


CHASSAHOWITZKA NATIONAL WILDLIFE REFUGE
Homosassa, Florida

ANNUAL NARRATIVE REPORT
Calendar Year 1978

1378
NATIONAL WILDLIFE REFUGE SYSTEM
Fish and Wildlife Service
U.S. DEPARTMENT OF THE INTERIOR





PERSONNEL ON BOARD AT END OF YEAR

From left to right:

Edward Collinsworth

Esther Brown

Frank Marsac

Bob Quarles

Robert C. Ziobro

Refuge Manager (GS-11)

Clerk-Typist (GS-4)

YACC Enrollee

Maintenance Worker (WG-7)

Refuge Manager Asst. (GS-7)

Review and Approvals

Edward Collinsworth 4/4/77 *Donald J. Hankla* 2/17/77
Submitted by Date Area Office Date

Refuge

Regional Office

Date

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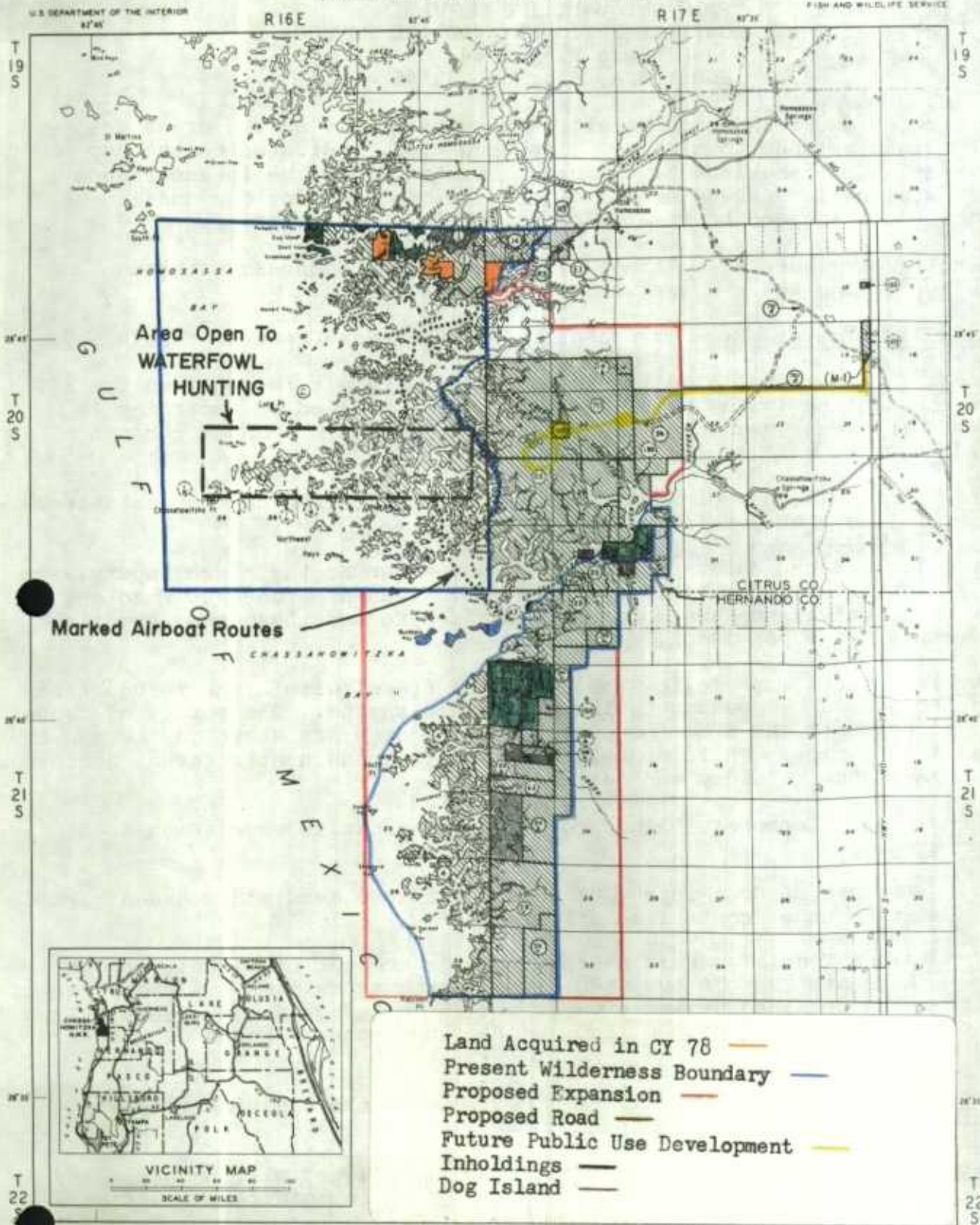
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CHASSAHOWITZKA NATIONAL WILDLIFE REFUGE

CITRUS AND HERNANDO COUNTIES, FLORIDA

U.S. DEPARTMENT OF THE INTERIOR

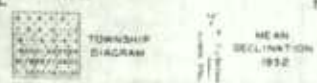
FISH AND WILDLIFE SERVICE



Land Acquired in CY 78 — (Orange shaded area)
 Present Wilderness Boundary — (Blue line)
 Proposed Expansion — (Red line)
 Proposed Road — (Black line)
 Future Public Use Development — (Yellow shaded area)
 Inholdings — (Black outline)
 Dog Island — (Black outline)

COMPILED IN THE BRANCH OF LANDS FROM SURVEYS BY C.L.S. AND F.W.S.

TALLAHASSEE MERIDIAN



ATLANTA, GEORGIA MARCH, 1963

U.S. G.S. 11-A

FOR STATUS ONLY

I. GENERAL

A. Introduction

Chassahowitzka National Wildlife Refuge is located approximately 60 miles north of Tampa on the west coast of Florida; in the southwest corner of Citrus County and northwest corner of Hernando County. The refuge headquarters complex and residences are located four miles south of Homosassa Springs on U.S. Highway 19,

The name Chassahowitzka is derived from the Creek - Seminole language and when translated means "pumpkin opening place".

The refuge was established as a waterfowl wintering area in 1943. Chassahowitzka is comprised primarily of estuarine salt marshes, tidal streams and shallow bays with a border of hardwood swampland along the 12 mile eastern boundary. The marshlands are fed fresh water from the Homosassa River, which parallels the northern boundary and the Chassahowitzka River which flows east to west through the center of the refuge. The refuge marshlands, shallow bays and tidal streams provide an abundance of aquatic plants and animal life that support the wintering waterfowl, thousands of marsh, water and shore birds; and a variety of other animal species that depend upon a marine environment.

B. Climatic and Habitat Conditions

The year's weather can be summed up by saying it was drier, wetter and warmer than usual. Of the 83 days measurable precipitation fell, 12 days had 1-2 inches of rain totaling 17.23 inches and seven days on which two inches or more of rain fell, totaling 15.88 inches. The remaining 19.49 inches fell over 64 days throughout the year.

All November's rain fell on the 39th, ending a 31 day dry spell. The year's total was 1.11 inches below average.

The warm, summer-like weather which continued through December in most of the southeast, greatly affected the waterfowl population. It is assumed that the birds stopped north of here due to the warm weather.

The vegetation damaged in last year's hard freeze is slowly coming back. The warm trend has helped this situation a great deal.

| | <u>WEATHER</u> | | Precip. Inches | Avg. Precip. Inches |
|-----------|----------------|-----|-------------------|------------------------|
| | High | Low | | |
| January | 82 | 18 | 5.71 | 2.46 |
| February | 78 | 22 | 6.64 | 2.77 |
| March | 86 | 32 | 6.21 | 3.18 |
| April | 91 | 59 | 0.63 | 2.89 |
| May | 93 | 56 | 3.21 | 2.88 |
| June | 99 | 70 | 4.04 | 5.88 |
| July | 96 | 69 | 10.75 | 8.87 |
| August | 98 | 70 | 5.65 | 8.90 |
| September | 99 | 65 | 3.93 | 8.02 |
| October | 93 | 32 | 0.54 | 3.72 |
| November | 90 | 38 | 1.50 | 1.85 |
| December | 92 | 35 | 3.79 | 2.29 |
| 1978 | 99 | 18 | 52.60 | 53.71 |

C. Land Acquisition

1. Fee Title

Chassahowitzka National Wildlife Refuge was established by the authority of the Migratory Bird Conservation Act on June 15, 1943. Four hundred fourteen acres of public domain land was withdrawn and reserved as part of the refuge under Public Land Order Number 140. Shortly after this order, 5,343 acres were acquired in Fee Title by the U.S. Fish and Wildlife Service. World War II halted the growth of the refuge but acquisition resumed following the war and is still in progress.

The refuge presently contains 30,466 acres, 233 of which were acquired in calendar year 78 (see map, front section). The remaining private inholdings, which total approximately 775 acres, are considered priority acquisition before any further boundary expansion takes place.

Florida does not have enabling legislation to permit Federal purchase of lands for wildlife purposes. For this reason prior approval is necessary from the local government and the State Internal Improvement Commission before each parcel can be acquired. This procedure has caused some problems in the past but they seem to be ironed out at the present time.

In 1978 representatives from the Regional Realty office were in contact with inholding owners in an effort to reach satisfactory terms for all parties involved. Some headway has been made but condemnation proceedings will more than likely have to be initiated on some parcels.

The current acquisition objectives for the refuge, which are subject to change, include the addition of about 8,000 acres of land and water bottom. This would bring the refuge to approximately 40,000 acres and provide a more manageable and effective wildlife area. Development of much needed public use facilities that are planned for the refuge are dependent on the acquisition of right-of-way lands from U.S. Highway 19 to the refuge boundary. For a graphic explanation of the above see the map at the front of the report.

2. Easements

N.A.

3. Other

None

D. Systems Status

1. Objectives

The refuge was originally established for the purpose of migratory bird conservation, primarily waterfowl

and colonial birds. These resources continue to hold a conspicuous place in the future of the refuge with ever-increasing attention being directed toward endangered and threatened species, other wildlife species and public use demands. Of equal importance, and the concept that will govern the course the refuge will take, is the preservation of the coastal marshes and estuary system of the refuge in its natural state. Overall, non-development except for public use facilities, will remain the primary objective of Chassahowitzka NWR, while preservation, protection and monitoring of the natural resources and the control of public use being the most important functions of management.

a. 1210 - Wildlife Resources

Migratory bird activity in the wildlife resources program is the major source of funding for Chassahowitzka. The major units within the program are protection of the land and maintenance of the various facilities and equipment necessary for administering the refuge.

Twenty-four individual census studies which involve resident, wintering and nesting populations are conducted on a regular basis. The data is gathered and compiled to give an overall long-range view of wildlife use of the area and to gauge the effectiveness of the refuge in contributing to service programs.

Protection of the land and wildlife resources is in the form of regular patrol and boundary marking and maintenance; without which the refuge would not produce the desired outputs.

Maintenance included in the program involves the upkeep of the headquarters buildings and surrounding area, two residences, four motor vehicles, two airboats, three outboard motor boats and a variety of smaller auxiliary equipment.

The funding for FY 78 was adequate for O&M to catch up on much needed building repairs. The construction of an oil and paint house scheduled for FY 78 did not happen because the only bid within appropriation limits did not meet legal requirements. The project has been rescheduled for FY 79 in the amount of \$15,000.

b. 1220 Mammals and Non-Migratory Birds

A small amount of funds has been allocated to this activity in FY 79. A mammal survey will be conducted at Chassahowitzka during the second and third quarters of FY 79.

c. 1240 Interpretation and Recreation

The majority of the funds for this activity are utilized in connection with the public waterfowl hunting program. The remaining funds are used for interpretative programs geared primarily at local schools although various nature and conservation groups are included in the program. All planned work was accomplished in FY 78 while remaining within the planning allowance. Adequate funds are available for FY 79.

d. Endangered Species

No funds were allotted for this activity. Census work, reporting and other administrative details required of the twelve endangered and threatened species which utilize the refuge, are necessarily charged to the migratory bird activity.

2. Funding

In years previous to 1977, ninety percent or more of the total budget had been obligated into fixed costs leaving little for operating expenses or major maintenance. The last three years have not been as stringent and much needed equipment has been purchased as well as a backlog of cyclic maintenance being accomplished with the extra funds.

The following table shows total funding for the past five years:

| FY | O&M | Other | Total Funds | Permanent Personnel |
|------|---------|---------|-------------|---------------------|
| 1975 | 51,000. | 3,000. | 54,000. | 4 |
| 1976 | 53,400. | 00. | 53,400. | 4 |
| 1977 | 53,000. | 12,000. | 65,000. | 4 |
| 1978 | 82,000. | 6,000. | 88,000. | 4 |
| 1979 | 81,000. | 22,000. | 103,000. | 4 |

The "other" funds for FY 79 will be utilized for cyclical maintenance, building rehabilitation, major equipment repair and the purchase of a new pickup truck and lawn tractor. Construction of the oil and paint house is scheduled for FY 79, \$15,000. has been appropriated for the project.

II. CONSTRUCTION

A. Construction

The fuel storage and dispensing facility at refuge headquarters started in 1977 was completed in 1978. Construction of this facility was made possible through BLHP funds.



Fuel Dispensing Facility Before BLHP Funds
CH-12-78-EC



Fuel Dispensing Facility After
BLMP Funds CH-10-78-EC

The old limestone drive to R-2 was paved with asphalt in June.

B. Maintenance

Some type of maintenance is performed daily. One of the more ambitious undertakings of the year was the rehabilitation of the rest area at Dog Island on the Chassahowitzka River. The 120-foot dock and board walk was repaired with new piling and decking. A pit privy and picnic table were constructed on the site. This facility will provide a necessary public rest area along the remote waterway where no other facilities are available. It will also upgrade the quality of our interpretative program by providing an assembly area within the refuge and permitting an adequate amount of time for an effective tour. This project was accomplished with the help of the YACC employees.



Dog Island Dock - Before
CH-810-BC



Dog Island Dock - After
CH-803-RCZ



Dog Island Picnic Table and Privy
CH-803-RC2

Another project undertaken by refuge personnel and YACC enrollees was the remarking of the Chassahowitzka River channel through the refuge. Because of age, neglect and boating damage the old channel markers were disappearing.

The river has an intricate channel and numerous underwater hazards. The Chassahowitzka River is the primary access to the refuge and the project was undertaken for public safety reasons and protection of refuge equipment. The project was begun in July and completed in November. Other maintenance jobs performed throughout the year include the following:

Public hunting and airboat routes posted.

Replacement of vandalized blue goose signs.

Retiling refuge headquarters floor (the old floor was 30 years old).

New posts and refuge signs were erected along the Chassahowitzka River.

The old fuel pumps and tanks were removed.

Manufactured new wood deck for ski barge.

Cleaned and scraped service building in preparation for painting.

Painted the outside of the service building.

Whitewashed outside of storage and equipment buildings.

A circular drive (dirt) was added to the fuel dispensing area to make access safer and easier.

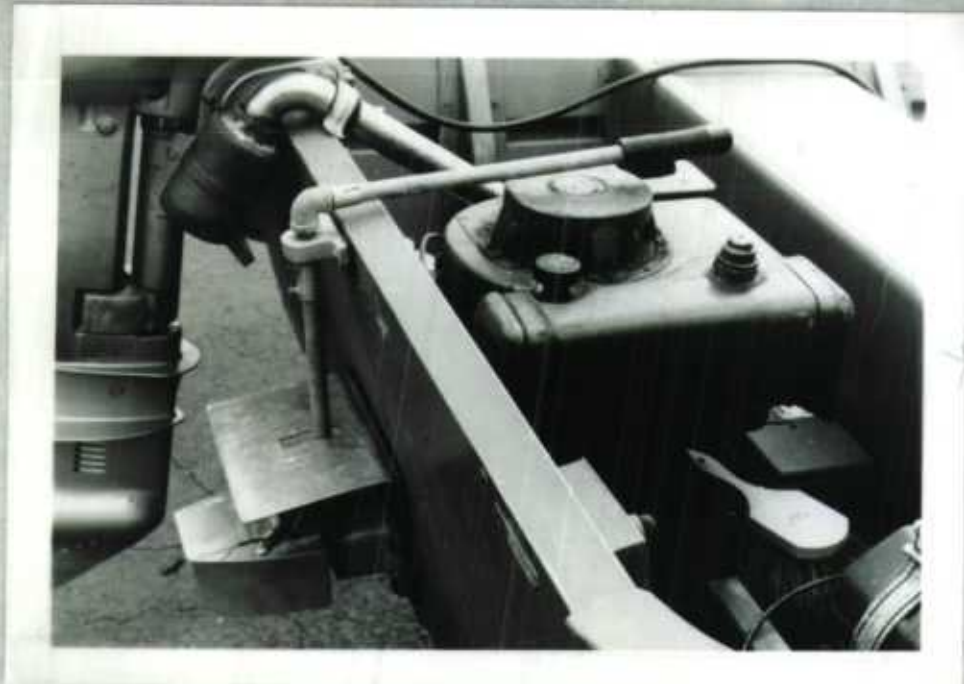
In 1978 the 17-foot Westwind boat, motor and trailer were transferred to St. Vincent's NWR.

The refuge's surplus, junk jeep was brought out of the marsh and turned over to the Florida Surplus Property Division, on March 31.

A Hercules diesel engine was transferred to Merritt Island.

A ski barge trailer ordered in 1977 arrived in January, 1978. The ski barge was delivered in September, 1977.

A 16-foot jon boat, trailer, 9.9 Evinrude engine and an 8 HP inboard jet engine was purchased with YACC funds for use by enrollees while performing their various chores on the refuge. The jet motor enables the boat to be operated in very shallow water because there are no parts below the bottom of the boat.



CH-803-RCZ

A 1978 Plymouth Volare was delivered in July. This vehicle is performing very satisfactorily. Air shocks had to be installed to give this mid-sized car the rear end support needed to tow our larger boats.

Two canopy tops were manufactured for the ski barges by a local boat top maker. The tops are a blessing during a four-hour tour on a 99 degree day.



1978 Plymouth Volare and Jon Boat
CH-805-RCE

C. Wildfire

None

III HABITAT MANAGEMENT

A. Croplands

N.A.

B. Grasslands

Local, adjoining cattle ranchers lease 2680 acres of salt marsh for which \$402.00 in fees were paid. Grazing is limited to winter months because of insects.

C. Wetlands

N.A.

D. Forestlands

The Lykes Brothers Corporation, through a land exchange agreement, reserved timber rights on 662 acres through 1980. Refuge involvement is limited to checks on timber removal and maintenance of marked boundaries to prevent cutting on non-reserved lands.

E. Other Habitat

Nothing to report.

F. Wilderness

On October 19, 1976, 23,300 acres of Chassahowitzka NWR were designated Wilderness in compliance with the Wilderness Act of September 3, 1964. In 1978, 233 acres of land within the Wilderness boundary were acquired bringing the total to 23,533 acres. (See map, front section). In the future, when inholdings lying within the Wilderness boundary are acquired they will automatically receive Wilderness status.

G. Basements for Waterfowl Management

N.A.

IV. WILDLIFE

A. Endangered and/or Threatened Species

The green sea turtle is quite common in refuge waters throughout the year; peak numbers are observed in late spring through the summer. Three hundred individuals were estimated to be utilizing refuge waters during that time. No nesting occurs in the area.

Loggerhead turtles utilize the refuge to some extent, the summer population was estimated at ten individuals. Little is known about the habits of this turtle in this area.

The gopher tortoise, which appears on Florida's threatened list, occurs only around refuge headquarters and the residences.

The eastern indigo snake is common in the refuge and is seen frequently. A population study has not yet been conducted on this species.

The alligator population continues to increase under the protection it is presently receiving. The refuge population is estimated to be above 750.

Two spotlight counts were taken during 1978. The first count on June 12 and 13 revealed 225 gators, last year's count was 162 and in 1976, 148 gators were counted. The second count, conducted on September 14 and 15, spotted 235 gators, 33 of which were hatchlings.

A dead alligator, with its tail cut off, was found in the Chassahowitzka River off the refuge, on May 30. Another dead gator, again with its tail cut off, was found in a pond on private property adjacent to the refuge on the Monday following the first weekend of deer hunting season. These are the only two known cases of alligator poaching in the area.

The only confirmed peregrine falcon sighting on Chassahowitzka was on October 3. The falcon was flying along Pumpkin Creek harassing a kingfisher.

The peak wood ibis population remained at 50 for the second year in a row. This is down from a peak population of 100 in 1976. There is no obvious explanation for this decline.

The brown pelican population reached its maximum number of 250 in March. The average refuge population during the colder months is 100, dropping to 50 during the summer months. The refuge does not support any nesting colonies.

The osprey population was estimated at sixty for January through September with a decline to 45 for October through December. It is also estimated that 37 young were fledged from 25 nests. These numbers are approximately the same as those for 1977. Both years show a decline from the 1975 and 1976 figures. This decline is assumed to be related to the diminution of fish resources in the area. The birds are presumed to move to an area where there is less competition for food when the fish populations decline in an area.

There have been numerous bald eagle sightings throughout the year. It is believed the refuge population is at least seven. Three aerial eagle and eagle nest counts are planned for January, February and March of 1979 to get a more accurate picture of the situation. Three nests can be seen from the ground, two in Hernando County. One was active, the other occupied by an osprey. The nest in Citrus County was inhabited by buzzards.

In February "Manatee Area" signs were posted by YACC and refuge personnel in Kings Bay, Crystal River, Florida, eight miles north of Chassahowitzka NWR. Five 16-foot pilings were placed in the ground and the signs fastened to the poles facing the areas of heaviest boat traffic. The work was covered by the local news media.



"Manatee Area" sign, Kings Bay, Crystal River
CH-817-RCZ

The manatee came into the spotlight throughout the state in 1978. November was proclaimed "Manatee Awareness Month" by Governor Askew. He also designated the manatee as the state mammal. The NBC television affiliate out of Tampa did a two part story on the manatees of Crystal River during their regular newscast. Numerous newspaper articles also appeared on the manatee. What spurred a lot of the attention is the proposal to control boat speeds on the Crystal River and Homosassa River and close an area of Kings Bay in Crystal River to boats.

On November 17 John Oberheu, Manatee Recovery Team Leader, visited the area in reference to the Kings Bay regulations. At this time he assisted refuge personnel in putting the "Manatee Area" signs back up (they were removed in June when the manatees moved back into the Gulf waters). Additional signs were erected on the same pilings so that all major boat routes would be covered. Mr. Oberheu was also shown selected areas of the Homosassa River where speed controls are proposed.

On December 13 a public hearing sponsored by the Florida Dept. of Natural Resources, was held concerning the manatee protection proposals for Kings Bay and Homosassa River. This was the first of six meetings that were held throughout the state. John Oberheu returned to present a statement at the meeting giving the Service's position on the manatee and the associated boating restrictions.

At Chassahowitzka NWR manatee sightings occurred on May 3 and 16, June 2 (four individuals) and 28 and July 13. All of the sightings occurred in the vicinity of Dog Island (see map, front section). It is believed that when the manatees leave the Kings Bay area they work their way down the coast feeding in areas with adequate preferred vegetation. Since manatees utilize the Chassahowitzka

River, consideration has been given to establishing boat speed zones on portions of the river that flow through the refuge.

In 1978 no signs of black bear were seen on the refuge. In 1977 there were signs and unconfirmed reports of the animal; also in preceding years the animal or signs have been seen. We assume we still have a small number somewhere in the Chassahowitzka Swamp. Although the Florida black bear is listed by the State as a threatened species, hunting of this animal is permitted in Baker and Columbia counties of northeast Florida.

B. Migratory Birds

1. Waterfowl

The duck population reached a peak of 14,000 birds in January and February, 1978. Lesser scaup comprised half of the population, an unusual ratio. The pintail and widgeon populations 1100 and 700 respectively, continue to be below their normal numbers, 6800 and 1500 respectively, reached in 1971. The canvasback population remained steady at 1,000 for the second year in a row. The birds began their migration north in late February and the populations steadily declined.

The American coot population peaked at 10,000 in January, 1978. This was a decrease from 1977's population of 18,000 and is far below the highest population of 55,000, recorded for the 1971-72. migration.

The 1978-79 waterfowl migration started in late August with blue-winged teal coming into the area. The total population at the time of this report, 6810, is far below normal. The mild fall and early winter temperatures were believed to be the main reason for this year's decline.

The coot population at the time of this report is 7,000, considerably below normal.

There was an unconfirmed report of a flock of Canada geese near Ozeello, Florida, five miles north of the refuge. Canada geese have not been reported on the refuge since the winter of 1964-65.

2. Marsh and Water Birds

a. Rails and Gallinules

The most abundant rail on the refuge is the clapper rail with a population estimated to be in excess of 1,000. Other rails which inhabit the refuge are the Virginia, Sora, black and yellow rails; each of which has a peak population of 200 or less throughout the year.

The Florida gallinule is a common water edge marsh dweller on the refuge. Their population fluctuates between 1,000 and 1,500 birds throughout the year. This gallinule also nests on the refuge with an estimated 600 young being produced in 1978.

b. Colonial Birds

Colonial bird populations remained about the same as last year with some slight variations for individual species. The three major rookeries on the refuge utilized by cormorants, Louisiana heron, great egret, snowy egret, little blue heron, black-crowned night heron and white ibis produced approximately 7,200 fledglings. The remaining colonial birds; great blue heron, green heron, yellow-crowned night heron and anhinga, which nest in scattered areas, produced about 450 young. This is down slightly from last year's production of 500.

c. Snipe

Habitat for Wilson's snipe on the refuge is limited to the areas of saltgrass and exposed mud flats. The leased area grazed by cattle also provides good feeding habitat. This year's peak population was estimated at 3,000 birds.

d. Other

On October 16, one hundred white pelicans flew onto the refuge and by the end of December their numbers totaled 700. This is the largest number of these strikingly beautiful birds to use the refuge in recent years.

The horned grebe population is down considerably from last year. The peak population in the fourth quarter of 1978 was 50, while for the same time period in 1977 it was 500. The common loon population for December of 1978 was ten as compared to 30 for December, 1977. These declines are attributed in part to the mild winter we are experiencing here in Central Florida.

3.. Shorebirds, Gulls and Terns

The shorebird population estimates for December, 1978 were off 92% from December, 1977's count. The following table shows the difference, by species, for the two years.

| Species | 1977 | 1978 |
|-------------------------|------|------|
| Semi-palmated Sandpiper | 3000 | 200 |
| Dunlin | 1500 | 25 |
| Western Sandpiper | 500 | 10 |
| Least Sandpiper | 500 | 50 |
| Greater Yellowlegs | 140 | 25 |
| Willet | 100 | 30 |
| Wilson's Plover | 70 | 10 |
| Killdeer | 70 | 50 |
| Dowitcher | 60 | 50 |
| Sanderling | 50 | -- |
| Black-bellied Plover | 50 | 10 |
| Semi-palmated Plover | 30 | 5 |
| Totals | 6070 | 465 |

This trend started in August and continued through the rest of the year. No reason can be given for this decline.

The gull and tern populations are down from last year but not as drastically as the shorebirds. The table compares the December 1977 and December 1978 population figures for the three species of gulls and five species of terns which utilize Chassahowitzka.

| Species | 1977 | 1978 |
|------------------|------|------|
| Ring-billed Gull | 1000 | 1000 |
| Herring Gull | 300 | 300 |
| Laughing Gull | 200 | 50 |
| Royal Tern | 200 | 50 |
| Common Tern | 30 | 10 |
| Least Tern | 20 | 20 |
| Caspian Tern | 120 | 75 |
| Black Tern | 150 | -- |
| Totals | 2020 | 1505 |

4. Raptors

Populations and activities were normal for the red-tailed, red-shouldered, Cooper's and marsh hawks; the barred, screech and great-horned owls as well as the American kestrel and swallow-tailed kite. The refuge population of all of the above species is small.

5. Other Migratory Birds

Frigatebirds utilize the small islands for loafing that are rookeries for the colonial birds. No frigatebird nesting occurs in the area. A peak population of 200 was recorded for April through September with a few individuals remaining in the vicinity most of the year.

C. Mammals and Non-Migratory Birds

1. Game Mammals

White-tailed deer are present in small number. They inhabit the swamp and larger islands of the refuge. Their numbers remained constant after an increase in population last year. Hunter success on adjacent lands was fair this year.

2. Other Mammals

There have not been any sightings of mink this year by refuge personnel. It is assumed that there are at least 50 individuals on the refuge.

The river otter population has remained constant the last seven years at 200 animals. This may be a conservative figure for this elusive creature. No known trapping has occurred in the vicinity of the refuge in recent years.

The refuge's higher islands and swamp support an estimated average population of thirty bobcats.

The most common mammal on the refuge is the raccoon with an estimated population of 1,000. A large number of these animals can be observed feeding on the "coon" oyster bars during a low tide. They have also been known to "retrieve" ducks downed by hunters.

The bottle-nosed dolphin is a common resident in refuge waters. During an incoming tide schools ranging from two to eight individuals can be seen feeding in the deeper creeks and channels on the refuge.

3. Resident Birds

In 1977 there were a few observations of wild turkey on the refuge and an estimated number of 20. This year there were no observations of wild turkey. It is not known whether this is an indication of a trend or a case of being in the wrong place at the wrong time.

Habitat for quail on the refuge is limited to the headquarters and residence area. Several broods of a dozen or more were produced in these areas.

The red-bellied woodpeckers in the area do not seem to be satisfied with the numerous trees that are available to them. Every so often one will peck its way through a gable on the service or storage buildings.

4. Other Animal Life

The fish resources in the area declined below last year's all time low. The commercial fishermen whose "bread and butter" is the mullet, were hard pressed throughout the year. When the price of mullet was up, very few were caught and when numbers were caught, either the price was low or no one wanted to buy them.

Redfish and trout remained scarce in the area. There were reports of fair catches of these two fish up to 10 miles offshore through the summer and fall but migrations into the rivers and creeks occurred only sporadically and in small numbers.

Blue crab catches in the area were also down this year.

V. INTERPRETATION AND RECREATION

A. Interpretation and Information

1. On Refuge

The only interpretative facilities available on the refuge at the present time are one portable and one permanent display. The lack of land access to the refuge prohibits any meaningful developments at the present time.

Throughout the year sixteen interpretative tours comprised of 331 students and adults were conducted. These figures down 30 percent and 40 percent, respectively, from 1977.

Seventeen hundred sixty eight contacts were made by letter, telephone and office visits to individuals or organizations requesting information, permits or assistance during the year.

2. Off-Refuge

Eight articles concerning the refuge appeared in various newspapers published within a 60-mile radius of the refuge.

An article on the Chassahowitzka River appeared in the May-June 1978 Florida Wildlife. The article entitled "When it Comes to Fishing, It's a Mixed-up Chassahowitzka" by Max Humm, accurately refers to the refuge as a "soggy bit of primeval Florida covering 30,514 acres, that has escaped the dragline of progress". The article contained a lot of interesting information on Chassahowitzka, the refuge, the town and river.

B. Recreation

This year's fishing visits to the refuge were up 10,500 from last year's figure to 31,800. This figure is surprising because the fishing was poor throughout the year but the weather was good for going out, relaxing and enjoying the wildlands environment.

The 77-78 waterfowl hunting season was the best in recent years. A total of 1,091 ducks were bagged in 369 hunter visits for 2.9 birds per hunter. Eighty percent of the ducks taken were lesser scaup. The 1975-76 and 76-77 birds per hunter visit ratios were 1.2 and 1.5 respectively. During the 77-78 season there were less hunters and more ducks taken than in previous years.

The 78-79 season got off to a slow start due to the mild weather. Hunter success was fair to poor but as the number of hunters declined, success increased. The duck population at the time of this writing is approximately 6,800, less than half the normal number.

Only slight opposition was met concerning the steel shot requirement this year. The most common complaint was why they couldn't use shotguns other than 12 gauge in the hunt area.

C. Enforcement

In 1978 only one citation was issued. An individual was found cutting and removing "driftwood" from one of the refuge islands. The "driftwood" is used to make novelty items. The violator forfeited a \$100. bond for the offense.

The local fishermen and citizens inform refuge personnel of suspicious goings-on within the refuge, at which time we investigate. We usually don't find anything but our presence is deterrent enough to keep questionable activities to a minimum.

Routine patrol is a primary work element throughout the year. The refuge and public hunting area are patrolled constantly during the hunting season. At unannounced intervals a night patrol is conducted during the summer months to discourage gator poaching, airboat violations, camping and various other possible violations.

VI. OTHER ITEMS

A. Field Investigations

Gizzards were collected from ducks taken by hunters and examined for lead shot content. A total of 315 gizzards were collected; fifty-three (16.8%) contained lead shot. Lesser scaup had the highest percentage of lead shot ingestion. 24.4% of all species checked. These figures are probably biased due to the large sample (197) of scaup gizzards. The information gathered in this study was compiled with data from other refuges in Florida and presented at the 32nd Annual Conference, Southeastern Association of Fish and Wildlife Agencies.

Bottom samples were also taken in conjunction with another study on lead shot ingestion from various parts of the refuge hunt area.

In March an article appeared in the Tampa Tribune on the lead shot study at Chassahowitzka NWR.

A gopher tortoise population study was conducted by a YACC enrollee from the Gainesville Field Station of the National Fish and Wildlife Laboratory. After walking 4,185 meters of transects in the 16.3 hectares of suitable habitat the tortoise population was estimated to be 85, or 6.3 per hectare. (that's roughly 2.12 gophers per acre...Ed).

B. Cooperative Programs

Refuge personnel assisted the Realty Division on numerous occasions throughout the year. The assistance was related to acquisition at Chassahowitzka and Cedar Keys Refuges and the proposed Lower Suwannee National Wildlife Refuge.

The refuge participates in the International Shorebird Survey, the Atlantic and Gulf Coast Beached Bird Survey and the American Alligator Council Survey. Also information about the refuge and its related wildlife populations was furnished to various state, local and private organizations throughout the year.

Chassahowitzka's Assistant Refuge Manager participated in the Georgia Dove Nesting survey during the last week of August.

Refuge personnel researched and reported on the "Bartram Trail" north of the refuge.

On February 6, 1978, the Young Adult Conservation Corps program was activated at Chassahowitzka. The program has worked well both for the refuge and the enrollees. To date five enrollees have participated in the program; (only one had to be terminated, at the end of one week, because of lack of interest). The enrollees have been a great help in the office and assisting refuge personnel with routine maintenance as well as working on the larger

projects such as channel marking, boundary posting, dock building, painting of buildings and timberstand improvements. No more than two enrollees have been on board at any one time and presently only one is stationed here because of the freeze on hiring.

The Florida Division of Forestry, under a perpetual lease agreement, maintains a fire tower, residence and fire fighting equipment on a one acre tract in the south-east corner of the headquarters tract.

C. Items of Interest

In April a fish kill occurred in the canals of the Chassahowitzka River due to a mismanaged weed control program by the Southwest Florida Water Management District. The predominant species killed were bass and bream which were bedding at the time.

Refuge personnel attended a Technical Advisory Committee meeting concerning the Wastewater Treatment and Disposal for Southwest Citrus County, 201 Plan in September.

The reason for our presence was that one alternative of the Plan disposes effluent into the marsh adjacent to the refuge and another alternative deposits the effluent into Hall's River which runs into the Homosassa River, a manatee habitat. The third alternative was for spraying irrigation if the effluent in the sand hills. A public meeting scheduled for late September never materialized.

The Assistant Manager's position was finally filled after being vacant for 19 weeks when Bob Ziobro reported for duty on February 13.

Refuge Clerk Esther Brown, attended an administrative workshop in Atlanta during March.

Ed Collinsworth and Bob Ziobro attended the Area meeting at Merritt Island NWR in April.

Ed Collinsworth attended the Area Project Leaders meeting held in August at Jacksonville Beach.

Bob Ziobro attended the Public Use Workshop held at Okefenokee NWR in September.

On November 14, Bob Ziobro and Bob Quarles attended a law enforcement refresher course at Merritt Island NWR in preparation for the 1977-78 duck hunting season.

D. Safety

The refuge's six year plus lost-time accident free record ended on April 26. A temporary maintenance employee fell from the gunwale of an airboat while gassing it and sprained an ankle.

Twenty-five days after the above accident, on May 22, the same employee injured a thumb and hand while razing the old dock at Dog Island, making it necessary to start the tallies for calendar days and employee hours from zero again. At the time of this report those tallies were 222 and 7,080 respectively.

In November a YACC employee, who had removed his boots for personal comfort, received cuts on the bottom of his feet when he fell into the water while working. This incident did not result in any lost time.

Assistant Manager and Safety Committee Chairman, Bob Ziobro, attended a Defensive Driving Course and the Red Cross First Aid Course this past year. The First Aid Course was also attended by Maintenance Worker Bob Quarles.

E. Other Items

This report was prepared by Assistant Refuge Manager Robert C. Ziobro.