United States Department of the Interior
NATIONAL PARK SERVICE
EVERGLADES NATIONAL PARK
AND
FORT JEFFERSON NATIONAL MONUMENT
P.O. BOX 279
HOMESTEAD, FLORIDA 33030

IN REPLY REFER TO:

A2621(SER-OR)
XH2621

MAR 1 0 1987

Memorandum

To: Regional Director, SERO

From: Superintendent, EVER

Subject: Superintendent's Annual Narrative Report

Enclosed is our submission of our Superintendent's Annual Narrative Report. We have enclosed 3 copes as requested. If there are any questions do not hesitate to call.

M. V. Finley

Michael V. Finley

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SUPERINTENDENT'S ANNUAL NARRATIVE REPORT - 1986

In March, after serving nearly six years at Everglades National Park, John M. Morehead left to become Superintendent of Yosemite National Park. His accomplishments here were recognized with the presentation of the Department's Meritorious Service Award. Michael V. Finley, Associate Regional Director, Operations, Alaska, was named as his successor arriving in early July. In August the Assistant Superintendent position became vacant with Maureen Finnerty's transfer to the Mid-Atlantic Region as Associate Regional Director, Management/Operations.

One of the first actions taken by Superintendent Finley was a review of the management relationship between Everglades and Big Cypress National Preserve. His recommendation that it was now time to remove the preserve from the administrative oversight provided by Everglades National Park was approved by Southeast Regional Director Baker. Certain activities such as research, fire, and some maintenance projects will continue on a cooperative basis.

December 31, 1985, marked the end of commercial fishing within the park under the special regulations published in 1980. Surprisingly, there were very few infractions and no overt protest over this closure. A Writ of Certiorari was denied by the Supreme Court closing the final avenue of appeal to the commercial fishermen.

As part of the Save Our Everglades program initiated by Florida Governor Bob Graham, an Interagency Panther Recovery Committee was formed joining together the Southeast Regional Directors of the National Park Service and U. S. Fish and Wildlife Service and the heads of Florida's Game and Fresh Water Fish Commission and Department of Natural Resources. The park developed plans to begin a panther study which includes tracking and collaring individual animals using the experienced panther capture team put together by the Florida Game and Fish Commission. A companion study of the park's whitetail deer population will be done under a contract with the University of Florida.

In the November elections, Governor Bob Graham won the Senate seat held by Paula Hawkins, and Bob Martinez of Tampa was elected governor. This change has caused some concern among the Florida environmental and conservation groups for the future of the Save Our Everglades initiative .

The South Florida Research Center emphasis on studies evaluating water delivery schedules and the effects on the park's natural systems has continued undiminished. Collection of data resulting from early draw-down of water levels in the area known as the "Frog Pond" along the eastern boundary to accommodate agricultural uses has been completed and early analysis indicates a significant impact within the park.

Twice during the year the park resisted attempts to suspend the water delivery agreement to improve conditions for deer in the conservation areas outside the park; however, when water levels did actually exceed the maximum established, the delivery

schedule was temporarily set aside and excess water was released into the park. In both instances, the conditions rapidly improved, and no long-range, significant impacts were noted either within or outside the park; however, the East Everglades property owners still strenuously object to the entire concept of natural flow and/or rainfall driven modeling without flood protection.

Following the tragedy of the Challenger explosion and the general acceptance of the design problems with the segmented rocket, Aerojet General launched a major effort to interest NASA in the unitized, solid fuel propulsion engine. Their property just east of the park boundary was designed to build and test solid fuel rockets 20 years earlier. Although the structures had been mothballed, they had been maintained exceptionally well, and an unsolicited proposal submitted to NASA created a great deal of concern for the environmental impacts of such an activity. The Army Corps of Engineers was particularly dismayed as one of the conditions would be to maintain the navigability of the C-111 Canal to ship units by barge from the construction site, through Biscayne Bay, to Canaveral. As the weeks passed with no indication of interest from NASA, the general consensus was that the program was unlikely to be reactivated.

Funding was received from the Federal Highway Administration to elevate and redesign the Shark Valley road and parking facility to restore a more natural water flow and to allow for year-round visitor access. To facilitate completion of the project safely, the area was totally closed to the public in May; October 1 was to be the reopening date. The work progressed very slowly and the date was extended to December 15 in order to give the contractor every opportunity to complete the job. By mid-December, it was apparent that the work was not progressing and the firm was terminated for failure to perform. It was then necessary to re-advertise the contract. The condition of the road made it impossible to reopen the area for general public use and it will likely remain closed until early fall 1987. This has been extremely frustrating as the Shark Valley experience, with its abundant wildlife, is very popular with south Florida visitors.

For many visitors, 1986 will be remembered as the year of the comet--Haley's Comet. The vast Everglades offered visitors the southernmost dark skies for viewing the comet, and nighttime visitation set new records with remote parking lots turned into amateur observatories, and the main park road nicknamed "Haley's Alley." Both the park and the concessioners emphasized astronomy and related themes in programs.

The initial draft of the Peripheral Areas Study being developed by the Denver Service Center had a number of issues which were unresolved. The team came to the park in September for an additional scoping meeting, and the final draft is now expected in early 1987, with approval targeted for March 1987.

Through the extensive efforts of the Assistant Superintendent, legislation was introduced to authorize concurrent law enforcement jurisdiction for National Park Service units in Florida. It was signed into law by Governor Bob Graham on June 5, 1986. The Miccosukee Indian Tribe was vehemently opposed to ceding exclusive jurisdiction, and, unbeknownst to park officials, language was included in the bill which exempts the Miccosukee Indian reservation on the 500-foot strip from concurrent jurisdiction.

When the fixed-wing pilot retired on a medical disability, the entire air operation was re-evaluated. Helicopter use has increased significantly, and the salary for a resident pilot, together with the extremely high cost of operation and maintenance for a contract ship, make it impractical to continue operating in this manner.

A major improvement in park housing was realized with the acquisition of two modular structures to replace mobile homes as seasonal housing in remote areas of the park. These units combine the advantages of new facilities at relatively low cost with the convenience of state of the art modular construction and the pleasing aesthetics of natural wood design.

A cooperative effort that has been extremely successful is the agreement with the Dade County Correctional Institute for the use of prisoners for day labor projects. Both agencies feel this has been of great benefit in terms of work accomplished as well as improved morale and a sense of personal accomplishment for the participants.

Visitation for 1986 was 762,283 and continued the upswing of the past 3 years showing an increase of approximately 9% over 1985. More than 7,950 information packets were mailed and 22 permits for commercial filming were processed, including 3 hour-long nature series productions. Of particular interest were two live, hour-long birdwatch programs broadcast from the Anhinga Trail on successive days by BBC and PBS. Seventy scientific collecting permits were issued, the majority of which involve geological field trips to Crane and Bob Allen Keys to take core samples and observe the classic development features represented there. The level of activity and the attendant disturbance to the resource is a matter of increasing concern, and alternatives to limit this use are being explored by research and resources management staff.

Equal Opportunity Efforts

Personnel: A Federal Equal Opportunity Recruitment Program (FEORP) employment interest card was developed to establish an applicant supply system for applicants not applying to specific positions. The form is also designed to solicit information on race and national origin to assist in determining if the park is reaching all segments of society. Two park employees participated in shadow training (a program developed by the EEO Committee) this year.

Permanent Employment Statistics:

Full-time Permanent	162	
Part-time Permanent	5	
Subject-to-Furlough	12	
Temporary (Seasonal)	66	(includes NTT 1 year)
Term	12	
TOTAL	257 **	(includes FOJE)

New Hires (Permanent Only):

Superintendent's Office
--1 white female

Administration
--1 white female Supv. Contract Specialist
--1 white female Upward Mobility/Personnel Mgmt. Specialist

Maintenance
--1 white female Motor Vehicle Operator
--1 white male Motor Vehicle Operator
--1 black male Motor Vehicle Operator
--1 black female Clerk-Typist
--2 white male Maintenance Workers

South Florida Research Center
--1 white male Computer Specialist
--1 white female Librarian
--1 white male Supv. Hydrologist

Fort Jefferson National Monument
--1 white male Maintenance Mechanic Helper

The park participated in the Dade County Inner City Marine Project and hired as Biological Aid GS-1 for the summer:
--1 white female
--1 black female
--1 Hispanic male

ADMINISTRATION

One of the surprises of the year was the fact that the park survived Gramm-Rudman! On a positive note, it made managers take a closer look at their operation. The required dollar cuts were made with little visible effect to the visitor. Some maintenance cycles were extended or delayed with no major adverse impact.

The number of seasonals and length of season were reduced, but most cuts were taken during periods of low visitation or normal closures due to climatic conditions. The reduced number of law enforcement seasonals resulted in curtailed patrol operations, and some research projects suffered due to the inability to gather data while others were delayed. Had the reductions been extended a second year, however, the results would have had more long-lasting impacts.

Base funding, fiscal year 1986	$6,469,600
Gramm-Rudman reduction	- 292,100
Base funding, fiscal year 1987	$6,177,500
Superintendent's Office	$ 395,300
Administration	438,200
Interpretation	637,900
Res. Mgmt. & Visitor Prot.	1,329,200
Maintenance	1,823,600
Research	1,553,300
Capitalized equipment	101,400
Panther Study	182,500
Cyclic Maintenance	236,200

RESOURCES MANAGEMENT

Many vacancies occurred in Resources Management during the year including the transfer of the coordinator in March. This position remained unfilled until late December.

Marine Fisheries Summary: The overall trend affecting the 1986 marine fisheries in Everglades National Park reflects an increase in visitor usage (44,710 boats) of the resources contrasted against a decline in the estimated harvest of several of the more popular sport and food fish. Redfish, snook, black drum, and grey snapper estimated harvests were all down while seatrout and sheepshead harvests were on the rise.

Over 20,000 people were interviewed by port samplers of Flamingo and Everglades City - an increase of 14% over 1985 surveys. The general park visitation was up 11% while boaters contacted fishing jumped 16%. The estimated fishing boats, fishermen, and hours fishing all show an 11% rise over last year. Due to the ban on commercial fishing in December 1985, the total park permittee figures have dropped from 244 (netters, crab trappers, hook and liners, and guides) to 169 guide only permit holders - a decrease of 75 permits. However, the number of guides has increased 3%.

While both recreational and guide fishing effort climbed roughly 14% (124,449 man days), the overall catch rate fell 2%. The successful and unsuccessful trips increased for both fisheries. The overall estimated harvest for both fisheries dropped 4%. On closer inspection, a contrast of the two fisheries reveals guides not fairing as well as sportfishermen. The recreational estimated harvest was up 7%, while guide estimated harvest was down 38% from last year. While the recreational catch and harvest rates for seatrout show an increase, the opposite is true for the guide catch and harvest rates.

This year also saw a State of Florida moratorium on redfish harvest which began November 7, 1986, and ended February 5, 1987,. Furthermore, the State has imposed an 18-inch limit on redfish as well as declared an annual closed season every March and April.

Recreational and Guide Statistics

	EST. HARVEST 1985	EST. HARVEST 1986	TREND	HARVEST RATE 1985	HARVEST RATE 1986	TREND	CATCH RATE 1985	CATCH RATE 1986	TREND
Total Fish	689325	663277	-4%	1.00	.89	-11%	1.94	1.82	-2%
rec	527764	562521	+7%	.84	.85	+1%	1.82	1.92	+5%
guide	151561	100756	-33%	1.13	.93	-19%	1.85	1.72	-7%
Redfish	104921	43753	-58%						
rec				.36	.26	-28%	.45	.41	-9%
guide				.51	.25	-51%	.73	.66	-10%
Snapper	147725	145664	-1%						
rec				.57	.60	+5%	.71	.71	same
guide				.95	.71	-25%	1.19	1.16	-3%
Snook	11365	10703	-6%						
rec				.15	.15	same	.30	.26	-13%
guide				.16	.14	-12%	.36	.27	-25%
Seatrout	263803	302058	+15%						
rec				.52	.58	+12%	.80	1.01	+26%
guide				.96	.90	-6%	1.49	1.46	-2%
Sheepshead	59577	69787	+17%						
rec				.39	.43	[illegible]	.52	.59	+13%
guide				.42	.43	[illegible]	.58	.55	-5%
Black Drum	41517	31147	-25%						
rec				.32	.28	-12%	.38	.31	-12%
guide				.38	.32	-15%	.43	.36	-16%

Fire Management Section: Overview of FY86 accomplishments to date - Fire management at Everglades is a team effort. During FY86 fire management personnel filled only a portion of fire positions. Participation by other park personnel was essential to meet prescribed burning goals and to take action on wildfires. The majority of this participation was by employees in the RM and VP Division. Other divisions provided personnel for wildfires only. Trained employees in the Maintenance and Interpretation Divisions also participated in prescribed burns on their lieu days. Fire section staff members planned and directed the fire program, maintained and stocked fire equipment and supplies, and collected, organized, and distributed fire information.

This fiscal year the fire training plan functioned well, with the number of qualified personnel approaching the number identified as needed. Since the first of October, Fire School, Incident Command System, Aerial Ignition, and Dispatcher training have been offered in the park. Fire staff members also participated as instructors in fire training offered outside the park. As part of the fire qualification system, the step test was administered to all park firefighters. For the first time this year, fire physicals were administered to permanent employees as required by NPS-18.

Everglades receives frequent requests for assistance on wildfires outside the park. During FY86, Everglades filled requests from local cooperators and the Southeast Regional Coordination Center for overhead, equipment, supplies, and crews. Thirty-nine persons were assigned to fire situations outside Everglades. The majority of these assignments were on two project-sized wildfires in the Big Cypress National Preserve.

The Interagency Incident Management System was adopted by the Southeast Region in FY86. Most fire supervisors (Squad Boss and above) have received training on the new system. All fire experience records were converted to the new fire job qualification system.

The new fire facilities at the Beard Center and Iori Building are almost fully functional. Some work remains to be done on the lab at the Beard Center.

We have begun using a personal computer to transfer fire reports to the mainframe computer at BIFC. Aerial photography was used to record nearly all park fires during FY86. This procedure provided a permanent record of fire effects and was a cheaper method of mapping fires.

Soil moisture and water levels were monitored regularly throughout the dry season. A drought condition report was issued each time fire management strategies changed in the different units. Fire danger information was included in the morning report.

The park received FIREPRO for the first time in May 1986. This funding is intended to bring initial attack capabilities up to a level commensurate with wildfire potential in the park. Funding levels are based on an analysis of fire history and fire danger. Hazard reduction burns were also funded by FIREPRO. This funding is not used for permanent salaries or for other portions of the fire management program.

The botanist and assistant FMO (AFMO) began work on a project designed to compare fire effects on pineland vegetation under two burning regimes; summer headfires and winter backing fires. Two burns were completed in the fall of 1985. The data will be analyzed and the project design re-examined before further burns are conducted. This project is not currently funded.

Everglades recorded 54 fires during 1986. Twelve were prescribed burns, 32 were lightning fires, one was a wildfire managed within prescription, and 10 were wildfires in the East Everglades where action was taken under a cooperative agreement with the state.

Planned activities for balance of FY86 and FY87:

Ten prescribed burns were conducted during summer 1986. These were hazard fuel reduction burns of pineland understory vegetation. Two prescribed burns were conducted during fall/winter 1986. The objective of these burns were to create a mosaic of different aged patches along boundaries to slow or stop the spread of wildfires into the park and confine natural prescribed burns to the interior of Everglades. We anticipate increased cooperative burning efforts with Florida Division of Forestry and the Game and Freshwater Fish Commission, recently charged with management of state-owned lands in the East Everglades. The proposed burning regime will break up fuels in the East Everglades and compliment EPPC efforts to control the spread of Melaleuca in the East Everglades.

Vegetation Management Section: Accomplishments of FY86 may be divided into several project category areas. The emphasis in vegetation management has been on reviewing past work and planning an updated, feasible exotic plant control strategy. The botanist has reviewed the files and the literature on the five principle species, cajeput, Australian pine, Brazilian pepper (Florida holly), Ardisia, and Colubrina. A paper summarizing the past, present, and future needs of exotic plant management in Everglades National Park was presented to the Symposium on Control of Introduced Plants in Native Ecosystems in Hawaii at Hawaii Volcanoes National Park (June 10-12). A final paper will appear in the symposium proceedings which will be published by HAVO. This paper will serve as a draft for the updated exotic plant management "plan."

Several other exotic control projects are also in progress. The Schinus (Brazilian pepper) feasibility study determines the optimal season of treatment and herbicide strength. Monitoring of the treated trees will be completed in January 1987 and results will be summarized and reported on shortly thereafter. This will assist us with our casual eradication program. Emphasis on control by Resource Management personnel has been on Melaleuca (cajeput) and we have mapped and treated all known trees in the park. A report on the current distribution is forthcoming. District park rangers have assisted Resource Management in exotic plant control efforts for the other plant species in Everglades. The program works fairly well for the Key Largo district where rangers can keep track of plants which occur on the islands scattered in Florida Bay but less successfully in the other districts where there are many more trees. The district rangers have treated several hundred trees to date.

The area known as the Hole-in-the-Donut has been burned periodically since 1980 in an attempt to control Brazilian pepper. Plots were systematically laid out in the Brazilian pepper-para grass interface to determine the successional pattern following fires. This data is being analyzed to determine if this management strategy is effective in control of Brazilian pepper. A report is in progress and should be finished by this fall. Russell Galipeau, Resource Management Specialist Trainee, has taken the lead in this project.

Exotic plant control transcends political boundaries and is necessarily a regional problem. To address this issue a majority of governmental agencies in the south Florida area have traditionally exchanged information on exotic plant problems and control techniques. In late 1984, they formed the South Florida Exotic Pest Plant Council. Everglades National Park is a member of this group and has served as the host agency for meetings and as chairman for 1985-1986. Active involvement in the council this year has focused on a cooperative Melaleuca eradication program in the East Everglades area with the South Florida Water Management District, Dade County Environmental Resource Management Department and others. Funding for this program is a direct result of efforts by the Exotic Pest Plant Council. This area is especially crucial to our control efforts in the park as it is one of two major avenues of spread from outside our boundaries. Staffing for control efforts has been gratis by the agencies involved, thereby, allowing the money to be spent on aerial photography and helicopter time, both of which are costly. This cooperative program has gone very well and will continue in FY87.

The vegetation management section has several other areas of responsibility and is involved in several other long-range projects. In 1984, we entered into an agreement

with the Denver Air Quality Division to set up a biomonitoring project in Everglades. This project is primarily funded by Florida Power and Light Company. The project consists of monitoring mature and seedling-stage slash pine trees for signs of SO_2 and O_3 damage in five areas of Everglades and Big Cypress National Preserve. In October 1986, we will monitor the second year's mature trees and the first-year seedlings. We have been maintaining potted seedlings in the field for the latter purpose. One GS-5 temporary technician is assigned to this project.

We also have responsibility for the Integrated Pest Management program. This year to date, 21 pesticide use requests have been approved by region. Personnel also regularly assist in the prescribed burn program and on wildfires. Vegetation management personnel cooperated with fire management personnel in data collection for fire effects research in the pinelands. These data will be analyzed before further burns occur. Two volunteers (Rich and Jean Seavey) assisted in the collection of data for the Rx burns. They also made a photo and herbarium specimen collection of the major plant species found in the pinelands. These specimens will be sent to Fairchild Gardens to be mounted and will become a permanent reference collection.

Air Quality: Park staff and specialists from the Denver Air Quality Division finally succeeded in reestablishing criteria pollutant monitoring for ozone and sulfur dioxide. The park station officially went on-line May 1. A Memorandum of Understanding was established with Dade County's Department of Environmental Resources Management for quality assurance assistance and data transmission to the state. In addition, the state is providing quarterly and annual quality assurance audits of the program.

Visibility monitoring continued in 1986 using an automated 35mm camera. Air Resource Specialists, Inc., provided a "Special Data Processing Report" for 1984-85 Everglades data.

The staff coordinated with the Permit Review and Technical Support Branch, Denver Air Quality Division, in responding to two Prevention of Significant Deterioration (PSD) permits for municipal power plant facilities in Broward and Collier Counties. Two similar PSD permits were reviewed in 1985 and, as a result of NPS comments on the four proposed sites, stricter emission control standards were adopted.

Progress continued in 1986 with the series of air quality effects related studies undertaken by NPS in cooperation with Florida Power and Light Company. Two studies were completed and final reports issued on: "The regional influence of an oil-fired power plant on the concentration of elements in native materials in and near south Florida national parks" and "Growth response of two varieties of slash pine seedlings to chronic ozone exposures." Studies continuing in 1987 include pine biomonitoring, epiphyte bioindicator species, epiphyte fumigation, regional climatology, and lichen sensitivity.

Backcountry: Nineteen eighty six saw continued growth in backcountry use in the park with more than 14,000 visitor use nights documented. In order to address overuse of random "wilderness zone" camping, twelve new campsites with designated capacities were established. In addition, changes were implemented to streamline the permit issuing system to provide more efficiency and reduce errors. Other backcountry issues which appear to need additional evaluation include, adequacy of impact monitoring both biological and social, need for expanded overnight camping opportunities, and maintenance of backcountry facilities, signs, and trails.

Adjacent Land Use and Regulation: During 1986, Resource Management reviewed 235 Corps of Engineer Section 404 Public Notices and 92 U. S. Environmental Protection Agency, National Pollutant Discharge Elimination System permits. There were no recommendations for denial of any of these public notices or permits in 1986. Much of the dredge and fill and rockplowing activity in 1986 was confined to the area adjacent (west) to the Big Cypress National Preserve with increasing residential housing construction in the Golden Gates Estate area as well as large wetland conversions for citrus in the same area. Resource managers also reviewed the draft EIS for the Proposed Five-Year Outer Continental Shelf Oil and Gas Leasing Program. The park commented on this draft requesting that environmental studies and spill trajectory models be conducted and developed for shallow shelf waters (depths less than 10 meters). Additionally, the park commented on the lack of data on the environmental impact of oil dispersant usage in the Gulf of Mexico and requested that bioassay studies be conducted to determine the effects of dispersant use on organisms peculiar to the Gulf of Mexico. The park recommended that until shallow water data were compiled that no additional leasing should occur below the 26th parallel and east of 83 longitude in the proposed Straits of Florida lease area.

MAINTENANCE

In 1986, as in past years, the appearance and condition of the park and its facilities received positive comments from the visiting public. The attention to preventive maintenance is especially noteworthy.

There are always special emergency projects which must be accomplished in addition to the routine maintenance needs and these place an unforeseen strain on staff and stretch the already reduced budget to its limit. Projects this year included major repairs to the East Cape Canal plug and the Shark Valley road and emergencies centered around utility systems (electric, potable water, and sewer) throughout the park with attention on the water and sewer system at Flamingo and the water system at Tamiami. Special assistance and technical support were also provided to Fort Jefferson National Monument, Biscayne National Park, and Big Cypress National Preserve.

The repair of the East Cape Canal Plug, one of the largest projects to be undertaken using day labor and volunteer services was most difficult due to inaccessibility (location), tides and winds, insects, and weather. The man-made canal had been closed many years ago with a plug which had subsequently been improved and repaired a number of times during the past 20 years; however, high tides, winds, and storms had caused a washout around the east side allowing saltwater intrusion into the marsh. The breach had increased to approximately 22 feet and a depth of 8 feet at high tide.

Professionals recommended construction of a road or dredging the canal to provide access for heavy construction equipment they determined essential to completing the project. Neither was a viable alternative. Park staff designed a structure using wooden, hand-driven pilings, supporting a cradle of chain-link fence to buffer the exceptional tidal flow. The core was formed with boulders averaging 100 pounds each, with bag-type riprap to make it watertight. Divers from Biscayne, materials from South Florida Water Management District, labor from the Dade County Correctional Institute, vegetation from a local nursery, and the knowledge and ability of Everglades maintenance personnel produced an excellent solution to an unsurmountable problem. The actual cost was $36,600; the estimated commercial cost was $145,000.

The Shark Valley Road Project has proven to be extremely frustrating. Funding was by the Federal Highway Administration to elevate the road bed in conjunction with a redesign project to restore the water through Shark Valley to a more natural

condition. Contract award with a completion date of October 1, 1986, was extended to December 15, 1986. The original contractor was terminated, necessitating the complete contracting procedure again. Work cannot begin before early March 1987.

Major visitor facility improvements include:

--Reroof 12 cottages/Flamingo	$ 13,000
--Paint exterior, Marine Store/Flamingo	4,700
--Nest Key dock construction	4,000
--Upgrade fire alarm system/Flamingo motel	7,000
--Replace air conditioning/Flamingo museum	6,000
--Replace fire walls/Flamingo lodge	4,000
--Rehab rest rooms/Flamingo marina	30,000
--Rehab Long Pine Key & Flamingo amphitheaters	28,000
--Rehab boat house/Flamingo	5,000
--Replace waterline at Midden Lake Center	15,000

Quarters improvements:

--Close in lower level octa-structures	5,500
--Hurricane shutters (park-wide)	25,000
--Modular Houses (2)	53,100
--Reroof quarters--Pine Island	8,600

Administrative Facilities Improvements:

--Replace heating/air conditioning/Flamingo Admin.	8,000
--Reroof HQ Building	50,000
--Tenting of Admin. Facilities/Flamingo	3,000

Dade County Correctional Institute (inmate volunteers)--An ongoing agreement between DCI and the park provides an outstanding source of inmate labor for use by the park in day-to-day maintenance and preventive maintenance of physical facilities and grounds. It has proved to be beneficial to the park and the institute in providing rehabilitation of inmates. It is estimated this program saved the government almost $40,000 in 1986.

Special projects to improve accessibility for the handicapped included renovation of the women's restroom at the Flamingo marina, continued modification of campground facilities, and the rehab of the screened area and entrance doors at the Flamingo Visitor Center.

Trail rehab of boardwalks and other trails and replacement/repair of channel markers is a continuing project.

Fort Jefferson continues to receive assistance in the maintenance of boats, radios, and utilities with technical and liaison assistance in construction/rehab projects and supervision in construction and rehab projects. Similar assistance is provided to Biscayne and Big Cypress.

SOUTH FLORIDA RESEARCH CENTER

Highlights of the 1986 research activities were the continued evaluation of a new water delivery test, the initiation of a Florida panther study in Everglades National Park, and the completion of the evaluation of the effects of sport and commercial fish harvest on park marine fish populations. Also, in late 1986 several studies were established as long-term monitoring or data management projects whose combined

objectives are to develop a resource database for the park. A few projects were terminated in order to redirect the necessary funds and manpower to start these new endeavors. The combined list (FY1986 and FY1987) of research, monitoring, and data management projects with remarks were:

Hydrological Monitoring: Provided the routine collection of hydrological data in EVER and part of BICY at 35 locations. Collects rainfall data for the park and provides the weekly information required to compute the park's water delivery allotment.

Hydrological Data Management: A new project in FY 1987 established to archive all hydrological data, prepare the data for routine reports, and provide data upon request to cooperating agencies; prepares monthly synopsis of water conditions and an Annual Report of Hydrologic and Climatologic Conditions in EVER.

S-12 Hydrology Study: Completed analysis of a 2-year water delivery test to EVER where the S-12 gates at the northern boundary of the park were kept open to gravity flow from Water Conservation Area 3A. Project terminated at end of FY1986.

Shark Slough Hydrology Study: A new project in FY1987 established to evaluate the effects on park water conditions of current water delivery tests using a rainfall derived water delivery formula and expanding the delivery area to include northeast Shark River Slough.

South Dade Conveyance Study: Began evaluation of this large water management canal's effects upon two drainages within the park--Taylor Slough and northeast Florida Bay coastline. Research stations were established and historical data gathered; however, the study was terminated in FY1987 to provide funds and manpower for the Panther Population Study.

SRF Wildlife Study: This was the first year of an anticipated 3-5 year study to evaluate how water patterns in the Everglades influence the distribution of feeding wading birds and nesting alligators.

Aquatic Food Web Study: The study began six years ago as a fish population study of the Everglades, but has evolved into a project to evaluate how water levels affect the entire food relationships in areas of characteristically short flood duration compared to other areas of longer flood inundation.

Endangered Species Studies: In 1986 several surveys were done of endangered species--Cape Sable sparrow, American crocodile, and bald eagle as well as monitoring nesting wading birds in EVER. Also preliminary planning was completed for studies of the Florida panther, and in FY1987 this project was split into the two following projects:

Panther Population Study: In December 1986, three endangered Florida panthers were captured, examined by a medical team, fitted with radio-collars, and released. This was a joint effort between the NPS and the Florida Game and Freshwater Fish Commission. Two of the captured cats were adult females in good health. The other was a sub-adult male; approximately one year old, and the off-srping of one of the females. Both females were observed with young kittens after capture and earlier tracking established that there was a large adult male in the same area (Long Pine Key). All captured animals lacked the characteristic bent tail of the Florida panther. The collared animals are being monitored daily by aircraft to establish movement behaviour and range requirements.

Endangered Species Monitoring: This is a resurrection of an earlier project to provide routine monitoring of endangered species populations in EVER. In 1987 we will monitor bald eagles, wading bird nesting, American crocodile nesting, and Cape Sable sparrows.

Pink Shrimp Study: 1986 was the last year of this study designed to locate juvenile pink shrimp habitat and estimate their seasonal abundance. Pink shrimp are a main staple in fish diets in EVER so the abundance may have an important influence on fish population levels. Several elements of this project will continue to be sampled as part of the following monitoring program.

Marine Habitat Monitoring: This is a new long-term monitoring program established to monitor change in the marine habitats of EVER. Initially, the program will focus on Florida Bay. The 1987 work will be a pilot to test sampling procedures, evaluate permanent site locations, and prepare a cost analysis of conducting the program.

Marine Data Archives: This also is a new project established to gather all existing information and qualitative data collected in the EVER marine habitats. The data will be prepared for computer storage and analysis.

EVER Estuary Study: The estuary project has been started several times, but has always been postponed to complete higher priority work. That was also the case in FY1986. The project never got started as it was necessary to complete three important reports on the effects of fish harvest on fish populations in EVER. Upon completion of the reports, Mr. James Tilmant presented a briefing to the Assistant Secretary of the Interior which helped sustain the closure of the park to commercial fishing and endorse the positive effects of a "bag limit" on fish take. There were insufficient funds in the FY1987 program to begin a full estuary project, so work was scaled back and the following more limited project started.

Estuary Fish Study: This study will look specifically at the ecological requirements of sportfishing in the EVER estuary. Habitat, food requirements, and salinity are variables which will be examined to determine how the environment influences sportfish population size.

Evapotranspiration Study: 1986 was the last year of this study. Field data collection was completed and final reports will be done in FY1987. The objective of this study was to determine how evapotranspiration rates vary with vegetation community type. Evapotranspiration is an exceedingly important factor in the weekly computation of water deliveries to the park. Errors in evapotranspiration can change delivery volumes dramatically.

Wetland Vegetation Studies: This is a new project to examine the effects of water level and flood duration on the growth and survival of plant species and how that influences the formation of plant communities in the Everglades.

Research Computer Operations: In FY1986 we established a permanent computer facility at the park to process and store environmental data collected during research, monitoring, and resource management actions. Seven microcomputers were added to the existing mini-computer and initial plans developed for adding a Geographical Information System (GIS) to the facility.

Research Library and Archives: Great strides were achieved in FY1986 to restore the library to full functioning after two years without a librarian. An inventory of holdings was completed and a draft holdings development policy written. Also, a room next to the library was set aside to safeguard research notes, data, and unpublished reports.

Cooperative Research Studies: This is an on-going program of cooperative research in the park done by universities or non-profit organizations. The park gave four grants in FY1986 to three researchers at Florida International University to begin pilot studies in the park on nutrient cycling, plant pollination, alligator nesting, and small mammals. Als, the park has arranged through the University of Miami, to hold a symposium on Florida Bay research in June 1987. Preliminary work on the symposium began in 1986.

CONCESSIONS

Everglades National Park Boat Tours, Inc.: Operated by Sammy Hamilton, Jr., this NPS concessioner is completing its fifth year of a ten year contract. Total revenues were up 25% over 1985, and visitation up 19%. The company received a satisfactory evaluation in 1986 and tour boats have had extensive renovation, including new engines and insulated engine compartments for quieter operation. As Everglades City visitation continues to grow, Mr. Hamilton feels the need to expand. Currently he is studying the feasibility of operating a 145-passenger vessel. Franchise fee renegotiation will take place in mid-1987.

Shark Valley Tours, Inc.: The business operation by Gettysburg Tours of Pennsylvania is completing their fifth year of a five-year concession permit. A combination of circumstances again this year prohibited the year-round operation of the concessioner's tram. For the fiscal year ending September 30, 1986, the company operated only 163 days. High water levels at Shark Valley kept the road closed much of September, all of October, and most of November; however, 45,000 persons rode the trams, an increase of 23% over 1985. In April 1986, the company agreed to participate in a temporary closure of the Shark Valley area to allow the completion of the road construction project.

The government-owned trams are now being stored on park lands. Gettysburg Tours is planning to exercise its preferential right of permit renewal which will be negotiated in mid-1987 with reopening of the Shark Valley area scheduled for mid-September.

Flamingo Lodge, Marina, and Outpost Resort: Operated by T.W. Recreational Services is completing its seventh year of a 15-year concession contract. Overnight stays were up 10% and revenues up 21% over 1985. The company received a satisfactory evaluation for the year. The marketing thrust was centered around Haley's Comet in 1986 and T.W. Services took the lead in interpreting the event in the park. A new three-hour backcountry boat tour was initiated and has become very popular. Five 39-foot houseboats were delivered late in the year and readied for the winter season. Other improvements included new rental skiffs, additional employee house trailers, kitchen food steamers, color television for the rooms, air conditioning units, and an additional company van. The concessioner continues to upgrade the government-owned buildings at Flamingo. Future improvements will include a full-service marina maintenance building, expansion of kitchen freezer space, and conversion of marina storerooms to offices.