



1 2
3

Personnel

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Review and Approvals

Harold C. Olson 02-15-77
Submitted by Date

Area Office Date

Presquile NWR
Refuge Date

Regional Office

Date

E. J. Moore

3/28/77

CHESTERFIELD COUNTY, VIRGINIA

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

77°17'

7716'

7713

174

REFUGE BOUNDARY

[illegible]

TRACY (4) SEC. AT COR. 1, THE INTERSECTION
OF LINE OF LOW WATER OF JAMES RIVER WITH
CENTER LINE OF 1,000 FT RIGHT OF WAY FOR
TURKEY ISLAND CUTOFF; THENCE WITH SAID
CENTER LINE ALONG A CURVE TO THE RIGHT
FOR 88.08 CHS. TO COB. 2; THENCE WITH LINE
OF LOW WATER UP STREAM AND ALONG THE
RIGHT SHORE OF THE JAMES RIVER
408.49 CHS. TO THE P.O.B.

TRACT (4.9) BEG. AT COR. 1, THENCE WITH CENTER LINE OF STRIP OF LAND 0.303 CH. WIDE N. 8° 23' E., 2.339 CHS., N. 20° 30' E. 5.02 CHS., N. 13° 25' E. 24.00 CHS., N. 13° 25' E. CONTINUING WITH SAID CENTER LINE BUT INCREASING THE WIDTH TO 0.468 CH., 1.80 CHS. ± TO COR. 2, IN LINE OF LEW. WATER.

NOTE THE TWO (2) TRACTS
ARE COVERED BY PATENTS GRANT-
ED BY THE COLONY OF VIRGINIA.

NOTE: THE UNITED STATES HAS
PERPETUAL RIGHTS AND EASE -
MENTS TO EXCAVATE CUT AWAY
AND REMOVE THOSE PARTS OF
TR. (4A) WITHIN THE 1,000 FT.
R/W FOR TURKEY ISLAND CUT-
OFF, AND ALSO TO DEPOSIT
WITH CERTAIN LIMITATIONS
DREDGING MATERIALS WITHIN
THAT PART OF TR.(4) IDENTI-
FIED THUS [REDACTED]

DETAIL "A"

SCALE 0 1 2 3 4 5 10 CHAINS

MEAN
CLINATION
1959

4R-VA-451-4

SECRETARY OF INTERIOR
CLOSING ORDER BOUNDARY
DATED 8/13/54

LOCATION MAP

SCALE: 1" = APPROX. 32 MILES

COMPILED IN THE BRANCH OF REALTY
FROM SURVEYS BY B S F W

ATLANTA, GEORGIA AUGUST, 1968

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I. GENERAL

A. Introduction

Presquile National Wildlife Refuge is located on an island in the historic James River near Hopewell, Virginia. The island was bequeathed to the U.S. Fish and Wildlife Service in 1952 by the will of Dr. A. D. Williams of Richmond, who maintained a working dairy farm and country estate here. Although small in size (1329 acres), Presquile maintains wintering flocks of 11,000 Canada geese and 15,000 ducks annually and serves as a valuable link in the chain of Atlantic Flyway refuges. In addition, it is extremely important for people since it provides an outdoor laboratory for students to learn about ecology and general visitors to see wildlife in their natural habitat. Presquile is located only 12 miles down river from Richmond and is surrounded by three-quarters of a million people.

B. Climatic and Habitat Condition

Temperatures ranged from a high of 100° in July to a low of 12° in January. Rain for the year totaled 40.51 inches, 1.51 inches below normal. Snow accumulation totaled two inches. Although temperature extremes and total rainfall compared favorably with the ten year average, significant irregularities occurred. Summer was very dry, receiving less than 50 per cent of its normal precipitation. This was followed by extreme wet conditions with 9.21 inches (6.30 inches above normal) of rain falling in October alone. January as a whole was colder than usual with daily lows often registering in the low 20's and occasionally in the teens causing freeze up of inland creeks and ponds. The latter part of February and early March were more like spring with daytime temperatures often reaching into the 70's. On several days during this period in February, the mercury actually climbed into the 80's setting record highs.

Presquile has no water control on the island at present. The James River surrounding the refuge has an average tidal amplitude of between three and four feet daily. Wind and rain can cause tides to deviate significantly from this norm. A very wet October caused minor flooding along the James. At times the entire swamp and lower farm fields were inundated. Strong northwest winds during the winter caused the River to drop as much as two feet below normal, hampering ferry operation.

Submergent vegetation does not exist in the James River itself due to the polluted, turbid condition of the water. Pollution is primarily by industrial wastes and by effluent from sewage treatment plants along the James.

Although the James River is slightly brackish in the Hopewell area, salinities are not high enough to affect marsh vegetation. Salinities this year ranged from a high of 23 parts per million to a low of 10 parts per million, with highest readings occurring in the summer.

Presquile's swamp (800 acres) and marsh (250 acres) are rather consistent producers of high quality waterfowl food. Plant composition in the marsh remained relatively unchanged with rice cutgrass (Leersia crysoides), arrow arum (Peltandra virginica), wandering jew (Aneilema sp.) and beggartick (Bidens sp.) predominating. Mast production in the wooded swamp was very good again this year providing an abundance of food for wildlife.

C. Land Acquisition

1. Fee Title Not applicable.
2. Easements Not applicable.
3. Other Not applicable.

D. System Status

1. Objectives

Presquile would be rapidly approaching custodial status by 1983 under the NFIO level of funding. The refuge's current operation would be drastically changed, resulting in substantial decrease in most outputs.

Emphasis is now being placed on resource management programs with secondary programs such as those related to interpretation and recreation being pursued only as funds and manpower permit.

A number of Presquile's objectives are out of conformance to current thinking and/or program policies and are in the process of being revised. They include, foot trails, wildlife observation, exhibits, deer hunting, studies, ecological monitoring, and waterfowl maintenance. Most of these will be modified only slightly, while others will require substantial revision.

2. Funding

A resume of Presquile's funding for past five fiscal years is outlined below:

	<u>FY</u>				
<u>Type of Funds</u>	<u>73</u>	<u>74</u>	<u>75</u>	<u>76</u>	<u>77</u>
OCB or PA	41,000	41,000	41,000	41,000	45,000
Special	2,500	-	-	2,500	-
Construction/ Rehabilitation	-	-	35,000	-	-
Total	<u>43,500</u>	<u>41,000</u>	<u>76,000</u>	<u>43,500</u>	<u>45,000</u>

Increase in funds during the above period has definitely not kept up with inflation and salary increases. Funds available after fixed costs currently amount to less than \$2,000, placing the refuge in a precarious position.

Staffing pattern for the past five years has remained unchanged with three permanent positions - two full time and one part time. The only hiring that has taken place in the past two years has been under the Work Study or NYC programs with minimal cost to the refuge.

II. CONSTRUCTION AND MAINTENANCE

A. Construction

There was no new construction this year. The most significant maintenance project involved the refuge's twenty year old, cable operated ferry. It developed a leak in March and had to be repaired at a dry dock near Richmond. The bottom was sandblasted, patched and painted at a cost of \$1200. The $\frac{1}{4}$ inch sheet metal covering the bottom is heavily pitted and will probably have to be totally replaced within the next two or three years. While the ferry was in dry dock, both the mainland and island ferry slips were dredged by a crane operated from a barge. The slips fill in by silt deposited from the river and need to be dug out periodically.

Crush and run gravel was applied to the island road ($\frac{1}{2}$ mile) and under the equipment shed satisfying a need which had been long outstanding. The gravel, totaling 303 tons, was brought by dump truck via ferry at a cost of \$2.60 per ton. The road was also graded and is now in excellent condition.

Last year we were able to rehabilitate the mainland ferry ramp. This year there were sufficient funds to rehabilitate its counterpart on the island. The ramp with its new deck, hand rails and wheel guards can't help but enhance

refuge image, particularly when one thinks about the way it used to look. (See photo's 1 & 2).



Before

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H.O.



After

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H.O.

B. Maintenance

1. Buildings and Facilities

In the past two years emphasis has been placed on upgrading refuge facilities, particularly the buildings. The maintenance shop and residence were built in the mid 50's and are beginning to show their age. Most of the other buildings were on the island at the time of acquisition and are over fifty years old. Fortunately, most of the older buildings are of block construction requiring only minimal maintenance.

Rearranging equipment and materials, cleaning and painting were the type of projects given emphasis this year. Buildings painted included the maintenance shop, residence, carpentry shop, oil and paint house, contact station and barn. Youth Conservation Corps (YCC) personnel from Harrison Lake National Fish Hatchery did the painting of the barn (Photo 3).



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The maintenance shop finally has hot water. A ten gallon hot water tank along with a stainless steel sink was installed—trying to remove grease and oil using cold water just got to be too much.

2. Ferry System

A cable-operated ferry run by refuge personnel is the normal means of going to and from the island. With the exception of a few people that come by boat, all visitors to the island come via ferry. It has been very reliable over the years and is by far the safest way to cross the channel. It is guided across the channel by a 700 foot cable and can cross safely during almost any type of weather, including heavy fog.

Last year we were able to reduce the annual operating expense of the ferry by over \$1,000 by obtaining a large quantity of excess cable (21,000 feet) and by getting a local community college to make the cable rollers for us. The annual operating cost of the ferry, including periodic cyclical maintenance, is now about \$350. . The cable was replaced twice this year. The engine that powers the ferry is an old 1955 model Cheverolet pickup engine which has been very dependable over the years and requires only routine maintenance. The differential had to be pulled and repaired and the starter had to be replaced. Other ferry related projects included the replacing with new material the door, front siding, and roof of the cabin which houses the ferry engine; scraping and painting of deck, rails and cabin; building of an aluminum box to house marine radio and tools for safe keeping; restructuring and painting of life jacket box; replacing cable supporting counterbalances on ramps; and purchasing of two electric chain hoists used in raising and lowering ramps. A pipe gate, balanced for easy lifting and lowering, was built and placed at the juncture of the mainland access road and ferry ramp, replacing a chain used for that purpose in the past. (See photo 2, p. 4)..

3. Roads and Trails

As discussed in Part A, the island road is now in excellent condition. The mainland access road, however, is in poor condition and should be ditched, graded and graveled as soon as sufficient funds are available.

4. Equipment

Vehicles required only routine maintenance this year.

Back Bay NWR transferred a 100 watt, G.E., base radio unit to Presquile in October. An antennae was erected on top of the two story building in which our administrative office is located, giving us excellent reception with our field headquarters five air miles away.

5. Banding Facilities

The large, funnel duck trap in Deep Creek was revamped by replacing most of its posts and wire covering. This particular trap has proven to be very productive over the years.

6. Miscellaneous

The telephone line crossing the Turkey Island cut off channel needed replacing twice this year. The telephone company furnished the line and cement block to sink it to the bottom and refuge supplied the boat to lay the line across the channel.

Another project the YCC undertook this summer was the removal of the 7,900 foot deer fence that separated the swamp from the farm fields. They removed all of the wire and some of the posts and plan to finish the project next year. The fence was erected in the mid 50's to keep deer from feeding on crops. It kept most deer out but those that were persistent managed to get in the fields anyway. Over the years the fence deteriorated and was not serving any useful function when it was taken down. Deer often ran into the fence with some being injured.

All soda acid fire extinguishers were replaced with a multipurpose extinguisher.

C. Wildfire

Not applicable.

III. HABITAT MANAGEMENT

A. Croplands

This year marked the third year in which farming operations were accomplished by a local farmer rather than by refuge personnel. One hundred and thirty acres were double cropped with corn being planted in the spring followed by wheat in the fall. The permittee received as his share all the corn. The wheat will remain in the field as browse for geese and deer until spring and then turned under. Jimson weed was controlled in the corn fields by application of two pounds Atrazine per acre mixed with nitrogen as a carrier at time of germination with excellent results.

Rain was almost non existent during much of the growing season resulting in yields being far below normal for most area crops. Our cooperative farmer, however, was one of the lucky ones. He planted his corn earlier than most, benefiting from spring and early summer rains, and ended up with an average yield of better than 100 bushels per acre. Geese made extensive use of the wheat fields both in the winter and fall, completely eliminating growth as it occurred. The corn left during harvest operations was also thoroughly worked over by the geese.

B. Grasslands

Eighty-seven acres of refuge land is in fescue which serves both as a land stabilizer and food for wildlife. Haying has been tried in the past, but proved to be too costly since it required frequent use of the ferry. The fields were mowed periodically throughout the summer with tractor and bush hog.

C. Wetlands

Presquile has 250 acres of tidal marsh which are rather consistent producers of high quality waterfowl food. The plants receive ample moisture from the rise and fall of river tides and are not dependent on year to year fluctuation in precipitation. With the exception of several unsuccessful attempts at burning in the past, no management has been applied to the marsh since the inception of the refuge.

D. Forestlands

Approximately sixty per cent of refuge land is in tidal hardwood swamp. The swamp for the most part contains tree species that produce mast valuable to wildlife. Predominant species are black gum, water tupelo, red maple, ash, ironwood and viburnums; oaks are scattered along a few high ridges and cypress along river banks. Two acres have opened up in the swamp by clear cutting and girdling to encourage deer browse and to provide additional areas for ducks to feed. Deer use in the cleared area has been heavy, while waterfowl use has been light. Additional openings are being considered for the future.

E. Other Habitat

Nothing to report.

F. Wilderness and Special Areas

Nothing to report.

G. Easements for Waterfowl Management

Not applicable.

IV. WILDLIFE

A. Endangered and/or Threatened Species

Bald eagles were seen more regularly this year. During the Christmas bird count in December, one adult and two immature bald eagles were observed on or within a half mile of the refuge, the largest number seen in nine years. Two immature birds were observed feeding on a goose carcass in one of the fescue fields during the waterfowl hunting season.

B. Migratory Birds1. Waterfowl

Waterfowl use and peaks for the past four and a half years, using July as the beginning month, are shown in the following table:

	<u>72/73</u>	<u>73/74</u>	<u>74/75</u>	<u>75/76</u>	<u>76/*</u>
<u>Use Days</u>					
Ducks	880,000	1,015,000	1,008,100	733,000	597,000
Geese	930,000	508,000	657,000	702,000	564,000
<u>Peaks</u>					
Ducks	12,600	15,500	16,700	12,100	14,000
Geese	9,800	10,600	11,300	11,300	11,800

* only use days and peaks through December 31 are reflected.

Censusing is normally done once a week during the fall/winter period and bi-monthly during other times of the year. One exception to this is the State waterfowl hunting period, which normally lasts about sixty days, during which censusing is conducted once every two to three weeks to keep disturbance to a minimum. Waterfowl concentrate in areas easily accessible by boat and where visibility is good making it possible to obtain data of Class B reliability.

Geese

The year began with 10,000 Canada geese and 250 blue/snow geese residing on the refuge. They congregated primarily in the marsh, having eliminated earlier virtually all browse in the fields. Once the waterfowl hunting season

ended, they departed to surrounding areas where food was more plentiful, returning only when sufficient wheat was available to entice them.

The first fall sighting of geese occurred on September 22 when twenty-five Canadas were seen in the vicinity of the north marsh. Their numbers increased steadily, reaching a peak of 11,500 in December. They visited the fields regularly (See photo 4) feeding on wheat, clover and corn left from harvest, leaving the fields almost void of vegetation by mid December. Even the fescue fields were being visited by year's end, an event seldom experienced in the past. Unusually cold weather curtailed growth of field vegetation.



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Ducks

Ducks numbering up to 11,000 were present on the refuge in January. Composition at that time was comparable to the same period a year before with mallards comprising about 60 percent, wood ducks 15 percent, pintails 13 percent and black ducks 11 percent and other species 1 percent. The mallards and wood ducks spent most of their time in the swamp creeks while blacks and pintails preferred the marsh. Like the geese, most of the ducks dispersed into surrounding areas in search of food immediately following the waterfowl hunting season. Most of the refuge's food supply had been pretty well worked over by then.

Duck banding was relatively unsuccessful this year. A quota of 75 black ducks (post season) was assigned with 32 being banded. After the waterfowl hunting season food was scarce on the refuge, so most of the birds dispersed into surrounding areas to feed.

Fall and early winter populations were for the most part comparable in composition to the year before with mallards predominating, followed by black ducks, wood ducks and pintails. There was, however, a significant increase in black duck use, a refreshing sign since their numbers have been declining in recent years. Duck numbers were greatest during the waterfowl hunting season with a peak of around 14,000 being reached in December.

The summer wood duck population was about 120 with an estimated 85 young being produced, mostly from natural cavities. Sixty-five wood duck boxes have been erected since 1968. A record six boxes were utilized this year with the east marsh area being most productive. About ten mallards and five black ducks were also produced.

2. Marsh and Water Birds

Up until this year, cattle egrets were relatively uncommon in this area with only an occasional sighting taking place. This summer, however, they were quite common, with up to ninety being counted on or in the vicinity of the refuge. The previous high for the refuge was thirty. They often followed refuge tractors during mowing operation, feeding on insects disturbed in the grass.

The great egret, which is normally a common visitor to the area during the summer and early fall, were seen only occasionally this year. In past years up to thirty-five of these birds were observed feeding along creeks and river banks, but this year's peak was only five.

There is nothing of significance to report concerning other marsh and water birds.

3. Shorebirds, Gulls, Terns and Allied Species

There was basically no change in populations representing this group of birds. Hundred of gulls, primarily herring and ring-billed, competed for food on the James all winter.

4. Raptors

Osprey were seen frequently in the spring searching for fish along the James River, but no nesting occurred on or in the vicinity of the refuge.

Up until October of last year a common guest of the refuge silo was a barn owl. The bird was seen using the silo only once this year.

5. Other Migratory Birds

Nothing of significance to report.

C. Mammals and Non-Migratory Birds and Others

1. Game Mammals

The refuge white-tailed deer herd is slowly recovering from the die-off (Epizootic Hemorrhagic Disease) of two years ago. Fawn were seen frequently with their mother in the fields (See photo 5). The current population is estimated at 100 animals, quite a contrast from the pre die-off population of 250. Twenty-one deer were removed during hunts held in October and November.



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One of the deer killed during the gun hunt had a viral skin disease known as papilloma. Although the disease is not unusual in this section of Virginia, it is the first time it has appeared on the island. Hopefully, other deer have not been infected.

2. Other Mammals

With the exception of fox and rabbit, other mammal populations on the refuge remain virtually unchanged from the year before.

Fox sightings were rather common at the beginning of the year, but as the year progressed, particularly after summer, fewer and fewer were seen. The current population is estimated at 3 animals, five less than a year before.

With their main adversary experiencing a set back, rabbits began to flourish. Many were seen during evening deer counts, particularly along the river escarpment.

3. Resident Birds

In early May approximately 500 bank swallow cavities were situated in the steep bank along the navigational canal south of the island. Although some of the nests were lost due to erosion, most of them produced young. This is the only known nesting colony within a 100 mile radius.

4. Other Animal Life

Most of the fish along the lower James River contain varying amounts of a chlorinated hydrocarbon known as Kepone (See part VI for details on this chemical). In December of 1975, all fishing in the James River from Richmond to the Chesapeake Bay was banned because of this pesticide. Fish sampled in the Hopewell area had from 1/10 PPM to 20 PPM of Kepone, with the highest levels occurring in surface feeders. The no fishing ban is still in effect.

V. INTERPRETATION AND RECREATION

The number of people to visit the refuge this year increased by 25 per cent over that recorded last year - 3,928 visitors as compared to 3,150 visitors. There was a greater participation by area schools, with an increasing interest in the environmental education aspect of teaching. Wildlife orientated recreation comprised almost 99 per cent of this year's 7,350 activity hours.

A. Information and Interpretation

1. On-Refuge

Visitors to Presquile are treated to a unique experience. Since the only access to the island is by ferry, the visitor usually has a feeling of being in a wild area. The experience is enhanced because the visitor must walk to see the island, leaving his vehicle on the mainland. (See photo 6).



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Most visitors this year were students from area schools that came primarily to tour the wildlife foot trail or to use the island as an environmental classroom.

Visitors are given an orientation at the small contact station located on the island. The teacher or group leader will guide their group along the trail or through an environmental exercise with refuge personnel assisting only in an advisory capacity. Refuge involvement is kept to a minimum. Presquile will continue to place emphasis (as funds permit) on its interpretive programs, particularly environmental education, with other wildlife-oriented use being pursued only when the necessary resources are available for their implementation.

2. Off-Refuge

Presquile contacted three principals in the Hopewell area concerning setting up an environmental education program in their school. They were very cooperative and interested in this type program. One of the schools is now being used as a forerunner and is progressing well in its EE program.

Presquile's manager also met with the director and staff members of the Maymount Nature Center in Richmond concerning environmental education. The director is a close friend of the refuge, having visited often, and is enthusiastic about establishing an EE program for the Center.

Harrison Lake N.F.H. and Presquile participated jointly in Career Day activities at two area high schools. A total of 165 students were furnished information concerning the Service's programs, job requirements, and manpower needs.

An additional 615 people, primarily students, were reached through audio visual means and lectures this year.

B. Recreation

1. Wildlife Oriented

Waterfowl Week open house was held again in November, attracting 175 people to the island. Facilities were open to the public at varying times on six days. Visitors seemed to thoroughly enjoy themselves, having seen what they came for most - geese. There were no special events this year.

White-tailed deer hunting was permitted on the refuge again this year, with the following results:

<u>Type of Hunt</u>	<u>No. of Days</u>	<u>No. of Hunters</u>	<u>No. of Deer Taken</u>
Bow	4	112	3
Gun	2	149	18
Total	6	261	21

Of the 21 deer taken, nine were bucks with the largest being a six-pointer weighing 155 lbs.

Bow hunters were required to pass a weapons qualification test again this year to be eligible for the drawing. Those that were interested in qualifying on the refuge had an opportunity to do so during a two-day period in September

(See photo 7). Members from archery clubs and personnel from Fort Lee Military Base worked with us in qualifying prospective hunters. Several exhibits and demonstrations on bow hunting techniques and safety were presented by one of the clubs. It was very informative and well received. The refuge is considering as additional requirement for next year's hunt for bow hunters to have successfully completed the National Field Archery Association Bowhunters Education Program and gun hunters a state hunters safety course.



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2. Non-Wildlife Oriented

All non-wildlife oriented recreational activities recorded for this year did not occur on the refuge itself, but on the Proclamation Water surrounding it. Next year these activities, which include boating and skiing, will not be included as refuge use.

C. Enforcement

With the ferry being the main access vehicle, Presquile has virtually total control on visitor use. During the summer an occasional boat visitor will appear on the island unannounced.

There were no violations noted this year.

A. Field Investigations

Waterways Experiment Station Study

Representatives of the Virginia Institute of Marine Science and the Corps of Engineers Waterways Experiment Station conducted a single collection of selected vegetation, benthic invertebrate samples, and soil samples from the east marsh in October to determine concentrations of Kepone and other chlorinated hydro carbons in the area. The results of the study have not been received.

Plant Vegetation Study

Dr. Ronald Parker of Virginia Commonwealth University has conducted a number of in depth studies on the refuge's flora during the past four years. One article on the island's vegetation was published in 1975. This year another article was published entitled "The Woody Flora of Presquile". An annotated list of species and their relative abundance as well as the biological significance of the island's plant communities are covered in the article. It is an excellent publication. He plans to publish another article next year on the herbaceous plants.

B. Cooperative Programs

Presquile served again as State Coordinator for both the Woodcock Singing Ground Survey and Mourning Dove Call-Count Survey. Response from participants was excellent.

The refuge participated in the Mid-Winter Waterfowl Inventory, Annual Eagle Count and Christmas Bird Count.

C. Items of Interest

Pollution

Hopewell was in the national limelight during the year because of a pesticide known as Kepone. It all started back in December of 1975, when the Governor of Virginia ordered a ban on all fishing in the James River Basin from Richmond to Chesapeake Bay as a result of Kepone contamination. This action was prompted by an Environmental Protection Agency (EPA) study which revealed that significant levels of Kepone had been detected in fish and shellfish as far away as 65 miles from Hopewell. The pesticide entered the river in the effluent released from the Hopewell Sewage Treatment Plant. The refuge is located approximately two-miles up river from the release point.

Life Science Product Company Inc. of Hopewell produced Kepone from March of 1973 to July of 1975. The plant closed in July of 1975 after several plant workers and members of their families were hospitalized with Kepone-related ailments. At least 29 people have been hospitalized since then.

Kepone is extremely persistent once it enters the environment. A company in Pennsylvania made Kepone in the late 1950's and again for six months in 1963. State authorities sampled fish in that creek, 13 years after the last Kepone was made, and report that they were still contaminated above safety levels set by the Federal Government. One hundred per cent of the fish samples taken from the James river below Hopewell contain Kepone at levels above federal health guidelines of 0.1 parts per million. In addition, samples taken in the Bay are turning up varying amounts of the pesticide. Contamination appears to be spreading up the western shore of the Chesapeake Bay. The no fishing ban is still in effect.

2. Office Move

Our administrative office was moved to a new location in May. It is now located on the second floor of the United Virginia Bank Building in downtown Hopewell. This is the same building in which our office was situated before our last move in 1972. The facility is not as nice as we would like, but office space is very limited in Hopewell so you have to take what you can get. The landlord completely remodeled the interior and, with the exception of keeping the place properly heated, it is working out quite satisfactorily.

3. Credit

The arduous task of typing this year's narrative was faithfully carried out by the refuge clerk Mrs. Irene Lipchak. She is becoming skilled in hieroglyphics, accurately deciphering the manager's hand writing - at times that's no easy chore.

The text and photos were supplied by the manager.

D. Safety

The refuge experienced another accident-free year. Monthly safety meetings were held to discuss safety problems and remedies with a program related slide series or film being shown. Number of calendar days since lost-time accident 1,229.