EASTERN SHORE OF VIRGINIA NATIONAL WILDLIFE REFUGE

AND

FISHERMAN ISLAND NATIONAL WILDLIFE REFUGE

Kiptopeke, Virginia

ANNUAL NARRATIVE REPORT

Calendar Year 1986

U.S. Department of the Interior
U.S. Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

REVIEW AND APPROVALS

EASTERN SHORE OF VIRGINIA NATIONAL WILDLIFE REFUGE

KIPTOPEKE, VIRGINIA

ANNUAL NARRATIVE REPORT

Calendar Year 1986

Sherrad W Starr — Refuge Manager — March 5, 1987 — Date

Edward S. Moses — Refuge Supervisor Review — 4/6/87 — Date

Donald G Young — Regional Office Approval — 4/13/87 — Date

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INTRODUCTION

Eastern Shore of Virginia National Wildlife Refuge is located on the southernmost tip of the Delmarva (Delaware, Maryland, and Virginia) Peninsula, in Northampton County, Virginia. Lying at the mouth of the Chesapeake Bay this area typifies the eastern coastal plain with gentle rising slopes reaching to 25 feet.

Written history of the "Shore" area dates back to the earliest colonial times when it's natural diversity caught the eye of explorers. In the early 1600's, Captain John Smith described it as:

> "...a faire Bay compassed but for the mouth with fruitful and delightsome land...Heaven and earth never agreed better to frame a place for man's habitation."

And so it was and still is, that the predominate occupations are either "farmin" or "working the water" (fishing). Man's use of the land, in this area, though, is not solely tied to what he might harvest.

The area's strategic location at the entrance to the Chesapeake Bay encouraged fortification throughout our nation's history. Today the landscape is dotted with remnants of that history. Gun emplacements and bunkers rise on the land encompassed by the refuge.

Known by the local folks as the old Cape Charles Air Base, the importance of this area, to avian species, was little understood except by professional and amateur ornithologists. Now, it has been identified as one of the most important migratory bird habitats along the east coast, comparable to the better known Cape May, New Jersey. The reason for its importance is that the peninsula acts as a natural funnel for migrating birds in the fall. At the tip, where the Eastern Shore of Virginia and Fisherman Island National Wildlife Refuges are located, millions of these migrants may pause until favorable winds blow, to assist them in their crossing of the bay.

Knowing the importance of this area to migrating birds, and the associated problems increased human activity would have on Fisherman Island National Wildlife Refuge, The U.S. Fish and Wildlife Service established Eastern Shore of Virginia National Wildlife Refuge in August 1984.

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The year 1986 went into the record book as the worst drought in 40 years to hit the Eastern Shore. (See B)

Eastern Shore of Virginia National Wildlife Refuge hosted the 1986 Law Enforcement Refresher Courses for Region 5. (See E-8)

The heavy equipment operation and safety training for Region 5 was held on the refuge during the month of April. (See E-8)

On May 28, 1986, 368 acres were purchased from The Nature Conservancy for inclusion into refuge lands. (See C-1)

The first Youth Conservation Corps Camp at Eastern Shore of Virginia National Wildlife Refuge started in June. (See E-2)

Major rehabilitation work was completed on the water and sewage facilities on the refuge. (See I-2)

The southern zone managers conference was hosted by Eastern Shore of Virginia National Wildlife Refuge during the month of August. (See E-8)

A one-half mile nature trail on the refuge was opened to the public on National Hunting and Fishing Day. (See H-4)

Construction of a new flammable storage building and shop was started in October. (See I-1)

B. CLIMATIC CONDITIONS

The climatic conditions at Eastern Shore of Virginia National Wildlife Refuge are similar to those of the Mid-Atlantic coastal regions, mild and humid with precipitation generally well distributed throughout the year. These conditions are influenced by the water temperatures of the Chesapeake Bay and the Atlantic Ocean. Winter winds blowing out of the northeast or northwest, at an average of 12 miles per hour, will warm slightly as they cross these waters yielding an average January temperature of 42 degrees Fahrenheit. During the summer, winds out of the southwest, blowing at 9 miles per hour, will cool as they cross the water yielding an average July temperature of 77 degrees Fahrenheit. Yearly precipitation amounts average 42 inches and the first killing frost is in late October and the last frost around the beginning of April.

During 1986 the staff collected the first weather data at the refuge. Baseline data used for comparison in this report was obtained from the Truck and Ornamental Research station in Painter, Virginia. This research station is located 50 miles to the north of the refuge and differences in temperatures and precipitation are known to exist between the two locations, therefore, comparisons of their data to ours is not intended to show exact figures but only general trends.

During 1986 the coldest day of the year was January 28th with a reading of 16 degrees Fahrenheit. The hottest was recorded on two days in July, the 9th and 13th, with a reading of 96 degrees Fahrenheit. The last recorded freeze date for the 1985/1986 winter was on March 24th and the first killing freeze of the 1986/1987 winter was on November 14th.

The single biggest weather factor for the year of 1986 was the severe drought that struck most of the southeast. The average yearly precipitation expected for the eastern shore region is 42.76 inches.[1] During 1986 the refuge received 28.63 inches of precipitation, or 14.13 inches below normal. This was the worst drought in 40 years, and would have made the record book if it had not been for above normal rainfall in August and December. Refuge operations were not hampered to any great extent by the drought but the threat of fire loomed over the refuge during most of the spring and summer. Lawn care around buildings and quarters were minimal since the grass was brown and dry. The co-operative farmer was unable to plant his winter wheat until mid-November due to the lack of ground moisture.
(See Table On Page 3)

	45 YEAR AVERAGE [2]	ACTUAL 1986 PRECIPATION
January	3.46	3.65
February	3.40	2.84
March	4.21	.60
April	3.18	2.48
May	3.44	.73
June	3.42	.85
July	4.30	2.47
August	4.08	7.02
September	3.40	.57
October	3.47	1.22
November	3.18	1.77
December	3.22	4.43
Totals	42.76	28.63

1 - 2 As reported by the Truck and Ornamental Research Station in Painter, Virginia.

For the second year in a row the refuge was brushed by a hurricane; this time it was Charlie. On August 17th, Hurricane Charlie moved up the eastern seaboard, bringing some relief from the drought. There were some anxious moments when it was realized the hurricane would strike the Eastern Shore close to the same time as the lunar high tide would be at its peak. In the end, Charlie proved to be too weak to do any serious damage and the Eastern Shore was spared. Total rainfall from Hurricane Charlie was 1.02 inches with wind speeds reaching 70 m.p.h. The lunar high tide in conjunction with storm pushed seas produced a storm tide 4 to 5 feet above normal. Even though the storm did not produce a great amount of rain, it seemed to disturb the weather patterns enough so that following the storm's departure, the refuge received an additional 3.79 inches of much needed precipitation.

C. LAND ACQUISITION

1. Fee Title

Acquisition of land within the approved refuge boundary continued during 1986 with the purchase of 368.6 acres from The Nature Conservancy.

The Nature Conservancy purchased a tract of land from the Chesapeake Bay Bridge Tunnel Authority for the sum of 2.6 million dollars. This land was a pivotal piece of property for insuring the integrity and future development of the refuge. The purchase of this land effectively blocked all actions towards developing the Wise Point area since all the high ground and right-of-ways were then owned by either the U.S. Fish and Wildlife Service or The Nature Conservancy. There was an understanding between the U. S. Fish and Wildlife Service and The Nature Conservancy that as funds became available the Service would purchase the "old" Chesapeake Bay Bridge Tunnel Authority lands and thereby free The Nature Conservancy funds for their future acquisition projects. On May 28, 1986, the formal recording of the deed was conducted and a sum of 2.5 million dollars was paid to The Nature Conservancy for 368.6 acres of land.

Skidmore Island, which is a 73 acre island within the approved refuge acquisition area, was purchased by The Nature Conservancy for approximately $325,000 in July 1986. It is hoped that during Fiscal Year 1987 the U. S. Fish and Wildlife will have funds available to purchase this island from The Nature Conservancy as was done previously with the Chesapeake Bay Bridge Tunnel Authority property.

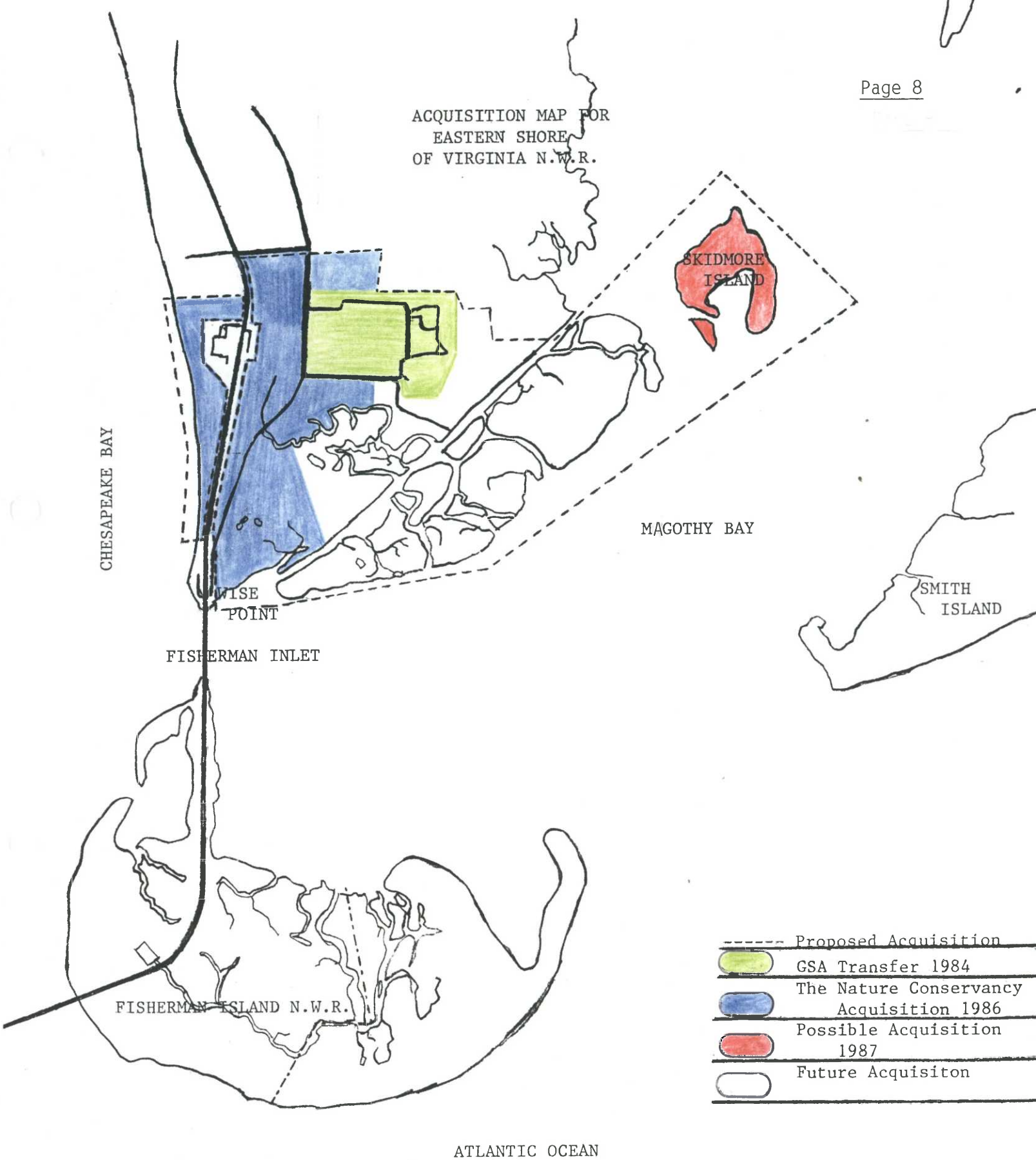
See approved acquisition map on Page 8.

D. PLANNING

2. Management Plan

During 1986 three management plans were written by refuge staff. Two Fire Management Plans and one Hunt Plan. The fire management plans were written for Eastern Shore of Virginia and Fisherman Island National Wildlife Refuges to comply with regional policy, provide guidance to staff members during fire emergencies and to allow Eastern Shore of Virginia Refuge to become incorporated into Fire Management Program scheduling. Both plans were approved.

A hunt plan was written that combined both Eastern Shore of Virginia and Fisherman Island Refuges. The only species addressed in this plan was white-tailed deer and it was submitted to the Regional Office along with the environmental assessment on December 1st. Unfortunately this plan did not make the grade and will have to be rewritten in 1987.


ACQUISITION MAP FOR
EASTERN SHORE
OF VIRGINIA N.W.R.
SKIDMORE
ISLAND
CHESAPEAKE BAY
MAGOTHY BAY
SMITH
ISLAND
WISE
POINT
FISHERMAN INLET
FISHERMAN ISLAND N.W.R.
Proposed Acquisition
GSA Transfer 1984
The Nature Conservancy
Acquisition 1986
Possible Acquisition
1987
Future Acquisiton
ATLANTIC OCEAN

5. Research and Investigations

Eastern Shore of Virginia NR86-"Soil Borings at the Southernmost Portion of Delmarva Peninsula"
51650-002

This effort was undertaken by C. R. Berquist, Jr., Commonwealth of Virginia, Department of Mines, Minerals, and Energy, Division of Mineral Resources from Charlottesville, Virginia. The purpose was to provide information about soil composition at different levels of the southern Delmarva Peninsula. At this writing, the refuge has not received feedback or information from the research effort. One of the conditions on the Special Use Permit requests that a copy of the completed research be submitted for our records. Additional Special Use Permits, if requested, will not be issued until we have received that information.

Eastern Shore of Virginia NR86-"Survey to Census Abundance, Activity and Behavior of Tiger Beetles"
51650-003

C. Barry Knisley, who is an Associate Professor at Randolph-Macon College is studying the activity and behavior of the tiger beetle which lives in the upper tidal zone. Dr. Knisley has collected adults for breeding experiments to determine reproductive isolation between the two subspecies. We are awaiting information or materials documented or published.

Eastern Shore of Virginia NR86-"Bird Banding Activities"
51650-005

A permit was issued to Dr. Mitchell A. Byrd, Professor at the College of William and Mary, Williamsburg, Virginia. The banding site was located at Wise Point and was manned by Rudy Cashwell and Hans Gabler. For results: See: G. Wildlife, Section 16.

E. ADMINISTRATION

1986 AS

1986 STAFF PHOTOGRAPH

9 6 5 8 7 2

BLAKE, CARPENTER, MORRIS, COLLINS, LOOMIS, HINDS

STAIRS, AND SCOTT

1 3

1986 LH

WALIZER

4

1. Personnel

1. Sherman W. Stairs, Refuge Manager, GS-485-12/7, EOD, 12/23/84, PFT
2. Louis S. Hinds, III, Assistant Refuge Manager, GS-485-11/3, EOD 6/23/85, PFT.
3. Carlton T. Scott, Facilities Manager, GS-1640-11/7, EOD 12/9/84,PFT
4. Lester W. Walizer, Guard, GS-0085-4/7, EOD 11/25/84, PFT
5. Irene G. Morris, Secretary, GS-0318-4/1, EOD 12/23/84, TFT
6. Robert W. Carpenter, Maintenance Worker, WG-4749-7/5, EOD 12/9/84,PFT
7. Jerome C. Loomis, Maintenance Worker, WG-4749-7/5, EOD 12/9/84, PFT
8. Frank X. Collins, Tractor Operator, WG-5795-6/4, EOD 12/9/84 TFT, Terminated 9/30/86
9. Maurice T. Blake, Tractor Operator, WG-5795-6/1, EOD 12/9/84 TFT, Terminated 9/30/86

The staff of Eastern Shore of Virginia National Wildlife Refuge was drastically reduced in manpower when Maurice Blake and Frank Collins, temporary full-time Tractor Operators were terminated.

A summary of refuge staffing over the past three years is shown below:

	Permanent Full-Time	Seasonal	Part-Time	Temporary
FY 86	6	0	0	3
FY 85	6	0	0	3
FY 84	5	0	0	3

2. Youth Programs

The refuge hosted an eight person non-residential YCC camp from June 23, 1986 to August 15, 1986. Recruitment was accomplished by news releases to four newspapers, a television station, two radio stations, and through three local high school guidence counselors. Four male and four female enrollees were selected by lottery from 17 applications (9 male and 8 female). One enrollee left after five weeks to play baseball. The first alternate male enrollee finished out the assignment.

The Assistant Refuge Manager, Louis Hinds, was charged with matching enrollees to projects. He enlisted the aid of the refuge staff in supervising at project sites. Although this was the first year the refuge participated in a YCC program, many major projects were completed by our camp enrollees.

One group of enrollees painted and stained the exterior of the Visitor Contact Station making ready the way for another project, the installation of rain gutters.

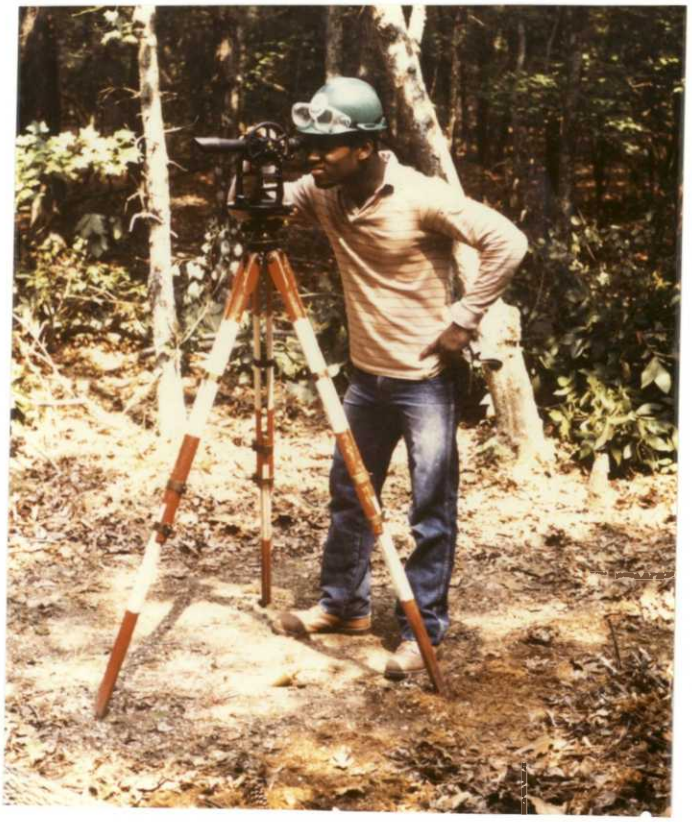
Another group was kept busy with surveying and the clearing of brush, vines, and trees to establish refuge boundary lines. Due to the infancy of this refuge, no posting of signs had been previously accomplished, but was 70% complete when the camp terminated.

The application of T1-11 siding to the library building and the subsequent staining thereof, were important contributions made by the enrollees. Later that summer bookshelves were erected in this building in order to receive donated literature.

Other YCC projects were the painting of some refuge vehicles and equipment, attending an 8 hour first aid course,taking wildlife surveys, dismantling of two walk-in freezers, landscaping and clerical work.

The projects completed were a source of pride and of accomplishment to both enrollees and staff members, as each task took skill and workmanship. From a practical standpoint, funds spent versus productivity received proved the program to be a sound investment. The total allocated funds for the YCC program was $11,000; appraised value received by the refuge was $14,512.

The only change requested for the next YCC camp would be to hire a supervisor to work with the enrollees.



1986 LH

YCC Enrollee, Ed Doggett practicing his newly learned surveying skills.

The YCC enrollees were:

Top row, L-R
Gary Brown-18 years old
Christopher Mitchell-18 years old, left to play baseball
Thomas James-17 years old
Edward Doggett-18 years old
Patricia Simpkins-16 years old
Subrina Owens-18 years old
Elizabeth Pruitt-16 years
Ronda Massie-17 years old
Johnathan Rowley-15 years old, missing from photograph, he replaced Christopher Mitchell.

1985 LH

YCC Enrollee surveying boundary area to be cleared and posted.

1985 LH

The undergrowth was cleared and boundary prepared for posting.

4. Volunteer Program

Eastern Shore of Virginia has one volunteer, Rudy Cashwell. Rudy is a graduate of Old Dominon University. He is employed by the Commonwealth of Virginia to do wildlife surveys, assist in setting up and manning bird banding stations,and is part of a restoration team for peregrine falcons, in addition to a variety of other specialities. He works with all the refuge staff members on numerous refuge activities.

5. Funding

A summary of Eastern Shore of Virginia National Wildlife Refuge funding for fiscal years 1985 and 1986 is shown below; also shown is *proposed funding for fiscal year 1987. The refuge was not funded prior to fiscal year 1985.

Type of Funds	Fiscal Year				
	83	84	85	86	87*
Operations and Maintenance	-	-	339,000	277,100	271,735
Residence Maintenance	-	-	900	900	8,600
Construction/Rehabilitation ARMMS	-	-	95,999	21,918	25,000
Redirected ARMM	-	-	-	10,776	-
Resource Management	-	-	-	20,000'	4,000
YCC	-	-	-	11,000	13,600

' This is Resource Problem Funding of $20,000 to start law enforcement patrol of Fisherman Island. This was especially needed on weekends and holidays.

6. Safety

A meaningful safety program can transpire only if the attitude of the employees is receptive and positive. In this regard, we are lucky at this refuge. The staff (maintenance, clerical, and management) have all had positive input into our safety program. The return to the government is shown in the volume of work accomplished and the low frequency of accidents.

During 1986 we had two vehicle and two employee accidents. One of the vehicle accidents happened when a contractor, working on the refuge, backed his vehicle into a parked government vehicle. The other vehicle accident occurred when an employee backed a stake rack truck into the side of a private citizen's car. Both accidents were backing accidents and they were discussed at the station's safety meeting with positive feedback for corrective action obtained. Pertaining to the employee accidents, one accident was a nail puncture to the foot of a YCC enrollee and the other a muscle pull to the back of a maintenance worker. Both of these accidents were also discussed during station safety meetings. Enrollees were reminded of the importance of protective footwear and refuge staff members were reminded to get assistance when the job requires heavy lifting.

This station had a formal safety inspection on May 2, 1986 by Dr. Lawrence Smith, Safety and Security Manager, Region 5.

Dr. Smith found some problem areas; such as, asbestos in several buildings, an unsecured extension cord, and the need for safety signing, however, he was pleased with the enthusiasm, dedication, and concern toward safety by the staff.

8. Other

During 1986 this station was host to several Region 5 functions such as, the forty-hour Law Enforcement Refresher Course, the Heavy Equipment Certification and Safety Training Course, and the southern zone Project Leaders' Meeting. These courses were looked upon by the staff as pleasant diversions and it gave us a chance to see what it might have been like if we had become the Service's training academy. In all, the classes went well and the students enjoyed their stay.

During the Law Enforcement and Heavy Equipment Training Courses the refuge ran a shuttle bus service to Norfolk Airport to pick up students. After the students were bused across the Chesapeake Bay, the refuge provided as many vehicles as possible for the students use. This procedure cut toll costs for crossing the Chesapeake Bay Bridge Tunnel roadway and minimized rental car expenses.

The Law Enforcement Refresher Course was broken up into two sessions. The first was held February 10th through the 14th. The second session was held March 3rd through the 7th. Approximately 50+ students and instructors took part in each of the training sessions. All attendants were housed in local motels with room rates ranging from $19 to $27 for a single room. Many of the training session instructors

came from local sources such as; the Chesapeake Bay Bridge Tunnel Police, Norfolk City Police, Virginia State Police and the United States Coast Guard. The topic that generated the greatest amount of practice by the students was the water safety and cold weather survival training. Using the pool at the Chesapeake YMCA, students were taught how to survive if they fell overboard in full law enforcement gear and hip boots.

1986 LH

Manager Ralph Keel makes sure of instructions before jumping in with waders on.

As part of this training a specialist in cold weather survival from the United States Navy presented a slide program that is used to train navy pilots. It was an eye opener to those who thought cold weather survival suits weren't necessary.

1986 LH

Staff Assistant, Refuges North, Mark Sweeney, shows his feelings towards the water.

1986 Unknown

Range Officers Jerry Gamble and Louis Hinds look on as refuge officers requality for 1986.

The Heavy Equipment Training Classes were held from April 7th through the 23rd. For three weeks, Steve Flanders, Montezuma Refuge; Mike Bryant, Presquile Refuge; Ed Darlington, Harrison Lake Hatchery; Bob Carpenter and Lou Hinds, Eastern Shore of Virginia Refuge, taught three different classes in Farm Tractor Safety and six classes in each of the following: Motor Graders, Crawler Dozers, and Front-end Loader/Backhoes. A total of 38 students took the Farm Tractor Course and 33 students took one or more of the heavy equipment courses.

1986 LH

"Now what did that instructor say we were looking for."
Heavy Equipment Training Course 1986

The equipment utilized during the training was trucked in from neighboring refuges. With this equipment, not only were students trained in its operation, but a lot of meaningful work was accomplished on the refuge.

All trainees, without exception, rated the course as "good to excellent" and said the course was not only applicable for maintenance but would be helpful for management.

1986 LH

Equipment and obstacle course during heavy equipment training 1986

1986 LH

The proper loading, tie down, and off loading techniques are practiced by students.

On August 11th through 15th, the Region 5 southern zone Project Leaders' Meeting was held at this station. The refuge's centralized location makes it a convenient spot for this meeting. While on station, managers were encouraged to browse through our excess property and remove what they could use. For more information on excess property, see Section I, 4.

F. HABITAT MANAGEMENT

1. General

The refuge size increased from 180 acres to approximately 543 in 1986; 1400 acres have been authorized for proposed acquisition. There are 40 acres of administrative area (buildings and roads), 110 acres of grasslands, 151 acres of loblolly and Virginia pine, 70 acres of mixed hardwood forest and brush, 3 1/2 acres of wetlands, 90 acres of saltmarsh, and 78 acres of cropland. Formal management plans will be developed for many of these habitat types and a cropland management plan is scheduled for completion in Fiscal Year 1987.

2. Wetlands

Freshwater wetland acreage on the refuge increased from 1 to 3 1/2 acres this past year when a small water controlled structure was placed on a culvert pipe and a pond was made by excavating for fill dirt.

3. Forests

Much of last year's planting of loblolly pine, autumn olive, bi-color lespedeza and water oak managed to survive a long, hot and very dry summer; conditions were unfavorable for additional plantings. We have decided to continue such plantings in the future as it will provide a greater wildlife diversity for visitors to enjoy. A recent land acquisition increased our woodlands by 151 acres of loblolly pine and by 70 acres of mixed hardwoods and brush; bringing our total acreage up to 221 acres from 28 acres.

LH 1986

Aerial view of acquired croplands.

4. Croplands

Until this year the refuge had no cropland acreage. The acquisition of a parcel of land from The Nature Conservancy in May of 1986 brought us 78 acres of cropland with which to work. The early part of the year was extremely dry so these fields were left in whatever vegetative cover that would grow. Late fall rains enabled our co-operative farmer to plant winter wheat. A crop rotation schedule, wildlife plantings, and Cropland Management Plan is on top for Fiscal Year 1987.

5. Grasslands

Management of grassland areas was passive except for weekly/monthly mowing of lawns, roadways, administrative areas, a 2100 foot aircraft runway and refuge boundaries. In late August, mowed strips, 12 to 15 foot wide, were alternated with standing vegetation. This was done in an effort to increase food availability for migrating hawks. American kestrels continue to hunt these mowed strips more than any other species. Whenever weather conditions delay Chesapeake Bay crossing other hawk species also use the area.

We have found a considerable number of woodcock using the mowed areas at the edge of the woods and around refuge buildings. Lawn mowing in these areas will continue where woodcock use has been documented.

6. Other Habitats

A minimally managed habitat, the saltmarsh, is worthy of mention. Although current management is limited to monitoring gains by accretion or loss by storm or human activity, it will become much more manageable, thus important, when the refuge is able to purchase Wise Point Corporation property, about 230 acres. We hope purchase of this property occurs soon,as it contains ideal black duck habitat.

9. Fire Management

A "Fire Management Plan" for the Eastern Shore of Virginia National Wildlife Refuge was completed and approved this year. No prescribed burning was undertaken but several small fires were extingushed by station personnel. These fires were started by electrical situations from the refuge's 7200 volt transmission lines. One fire was caused by a contractor who made a mistake while installing a transformer. Another fire started where salt air had caused corrosion around the fuses and plastic parts.

There is limited fire equipment and supplies on hand, but now that a "Plan" exists the refuge can begin programming these needs.

10. Pest Control

The refuge was burdened with approximately one acre of kudzu. An attempt to control its growth was made by mowing the outer edges where possible. This mowing did contain the kudzu temporarily.

If there is time and youth labor available in 1987, we will try to eliminate this pest by a combination of pulling and cutting followed by the spraying of regrowth.

G. WILDLIFE

1. Wildlife Diversity

During 1986 several strides were made in managing this small refuge for greater wildlife diversity and use. First, was the acquisition of 368.6 acres from The Nature Conservancy. Second, was the securing of a cooperative farmer's services to farm our 78+ acres of farm land. Third, was the improvement made to an existing culvert that produced approximately two acres of fresh water habitat; and fourth, was the construction and erection of blue-bird, barn owl, and wood duck nesting boxes.

2. Endangered and Threatened Species

Three endangered or threatened species frequent the refuge. They are the bald eagle, peregrine falcon, and the brown pelican. Both bald eagle and peregrine falcon nests can be found within five miles of the refuge and during fall migration the refuge is a major jumping off point for these birds before crossing the Chesapeake Bay. A non-breeding colony of brown pelicans has been roosting on Fisherman Island. The brown pelicans regularly feed in waters around Eastern Shore of Virginia Refuge.

3. Waterfowl

Management activities for duck, geese, and swans were conducted in two general areas during 1986. The first, was the establishment of fresh water ponds on the refuge. The second, was the start of a Cooperative Farming Program. (See F 2 and 4.) Results from our efforts in these two areas will not be known until 1987.

Ten wood duck nesting boxes were built and placed on the refuge during February 1986. Although wood ducks were seen in the area during the spring, there was no recorded usage by these ducks.

We did have starling use though, and it is anticipated that these birds will present a problem in starting a wood duck nesting program.

6. Raptors

The practice of strip mowing in our 75 acre field to increase food availability for migrating hawks was continued during 1986. We found in 1985 that the American kestrel seemed to prefer these strips for foraging. This management activity was therefore continued.

A barn owl nesting survey was conducted during the month of April. This was done as part of a special effort to determine the nesting success of this species on the Eastern Shore. The barn owl was blue-listed in 1972 and became a species of special concern in 1982. No barn owls were found nesting on the refuge during the survey. In June, however, the staff noticed that the resident flock of rock dove had moved out of an old military fire control tower. An investigation of the tower confirmed our suspicions that a pair of barn owls had taken up residence in the tower and were raising a brood of five young. With renewed hopes, we again surveyed the refuge looking for barn owls and we found one more pair, raising a brood of three in an old radar tower (Building 99). All eight young were known to have fledged which is a good indication that our rodent population was in good shape. All eight young were banded by Rudy Cashwell, our volunteer hawk bander.

1986 LH

Barn owl chicks found in an old World War II tower 200 yards south of the office.

During 1986, 5 great horned owls, 2 barn owls, and one great blue heron were killed when they struck power wires leading into the refuge. One of the barn owls electrocuted had come from the brood of 5 that had hatched on the refuge.

1986 LH

In one year seven owls died by striking refuge owned power lines.

7. Other Migratory Birds

During the winter 1985-86 woodcock were the single most common migratory game bird found on the refuge. These birds could be found in woodlots, farm fields, sand dunes, lawns, and flower gardens. In Northampton County, woodcock probably rivaled duck, dove, and quail as the number one game bird shot by hunters.

On March 6th and 7th, Greg Sepik, a Wildlife Biologist from Moosehorn Refuge, toured our refuge for the purpose of assessing its management potential for woodcock. Greg found the refuge to have suitable habitat for woodcock and gave several suggestions for its management that will be employed in future years.

8. Game Mammals

During 1986 a white-tailed deer herd management study of Eastern Shore of Virginia and Fisherman Island National Wildlife Refuges was initiated. This was done to obtain base line data upon which population management decisions could be based. This study was conducted in three areas: First, habitat analysis; second, animal health; third, population estimates.

In the first area, habitat analysis, the refuges were mapped and major vegetative communities were identified. Next, the approximate acreage of each of these communities was calculated and an estimated deer herd carrying capacity was assigned. An estimated total deer herd carrying capacity of 32 was derived.

1986 LH

The parasite most commonly found on deer in this area is the wood tick. Notice the damage done to the area above the eye of this fawn caused by tick bites. Sores of this nature were often found on refuge deer.

Commonwealth of Virginia Deer Biologist, Fax Settle, feels the carrying capacity estimate might be low, but until better data can be obtained, it is a usable number.

The second area of study was animal health. This phase of the study was conducted primarily on dead animals. Deer that were killed by automobiles within a one mile radius of the refuge border, deer killed by hunters on the county owned land adjacent to the refuge, or animals taken by state wildlife officials for necropsy purposes were all collected and key data figures taken.

Six animals underwent extensive investigation by state and federal officials, of which a part of this investigation was an abomasal parasite count (APC). The APC is the accepted method in the Southeastern United States for evaluating carrying capacity related to available food supply. The APC range for the six deer collected on Fisherman Island and Eastern Shore of Virginia National Wildlife Refuges was from 100 to 2980 with an average of 1300.

Eve, J.H. and F.E. Kellogg (1977 V.W.M. 41: 169-177) suggest that deer populations increases should be curtailed when the APC is greater than 1,000. The overall physical condition of these six animals on a scale of 5 conditions (emaciated, poor, fair, good, excellent) were from poor to fair.

The third area of study was the population estimates. We were not able to obtain sufficient data during the year to make accurate population estimates, however, we did make some headway. Evening spotlight counts were done on both refuges. The maximum number of deer seen on any one count was 34; the spotlighting was conducted near the end of deer season. We also know that 14 animals were killed by hunters adjacent to refuge property (within 1/4 mile), 10 were killed by cars, 7 for study purposes, and 2 other deer killed by miscellaneous causes; yielding a known mortality figure of 33. Based on this information, we know our minimum post fawning population was 67 animals.

Helicopter counts are planned for 1987 and this will help yield better population estimates.

' The values for deer herd carrying capacities were derived from the "White-tailed Deer Ecology and Management."

10. Other Resident Wildlife

Coyote numbers are increasing on the lower eastern shore area. Adults and pups were seen and heard regularly in and around the refuge. This animal is a newcomer to the shore and the state has not decided on how it should be managed. Hunters take a few animals every year, but the legality of this has the local game wardens divided.

16. Marking and Banding

Raptor banding was the only animal marking activity carried on at the refuge. This effort was coordinated by Dr. Mitchel Byrd (See D-5) under the conditions of a special use permit. Dr. Byrd's banding activities at Eastern Shore of Virginia and Fisherman Island Refuges are part of an ongoing study that he is conducting for the Commonwealth of Virginia. Dr. Byrd, Rudy Cashwell, and Hans Gabler manned the Wise Point Banding Station on Eastern Shore of Virginia Refuge and Paul Baker manned the Fisherman Island Refuge banding site.

Listed below are the total number of birds banded for both banding sites:

	Eastern Shore of Virginia National Wildlife Refuge	Fisherman Island Refuge
Rough-legged Hawk	0	1
Broad-winged Hawk	0	2
Sharp-shinned Hawk	488	120
Cooper's Hawk	22	36
Northern Harrier	5	8
Red-tailed Hawk	3	29
Kestrels	12	3
Merlins	309	11
Peregrine Falcons	16	10
Totals for 1986 Raptor Banding	855*	220**

* Includes 20 foreign retrapped birds at Eastern Shore of Virginia NWR.
**Includes 7 foreign retrapped birds at Fisherman Island NWR.

The number of merlins captured at the Eastern Shore of Virginia National Wildlife Refuge was over twice the amount ever banded before. In 1986 this bird was listed as a species of special concern by the American Birds "Blue List", Volume 40, Number 2.

It is hoped that the high number of merlins captured at this site, signals an upward trend in this bird population.

H. PUBLIC USE

1. General Use

Public use at Eastern Shore of Virginia National Wildlife Refuge is in its infancy state. During 1986, we started to crawl along, prodded by anxious school systems and a curious public. Without any encouragement, teachers began requesting environmental education tours for their classes. School administrators wanted in-service workshops for their teachers and the general public wished to view the waterfowl carvings in our visitor contact station. It was fulfilling to know that we were providing for their needs, but it was also a frustrating management problem. With no outdoor recreation planner (ORP), the entire public use program was run on an as needed basis by the staff. This led to questions of what was more important: Due dates on reports and job completions or guiding voting adults and impressionable children out on environmental education walks. We did both in Fiscal Year 1986, but what about 1987? Only time will tell. We have to develop a refuge brochure, sign plan and a trail system; then find the funds and manpower to complete these projects while keeping the visitor contact station open and the environmental education tours running. We need one person to deal with the public.

We have had requests from the county administrators to expand our public use programs on the refuge. They see the refuge as a possible means of increasing tourism in the county. With an ORP working full time on public use development we could direct and plan which aspects of this program are to grow. This could head off possible management conflicts in the future.

Public use is going to grow on this station; it is up to us to decide how much and in what areas it is to expand.

2. Outdoor Classroom Students

During the Spring of 1986, the refuge began accepting requests from teachers who wanted outdoor environmental education classroom work for their students. To fill this demand a total of seven, four hour, sessions were held for 180 students. Information presented was tailored to science work currently being presented at school. This approach worked quite well since the students were familiar with the topic and could help the assistant manager along.

3. Outdoor Classroom Teachers

Two groups of teachers, totaling 15 each, visited the refuge for an 8 hour workshop. The general purpose of these meetings was to acquaint these teachers with the Fish and Wildlife Service and then explain the refuge's hopes for future environmental education by them for their students. It was suggested that the refuge hold a "Project Wild" workshop and invite all the local school systems. This idea will hopefully come about in Fiscal Year 1987.

4. Interpretive Foot Trails

On National Hunting and Fishing Day, the refuge opened a small 1/2 mile walking trail to the public. We had no interpretive signs up, but the mowed trail meandring through several different habitat types, gave an excellent view of the saltmarsh, passed by a small 18th Century cemetery, and provided a close-up look at the bunkers that housed 16 inch cannons during World War II. This trail was made to run through some of the best hawk watching areas on the refuge.

1986 LH

This bunker housed the 16" cannons that were part of the coastal defense system.

6. Interpretive Exhibits and Demonstrations

During the first quarter of Calendar Year 1986, the Visitor Contact Station was opened two Sundays a month, on a trial basis. On display for viewing by the general public, were over a hundred wooden decoys which are on loan to the U.S. Fish and Wildlife Service by Mrs. Phyllis Ellison. Occasionally, local carvers would come and spend the afternoon demonstrating their craft to the public. Other displays presented at the Visitor Contact Station were ones covering endangered species and the Chesapeake Bay.

1986 LH

Display of canvasback decoys on loan from Mrs. Phyllis Ellison.

1986 LH

Grebe carved by local artist, David Maple.

7. Other Interpretive Programs

The management staff gave several talks to civic organizations in Northampton County. It is our belief that to dispel any distrust or ill-feelings, you have to go out into the public and set the record straight. We have done this by giving talks to organizations such as the Rotary Club and PTA.

16. Other Non-Wildlife Oriented Recreation

The refuge received several requests during the year for use of the large meeting room in Building 104 (the old cafeteria). One of the largest gatherings was the Christmas concert presented by the Capeville Elementary School. Over 150 parents, teachers, friends, and relatives listened to the band play several selections. Following the concert, many parents thanked the refuge staff members for allowing the school system to use the facility since school space was too limited. We generated a great deal of goodwill in the community by this one action and plan to continue it in the future.

1986 LH

Capeville Elementary School Christmas Concert.

17. Law Enforcement

Law Enforcement on Eastern Shore of Virginia National Wildlife Refuge remained very low keyed for 1986. The presence of a guard on duty during evening hours and two refuge managers living on station with enforcement authority seems to keep things quiet. Litter and entry onto the refuge during evening hours were our two biggest problems. In an effort to rectify these problems, a meeting was held with the local watermen who utilize a privately owned dock on the intercoastal waterway. The only means of access to this dock is by traveling refuge owned roads. An understanding was achieved that the refuge would not tolerate any infractions of law, but they could continue to use the road after hours as long as it was for business. No violation notices were written during 1986.

I. EQUIPMENT AND FACILITIES

1. New Construction

A contract was awarded in the amount of $233,340 for the construction of a pre-engineered metal building with a fuel storage and distribution system. The building, 175' x 60' is to be part shop/storage and part open bay storage. Asphalt or concrete paving adjacent to the building is to be compatible with the existing roadway and parking area. Construction has started and is approximately 10% complete.

The construction of a cement block building on a concrete slab foundation was awarded to Matthews-Dean Company, Onancock, Virginia; who is also constructing the pre-engineered metal building. The contract award was $26,457. This 24' x 32' building is to be utilized as a flammable materials storage site and is located facing the metal building. Asphalt or concrete paving adjacent to the building is to be compatible with surrounding material.

2. Rehabilitation

A project for the rehabilitation of the Sanitary Sewer and Pump Station awarded in Fiscal Year 1985, was completed and accepted in Calendar Year 1986.

A Contract for the removal and disposal of asbestos containing materials, contaminated building parts, and the decontamination of affected areas in three buildings was awarded to Tidewater Insulation, Chesapeake, Virginia for actual removal to Aerosol Monitoring and Analysis, Inc., Hunt Valley, Maryland. Total contract value was $28,895. Decontaminated buildings were Nos. 97,103, and 104. The project was completed in December of 1986.

3. Major Maintenance

Major maintenance accomplished by station force account include:

a. Installing T1-11 panels or siding on family quarters 201; Stain panels light blue.

b. Installing vinyl siding, a light sand color, on family quarters 207. It should be noted that a large portion of the vinyl siding was from military surplus sources.

c. Insulating the attic of building 104.

d. Raising the earthen backstop at the rear of the firearms range by approximately 6 to 8 feet.

e. Fill material for the firearms backstop was obtained from the southeastern guadrant of the refuge. During this process a small fresh water wetland was developed.

f. Wood panels, T1-11, were applied to the exterior of building 105 by station personnel and YCC enrollees. Panels were stained a mid-brown color.

Major maintenance accomplished by contract or purchase order:

a. A heat pump and air handler was installed in building 122, the Environmental Education Visitor Contact Center.

b. An oil fired boiler was relocated from building 118 to building 104. The project included pressure testing and activating the rest of the heating system in the building.

c. The heating system in building 97, our vehicle maintenance area, was pressure tested and necessary repairs made. It was not put in operation because asbestos insulating elbows were discovered on the delivery system. Asbestos was removed under separate contract, see Part 2, Rehabilitation.

4. Equipment Utilization and Replacement

Nearly all equipment and vehicles used at the refuge were acquired from other refuges or through government excess property programs. The Dodge Ram Charger 4 x 4 obtained from Back Bay National Wildlife Refuge was used as a trade-in vehicle and sold by GSA; it needed extensive repairs. The replacement vehicle for the Ram Charger was a used Suburban 4 x 4 from Dismal Swamp National Wildlife Refuge. This procedure will be used to keep operating vehicles on the station until we fit into the replacement scheme. A Chevrolet pick-up truck and a Plymouth Fury station wagon were put aside because of the need for extensive repair work.

The Excess Property Project yielded the following equipment for use at Eastern Shore Refuge or at other refuges.

a. A IHC diesel power single axle 5th wheel tractor and a long low-boy trailer for use at Eastern Shore.

b. An additional IHC diesel 5th wheel single axle tractor and a 10 wheel dual axle IHC gasoline powered truck tractor.

c. Two 6000 pound lift capacity fork lifts.

d. A model 1500 M Huber motor grader.

e. Mobile welding /generator unit, gasoline driven.

f. An engine analyzer and spin balancing unit.

g. Many other smaller items such as; projectors, lights, motor oil, paints, etc.

7. Energy Conservation

Energy conservation is a prime consideration when scheduling rehabilitation projects for refuge buildings, facilities and equipment. Accomplishments range from purchase and installation of an energy efficient heating unit to the insulation of walls and ceilings. This year, as with the preceeding year, we saw additional facilities use, and an expanding vehicle fleet. Therefore, we were unable to establish meaningful energy saving goals.

J. OTHER ITEMS

1. Cooperative Programs

During 1986, the U.S. Customs Service exercised the privileges granted to it under Special Use Permit ESV 85-1 to install and operate a transceiver, amplifier, and antenna, in building 110 at the GATR site. This system will be used to support the newly established U.S. Customs Service Tactical Air Operations Section.

The C & P Telephone Company procured a right-of-way from the Fish and Wildlife Service for the sum of $280.00. This easement is for the placement of an underground telephone cable across Eastern Shore of Virginia National Wildlife Refuge. Total acreage contained within the easement is .04 acres.

On April 11, 1986, a Cooperative Agreement was finalized between the College of William and Mary and U.S. Fish and Wildlife Service. This agreement grants the College of William and Mary permission to utilize one of the excess housing units found on Eastern Shore of Virginia National Wildlife Refuge, for the purpose of housing students and faculty while they are engaged in research activities on the shore.

4. Credits

Sherman W. Stairs wrote sections D, E (5), F, K and edited the narrative.

Louis S. Hinds, III wrote sections A,B,C,E (6),G,H,J, edited the narrative, and did the photography.

Irene G. Morris wrote section E (1,2), typed and assembled the narrative.

Carlton T. Scott wrote section I of the narrative.

K. FEEDBACK

The Refuge Officer

The refuge officer - is perceived in the eye of the viewer from their experiences with refuge officers, from refuge management practices and from other law enforcement personnel.

A refuge officer's action or reaction - is a view from their past experiences with given situations.

A refuge officer - to administrators, must act to enforce refuge rules quickly, but must always gage scope of their involvement, e.g,, jurisdiction = how permitted to respond.

The refuge officer - comes with a variety of refuge backgrounds - Biologist, Manager, Outdoor Recreation Planner, Maintenance Worker.

The refuge officer - Central/Regional Office, their contribution is: Ten weeks at FLETC, the Refuge Manual, 16 USC and the CFR's. Their view -we hope its not that refuge officers are seen as having similar enforcement problems in similar situations, always on the refuge but, never off it, all serve under concurrent jurisdiction, and all need only refuge credentials.

The Refuge Officer - To Public Review

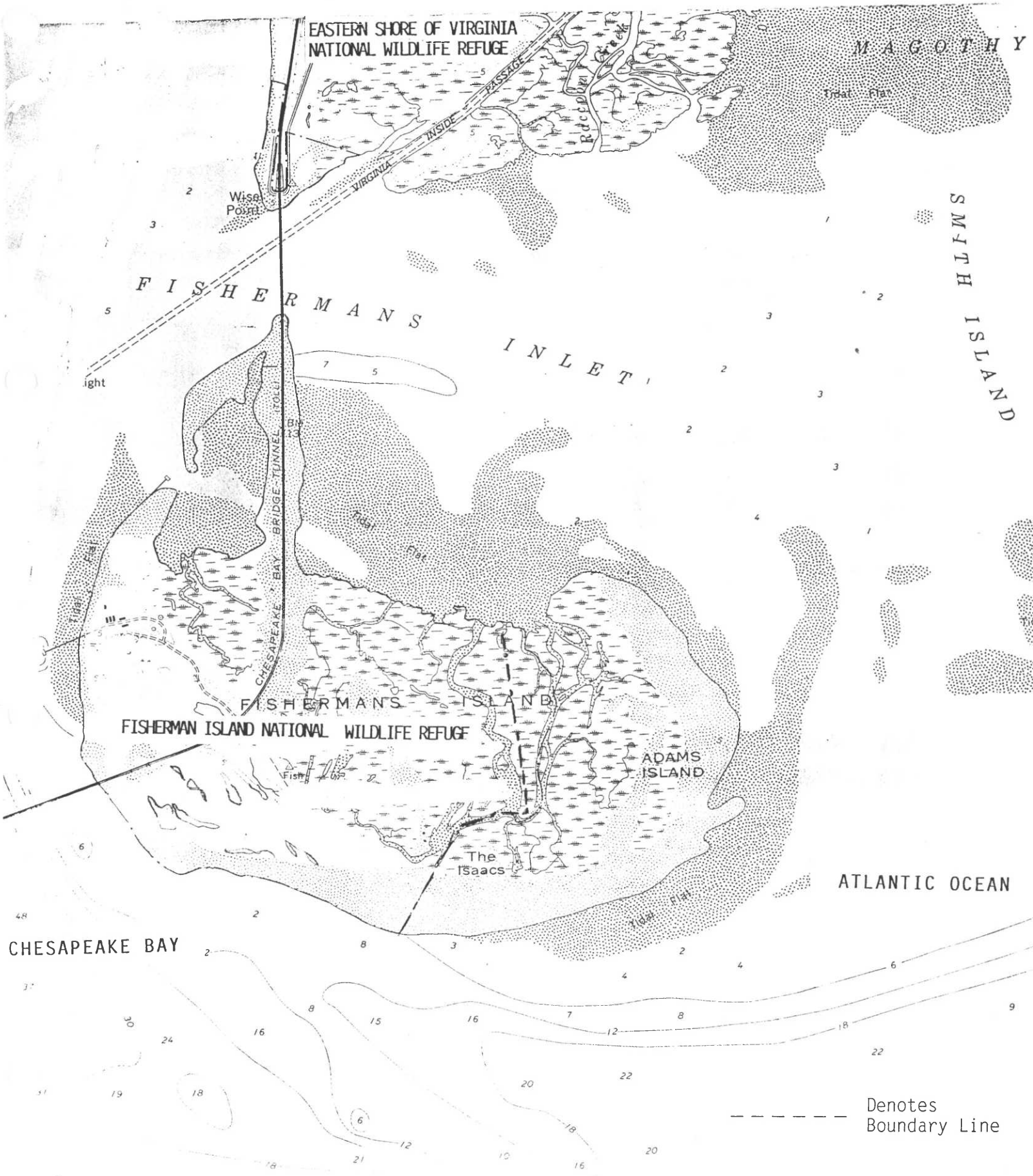
Their uniform is different,
but it's nearly the same.
The Refuge Officer,
is like unto above,
Bedecked with a badge,
and fitted with a gun.
Look at that smile,
it's an Officer of the Law!

The above, although a jest, brings to point a couple of problems that confront refuges and refuge officers at this station and possibly elsewhere. They are:

1) Jurisdiction
2) Law Enforcement - Away from the refuge
   a) Legal Responsibility
   b) Suits - because of action or no action

1) Jurisdiction - Refuge laws are currently enforced under : Exclusive, concurrent, and proprietary jurisdictions, or a combination of such. Would it not serve the law enforcement community, including the refuge, better if jurisdiction were concurrent? From the refuge staff's point of view, enforcement of game laws and laws against trespassing would improve if proprietary jurisdiction was changed to concurrent jurisdiction on the Eastern Shore of Virginia National Wildlife Refuge. In addition, a change from exclusive jurisdiction to concurrent jurisdiction on Fisherman Island National Wildlife Refuge would be helpful. We could then expect more local aid than we now enjoy.

2) Law Enforcement Away From the Refuge - Refuge Officers have been seeking clarification on the above subject for several years. The concern has never been effectively answered. Oh, the refuge officer knows the "X" number of miles policy or the supervisory direction that one should not get involved in law enforcement off the refuge. This is all well and good until the first officer is sued for either getting involved or not getting involved in off-site law enforcement situations. Policy must be made clear here, and so must the liability protection the refuge officer can expect from adhering to refuge policies.


EASTERN SHORE OF VIRGINIA
NATIONAL WILDLIFE REFUGE
MAGOTHY
SMITH ISLAND
INSIDE PASSAGE
VIRGINIA
Wise Point
FISHERMANS INLET
CHESAPEAKE BAY BRIDGE-TUNNEL
Tidal Flat
FISHERMANS ISLAND
FISHERMAN ISLAND NATIONAL WILDLIFE REFUGE
ADAMS ISLAND
The Isaacs
ATLANTIC OCEAN
CHESAPEAKE BAY
Denotes Boundary Line

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FISHERMAN ISLAND NATIONAL WILDLIFE REFUGE

INTRODUCTION

Fisherman Island National Wildlife Refuge is located in Northampton County, Virginia, and is situated at the southern tip of the Delmarva Peninsula. The refuge consists of approximately 1,000 acres which were declared excess property by the U.S. Navy in 1969 and transferred to the U.S. Fish and Wildlife Service. It serves as a breeding ground and nursery for shore and water birds that are found on the island in great numbers.

Refuge administration is from Eastern Shore of Virginia National Wildlife Refuge.

A. HIGHLIGHTS

On February 26, 1986, seven old military towers were toppled to the ground by U.S. Navy demolition experts. See F, Section 1.

A resource project funded in Fiscal Year 1986, to provide additional law enforcement protection for Fisherman Island, was refunded in Fiscal Year 1987.

The annual royal tern roundup was conducted on July 1st and 25th. See G, Section 16.

The Appalachian Trail and Sierra Clubs helped with beach clean-up. See E, Section 4.

There was a four-fold increase in nesting by herring and great black-backed gulls. See H, Section 5.

B. CLIMATIC CONDITIONS

Climatic conditions were similar to Eastern Shore of Virginia National Wildlife Refuge, located about one mile north. Storms noted for the area caused beach erosion and, in turn, made for an ever changing shoreline.

1986 LH

Drought conditions existed during most of 1986. This brackish water pond is a good example of how dry it did get.

D. PLANNING

5. Research and Investigations

Special Use Permits of noteworthy attention:

a. Dr. Mitchell Byrd and Paul Baker, associated with the College of William and Mary.

Dr. Byrd's group continued to monitor peregrine falcon activity, and to operate a raptor banding site east of the roadway. See G, Sections 2 and 16.

b. John S. Weske, Research Associate, Smithsonian Institute.

Dr. Weske was granted access to the island to operate a banding site for royal terns, on private property east of refuge lands. See E, Sections 2; and G, Section 16.

c. Dr. Roy L. Williams, Department of Chemical Sciences, Old Dominion University.

Dr. Williams walked the sand dunes looking for and collecting mushrooms. His purpose was to identify potential products which may have beneficial value to medicine - Species/Strain (Psathyrella ammophila). An interim report has been received and filed e.g., "Identification of Psiilocin in the Mushroom Psathyrella Ammophila", Chemistry 491 - David Brown for Dr. Roy Williams, May 8, 1986.

d. C. Barry Knisley, Associate Professor, Randolph Macon College.

Mr. Knisley conducted a survey to census the abundance, activity, and behavior of tiger beetles. In addition, adults were collected for breeding experiments to determine reproduction isolation between two subspecies. A report of findings and successes has been promised.

e. Brenda L. Norcross, School of Marine Science, College of William and Mary.

The primary objective of this project was to identify the time and place when juvenile summer flounder (Paralichthys dentatus) are newly recruited to Virginia's waters. This was being accomplished through field collections at sites on both the seaside and bayside of the Eastern Shore (mostly on Fisherman Island for us). The refuge has been provided with a list enumerating the species caught and a composite present/absent list. In addition, preserved samples of each species have been returned for use on the refuge.

We expect more information from this research.

f. Dr. Robert L. Lippson, National Marine Fisheries Service, Oxford Laboratory, Maryland, and Adjunct Professor, Michigan State University.

The purpose of Mr. Lippson's group was to collect marine invertebrates and fish, and to study the various habitats of Fisherman Island. This group included students and faculty members enrolled in estuarine ecology at Michigan State University. The group collected, classified, and preserved specimens which were presented to the refuge as environmental education materials. We were extremely pleased with these specimens.

This project may continue.

Note: We quite frequently use the book, "Life on the Chesapeake Bay", written by Alice Jane and Robert L. Lippson.

E. ADMINISTRATION

1. Personnel

Fisherman Island is a unstaffed satellite. It is administrated from the Eastern Shore of Virginia National Wildlife Refuge.

2. Youth Programs

The Eastern Shore of Virginia National Wildlife Refuge YCC took part in several projects on Fisherman Island. The most extensive project was posting and erecting signs in areas never reached before. Other projects included:

a) The clean-up of adjacent roadway areas, which was accomplished by YCC enrollees. The refuge is traversed by a major north-south limited access highway, that, like many roads in Virginia is "trashed" by the motoring American public.

b) The enrollees were credited with the replacment of boundary signs and posts that had aged from saltwater corrosion to a point of non-recognition.

c) Participation in corraling and banding of 4,265 royal and sandwich terns was a highlight.

d) Field trips were conducted to identify species and count the number of birds using the refuge.

4. Volunteer Program

A joint clean-up effort was undertaken by the Appalachian Trail Club and the Sierra Club of Hampton Roads at the Fisherman Island beach.

The Saturday set aside provided us with nice weather and several large truck loads of trash. The groups were quite pleased with the outcome and future projects were discussed.

1986 LH

First load of trash being hauled off the beach. There were five in all.

1986 LH

Volunteers relaxing between loads.

5. Funding

Refuge administration was from Eastern Shore of Virginia National Wildlife Refuge, as is funding. However, a specially funded resource item, to increase law enforcement effort on Fisherman Island, was included in the budget.

F. HABITAT MANAGEMENT

1. General

Any effort at habitat management on Fisherman Island, except to maintain a natural state, was non-existent. However, it will probably be necessary in the future, e.g., black ducks, piping plover, peregrine falcon, brown pelicans, etc.

The skyline of the island changed on February 26, 1986 when seven old military towers were toppled to the ground by U.S. Navy demolition experts. This event was a co-operative effort with the U.S. Navy, Chesapeake Bay Bridge Tunnel Authority, Virginia Marine Fisheries Service, and refuge personnel took part in one capacity or another. Three network television stations, Atlantic Fleet Naval Television and Press Corp., the Eastern Shore News, reporters from other Hampton Roads newspapers, and Refuge Assistant Hinds covered the demolition event. The refuge has some interesting video tape coverage.

1986 LH

U. S. Navy Demolition Teams arrive on Fisherman Island.

1986 LH

One of seven old World War II military towers to be taken down.

1986 LH

The elements took their toll on these cement and steel structures.

1986 LH

Two search light towers on the ground.

9. Fire Management

A Fire Management Plan was submitted and approved in 1986.

The current plan provides for fire suppression by trained refuge personnel, with help from several local sources, as needed. There is no prescribed burning for Fisherman Island National Wildlife Refuge at this time.

G. WILDLIFE

1. Wildlife Diversity

Fisherman Island is a growing barrier beach island. With this growth comes a variety of resident and migratory wildlife. This land is unique in that there are few if any mammalian predators. The only evidence found thus far of mammalian predators was a dead raccoon washed up on the beach following a bad storm and that animal could have come from anywhere in the bay area. With few predators of this type on the island, avian wildlife abounds.

2. Endangered and/or Threatened Species

The peregrine falcon failed to produce any eggs again this year. Normal courtship behavior was noted and the female acted as if she was setting on the eggs, but inspection of the nest revealed it to be empty. Boiled chicken eggs were placed in the nest to install the maternal instinct in the female. This was done with hopes that peregrine falcon eggs or chicks could be obtained from Cornell University. Unfortunately, Cornell Univerisity could supply neither and the female finally abandoned the nest.

Brown pelicans were seen on or near the refuge from April through December. Approximately 500 pelicans, mostly second year birds, used a vegetated sandspit located on the privately owned portion of the island, for roosting.

Loggerhead sea turtles are known to have frequented the waters in and around the mouth of the Chesapeake Bay. Occasionally these turtles would entangle themselves in fish nets and drown or become sick and float with the tide. In either case, turtles have been found washed up on Fisherman Island. During 1986, six loggerhead turtles were found dead on the beaches, the largest measuring 108 cm. long and 95 cm. wide.

Piping plovers became very important this past year because of their placement on the endangered and/or threatened species list. Nesting surveys of Fisherman Island produced 3 adult birds on the 21st of May and 2 adult birds on the 6th of June. There were no nests found on either survey, but two were suspected.

3. Waterfowl

Waterfowl management activities on Fisherman Island were very low key; except for three wood duck boxes placed in brackish water ponds, surveys were the only management activity conducted on the island. During 1986, two confirmed Canada goose nests were found producing 8 young. One black duck and one mallard brood were also seen on the island.

The Christmas bird count was conducted on the 27th of December. The total number of waterfowl seen was 2,656. Of interest were 1,000 Brant, 525 Canada geese, 225 black ducks, and 172 American wigeons.

4. Marsh and Water Birds

An important function of Fisherman Island has been to supply undisturbed habitat for herons and allied species. The following are current estimates of breeding populations.

Species	No. of Adults
Black-crowned Night Heron	618
Yellow-crowned Night Heron	30
Tri-colored Heron	54
Little Blue Heron	38
Cattle Egret	98
Great Egret	208
Snowy Egret	178
Glossy Ibis	192
White Ibis	2

5. Shorebirds, Gulls, Terns, and Allied Species

Unusually high tides during the month of May washed high onto Fisherman Island beaches and destroyed any nesting activity below the primary dune line. Despite this set-back, royal terns, sandwich terns, and oyster catchers renested in good numbers.

Herring gulls and great black-backed gulls have nested in greater numbers than ever before on Fisherman Island. It was estimated that over 200 gull chicks, from these two species, fledged from the island in 1986. This number was up four-fold from 1985 and ten-fold from 1984. Predation of tern chicks by adult gulls occurred and was documented during 1986.

If the number of nesting gulls should continue to increase, it may become necessary to institute some control measures on these birds so that successful nesting of terns can continue.

1986 LH

Royal tern entangled in fishing line.

6. Raptors

During the months of January and February the maintenance staff built and erected four barn owl nesting boxes and seven osprey nesting platforms. These nesting structures were constructed for the purpose of replacing the old military towers that were toppled in February. (See F-1.) A survey of the island on May 4th revealed twelve active osprey nesting on the island, three of which were on the new nesting platforms.

1986 SS

Maintenance staff Loomis, Carpenter, and Blake erecting barn owl box.

1986 LH

To some of the returning Osprey, it didn't matter if the towers were up or down, they nested on them.

8. Game Mammals

A white-tailed deer herd management study was initiated during 1986 that included both Fisherman Island and Eastern Shore of Virginia Refuges. For further details of the study; (See Eastern Shore of Virginia narrative, G, Section 8.) During 1986, six known deer were struck by cars and killed. One such accident resulted in $2,000 in damage to a Chesapeake Bay Bridge Tunnel Police car.

16. Marking and Banding

The banding of royal and sandwich terns was conducted during the month of July on two separate occasions, the 1st and the 25th. A total of 4,230 royal terns and 15 sandwich terns were rounded up by volunteers, YCC enrollees, and refuge staff members. According to Dr. Weske, Research Assistant with the Smithsonian Institute, under who's direction the banding was conducted, this was the best reproductive year he can remember for Fisherman Island royal terns.

The results for the banding of raptors can be found in the Eastern Shore of Virginia National Wildlife Refuge narrative, G, Section 16.

1986 LH

Staff, Volunteers, and YCC enrollees rounding up royal terns.

H. PUBLIC USE

1. General

Fisherman Island National Wildlife Refuge was closed to all access by the general public except for staff guided tours made between October 1st and March 31st by school groups and organizations that had a bona-fide interest in wildlife resources. The groups usually numbered from 20-50 individuals. On-site parking has been limited to 10 vehicles (automobiles) so large numbers of individuals have not been a problem. A 26 passenger bus was added to the vehicle fleet from excess military property. It was used to ferry interested individuals from the Eastern Shore of Virginia Refuge to Fisherman Island for scheduled tours. The refuge was closed to groups between April 1st and September 30th to prevent disturbance to shorebirds, herons, and other birds during their nesting and other brood rearing periods. There were generally more requests for public visitation than time or the number of staff could allow.

2. Outdoor Classrooms - Students

A group of 10-12 individuals enrolled in a estuarine ecology course through Michigan State University used Fisherman Island's beach and inner tidal zone in mid-September.

An ecology class of 26 students from Virginia Commonwealth University used the refuge as an outdoor laboratory in early October.

3. Outdoor Classrooms - Teachers

Dr. Robert L. Lippson, Adjunct Professor at Michigan State University, used Fisherman Island for the second consecutive year for advanced work in estuarine ecology.

4. Interpretive Foot Trails

The interest in wildlife interpretive walks at Fisherman Island remained strong in 1986. Groups such as: The Friends of the Library, The Peninsula Nature and Science Center, Sierra Club, Appalachian Trail Club, and various birding enthusiasts sought a wildlife venture on the island. To honor requests from individuals or families, the Eastern Shore of Virginia National Wildlife Refuge took tour reservations from 20 to 40 persons. This enabled individuals and families not associated with a sponsor group to get a refuge experience. See H, Section 1.

17. Law Enforcement

The lack of law enforcement personnel on Fisherman Island was identified as a resource problem when the refuge was administrated by Back Bay National Wildlife Refuge. In Fiscal Year 1986, $20,000 was appropriated to Eastern Shore National Wildlife Refuge's budget to correct this problem.

The predominate violation on Fisherman Island during 1986 was trespassing. Boaters from Norfolk, Virginia Beach, and elsewhere were coming to the island looking for a place to sunbathe, swim, picnic, run their dogs and turn the children lose. These activities caused a great deal of disturbance to beach nesting birds such as oyster catchers, piping plovers, and terns.

With the aid of YCC enrollees, the entire beach front was posted, using steel posts and signs, at the base of the primary dune line. We decided not to place the posts at the mean low tidal mark, which is the legal boundary line, because seasonal storms and ocean currents would only wash them out. After posting was completed, we found that 99 percent of the public did not trespass beyond these signs. The preception of these boaters, however,was that anything below the primary dune line was open to the public. Our posting had protected the interior of the refuge, but, it did not protect the beach nesting birds.

During the months of May through August, Fisherman Island was patroled by boat. Persons found on the beaches were informed of the refuge's policy and the reasons for it. They were then asked to leave. No violation summons were issued. This project required a considerable amount of extra on-duty time by the refuge manager and his assistant in addition to their regular work which demanded their full attention.

Our law enforcement efforts in the future will require; better signing, at the mean low tidal mark, possibly on salt-treated wood posts; and additional law enforcement officers.

1986 LH

Manager Stairs holds the "probable" cause of the boat owner's bad judgement.

I. EQUIPMENT AND FACILITIES

5. Communication System

The three mobile radio units purchased last year helped tremendously with work and law enforcement activity during duty hours. Two additional remote units for our existing base radio system were purchased for installation in refuge housing.

J. OTHER ITEMS

3. Items of Interest

An annual Special Use Permit was issued to Walkley E. Johnson and Guilford E. Ware for entrance onto their property, which is the eastern portion of Fisherman Island.

4. Credits

Report was written by Louis Hinds and Sherman Stairs, typed by Irene Morris and edited by Louis Hinds and Sherman Stairs.

Photography credits:

Louis Hinds - LH
Sherman Stairs - SS