhaps wildlife is more deeply ingrained into our American culture than any other natural resource. Wild animals and birds, fish and other aquatic life, and their respective habitat provided the life essentials for our forebears. The illimitable abundance of wildlife, timber, water, and fertile soil gave hope and promise to the pioneers of a fresh and uncorrupted America.

Human encroachment on wildlife habitat and the frequent misuse of our land and its products threaten this great segment of our American heritage. With our nation facing a rationed tomorrow, the conservation of our natural resources requires public understanding, appreciation, and financial support.

The Bureau of Sport Fisheries and Wildlife bears the Federal responsibility for the protection and management of migratory birds, endangered species, and their habitat. National wildlife refuges perform an integral role in meeting these responsibilities. The Mattamuskeet National Wildlife Refuge, administered primarily under the authority of the Migratory Bird Conservation Act, the Rare and Endangered Species Act, and the Recreational Act of 1962, occupies an important place in the National Wildlife Refuge System.

Mattamuskeet Refuge, established October 8, 1934, lies north of Pamlico Sound and west of the famed Outer Banks in Hyde County, North Carolina. As recently as the early 1960's, Mattamuskeet wintered large concentrations of Canada geese and ducks. Since then, waterfowl numbers have dwindled to approximately 25 percent of the earlier peak populations. This plan presents programs that will promote: (1) the restoration of the Mattamuskeet goose flock and its wintering population of ducks, (2) the production of black ducks and wood ducks, (3) conditions favorable to almost all wildlife common to the Mattamuskeet area, (4) the advancement of conservation education, (5) the study and research of wildlife and habitat, and (6) recreational opportunities for all those who enjoy hunting, fishing, sightseeing, nature study, conservation education, and other outdoor activities. Estimated development costs amount to \$2,600,000 plus an additional \$1,000,000 for renovation of the major drainage canals that extend from the refuge proper to Pamlico Sound.

## THE PAST

"Mattamuskeet" — the rhythmic softness of the Indian name meaning "Dry Dust" — recalls the days when the Algonquin Indians silently hunted the forest that once grew where Mattamuskeet Lake now stands. Explaining the origin of "Dry Dust," some say uncontrolled fires burning deep into the peat soil formed the lake. Another account describes Mattamuskeet Lake and the nearby smaller Alligator, Phelps, and Pungo Lakes as being scoured out by a shower of meteors that struck the Carolina coastal plain.

Here in this coastal region stretched many dense stands of pine, cypress, and gum and open spaces where the wind blew over seas of marsh grass. The Indians are now gone, leaving few traces upon the land they once knew, and much of the forest has given way to agriculture.

Mattamuskeet Lake was little disturbed until the early 1900's. Several initial attempts to drain and farm the lake resulted in failures mainly because of inadequate financing. It was



*"WON A BATTLE BUT LOST THE WAR". The New Holland Corporation, operating as many as fifty tractors, could not conquer the elements in its effort to farm the Mattamuskeet Lake bed and adjacent marshes.*





*MATTAMUSKEET GAINS NATIONAL RECOGNITION. Following the farming era and the establishment of the refuge, Mattamuskeet Lake became famous for its wintering flocks of Canada geese, ducks, and swans.*

not until 1925 that a serious effort was made to reclaim this land for farming operations when August Hecksher, a philanthropic Dutchman, bought the entire lake bottom and formed the New Holland Corporation.

The corporation constructed the then "world's largest" pumping plant as a means of keeping the lake area dewatered. It placed 9,000 acres of the lake bed and adjacent marshlands under cultivation, and produced bumper crops of soybeans, rice, buckwheat, popcorn, lespedeza, barley, celery, asparagus, rye, oats, flax, and potatoes. However, Hecksher's dream of creating a "New Holland" never fully materialized. Beset by pumping difficulties, excessive rainfall, and agricultural pests, the farming operations edged closer to defeat with each successive season. In 1933 matured crops remained unharvested, some knee-deep in mud and slime, while water in the fields continued to rise because of pump failure. Hecksher gave in to the elements, and the New Holland Corporation ceased to exist. Fish and wildlife that had been temporarily displaced during man's efforts to change the natural environment returned as the lake waters rose to normal levels.

A new era came to Mattamuskeet in 1934 with the Federal purchase and subsequent assignment of the area to the Bureau of Sport Fisheries and Wildlife for stewardship. The Bureau received 49,925 acres of water, marsh, and timberland in the original transfer and an additional 252 acres in 1939, bringing the total refuge size to 50,177 acres. Waterfowl came to Mattamuskeet to feed upon the dense stands of bulrushes, spikerushes, panic grasses, millets, and smartweeds in the marshes and shallow water flats and the muskgrasses and pondweeds in Mattamuskeet Lake. The wintering concentrations of geese and ducks and the resulting hunting opportunities gained the Mattamuskeet area national popularity and recognition.

Under refuge management, the Civilian Conservation Corps converted the defunct New Holland pumping plant into a visitor's lodge and refuge headquarters. The 150-foot chimney that once belched smoke from the world's largest pumping plant was remodeled with a staircase and overlooks to afford visitors a better view of the lake, marshes, and wintering waterfowl.

## THE PRESENT

The Mattamuskeet Refuge is probably best known for its wintering populations of Canada geese, ducks, and whistling swans and as a place to hunt waterfowl. However, more than 200 different species of birds now visit or reside year-round on the refuge. Eighty different species may nest here, and many others are common to abundant one or more seasons of the year. The endangered bald eagle is a permanent resident at Mattamuskeet, while the peregrine falcon is a winter visitor. The osprey nests here and is also found on the refuge during the winter months.

In addition to the array of birds, the refuge holds representative populations of deer, squirrels, bobcats, rabbits, raccoons, muskrats, mink, opossums, and other small mammals. The ref-

uge maintains and manages relatively small acreages of pine and mixed hardwoods. It contains both managed and unmanaged marshes and employs a variety of practices in habitat management.

Following the establishment of the refuge, the numbers of ducks, geese, and swans drawn to Mattamuskeet appeared endless, and continued to increase until about 1960 when more than 100,000 Canada geese, 200,000 ducks, 4,000 swans, and relatively large numbers of marsh and water birds wintered on the refuge. Then began a drastic decline in the number of these birds visiting the Mattamuskeet area, and in 1967-1968 populations peaked at only 25,000 Canada geese, 40,000 ducks, and 3,200 swans.

*THE THIRSTY MARSH. The lack of water control accelerates marsh deterioration by favoring the growth of low quality waterfowl food plants.*





The decline in numbers of ducks and geese migrating annually to Mattamuskeet undoubtedly was caused in part by the deterioration of waterfowl habitat on the refuge. Some of the same factors that defeated the early attempts to manage the lake and marshes—particularly the lack of water control—continue to complicate refuge management. Cattail, cordgrass, broomsedge, and woody plants that produce low quality waterfowl foods are fast replacing the marsh plants that once attracted large concentrations of waterfowl. The refuge now encompasses approximately 40,000 acres of water, 6,500 acres of marsh, 3,000 acres of timber, and 400 acres of cropland.



*A POINT OF VIEW. The refuge welcomes visitors to observe the lake and waterfowl from the tower at Mattamuskeet Lodge, the focal point of its public use programs.*



## PLAN FOR THE FUTURE

As an integral part of the National Wildlife Refuge System, Mattamuskeet Refuge represents a protected niche on the Eastern Seaboard—an area showing an accelerated decline of suitable waterfowl habitat. When properly developed, it can again become a renowned area for waterfowl, other wildlife, and public enjoyment. Specifically, Mattamuskeet Refuge strives to attain the following objectives:

1. To provide habitat and protection for those wildlife species that reside on or visit the refuge and whose survival is in jeopardy; specifically, the bald eagle, the peregrine falcon, the osprey, the blue bird, and the tidewater silverside.
2. To restore the refuge's Canada goose population to its former levels, thus improving the distribution of geese over the

Atlantic Coast wintering grounds and the opportunities for quality hunting both on the refuge and on private lands in the Mattamuskeet area.

3. To encourage, through appropriate measures, the annual production of 2,000 black ducks, 500 wood ducks, and 100 blue-winged teal, gadwalls, and others.
4. To develop and manage the refuge for a full spectrum of wildlife and to provide habitat capable of supporting wintering populations of 75,000 Canada geese, 3,000 snow geese, 4,000 swans, 150,000 ducks, and adequate numbers of marsh and water birds, white-tailed deer, furbearers, and other migratory and indigenous wildlife for frequent viewing by refuge visitors.



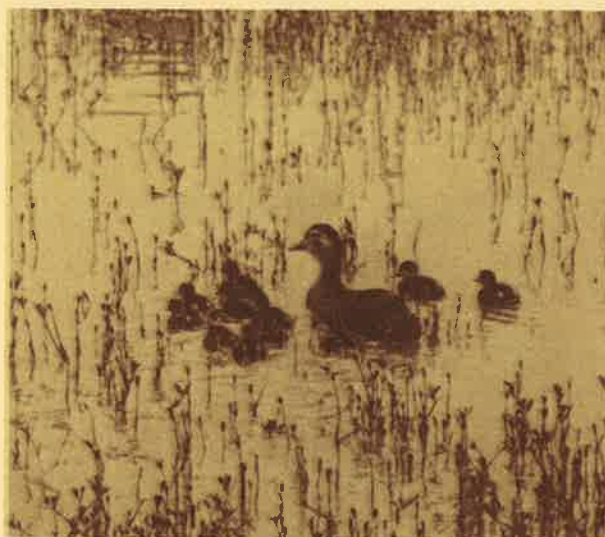
**DISKING PLUS WATER CONTROL EQUALS HIGH QUALITY WATERFOWL FOOD.** Renovation of the marshes requires construction of dikes, installation of water control structures, and soil tillage for pest plant control and soil aeration.





*AN EXCELLENT MARSH. The restoration and maintenance of Mattamuskeet's waterfowl populations depend upon successful marsh management through water level manipulation.*

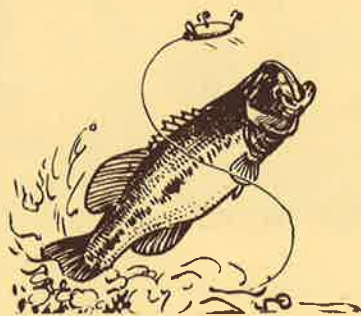
5. To manage the fishery resource in Mattamuskeet Lake for quality sport fishing and the commercial harvest of nongame fish species.
6. To provide for conservation education, the interpretation of the natural resources, and wildlife-oriented recreational opportunities for enjoyment by visitors.
7. To restore and maintain Mattamuskeet Lodge as a historic landmark, a wildlife-interpretive facility, and an educational center.
8. To serve as a demonstration area and an outdoor laboratory for use by colleges, universities, conservation agencies, and other groups interested in studying wildlife, marsh and water management, and other ecological aspects of the refuge.



*THE FAMILY HOME. With developed marshes, the refuge will yield significant numbers of young ducks, particularly blacks.*

## RECREATIONAL AIMS

People justifiably expect a special kind of recreation when they visit a wildlife refuge. Here is a place where man is the visitor, a place where he may gain knowledge and test sporting skills, and a place where he may observe a natural environment of which man has deprived himself in an urban society. More and more people continue to visit wildlife refuges annually and to enjoy unique experiences where wildlife is the major resource. Envisioned annual public use on Mattamuskeet Refuge amounts to 200,000 days of nature-oriented recreation including waterfowl hunting, fishing, conservation education, and wildlife watching. To protect the resources, management must provide public use facilities, and the public must cooperate in a manner that offers wildlife some degree of solitude.



### *Fishing*

Refuge management encourages both commercial and sport fishing activities in Mattamuskeet Lake and adjacent canals. Sportsmen go after the bass and bream, whereas commercial interests seek the catfish and carp. Sportsmen also catch thousands of herring with dip nets near certain water control structures.



### *Waterfowl Hunting*

Mattamuskeet Refuge not only provides for public hunting of ducks, geese, and coots but also improves waterfowl hunting on nearby private lands by maintaining concentrations of wintering waterfowl. Successful hunting opportunities depend almost entirely upon the attainment of waterfowl objectives through adequate development and proper management of the refuge. Waterfowl population levels on the refuge will govern to a large degree the number of birds harvested in any one season in the Mattamuskeet area. The North Carolina Wildlife Resources Commission administers the waterfowl hunts on the refuge after plans are coordinated with the Bureau and refuge programs.



### *Sightseeing, Nature Study, and Photography*

Concentrations of Canada geese and ducks of many species, an occasional bald eagle, osprey, or other rare wildlife, flocks of swans, and numerous other wild creatures attract varied observers from nature enthusiasts to artists and photographers. The refuge will conduct programs that will encourage the public to visit the refuge, enjoy the wildlife resources, and participate in wildlife-oriented activities.



### *Conservation Education*

The refuge's conservation education program calls for a wildlife interpretive center designed to give a large number of people a better understanding of wildlife and habitat management, ecological conditions, and conservation of natural resources. The program also provides for on-site interpretive facilities and habitat demonstrations. The center, the on-site facilities, and the demonstrations will develop one or more of the following themes:

1. The refuge's wildlife resources as they relate to the history and the social and economic structure of Hyde County, North Carolina, and the surrounding area.
2. Mattamuskeet Refuge history, with emphasis on the farming era, the establishment of the refuge, and the lodge.
3. Wildlife management as it relates to conservation and wise utilization of the resources, with primary emphasis on Canada geese and other waterfowl.
4. Wildlife habitat as it relates to seasons of use, carrying capacity, and natural balances.
5. Rare and endangered wildlife, with emphasis on the species found at Mattamuskeet and in eastern North Carolina.
6. Indigenous plants, with emphasis on those affecting wildlife habitat.
7. Mattamuskeet National Wildlife Refuge objectives and responsibilities.



*A NATURAL SCHOOL. The refuge's public use programs promote the understanding and conservation of wildlife and other natural resources.*



## PROPOSED DEVELOPMENT AND MANAGEMENT

In order to attain its waterfowl goals and other objectives, the refuge must develop its now unproductive marshes, provide conservation education and recreational facilities, conduct prudent land use programs for agriculture, forestry, marsh, and water, and maintain ade-

quate facilities for operations. Development includes the construction of additional maintenance and storage buildings, dikes and water control structures, adequate road and trail systems, and interpretive facilities.

When fully developed, Mattamuskeet Refuge

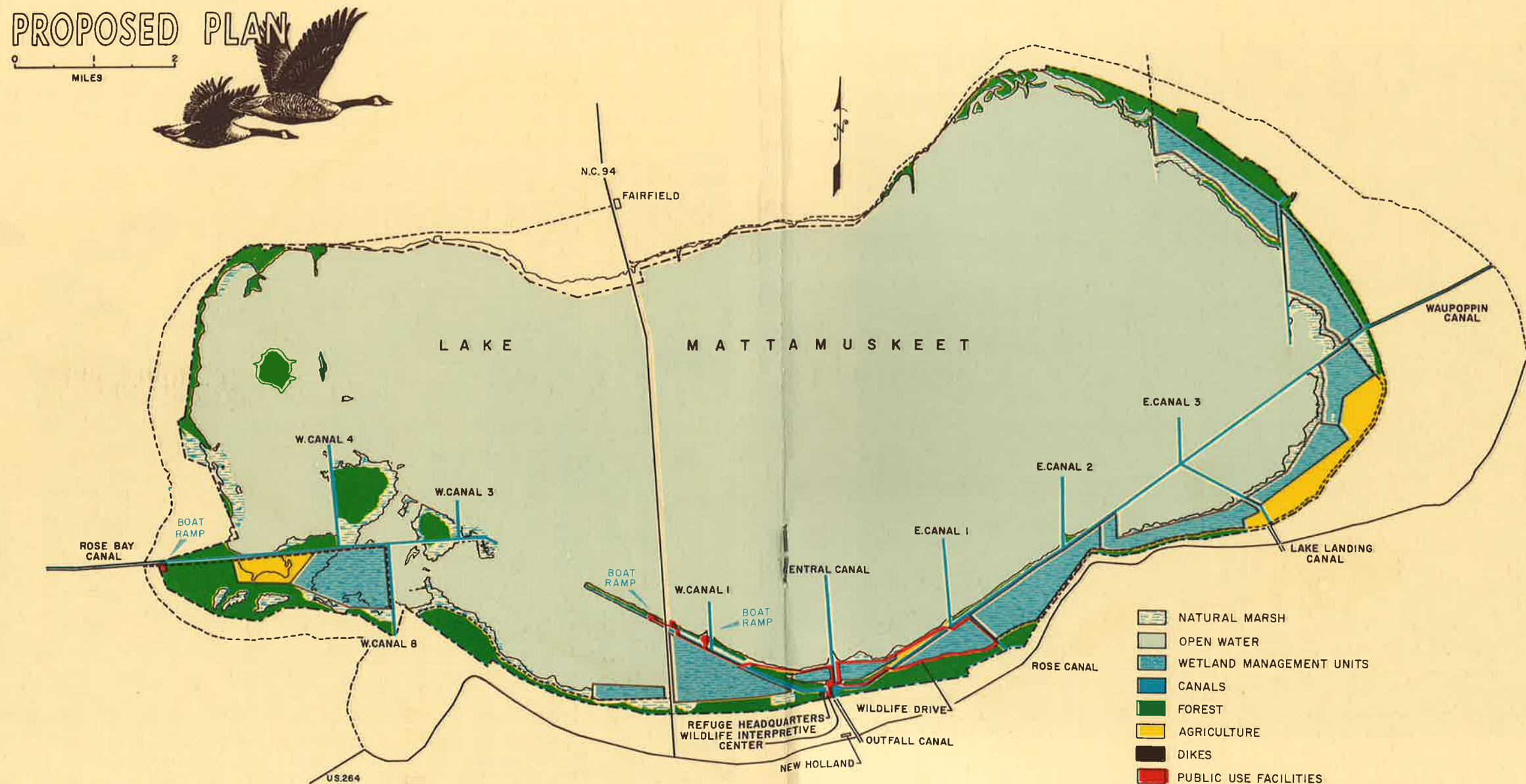
will contain 3,400 acres of wetland management units, 640 acres assigned as agricultural lands, 3,000 acres of forest lands, 2,800 acres of natural marsh, and 40,300 acres of water in Mattamuskeet Lake, plus 37 acres assigned for other use. Land management and water management on Mattamuskeet are in most cases inseparable.

Agricultural lands must be protected against

high water levels in Mattamuskeet Lake and drained by gravity or pumping to permit tillage and crop production. Marsh management requires periodic tillage and water level manipulation for pest plant control and the production of waterfowl food plants. Management of Mattamuskeet Lake involves water level draw-downs that expose extensive mudflats along the shoreline and encourage production of food plants for waterfowl.

### PROPOSED PLAN

0 1 2  
MILES





## *Wetlands*

Refuge marshes extend from the shoreline and surround Mattamuskeet Lake. In most places a narrow strip of woodlands separates the marshlands from the refuge boundary. The marshes gradually increase in elevation from the shoreline to the woods but contain sloughs and potholes that are below full lake water levels. The future value of the refuge for waterfowl and several other species of wildlife depends—to a large degree—upon the successful development and management of the refuge marshes.



*THE HUNGRY TENANT. Waterfowl in the future depend upon the retention and management of today's wetlands.*



*MARSH IMPROVEMENT. Dikes are required on all sides of wetland management units in order to maintain desirable water level for diversified management. Drainage ditch along woodline will allow surface water from private land to drain freely into Mattamuskeet Lake.*





*WETLAND MANAGEMENT UNIT. Management entails periodic rotation of these units to include stable water levels for aquatics, partial drawdown for marsh plants, and complete drainage for tillage and planting operations.*

Plans call for developing approximately 3,400 acres of marsh into wetland management units ranging from 100 to 500 acres in size. Each unit will provide for an average water depth of one and one-half feet, and also for structures sufficient to manipulate water levels from zero to full pool stage. These wetland management units will provide: (1) habitat capable of producing more than one-half of the food supply for Mattamuskeet's wintering populations of Canada geese and ducks, (2) the principal nesting and rearing habitat for black ducks and wood ducks, (3) additional opportunities for public use, and (4) a portion of the refuge road and trail system.

Development of the wetland management units

will require:

1. Construction of approximately 40 miles of dikes or levees equipped with properly designed water control structures.
2. Installation of a pumping system for each unit to supplement both dewatering and flooding by gravity.
3. Construction of interior drainage ditches sufficient to dewater each unit.
4. Erection of 200 wood duck nesting boxes.
5. Construction of 100 nesting islands or sites for black ducks and other marsh nesters.
6. Treatment of 3,000 acres for control of pest plants.



### *Mattamuskeet Lake and Natural Marshes*

Mattamuskeet Lake contains 40,300 acres including the drawdown zone. Excluding the planned wetland management units, about 2,800 acres of natural marsh adjoin the lake shoreline. The water level in Mattamuskeet Lake normally decreases approximately twelve inches during late spring and summer exposing extensive mudflats along the shoreline. These mudflats produce stands of spikerushes, three-square, panic grasses, millets, smartweeds, and other waterfowl food plants. Canada geese graze these plants in the early fall, and both ducks and geese feed extensively on these areas when they are flooded with the re-

turn of full lake water levels in early winter. The permanent water areas provide feeding and resting habitat for almost all species of waterfowl common to Mattamuskeet and support the fishery resource. The natural marsh increases habitat variety.

Water levels in Mattamuskeet Lake depend to a large extent on rainfall, evaporation, and water levels in Pamlico Sound; however, plans call for a drawdown to six inches below mean sea level when possible during late spring and summer and a build-up to six inches above mean sea level during fall and winter months. Although management includes pest plant control in the natural marshes and rough fish control in the lake proper, these areas require no specific developments for refuge purposes.

*THE REFUGE. Water, marsh, and timber acting as a unit provide the habitat for a natural display of wildlife on Mattamuskeet Refuge.*







*PINTAILS AT HOME. Mattamuskeet Lake provides a resting and feeding area for waterfowl and maintains an excellent fishery resource.*

### *Drainage Canals*

Rose Bay, Outfall, Lake Landing, and Waupopin Canals provide the drainage for Mattamuskeet Lake, 8,000 acres of additional refuge lands, and approximately 50,000 acres in private ownership. These canals lie primarily outside the boundary of the refuge proper, extend across private lands and drain eventually into Pamlico Sound. With but few exceptions, the Bureau owns or maintains easements for the canal rights-of-way. East Main, West Main, a portion of Outfall, and various lateral canals — each located on the refuge — facilitate the flow of lake water into the major drainage canals. A structure in each drainage canal improves the control of water levels in Mattamuskeet Lake, which, in turn, improves the drainage of agricultural lands adjacent to the refuge.

In the early 1960's it became evident that the canal system desperately needed dredging because of silting, excessive vegetative growth along the banks, and other flowage obstructions. The refuge initiated a canal rehabilitation program in 1966 to facilitate water level management in Mattamuskeet Lake, to improve drainage and crop production on private lands, to aid in the control of water levels on refuge marshes, and to improve lake conditions for recreational purposes.

Approximately five miles of canal dredging were completed in 1966 and 1967. Future development will include the continuation of the canal renovation project involving 37 miles of the canal system.



## *Croplands*

The planting of annual crops is an integral part of the refuge's waterfowl food production program. Plans call for approximately 640 acres of cropland, including the 400 acres contained in the existing farm units. The refuge designs its cropland management program primarily to benefit Canada geese; however, ducks and other wildlife receive many side benefits from the farming operations. Development will require:

1. Repair of nine miles of existing levees.
2. Construction of one mile of new levees.
3. Installation of four pumping systems.
4. Clearing of 100 acres of woods and brush.



*FOOD FOR FOWL AND PROFIT. Refuge farm units produce an abundance of waterfowl food and yield a monetary return to farming cooperators.*



*MORE FOOD PER ACRE. Agricultural crops supplement natural foods for waterfowl, particularly for Canada geese.*



### *Timberlands*

Refuge forests consist of approximately 1,000 acres of pine, including a 75-acre block designated as a natural area, and 2,000 acres of mixed hardwoods. These woodlands normally occur in relatively narrow strips along the refuge boundary between the marsh and the higher private lands. The mixed hardwoods currently offer only limited opportunity for timber production; however, they may become more valuable as the forest matures and local timber markets improve. The refuge directs its timber management program toward improving the forest for wildlife and wildlife-oriented recreation by employing commercial harvests, controlled burning of the pine areas, and other management techniques.

*SMALL TREES BEAR LITTLE FRUIT. Management is needed here to check tree mortality and improve the forest for wildlife, recreation, and timber production.*



*MAN'S HAND NEED NOT BE HEAVY. This seventy-five-acre natural area, where plant succession is allowed to develop under natural conditions, is set aside for scientific study.*





### *Recreation and Conservation Education*

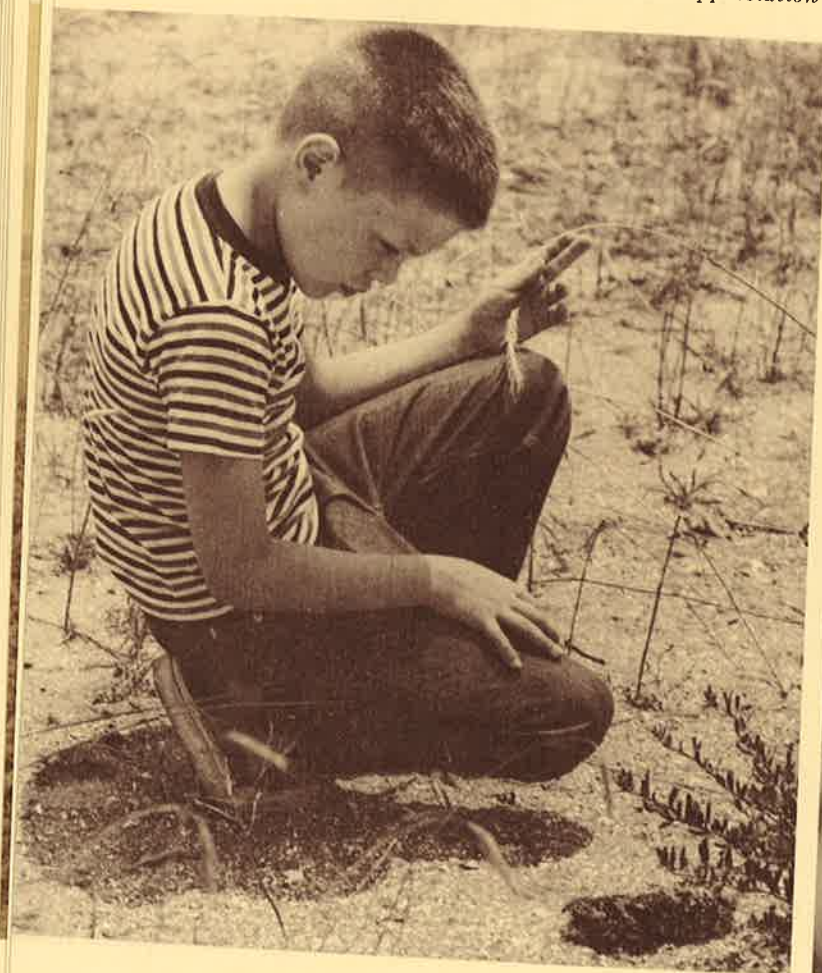
In keeping with Bureau policy, plans for public use on Mattamuskeet blend amiably with refuge objectives for waterfowl, endangered and rare species, and other wildlife. Thus management of wildlife is correlated with use of the refuge by the public for recreation in such a way as to give maximum service to the community and the nation.

Required facilities include those necessary for waterfowl hunting, wildlife watching and interpretation, nature study, open space enjoyment, fishing, and related activities. The Mattamuskeet Lodge symbolizes the refuge, holds both local and national interest, and will become the focal point for interpretation of wildlife and the refuge programs.

Public use on Mattamuskeet continues to increase, and development required to accommodate an anticipated 200,000 visits annually includes:

1. Remodeling of an adequate portion of the Mattamuskeet Lodge into a wildlife-interpretive center.
2. Conversion of the remaining portion of the Lodge into a seminar-type educational facility with sleeping accommodations for groups of 40 to 50 people.
3. Visitor parking areas for each public facility.

*WITH BETTER UNDERSTANDING COMES RESPECT FOR ALL LIVING THINGS. Identification and appreciation are basic ingredients in conservation.*



4. Auto trail, approximately five miles in length, with pull-outs, observation stations, and facilities for interpreting wildlife and habitat.
5. Walking trails with facilities for interpreting wildlife and habitat.
6. Self-service information station at the refuge entrance off State Highway 94, with restrooms, domestic water, observation tower, and short walking trail.
7. Three boat-launching ramps with parking and sanitary facilities.
8. Water and sewage systems for wildlife interpretive center complex.



### *Facilities for Operations*

Recent construction includes three residences, refuge office, service building, and the remodeling of a storage and shop building. Other buildings are inadequate and require replacements. Wildlife protection, maintenance, habitat management, and other operational activities necessitate the following facilities:

1. Four residences including the three existing ones.
2. Existing service building.
3. Existing shop building.
4. Closed equipment building.
5. Open equipment building.
6. Paint and oil house.
7. Warehouse.
8. Twenty-four miles of service roads.
9. Forty miles of boundary posting.



## BENEFITS

The protection, preservation, and management of fish and wildlife and their habitat on the Mattamuskeet Refuge produce both tangible and intangible benefits. No monetary valuation can measure what individuals will gain through visits to the refuge in the years ahead. The refuge offers opportunities for individual and group study that promote understanding and appreciation of wildlife conservation and the proper utilization of renewable resources. The refuge is an industry that employs local people and services and encourages tourism that benefits the community financially. Specifically, the refuge, when developed and managed as planned, will accomplish the following:

1. Assure the continuation and restoration of the Mattamuskeet goose flock.
2. Provide habitat and protection for several endangered wildlife species.

3. Contribute significantly to the preservation of waterfowl and other migratory birds and their habitat.
4. Increase the local production of black ducks and wood ducks.
5. Assure opportunities for waterfowl hunting on the refuge.
6. Improve waterfowl hunting off the refuge.
7. Provide facilities for conservation education and wildlife-oriented recreation to accommodate an anticipated 200,000 visitors annually.
8. Serve as a demonstration area and outdoor laboratory for use by colleges, universities, conservation agencies, and other groups interested in studying wildlife, marsh and water management, and additional ecological aspects of the refuge.

***WATERFOWL TOMORROW.** The refuge will provide habitat capable of supporting large concentrations of wintering waterfowl and other migratory birds and nesting and rearing sites for black ducks and woodies.*



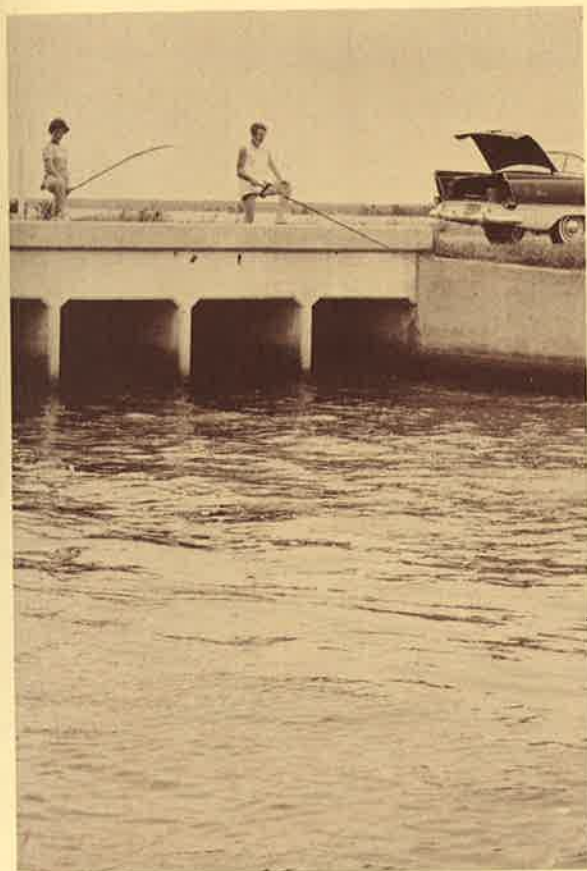




**THE INSECURE.** Wildlife having difficulty surviving the pressures of our modern society, such as the osprey, will receive special attention.



**RESIDENT WILDLIFE.** The refuge will provide for a full spectrum of wildlife common to eastern North Carolina for public enjoyment.



**PEOPLE.** Waterfowl Hunting and Fishing will be major public activities on the refuge, as will wildlife watching, photography, and nature study.



## *ESTIMATED DEVELOPMENT COST*

<i>PROGRAM ITEM</i>	<i>FIRST PHASE</i>	<i>SECOND PHASE</i>	<i>THIRD PHASE</i>
Planning . . . . .	\$ 5,000 . . . . .	\$ 28,000 . . . . .	\$ 55,000 . . . . .
Water Facilities . . . . .	885,000 . . . . .	— . . . . .	— . . . . .
Biological Improvement . . . . .	28,000 . . . . .	57,000 . . . . .	— . . . . .
Buildings . . . . .	— . . . . .	97,000 . . . . .	— . . . . .
Roads and Trails . . . . .	— . . . . .	192,000 . . . . .	— . . . . .
Structures and Utilities . . . . .	— . . . . .	176,000 . . . . .	— . . . . .
Recreation Facilities . . . . .	12,000 . . . . .	— . . . . .	1,000,000 . . . . .
SUBTOTAL . . . . .	\$ 930,000 . . . . .	\$550,000 . . . . .	\$1,100,000 . . . . .
Canal Dredging . . . . .	400,000 . . . . .	400,000 . . . . .	350,000 . . . . .
TOTAL . . . . .	\$1,330,000 . . . . .	\$950,000 . . . . .	\$1,450,000 . . . . .

## *ESTIMATED ANNUAL OPERATIONS COST*

<i>PROGRAM ITEM</i>	<i>FIRST PHASE</i>	<i>SECOND PHASE</i>	<i>THIRD PHASE</i>
Habitat Management . . . . .	\$ 62,000 . . . . .	\$ 67,000 . . . . .	\$ 67,000 . . . . .
Wildlife Population Management . . . . .	29,000 . . . . .	30,000 . . . . .	30,000 . . . . .
Public Use Management . . . . .	23,000 . . . . .	27,000 . . . . .	47,000 . . . . .
Planning . . . . .	1,000 . . . . .	1,000 . . . . .	1,000 . . . . .
Soil and Moisture . . . . .	4,000 . . . . .	4,000 . . . . .	4,000 . . . . .
Expenses for Sales . . . . .	1,000 . . . . .	1,000 . . . . .	1,000 . . . . .
TOTAL . . . . .	\$120,000 . . . . .	\$130,000 . . . . .	\$150,000 . . . . .

As the Nation's principal conservation agency, the Department of the Interior has basic responsibilities for water, fish, wildlife, mineral, land, park, and recreational resources. Indian and Territorial affairs are other major concerns of America's "Department of Natural Resources."

The Department works to assure the wisest choice in managing all our resources so each will make its full contribution to a better United States — now and in the future.

This administrative plan proposed and prepared by the Bureau of Sport Fisheries and Wildlife's Southeastern Region, Atlanta, Georgia, supports and furthers the high objectives of the Department of the Interior for the wise development, management, and use of the lands, waters, and other resources of the National Wildlife Refuge System.