

BACK BAY
FISHERMAN ISLAND
PLUM TREE ISLAND
NATIONAL WILDLIFE REFUGES

Virginia Beach, Virginia

ANNUAL NARRATIVE REPORT
Calendar Year 1977

NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR

RESOURCE MANAGEMENT ROUTING SLIP

_____	Beaty	<u>DMF</u>	<u>Young</u>
_____	Kvernmo	<u>DMF</u>	<u>Erickie</u>
_____	Wills	<u>NPB</u>	<u>Baldacchino</u>
_____	Brown		
_____	Sontag	<u>B</u>	<u>Belcher</u>
_____	Fowler		<u>Wemmers</u>
_____	McCreary		
_____	Hughes		
_____	Nelson		Operations _____
_____	Quinter		
_____	Bender		Planning _____
_____	Stieglitz		

From: _____

Date: _____

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Personnel

1.	Dennis F. Holland *	Refuge Manager	GS-12	PFT
2.	Glen W. Bond, Jr. **	Refuge Manager	GS-12	PFT
3.	John D. Schorer	Ass't Refuge Manager	GS-9	PFT
4.	Irvin W. Ailes ***	Ass't Refuge Manager	GS-7	PFT
5.	Edna M. Ford	Clerk-Typist	GS-5	PFT
6.	Romie L. Waterfield	Biological Technician	GS-6	PFT
7.	George A. Batie	Guard	GS-5	PFT
8.	Ernest Maddron	Maintenance Worker	WG-5	PFT
9.	William S. Farrer	Guard	GS-4	PPT
10.	Lester W. Walizer	Guard	GS-4	PPT
11.	Aubrey E. Snow	Guard	GS-4	700 hr.
12.	Paul D. Weingarth	Guard	GS-4	700 hr.
13.	Vivian E. Brown	Guard	GS-4	700 hr.
14.	Cynthia M. Novak	Clerk-Typist	GS-3	700 hr.
15.	Laura F. Wittkowski	Recreation Aide	GS-3	700 hr.
16.	Douglas S. Davis	Laborer	WG-2	700 hr.
17.	Richard A. Steinbach	Laborer	WG-2	700 hr.
18.	Andrew Orsargos	Laborer	WG-2	700 hr.

* Dennis F. Holland - Transferred to Jackson, Miss Area Office 6/77

** Glen W. Bond, Jr. - Transferred from J. N. "Ding" Darling Refuge, Florida 9/77.

*** Irvin W. Ailes - Transferred from BLM, Escalante, Utah 10/77.

Review and Approvals

Glen W. Bond Jr. 9-28-78
Submitted by Date

RA Thibault 10/6/78
Area Office Date

Back Bay
Refuge

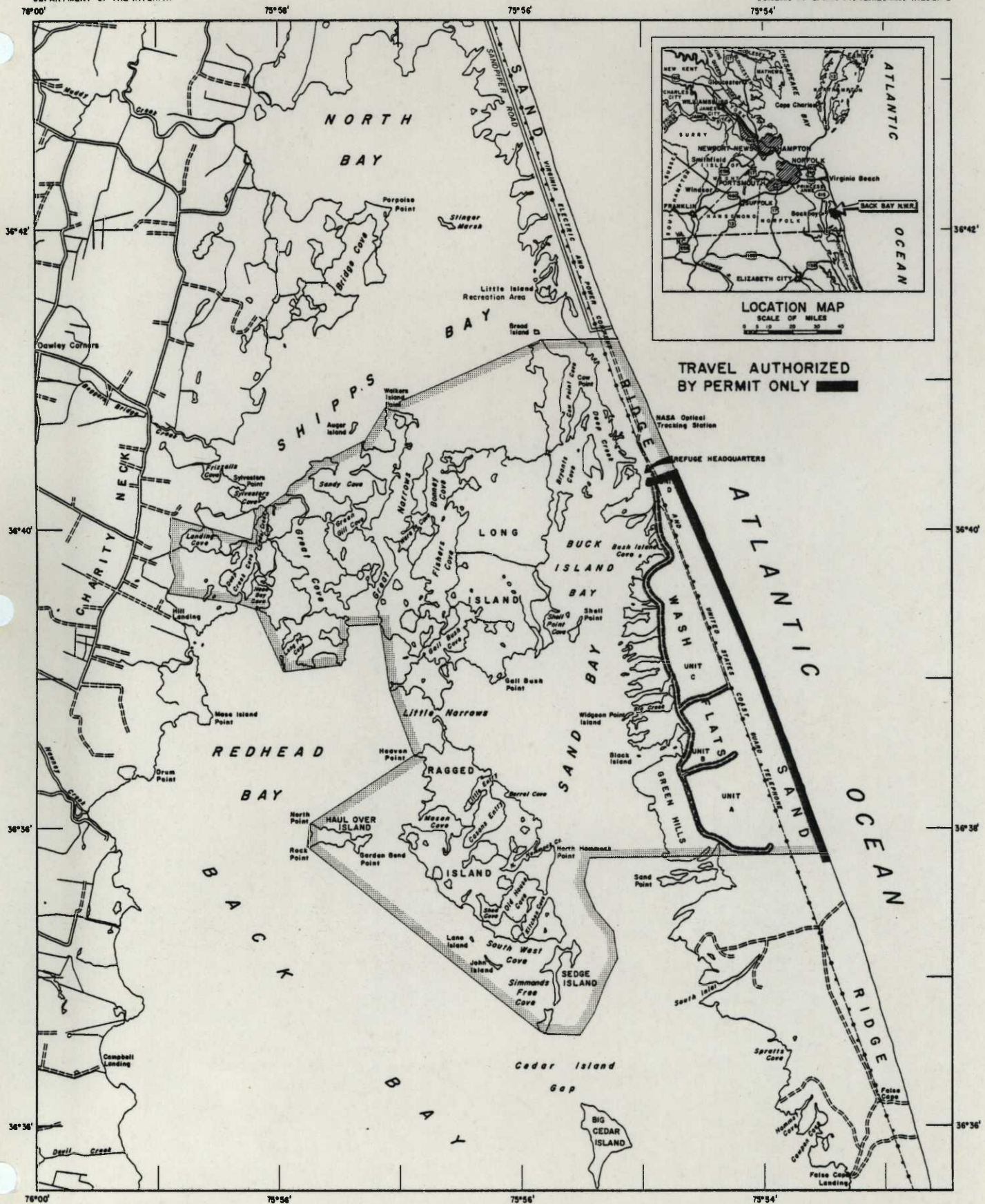
Regional Office Date

BACK BAY NATIONAL WILDLIFE REFUGE

CITY OF VIRGINIA BEACH, VIRGINIA

UNITED STATES
DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE



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I. GENERAL

A. Introduction

The Back Bay National Wildlife Refuge, located in the City of Virginia Beach, Virginia, comprises 4,608 acres of barrier beach, fresh and brackish marsh, small woodland areas, and open water. Through a closure by Presidential Proclamation, an additional 4,600 acres of water in Back Bay complement the refuge by serving as a waterfowl sanctuary. Also under the administration of Back Bay Refuge are the Mackay Island, Fisherman Island and Plum Tree Island National Wildlife Refuges.

During the first six months, considerable amount of time and manpower was devoted to the beach access problem. The new regulations were finally published and became effective on June 6, 1977. As expected, a large part of the office staff's time and effort was devoted to accepting, reviewing, and processing permit applications. A total of 135 permits were issued when all requests were reviewed. Plans call for the beach to be closed to all public access by December 31, 1979. Whether this closure will become effective as intended will probably depend on legal maneuvers by the beach users.

The last half of the year was devoted to more "normal refuge activities," with less time being spent on beach access problems.

B. Climate & Habitat Conditions

Weather conditions recorded by the official Weather Bureau Station maintained at the refuge subheadquarters are as follows:

	<u>Precipitation (inches)</u>			<u>Temperatures (°F)</u>	
	Total	Normal	Difference	Maximum	Minimum
January	2.36	3.37	-1.01	57°	30
February	1.57	3.81	-2.24	79°	16°
March	4.37	3.69	+0.68	80°	29°
April	1.74	3.97	-2.23	86°	42°
May	4.21	3.48	+0.73	87°	42°
June	1.94	3.59	-1.65	96°	52°
July	2.41	5.14	-2.73	98°	64°
August	4.48	6.30	-1.82	98°	60°
September	2.17	5.05	-2.88	98°	51°
October	7.28	4.39	+2.89	87°	35°
November	6.22	2.97	+3.25	77°	24°
December	4.63	2.90	+1.73	70°	18°
	43.38	48.66	-5.28		

Unusual weather during the year included a cold spell in January and February with subfreezing temperatures. The waterfowl population apparently was not affected as most of the birds moved further south. However, those animals, namely nutria, unable to leave the area were subject to extreme stress. The summer was unusually dry, yet this benefitted the refuge habitat as preferred waterfowl plants prospered. Finally, rain in the latter part of the year was well above average.

Habitat conditions on the refuge were good in 1977, in fact better than the past several years. Plant succession within the impounded areas was set back during the year through habitat manipulation allowing annual grasses, preferred waterfowl foods, to replace such species as wax myrtle (Myrica cerifera), willow (Salix spp.), and bulrushes (Juncus spp.). The habitat manipulation techniques and results are discussed in Section III.

Depending on the amount of precipitation, wind velocity and direction, the water level in the bay ranged from a high of 2.82 feet above sea level in August to a low of 0.12 feet below sea level in November. The water level gauge for these readings is in the boat house and is set at 9.00 for mean sea level. This water level was well below normal for November and although this hampered waterfowl surveys, the exposed mud flats received heavy marshbird and shorebird use.

Abundant waterfowl food plants were present in Back Bay during the year. These included the most dominant species, Eurasian milfoil (Myriophyllum spicatum), and smaller stands of sago pondweed (Sago pectinatus), widgeon grass (Ruppia maritima) and wild celery (Vallisneria spiralis).

Concerning the sand dunes, severe erosion took place during the last half of October in association with strong northeast wind. Some areas lost as much as 10 feet of dunes.

C. Land Acquisition

1. Fee Title

"Not Applicable"

D. Systems Status

1. Objectives

The primary objectives of Back Bay Refuge includes the management for a full spectrum of wildlife with emphasis on waterfowl, shorebirds, and rare and threatened species, and to provide visitors with a degree of wildlife-oriented recreation and environmental education.

Under the conditions which prevailed since FY 1976, this refuge has operated with an increase in funds to partially cover the beach access situation; therefore, the outputs produced are distorted in comparison to funds received, since these funds could not be utilized to meet the major refuge objectives.

2. Funding

The funding pattern of Back Bay Refuge for the past five fiscal years is presented in the following table:

<u>Fiscal Year</u>	<u>Migratory Birds O & M, etc.</u>	<u>Interpretation and Recreation</u>	<u>National Wildlife Refuge Fund - Expenses for Sales 6810</u>	<u>Total</u>
74	\$ 78,500	\$30,500		\$109,000
75	85,000	33,000		118,000
76	104,400	33,000		137,400
77	121,000	33,000	9,000	163,000
78	142,000	57,000	9,000	208,000

The above figures are misleading without additional explanations. For instance, \$14,000 of the total FY 75 budget were earmarked to defray expenses related to a massive coot die-off that year, and \$50,000 of the FY 76 funds were specified for beach access administration and related expenses. Funds provided for the beach traffic problem have not been adequate, resulting in sacrifices being made in the major refuge programs. In addition, the Back Bay budget is also used to cover all costs associated with Fisherman Island and Plum Tree Island Refuges, since these refuges were not funded in FY 76, FY 77, or FY 78.

3. Easements

"Not Applicable"

4. Other

"Not Applicable"

II. CONSTRUCTION & MAINTENANCE

A. Construction

To help prevent illegal vehicular entry onto the north mile of beach from the south, a barricade was constructed across the beach at the south ramp.

In the residence area, the old service building and grain shed were knocked down and burned to provide an area for wildlife oriented public use parking.

B. Maintenance

During the year, a considerable amount of time and equipment was used to repair roads and dikes. Several loads of gravel was spread on the road leading to the service area.

In the area of equipment and facilities, the D-6 Caterpillar had a "pony" motor repaired and the clutch replaced. The D-7 had all rollers replaced and general maintenance performed. The frontend loader was steam cleaned and received a new paint job. In January, this station received a new diesel Ford tractor with side and back mowers for use on the roads and dikes. This piece of equipment is a welcomed addition.

During the loading of the new Ford tractor to mow the fields on Long Island, the old wooden barge was damaged beyond repair. A new barge is on order and should be delivered sometime after the first of 1978.

The two Jeep Cherokees that were acquired in June 1976 have been constantly in and out of the shop for repairs. Because of constant exposure to the salt air and spray, and the various drivers, the Jeep used by the guards is almost ready to be replaced after less than 20,000 miles. Repairs on that Jeep are rather costly.

C. Wildfires

No wildfires occurred on the refuge in 1977.

III. HABITAT MANAGEMENT

A. Croplands

"Not Applicable"

B. Grasslands

Approximately 59 acres on Long Island were maintained as pasture for goose browse in previous years, but in 1976 the tractor used to mow these fields was vandalized beyond repair. Now, it is necessary to barge another tractor over, and in addition, a vandal-proof building must be constructed in which to store the mowing equipment. Without the building and barge, the goose browse area will revert to woodland.

C. Wetlands

Back Bay Refuge consists of 9,208 acres of wetlands, 4,600 acres of which are open water with the remainder being mostly marsh. Management of the open water is not practiced. Management techniques used on the marsh center around vegetation manipulation in order to provide good waterfowl habitat. These techniques include prescribed burning, mechanical control of vegetation and water level management.

Prescribed burning on the refuge took place in January and February. The marsh in and around A pool was burned, and received good snow goose use. Additional areas burned were as follows: B and D pools, the edges and marsh of C pool, the cross dikes, and the dikes on the bay side. Due to the large amount of moisture, this burn was not as complete as desired. However, the areas were used by the snow geese.

Much time and manpower was devoted to mechanical control of undesirable vegetation. The new Ford tractor proved to be a great asset with road and dike mowing. At least 20 acres of marsh were disced to reduce woody vegetation, such as willows and wax myrtles between the east dike and the dune line, and, in addition, the needlerush marsh that had invaded A pool was also plowed over. The weather, which was extremely dry, also aided in controlling undesirable vegetation. This weather and the discing, mowing or plowing of 100 total acres produced food such as three square, wild millet, smartweeds, and spikerushes, making for excellent waterfowl habitat.

The third habitat management technique used on Back Bay is water level management of the impounded areas. The area was frozen until late January at which time the pools were lowered in anticipation of heavy late winter rain. In June, which was hot and dry, the water levels were low and the use of the impoundments was down. However, this dryness allowed more desirable plant species to move in, and the birds used the impoundments as well as the edge of the bay heavily. Pumping occurred from July 1 to 8, and again in September bringing many marsh and water birds back to utilize the area. Rain, occurring in October, eliminated the need for further pumping. With the December rainfall double the normal for that month, the year closed with impoundment levels as follows: A pool 2.20 ft., B pool 2.30 ft., and C pool 2.22 ft.

Desired water levels and improved food supplies made the habitat of Back Bay more favorable for waterfowl and marsh birds this year than in the past few years.

D. Forestlands

No woodland management occurs on the refuge's limited forestlands.

E. Other Habitat

Approximately 800 acres of the refuge consist of barrier beach, which is generally flat sand except for a 15-ft. dune line paralleling the Atlantic Ocean. Protection of this fragile area was the only type management conducted this year.

F. Wilderness and Special Areas

There is nothing to report on the 2,165 acres of the refuge which were proposed as a Wilderness area in 1974.

G. Easements for Waterfowl Management

Not Applicable.

IV. WILDLIFE

A. Endangered and/or Threatened Species

Endangered, threatened or species with undetermined status found on the refuge during 1977 include the osprey. During early May there were two active osprey nests, both nests being located on artificial platforms. In late May, both nests were abandoned and this is attributed to the increased use of the area by fishermen. An osprey nest located outside the refuge near Ragged Island was, however, still active.

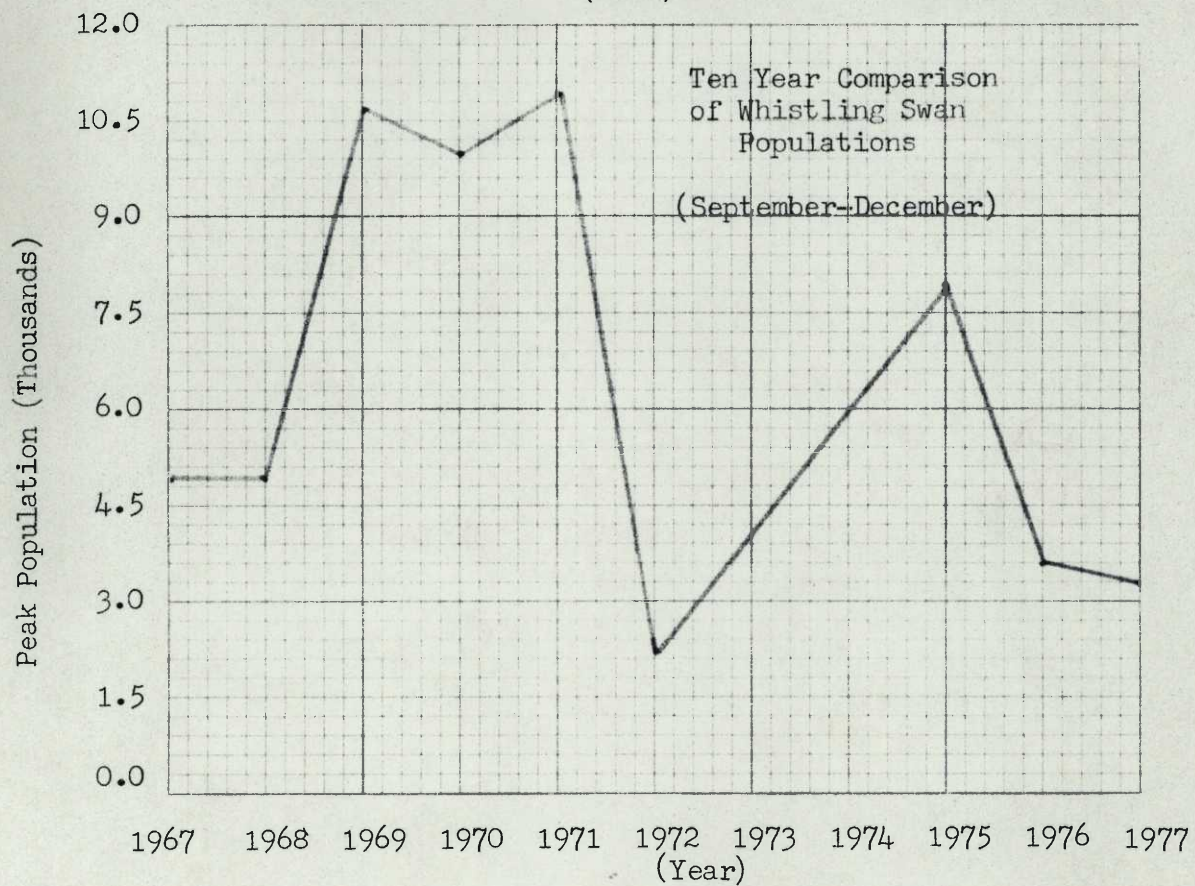
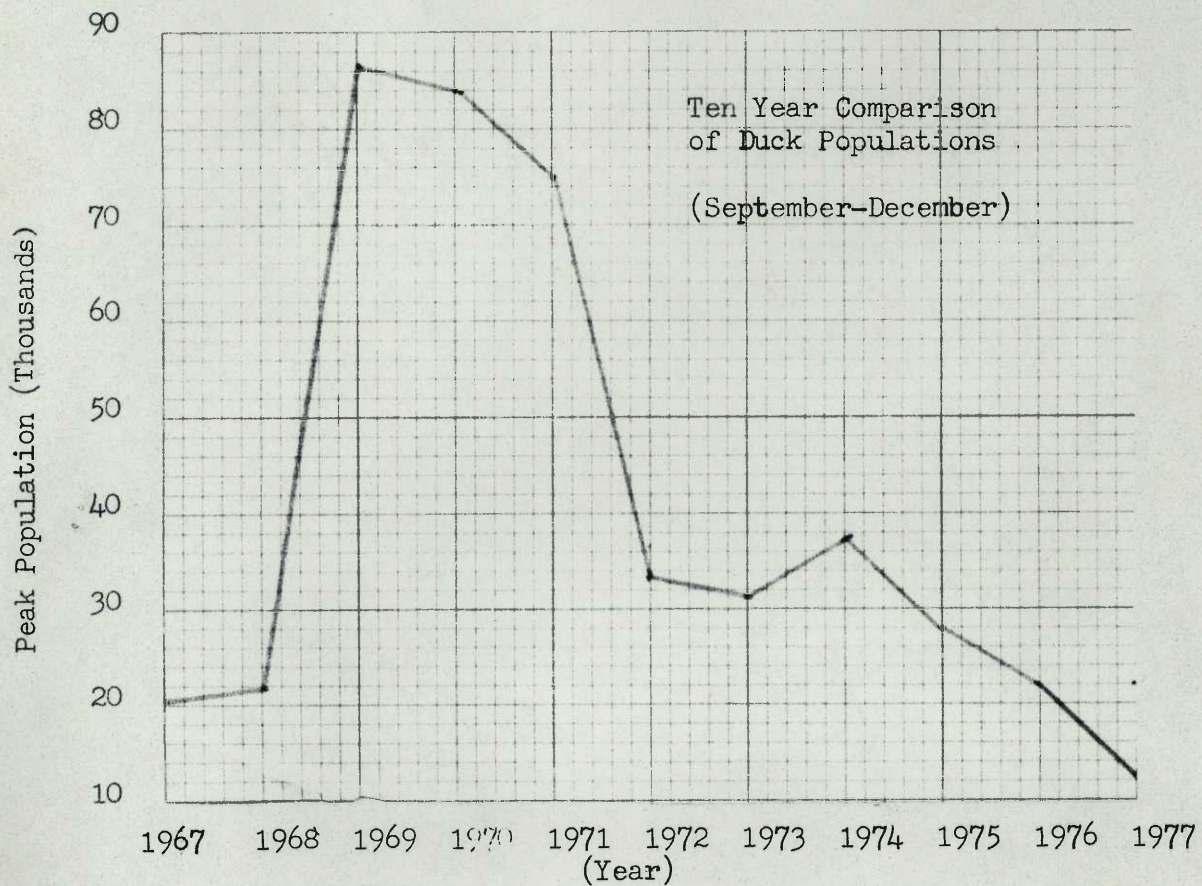
No natural sightings of the peregrine falcon or southern bald eagle occurred this year, although they have been present in other years. The Virginia Beach Animal Control Division did turn a wounded bald eagle over to refuge personnel on March 15th, and the bird was transported to Patuxent Wildlife Research Center on April 19th.

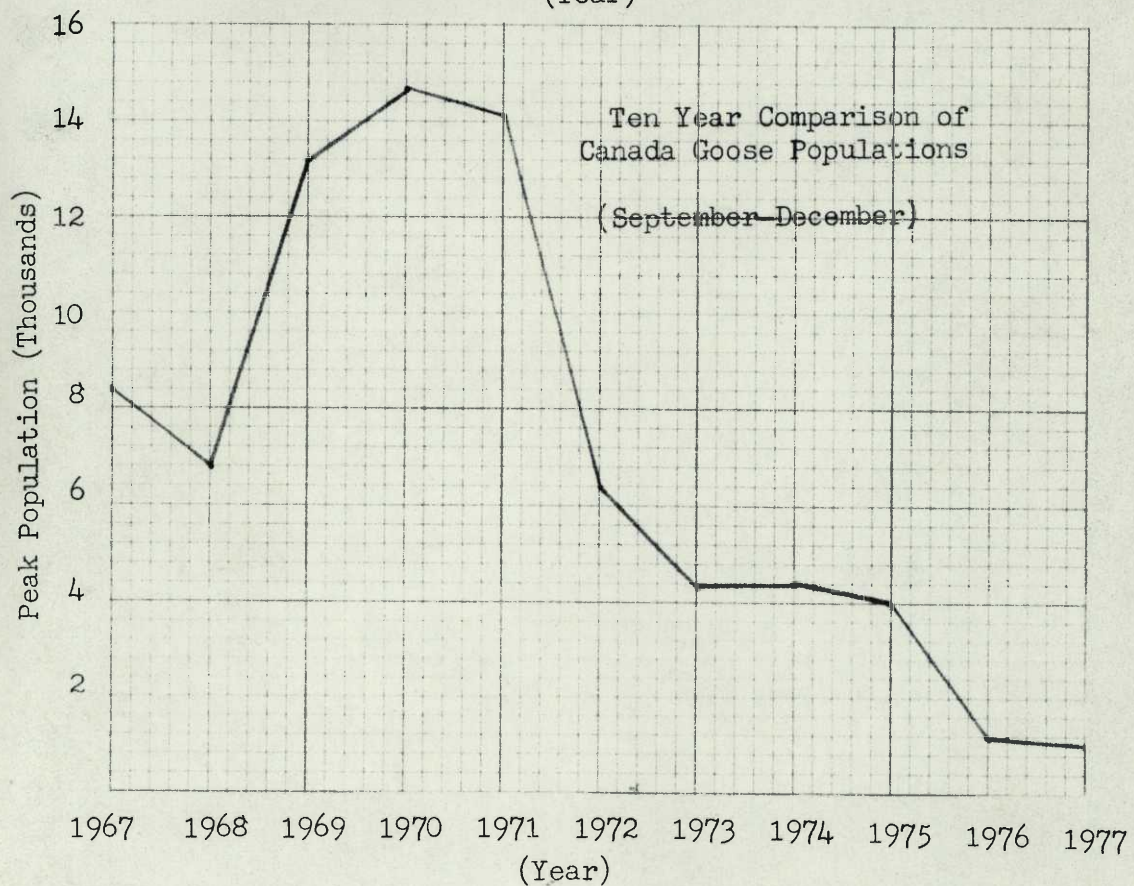
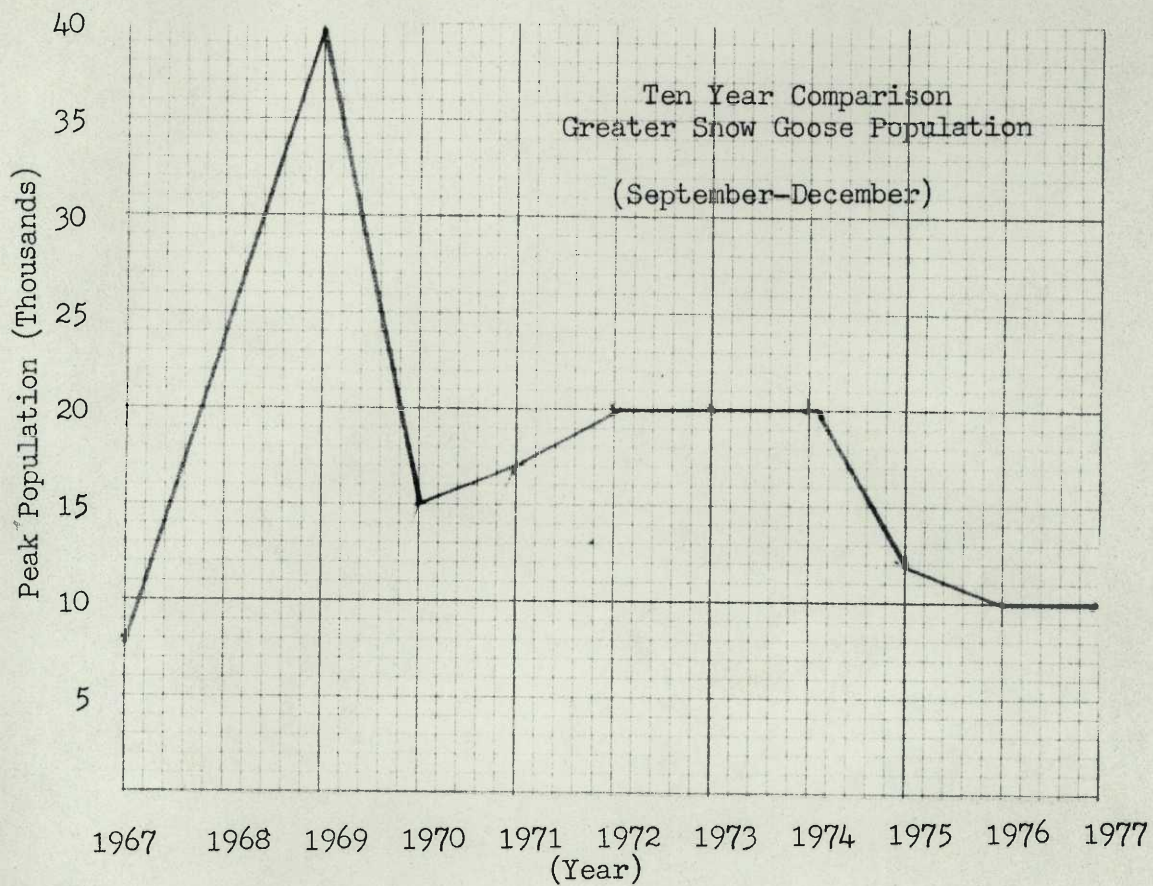
B. Migratory Birds

1. Waterfowl

Waterfowl population trends in the form of peak population numbers are presented for the past ten years in the graphs on the following two pages.

Waterfowl censusing techniques used on Back Bay Refuge are designed to cover the major portion of the land and water area. Weekly waterfowl surveys were conducted during the winter months. The impounded areas were surveyed by land vehicle utilizing the network





of roads surrounding these impoundments. The bay, open water and marsh islands were covered by boat surveys. At irregular intervals, aerial flights were taken to confirm counts made on the ground. Wildlife surveys of the refuge were hampered during the year by both freezing conditions and low water in the bay. The bay was entirely frozen during January and part of February, and low water during late winter and spring prevented surveys of the area by boat.

Black ducks were the target species for banding during 1977; however, the banding program met with very little success as only 18 black ducks and three mallards were banded. The poor banding season was attributed to freezing conditions which forced the large majority of the waterfowl further south. When banding began, the impoundment and bay were frozen over. The concentration of black ducks which normally winter on the refuge never returned after the freeze.

a. Swans

The year began with 2,000 whistling swans residing within the confines of the refuge; this population figure is down 2,000 from the number on the refuge at the beginning of 1976. From mid-January through mid-February, no swans were recorded on the refuge as the freezing conditions moved the flock further south. When the thaw came, a flock of 2,000 returned to the refuge in late February but remained for only a short period of time as the spring migration began. By the end of March, no swans remained on the refuge.

The first fall migrants arrived at the refuge in mid-November, a month later than normal. By the end of the month, the population had reached 1,000 swans. The population continued to increase through the end of the year, peaking at approximately 3,400 birds in December.

During the winter months, the majority of swans using the refuge for feeding and resting could be found congregated along the marshes and coves in Back Bay, as well as small family groups being observed utilizing the refuge impoundments.

b. Geese

Greater snow geese and Canada geese are the major goose species wintering on the refuge, the former being the most abundant of the two. In addition, an unusual visitor to the refuge was brant, which usually do not use the refuge; these birds were forced out of their usual wintering grounds by the severe winter weather. A peak of 50 brant was recorded feeding in the yard of the residences on January 21, 1977. Complaints, concerning brant, were received for the first time from wheat farmers adjacent to the refuge, as large flocks of brant descended on the fields. The normal snow goose depredation complaints were also received.

The Canada goose population at the start of the year was 3,000, which is double that number at the beginning of 1976. The majority

of these geese moved further south by the second week in January when freezing conditions invaded the area. A peak of 2,500 Canadas' was recorded the last part of February; however, they remained on the refuge only a short period, as only 300 birds were observed in the first part of March.

The 1977 fall migration of Canada geese into the area was almost identical to that of 1976. The first migrant arrived in October and the number steadily increased throughout the remainder of the year, peaking at 1,000 birds in December.

The refuge greater snow goose flock began the year containing 32,000 birds, 17,000 more than for the same period a year ago. This large increase over the previous year can be attributed to the severe freezing weather to the north of the refuge which moved a lot of birds further south; however, this large concentration on the refuge was short lived as the harsh weather also invaded this area by the second week in January, at which time the snow geese moved on south. By the middle of February, as warmer conditions returned, the snow goose population had increased to 15,000 as the birds returned to the refuge. Spring migration began towards the end of February, and by the first of April only 150 geese remained on the refuge. The refuge population of greater snow geese fluctuated almost daily according to the feeding and resting habits of the birds as they often left the refuge to feed in other areas.

The fall migration of greater snow geese into the area began in mid-October, with a large influx of 10,000 birds arriving in late October. These birds remained on the refuge for a short period of time as a peak of only 4,000 birds was observed in November. The population declined further with only 2,000 being recorded as a peak in December, compared to 10,000 being on the refuge at the end of 1976. The large decline in the snow goose population cannot be explained since habitat conditions in 1977 were more ideal than in 1976.

The marshes around Long Island and Ragged Island received snow goose use during the year, and following the prescribed burn, the impoundment and adjacent marsh areas were also heavily utilized.

c. Ducks

The year began with approximately 25,000 ducks wintering on the refuge. This figure represents a tremendous increase over the 3,700 ducks which were found on the refuge at the start of 1976; however, 21,400 and 37,800 ducks began 1974 and 1975, respectively. Therefore, 1976 was labeled the odd year, as severe weather late in December 1975 forced the birds out of the area. As with the other waterfowl, by the second week of January, a mass exodus from the refuge occurred as the entire refuge froze over. The flocks of ducks returned in February after the freeze when a peak of 16,200 was recorded. Spring migration began the last part of February and first part of March,

after which the majority of ducks had departed. Prior to migration, gadwalls and American wigeons lead the list in terms of numbers, as their peak populations were 10,000 and 7,500, respectively.

In late March, an unusual observation of approximately 1,800 red-breasted mergansers and 200 common mergansers was made as they rested just off the surf. In April, six fulvous whistling ducks were sighted in the impoundments. These infrequent visitors to the refuge remained in the area for several days.

During the 1977 nesting season, an estimated 57 ducklings were produced. This number consisted of 25 black ducks, 20 mallards and 12 wood ducks. The 18 wood duck nesting boxes on the refuge met with very little use, as only one nest was recorded in the boxes.

The 1977 fall migration of ducks into the area began in early-August, as blue-winged teal began to move through, peaking at 1,500 for the month. The influx of birds into the refuge was slow in comparison to 1976, with a peak of approximately 4,800 birds in September, compared to 10,000 in September 1976.

No cold front passing through the area in September could account for the small number of ducks present. With the arrival of cold weather in October, the ducks began to arrive, but still in small numbers in comparison to past years. By the end of December, only 11,256 ducks were recorded on the refuge; approximately 22,300 ducks were recorded in December 1976. The reason for this decline in the duck population is a mystery, since habitat conditions in the impoundments were far superior to the past several years. Gadwall and American wigeon were the dominate duck species on the refuge, peaking at 3,580 and 7,000 respectively in the latter part of 1977.

d. American Coots

During the first weeks of January, 32,000 coots were present on the refuge, compared to only 10,000 present to begin 1976. This tremendous number, unusual for the area, can be attributed to freezing weather to the north of Back Bay in December 1976; the coots moved on south as the icy conditions invaded this area. After the freeze, the coot population increased to 20,000 in February, as they began to migrate back through. By the end of March only 600 coots remained in the area. Approximately 30 coots remained through the breeding season, producing 15 birds.

The fall migration of coots into the Back Bay area began in September and was very gradual in comparison to that of 1976. By the end of October, only 2,000 coots were recorded on the refuge; a peak of 8,000 was recorded in October 1976. Although no explanation can be given, the coots began to leave the refuge in November, with a peak of only 630 birds being found on the refuge in December.

2. Marsh and Water Birds

Marsh and water bird concentrations on the refuge varied greatly during the year as these birds migrated through or resided in the area. During 1977, a peak of 2,424 marsh and water birds, representing 24 different species, was recorded during the last quarter. Rails led the list during this quarter in terms of numbers, with 350 Virginia rails, 300 sora rails, 250 king rails, 200 clapper rails, and small numbers of yellow and black rails. An unusual observation of 22 immature white ibis was made on June 22; these birds remained in the area for several weeks.

3. Shorebirds, Gulls, Terns and Allied Species

The peak population of shorebirds, gulls and terns was recorded during the last quarter of 1977, as 7,477 birds, representing 24 different species, utilized the refuge. Of this peak number, 4,815 were gulls, consisting of 3,100 ring-billed gulls, 1,200 herring gulls, 325 great black-backed gulls, 100 laughing gulls, and 90 Bonaparte's gulls.

4. Raptors

A peak population of 82 raptors was recorded on the refuge during the winter months of 1977. This peak was recorded as they migrated through the area, many stopping over to forage in and around the marshes. American kestrels and marsh hawks led the raptors in terms of numbers, peaking at 25 and 20, respectively. Eleven different species of raptors visited the refuge during the year.

5. Other Migratory Birds

A peak population of approximately 150 Mourning Doves was recorded during September; limited nesting also occurred in the small areas of pines and live oaks on the refuge.

C. Mammals & Non-Migratory Birds & Others

1. Game Mammals

A small population of white-tailed deer can be found on the refuge, which at last estimate was 35 animals. Aside from the protection and benefits derived from habitat manipulation for other species, no management activities were conducted for the deer.

The trapping program was continued on the refuge this year. This program is strictly a management tool used to reduce habitat damage caused by the target species, nutria and muskrats. The burrowing of the muskrats has threatened the impounded areas and the high nutria population damages the marsh vegetation and speeds up erosion where the land has been denuded of growth. The trappers, coupled with the cold weather, substantially lowered the nutria population. The 1977

catch which occurred in January, February and March, was as follows:

<u>Area</u>	<u>Nutria</u>	<u>Muskrat</u>	<u>Other</u>
Dikes	208	4	2 mink 2 raccoons 2 opossums
Long Island	122	1	1 mink 2 raccoons
Ragged Island	132	5	
Great Cove	57	7	
Totals	519	17	3 mink 4 raccoons 2 opossums

2. Other Mammals

Nothing to report

3. Resident Birds

The Bobwhite quail population on the refuge has been stable over the past four years. The estimated peak of 125 birds occurred after the nesting season, with an estimated 75 young being produced during 1977.

4. Other Animal Life

Cottonmouth moccasin remained plentiful in the beach marshes. No loggerhead turtles were known to nest on the refuge in 1977, but in August a commercial fisherman reported a turtle "crawl" and apparent nest to the south of the refuge. Another individual reported a "crawl" north of the refuge.

V. INTERPRETATION AND RECREATION

A. Information and Interpretation

1. On - Refuge

The refuge received considerable use during the year from schools and interested groups in the area which used the refuge as an "outdoor classroom". Many of these groups received tours of the refuge along with indepth discussions of both the management and ecology of the area. Guided tours were given to 390 students and teachers.

2. Off - Refuge

Refuge personnel presented films, slide shows and talks to groups ranging from elementary schools to college ecology classes and birdwatchers. These shows were presented to over 720 persons.

Newspaper articles concerning the refuge were numerous during the year. The main topic concerned the beach access situation, but a few dealt

with the wildlife of the refuge.

B. Recreation

1. Wildlife Oriented

Back Bay has no interpretive trails or centers. However, the beach, dikes, and roads are open to hikers as is the $\frac{1}{2}$ mile trail through the woods. A majority of these visits occur when waterfowl concentrations are at their peak. An estimated 8,916 visits were made to the refuge during 1977 for the purpose of wildlife/wildlands observations.

Fishing on the refuge includes both salt water fishing in the form of surf fishing and warm water fishing in the bay. In 1977, people made 2,085 and 2,860 visits, respectively, to pursue these activities.

2. Non - Wildlife Oriented

During 1977 swimming, picnicking, and other non-wildlife oriented recreational activities were permitted on the northern one mile of beach. No vehicles were allowed on this section of beach. Therefore, the majority of the non-wildlife oriented recreation was confined to the northern most 1,000 feet of beach. An estimated 3,300 visits were made to the refuge to swim in the surf and 1,500 to picnic on the beach.

C. Enforcement

Due to the beach access situation, much time, manpower, and expense was devoted to controlling access onto the beach. In addition to one permanent full time guard, and two permanent part time guards, three temporary guards were added to the staff during 1977. These employees were used solely to enforce beach regulations.

During 1977 seven warning letters were written, all to individuals apprehended while in violation of some aspect of the beach regulations. Also in connection with the beach problem, refuge personnel made 59 cases. The major violation during the year was trespass by motor vehicle without a permit. Other violations included the following: trespass in a closed area, failure to obey lawful signal of officer, and injuring and/or destroying plants on a National Wildlife Refuge. Fines ranged from \$50.00 to \$100.00

Vandalism was another problem which refuge personnel faced during the year. Signs posted to keep pedestrians and vehicles off the sand dunes were stolen and destroyed. Refuge personnel coated the signs with "Back Bay Buzzard Grease", but even this heavy grease did not stop the vandalism.

VI. OTHER ITEMS

A. Field Investigations

A loggerhead turtle nest transplanting program has been conducted on the refuge since 1972, in an attempt to reestablish the loggerhead sea turtle as a nesting species on the refuge beaches. The program consisted of annually transplanting turtle eggs from the Cape Romain Refuge to the beaches of Back Bay Refuge. A total of 972 eggs were transplanted this year with 76% (743) hatched and released on the beach. No evidence exists of any "turtle crawls" on the refuge this year.



B. Cooperative Programs

In cooperation with the National Oceanic and Atmospheric Administration of the U. S. Department of Commerce, this refuge operates an official weather station on a daily basis. Data collected from this station is submitted monthly; in return, the weather station and associated equipment is supplied by NOAA.

C. Items of Interest

Dennis F. Holland, Robin H. Fields and Edna M. Ford all received incentive awards in April 1977 for the extra work that was required to implement the new beach access regulations which were put into effect in June 1976. These regulations were published in the June 3, 1976 Federal Register and effective immediately, which put a tremendous work load on all staff employees besides the daily work required by the staff.

Refuge Manager Dennis F. Holland departed the scene of Back Bay on June 18. Needless to say, Manager Holland will be sorely missed by the refuge staff and the local community. Mr. Holland will be working as Staff Specialist, Refuges/Wildlife out of the area office in Jackson, Mississippi.

A new Manager was finally found for Back Bay, as Mr. Glen W. Bond, Jr. reported on board as of September 11. Mr. Bond came from J. N. "Ding" Darling Refuge in Florida.

A new Assistant Manager, Mr. Irvin W. Ailes, reported on duty as of October 23. Mr. Ailes came from the Bureau of Land Management in Utah.

This report was written by Assistant Manager Schroer and Assistant Manager Ailes, reviewed by Manager Glen Bond, typed by Teresa Cherry, Clerk-Typist (Trainee) and proofread by Cherry and Clerk-Typist Ford.

D. Safety

Periodic safety meetings were held throughout the year. Safety topics were discussed and safety materials distributed.

FISHERMAN ISLAND NATIONAL WILDLIFE REFUGE

Virginia Beach, Virginia

ANNUAL NARRATIVE REPORT

Calendar Year 1977

NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR

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Review and Approvals

Submitted by _____ Date _____ Area Office _____ Date _____

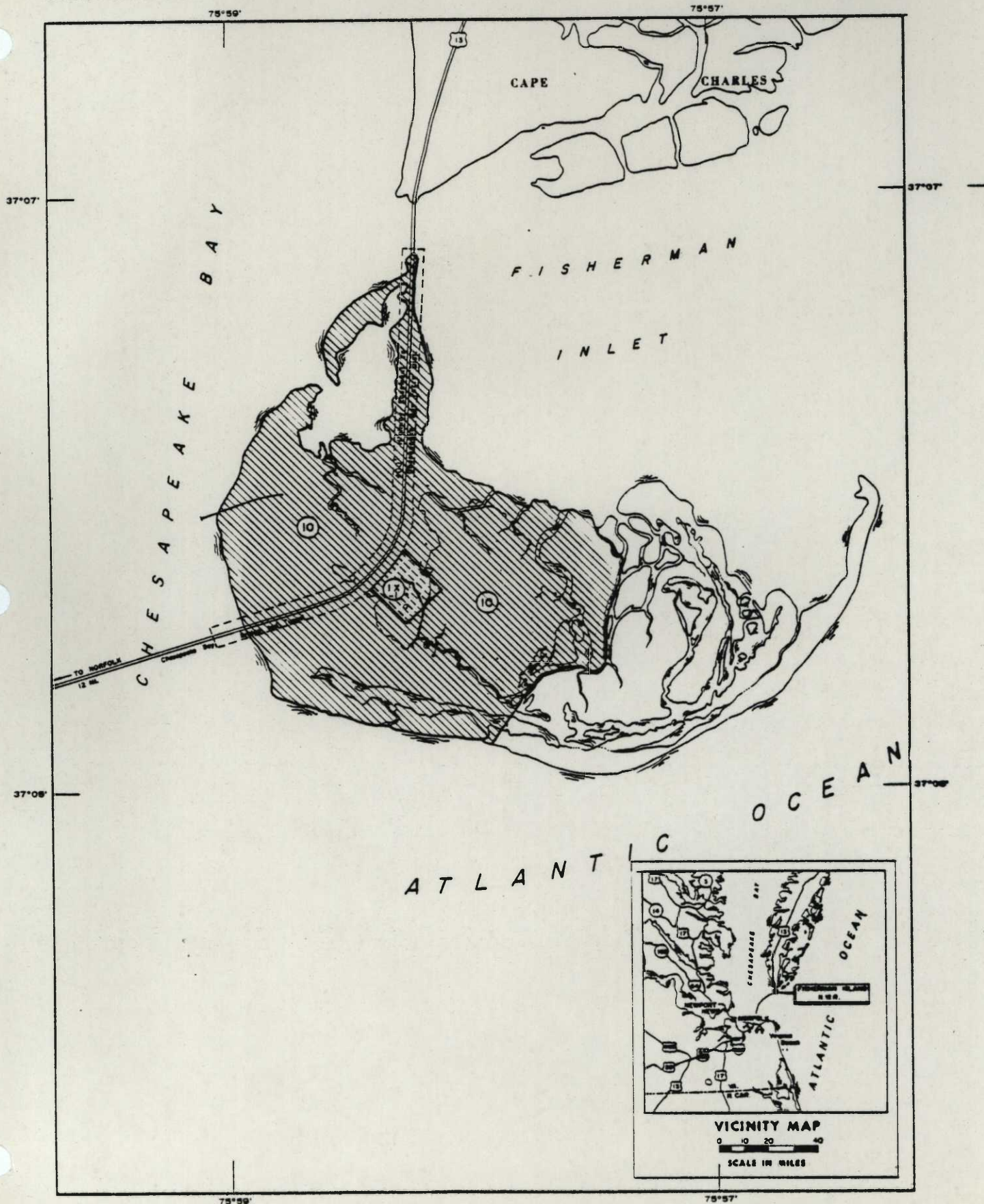
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FISHERMAN ISLAND NATIONAL WILDLIFE REFUGE

UNITED STATES
DEPARTMENT OF THE INTERIOR

NORTHAMPTON COUNTY, VIRGINIA

UNITED STATES
FISH AND WILDLIFE SERVICE



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FROM SURVEYS BY U.S.G.S. AND U.S.F.W.S.

BOSTON, MASSACHUSETTS MARCH 1976
POSTED: 6/77

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0 1/4 1/2 1 MILE

7 1/4° N
True North

MEAN
DECLINATION
1966

5R VA 801 403

I. GENERAL

A. Introduction

Fisherman Island National Wildlife Refuge is located in Northampton County, Virginia. This refuge is situated at the southern tip of the Delmarva Peninsula at the mouth of the Chesapeake Bay. The refuge is crossed by the Chesapeake Bay-Bridge Tunnel right-of-way. In excess of 600 acres, Fisherman Island Refuge was reestablished in 1969 under a permit from the U.S. Navy. It was formerly a refuge from 1933 until the 1940's.

B. Climate and Habitat Conditions

An official weather station is not maintained on Fisherman Island. Temperatures, precipitation and winds experienced on the island are similar to those encountered at Back Bay Refuge. For details of climatic conditions of Fisherman Island, see the appropriate section in Back Bay's narrative.

Habitat conditions on the island are ever changing. The amount of change depends on the severity of the northeast winds during the winter months. Sand deposition on the eastern side provide ideal nesting habitat for many species of shorebirds.

No studies of the vegetation or food supplies have been carried out on the island. Most of the island is made up of salt marsh interspersed with many tidal creeks. Several salt water ponds up to two acres in size are scattered over the island.

C. Land Acquisition

1. Fee Title

Fisherman Island was formed from accretions of sand around a ship which was wrecked in the early part of the 19th century. The Commonwealth of Virginia then ceded title to the island to private ownership in 1858. Title became vested in the United States through condemnation proceedings in 1891, at which time the land was controlled by the Surgeon General as a quarantine station and later as a harbor defense installation. Title was transferred to the Department of the Interior on January 4, 1973.

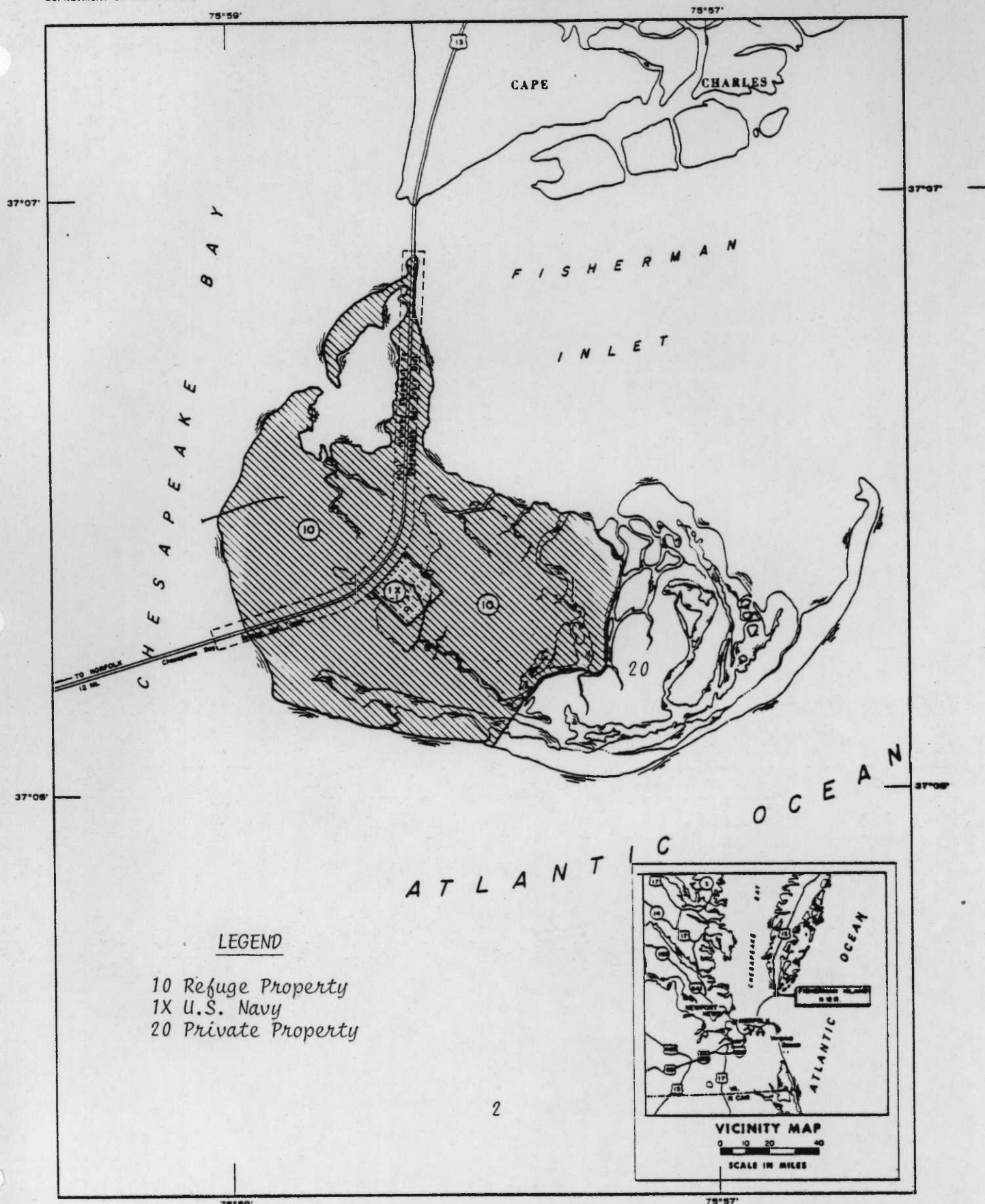
Title to the eastern portion of Fisherman Island is not presently held by the Department of the Interior (See map on following page). Ownership of this parcel of land has been in question and only recently has a court decision cleared the way for acquisition by the government. The purchase of this land is essential to restore the integrity of Fisherman Island Refuge and to protect valuable wildlife habitat, especially for shore

FISHERMAN ISLAND NATIONAL WILDLIFE REFUGE

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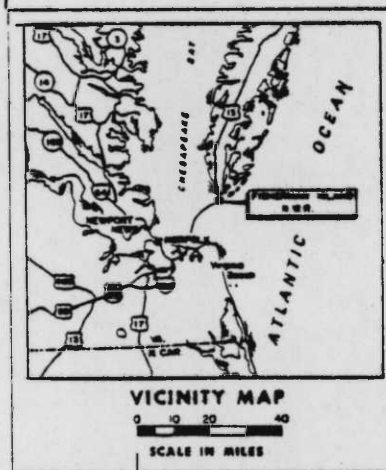
UNITED STATES
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LEGEND

- 10 Refuge Property
- 1X U.S. Navy
- 20 Private Property

2



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7 1/2° N
True North

MEAN
DECLINATION
1960

5R VA 801 403

birds which nest heavily on the beach.

2. Easements

Not applicable

3. Other

Not applicable

D. System Status

1. Objectives

Fisherman Island Refuge was established primarily to serve as a breeding ground and nursery for shore and water birds that occur on the island in great numbers. Due to the funding level or lack of it, as discussed in the following section, in 1977 little could be accomplished in the way of management to increase outputs towards the objective levels.

2. Funding

Personnel have never been assigned to this refuge, and funds have steadily decreased over the past five fiscal years to the point that they can decrease no more. The funds situation is depicted in the following table:

<u>Fiscal Year</u>	<u>Budget</u>
1973	\$8,450
1974	3,000
1975	2,000
1976	0
1977	0

Due to this lack of funding, essential routine maintenance of the trails and boundary signs and limited protection were provided by Back Bay Refuge. Other "non-essential" activities such as regularly scheduled wildlife survey and management could not be accomplished during the year.

II. CONSTRUCTION AND MAINTENANCE

A. Construction

Nothing to report.

B. Maintenance

Maintenance was limited during the year to cutting brush along the trail leading from the west gate and to maintaining the boundary signs.

C. Wildfires

No wildfires occurred on the island in 1977.

III. HABITAT MANAGEMENT

A. Croplands - Nothing to report.

B. Grasslands - Nothing to report.

C. Wetlands - Nothing to report.

D. Forestlands - Nothing to report.

E. Other Habitat - Nothing to report.

F. Wilderness and Special Areas - Nothing to report.

G. Easements for Waterfowl Management - Nothing to report.

IV. WILDLIFE

Due to the funding situation and lack of personnel, no regularly scheduled wildlife surveys could be conducted during the year. Wildlife censuses were conducted irregularly whenever Back Bay's personnel could break loose and get to the island.

A. Endangered and/or Threatened Species

Species which fall into this category and those with undetermined status which occurred on Fisherman Island during the year include the Southern Bald Eagle, Peregrine Falcon and Osprey. Southern Bald Eagles are very infrequent visitors to the island. A few sightings of a single bird were made throughout the year. Peregrine falcons use the island as a stopping place during migrations. On the weekend of September 21 and 26, a total of 10 falcons were observed. These falcons were sighted during the second known spectacular raptor migration which took place over Fisherman Island on these dates. During this migration, 193 ospreys were also observed. Ospreys nested again on the island with seven active nests recorded in the spring; four of these nests produced nine young to flight stage.

B. Migratory Birds

Fisherman Island, being strategically located off the southern tip of the Delmarva peninsula, provides a valuable sanctuary for migratory birds. The island is an important stopping point in the fall for thousands of southbound migrants which stop to rest and feed. Again in the spring, many northbound migrants stop for the same purpose after crossing the bay.

1. Waterfowl

Accurate waterfowl figures are not available for Fisherman Island Refuge during 1977, since regular surveys could not be made. In general, Fisherman Island provides wintering habitat for a relatively large number of many different species of waterfowl. In mid-January, a survey was conducted on the island. Although the entire island was encased in ice, 600 brant, 400 snow geese, and 50 Canada geese were observed. Swans were not reported on the island until late December when four birds were sighted on the annual Christmas Bird Count.

Over sixty percent of the duck usage on the island was by black ducks with an estimated peak of 270 in late December. Red-breasted and hooded mergansers, American wigeons, mallards, gadwalls, pintails, green-winged teals, shovelers, scaups, and buffleheads were also known to use the refuge. Black ducks were the only species remaining on the refuge to nest, with an estimated 25 young being produced.

2. Marsh and Water Birds

Use of the island by marsh and water birds for nesting was tremendous during the year as hundreds of herons and egrets began returning to the island by the end of March. By late April, the heronry was fully active, with black-crowned night herons being the most abundant species nesting in the heronry. The following table contains peak population figures for the year which occurred during the nesting season:

<u>Species</u>	<u>Peak Number</u>
Black-crowned Night Heron	2400
Snowy Egret	750
Louisiana Heron	400
Cattle Egret	380
Little Blue Heron	130
Glossy Ibis	55
Yellow-crowned Night Heron	30

A first occurred for Virginia during the summer nesting period when a white ibis nest was found in the heronry. Two young were produced from this nest.



"Cattle Egrets in a poorly focused picture." No one claimed credit.

Brown pelicans were observed around the island during the summer when groups of 3-5 birds were seen on several occasions. A peak number of 25 birds were observed in mid-May.

3. Shorebirds, Gulls, Terns and Allied Species

Use of the island by species in this category was tremendous throughout the year but was particularly heavy during the nesting season which lasted from May through mid-September. Peak population figures are contained in the following table:

<u>Species</u>	<u>Peak Number</u>
Royal Tern	9000
Herring Gull	2300
Common Tern	1228
Laughing Gull	1150
Black Skimmer	1320
Great Black-Backed Gull	32
Caspian Tern	2
Sandwich Tern	18

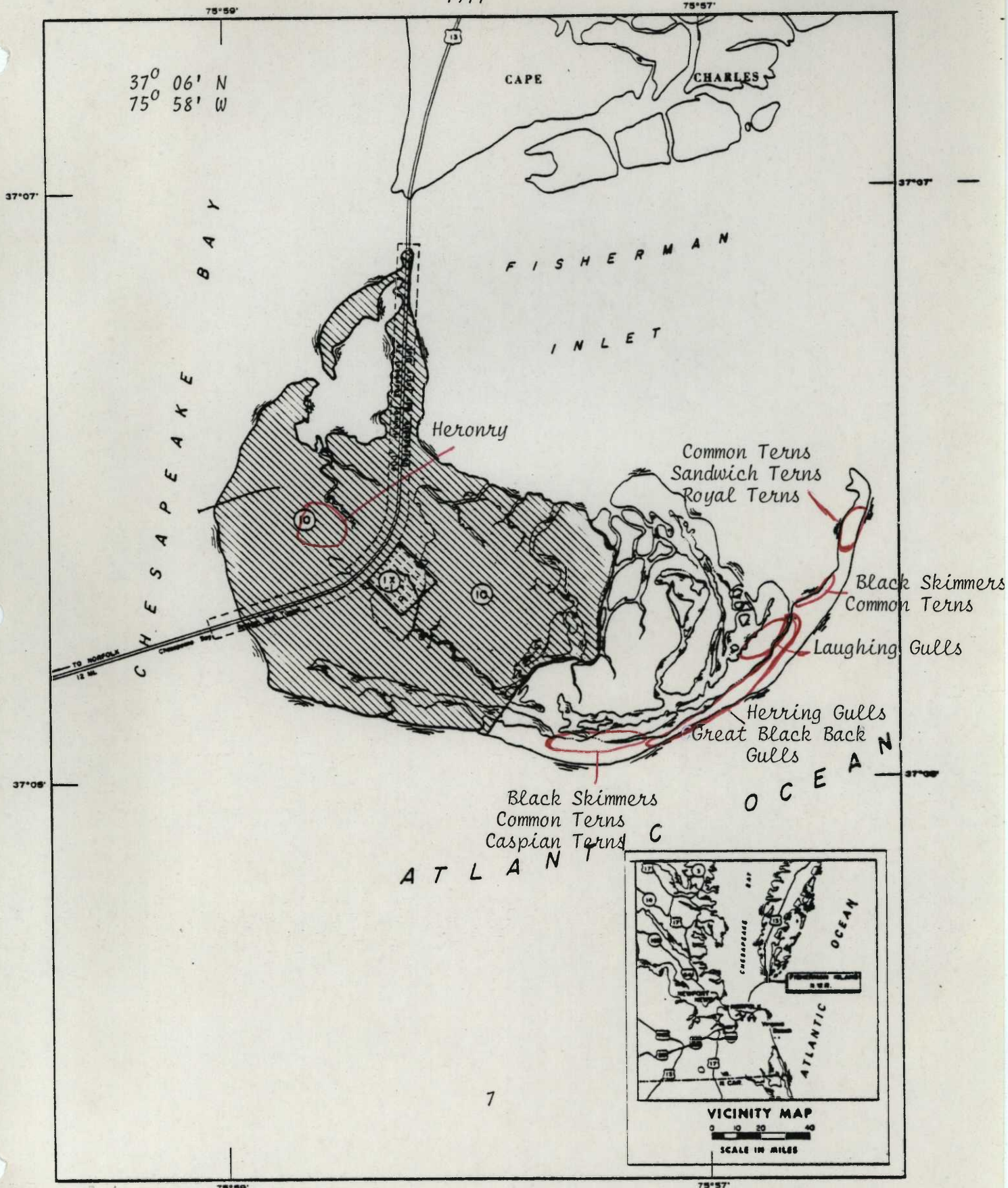
The nesting sites of the various species of shorebirds and marsh and waterbirds are depicted on the map on the following page.

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UNITED STATES
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NORTHAMPTON COUNTY, VIRGINIA
1977

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4. Raptors

Raptorial populations varied during the year depending on the migrational movements of each species. Hawks using the island included the following: marsh, sharp-shinned, red-tailed, red-shouldered, rough-legged, and broad-winged. Falcons on the island included the American kestrel, merlin, and peregrine falcon. American kestrels were the most numerous at any one period. Small numbers of barn owls and short-eared owls also utilized the refuge during 1977.

On September 21-23 and 26-28, a spectacular raptor migration took place over Fisherman Island. During these two periods, the following sightings were made:

<u>Species</u>	<u>Peak Number</u>
Sharp-shinned Hawk	1,213
Broad-winged Hawk	432
American kestrel	224
Osprey	193
Merlin	43
Red-tailed Hawk	30
Marsh Hawk	17
Cooper's Hawk	13
Peregrine Falcon	10
Turkey Vulture	4
Red-shouldered Hawk	2

This is the second year that a mass raptor migration has been observed over Fisherman Island by refuge personnel.

5. Other Migratory Birds

Mourning doves are sighted occasionally on the refuge; however, their numbers are very small, peaking at a maximum of 35 birds.

C. Mammals and Non-Migratory Birds and Others

1. Game Mammals

Fisherman Island supports a relatively small but increasing white-tailed deer herd. The actual size of the herd is not known, but signs indicate a population of about 25 animals.

2. Other Mammals

No detailed mammal inventories have been conducted on the island. Cotton-tail rabbit signs are plentiful, and muskrats are present in small numbers.

3. Resident Birds

No Upland game birds have been recorded on the island.

4. Other Animal Life

In November, a baby Sperm Whale was found stranded on the beach. This specimen was offered to personnel of the Smithsonian Institution, who examined the whale but left it on the beach.

V. INTERPRETATION AND RECREATION

A. Information and Interpretation

1. On-Refuge

Due to the inaccessibility of the island and lack of manpower and funds, public use of Fisherman Island was restricted. All groups had to be accompanied by refuge personnel. Considering the above, the island was rather heavily used as an "outdoor classroom" during 1977. A total of 220 students, teachers, and others enjoyed the beauty of this island. Although public school groups accounted for the majority of the visits, other groups that toured the island include the American Birding Association, Cape Henry Audubon Society, Northern Neck Audubon Society and the Tidewater Appalachian Trail Club.

2. Off-Refuge

Since no personnel are assigned to this refuge, no off-refuge programs were conducted.

B. Recreation

1. Wildlife Oriented

No hunting, fishing, or trapping programs are conducted on the refuge. Other wildlife oriented types of recreation, such as photography and wildlife observation, occur in conjunction with the on-refuge programs.

2. Non-Wildlife Oriented

Non-Wildlife oriented types of recreation are not authorized on Fisherman Island Refuge.

C. Enforcement

The only enforcement problems encountered on the island during 1977 continued to be in relation to two cabins located on the

refuge. These cabins were built in the past on supposedly private land on the east end of Fisherman Island; a survey revealed that the cabins were actually on the refuge. The owner was to have the cabins removed by June 21, 1976, but was given an extension to September 1, 1976. He failed to have the cabins removed by this date; whereby, the Regional Director set a final deadline of March 1, 1977. Severe weather during the first few months of 1977 prevented any attempts at moving the cabins by the deadline. The smaller of the two cabins was finally moved off the refuge on May 7, 1977. The larger cabin still remains on the refuge.

VI. OTHER ITEMS

A. Field Investigations

Ms. Paula C. Frohring, a graduate student at the College of William and Mary, continued her research on Fisherman Island during 1977. The study is concerned with the aspects of facilitation in interspecific nesting within a colony of Ardeidae species on the island. Ms. Frohring is scheduled to complete her studies on the island during the summer. Much of her population data, and that of Dr. Byrd, were used in compiling the figures for the appropriate wildlife section of this report.

B. Cooperative Programs

Nothing to report.

C. Items of Interest

Nothing to report.

D. Safety

See this section in Back Bay's narrative.

This report was written by Assistant Manager Ailes, reviewed by Manager Bond, Typed by Clerk-Typist (Trainee) Cherry and proofread by Cherry and Clerk-Typist Ford.

PLUM TREE ISLAND NATIONAL WILDLIFE REFUGE

Virginia Beach, Virginia

ANNUAL NARRATIVE REPORT

Calendar Year 1977

NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR

Review and Approvals

Submitted by _____ Date _____ Area Office _____ Date _____

Refuge _____ Regional Office _____ Date _____

NARRATIVE

Plum Tree Island is composed of approximately 3,275 acres of marshland and is located in York County, Virginia. The island is actually a peninsula extending from the western shore of Virginia into the southern portion of the Chesapeake Bay. Plum Tree is bounded on the south by Back River, on the north by the York River, on the east by the Chesapeake Bay, on the northwest by Lloyd Bay and on the southwest by a mile of marsh separating the area from the town of Poquoson, Virginia, three miles to the west.

Due to the area's isolation, this area was never inhabited and was primarily used for hunting and fishing prior to acquisition by the government for an Aviation Experimental Station in 1917. Air Force records indicate that the area was used for a gunnery and bombing range until the latter part of the 1950's. The island was transferred to the Department of the Interior on May 22, 1972.

During 1977, no maintenance nor management was conducted on Plum Tree Island Refuge, due to lack of funds and to the remoteness of the area.

The majority of the area is under tidal influence as tidal flooding occurs twice daily on approximately 1,000 acres of the low lying marsh, and during severe storms and high tides an additional 1,500 acres are flooded. Hundreds of potholes created by intensive bombing dot the marsh terrain, producing ideal waterfowl habitat. No formal inventories were made during the year.

Basically, there is nothing of significance to report concerning Plum Tree Island in 1977. A minimum amount of funding is needed for the area to provide for enforcement, other than that provided by the boundary signs, which are not sufficient.