CHAPTER FOUR
Conflicting Priorities: Everglades National Park and Water Supply in the 1960s

When the Corps of Engineers first proposed the C&SF Project, the NPS and the U.S. Department of the Interior were both concerned about a lack of specifics in the plan about water supply to Everglades National Park. The Corps made general references to the necessity of providing adequate water to the park, but did not discuss explicit measures. These anxieties were heightened in the 1950s as project construction commenced, especially as the Corps and the FCD insisted that fish and wildlife preservation were secondary to flood control and urban and agricultural water supply. As population increased along Florida's southeast coast, and as sugar production exploded in the EAA, demands for water became more pressing. After the construction of C&SF Project works and consecutive drought years constricted the amount of water flowing into Everglades National Park, cries for a guaranteed supply of water became more pronounced, leading to discussions on water supply and ownership in South Florida. These pleas, as well as the efforts of a growing environmental movement in South Florida, led to the passage of a congressional mandate in 1970 that the C&SF Project deliver a certain amount of water to the park each year.

At the advent of the 1960s, NPS officials had been wrangling with the Corps over the issue of water supply to Everglades National Park for years. No one seemed to know exactly how much water the park required, but park authorities believed that the area needed the traditional overflows from Lake Okeechobee to course through its veins, especially between the months of October and May when rainfall was scarce. Unfortunately, the construction of drainage and flood control works constricted that southward flow, reducing the hydroperiod of the park, or the time when water enveloped the landscape. This left Everglades National Park parched and dusty when rainfall ceased. The situation did not seem too severe in the 1950s, mainly because the construction of the East Coast Protective Levee allowed water flowing to the ocean to be diverted south through the Everglades.[1] As the Corps completed construction of L-29 – the southern boundary of Water Conservation Area 3 – these diversions were eliminated, causing clashes between the NPS and the Corps.

One of the primary agricultural industries that expanded considerably in the 1960s was sugar. Cane had been an important crop in the EAA since the 1920s, but because of the United States' sugar quota system, established in the 1934 Sugar Act, the sugar industry in Florida remained relatively small, confined mainly to the operations of Charles Mott's United States Sugar Corporation. In the early 1960s, however, the industry expanded greatly in Florida due to several factors. For one, Fidel Castro overthrew the Cuban government in 1959, leading the United States government to sever all ties with Cuba, one of the main suppliers of sugar to the United States. For another, some vegetable growers in the EAA, facing unstable markets, wanted to diversify their crops and saw sugar as a safe and profitable venture. In addition, Puerto Rican growers could not meet their production quotas, creating a void in the market.[2]

Because of these conditions, sugar production increased dramatically in Florida in the 1960s. Numerous new companies began operations, including the Osceola Farms Company, formed by a Cuban family, the Fanjuls, who would eventually become the second largest sugar producer in Florida, and the Sugar Growers Cooperative of Florida, established in 1962 by George Wedgworth, the son of South Florida farming pioneers. The Glades County Sugar Growers Cooperative Association, the Talisman Sugar Corporation, and the Atlantic Sugar Association were other fledgling organizations. This influx of companies expanded the amount of acreage under sugar production in Florida from 38,600 in 1954 to nearly 220,000 acres in 1964, mostly in the EAA.[3] As sugar became the dominant EAA crop, its growers and representatives became increasingly interested in how water was distributed throughout South Florida.

Sugar cane plants in South Florida. (Source: South Florida Water Management District.)

Castro's revolution also contributed to South Florida's growing population, as numerous Cubans moved to Miami and Dade County to escape communism. Because many Cubans located elsewhere after landing in Miami, and because others did not register upon their entry into Florida, it is difficult to estimate the number of Cubans that relocated to Dade County during this period. However, by 1970, over 300,000 Cubans lived in the county, accounting for approximately 22 percent of its total population of 1,267,792. Although immigrants from other countries in the Caribbean, Latin America, and Asia would enter Florida in large numbers in later decades, Cubans, according to historian Charlton W. Tebeau, "were by far the most significant addition to Florida's population in the sixties."[4] By 1970, the combined population of Dade, Broward, and Palm Beach counties almost reached two million. As the urban region became more populated, settlement extended southwest toward Homestead and closer to the boundaries of Everglades National Park, and the larger populations made increasing demands on water.[5]

Miami was the center for much of this urban growth. Construction of hotels along Miami Beach facilitated the tourist industry, as did the broadcasting of television shows on the beach, which showed millions of Americans the leisure opportunities that Miami offered. More permanent residents were attracted by burgeoning economic opportunities, such as the growth of the Miami International Airport, more jobs generated by the increasing popularity of the fast-food chain Burger King (headquartered in the area), and the booming real estate market. By the late 1960s, South Florida had a developed area approaching 600 square miles, almost quadruple what it had been around 1955.[6]

This growth increased the demand for water, a situation that alarmed Everglades National Park officials, especially after the Corps began developing a South Dade County Project in the late 1950s. This plan had several components, including a proposal to use water from

Miami Beach, 1963. (Source: The Florida Memory Project, State Library and Archives of Florida.)

Conservation Area No. 3, which was supposed to store water for national park usage, to enlarge the county's water supply. The Corps also proposed to build a series of canals to drain land east and south of the park. Concerned that such waterways would divert water that normally drained into the park, NPS authorities protested.[7]

To address these concerns, the Corps held a conference with NPS, FWS, FCD, and Florida Game and Fresh Water Fish Commission representatives in April 1960. At this meeting, NPS representatives emphasized the park's need for a steady supply of water, especially in its southern and western sections and below the Tamiami Trail. The Corps understood these needs, but also reiterated its responsibilities to provide water for salinity control, sewage dilution, agriculture, and municipal purposes. "Methods to conserve water will have to be developed,"

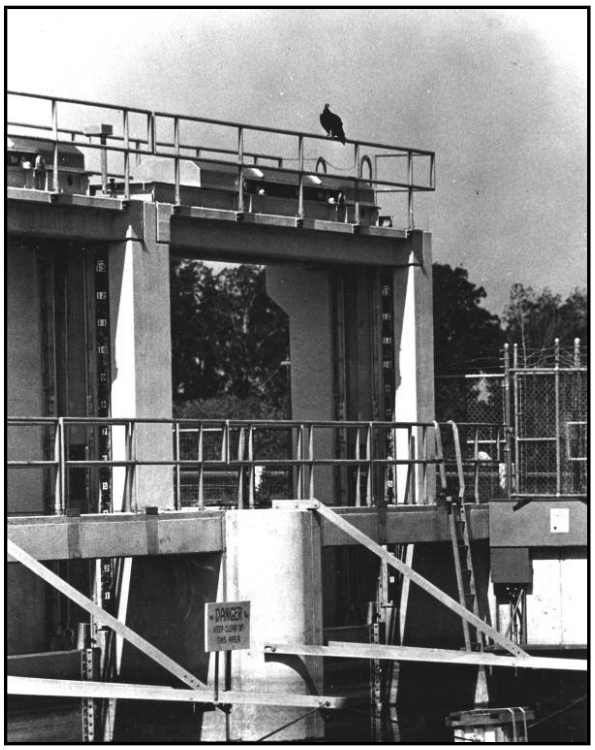
Jacksonville District officials stated.[8] They also explained that although water from Conservation Area No. 3 would be used for Dade County, such utilization would not "greatly affect" flood discharges into the park from the north, "the principal source of outside water supply to the Everglades National Park."[9] The Corps worked for the next few years to build conveyance canals to route water from Southwest Dade County into the park, but this too generated criticism because it had the potential of bringing insecticides, pesticides, and fertilizers into the park.[10]

Yet it was clear that as Dade County continued to grow – and projections estimated that the county would reach two million by 1970 and four million by 1980 – its population would need more and more water. This led Secretary of the Interior Stewart L. Udall to wonder about how the C&SF Project would affect Everglades National Park in regard to the amount, place, and time of water releases. Fearing that Dade County would encroach on park water, Udall asked that the Corps grant the park a guaranteed annual supply that municipal or agricultural demands could not reduce.[11]

Secretary of the Army Elvis J. Stahr, who would later become president of the National Audubon Society, explained that the Corps could not make such an assurance because it had no authority to grant water rights to any entity. "The Department of the Army does not acquire water rights for the construction and operation of Civil Works projects," Stahr claimed, "except as they may be connected with lands being acquired for a dam or a reservoir."[12] If the NPS officials wanted a guarantee, they would have to coordinate with the FCD or the state of Florida, but the FCD believed that no such assurance was possible because of the difficulty of predicting how much water each interest would need in a given year.

The situation became more pronounced as drought ravaged the park. In 1961, much of Everglades National Park received only half of its normal rainfall, and, by March 1962, the park was littered with "remnants and carrion—but no life," according to *National Parks Magazine* contributor Gale Koschmann Zimmer.[13] The lack of water destroyed fish and shellfish populations, and, faced with the decimation of these food sources, birds either died or fled. At the same time, fire danger became high, and saltwater concentrations along coastal areas of the park became pronounced. "The whole effect of the drought upon the ecology of the Everglades cannot now be foretold," the park's chief naturalist Ernst Christensen explained, but "the impact upon park life is already serious."[14]

Park officials believed that C&SF Project features only exacerbated the drought because they eliminated traditional sheet flows into the area. They therefore demanded that the Corps give Everglades National Park as much water as it received before C&SF Project construction began. In addition, they asked the Corps to enlarge the water conservation areas to provide sufficient storage for the park's needs. Acting South Atlantic Division Engineer Colonel H. J. Kelly responded that the C&SF Project actually delivered more water than the park had received during Florida's drainage era, and that the conservation area solution was unrealistic because increased seepage and evaporation would offset any raises in water levels. But, Kelly continued, although the Corps could not fully satisfy the NPS's demands, it would search for "a middle ground of reasonable compromise" that would help the park receive more water.[15]



S-12C. (Source: The Florida Memory Project, State Library and Archives of Florida.)

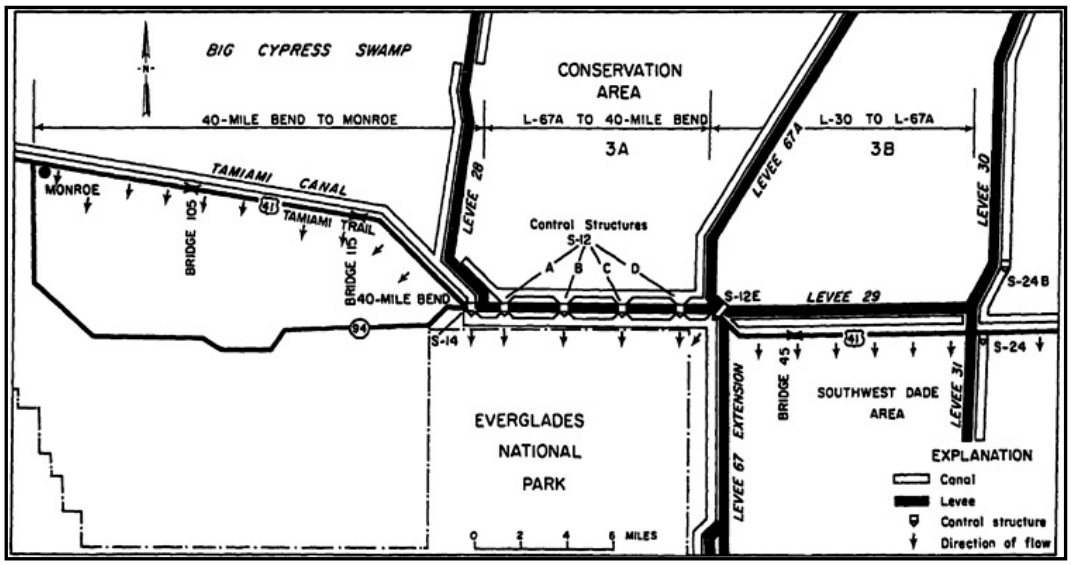
The NPS was especially concerned with the construction of Levee 29 and Control Structure 12, which would form the south boundary of Conservation Area No. 3. According to park officials, these devices would completely eliminate water entering the park from the north. The Corps proposed placing four major outlet spillways in the levee to discharge water into the park, as well as building transitions within the park so that the water could be effectively distributed. But NPS officials refused to allow the Corps to build any structures within the park, forcing the Jacksonville District to work outside park boundaries. Corps officials did not believe that this demand was too unreasonable, but at the same time, according to Colonel Kelly, it evinced an uncooperative, insular attitude that hindered discussion and negotiation.[16]

The positions of both sides hardened at an October 1961 conference between the NPS, the Corps, and the FCD in the Interior Department offices in Washington, D.C. As reported by FCD engineer William V. Storch, the NPS reiterated the necessity of a guaranteed water supply to Everglades National Park, and declared that if the Corps would not grant one, the NPS would petition Congress to restrict C&SF Project funds until an agreement was reached. Yet Corps representatives insisted that a guarantee had to be arranged between the FCD and the NPS. FCD officials agreed with the Corps' position, but, they stated, no agreement could be made "until more accurate knowledge was available both as to Park minimum requirements and the east coastal demands."[17] Not all was lost for the park, however. According to Storch, the Corps did admit that House Document 643 contained "an apparent obligation . . . to provide positive water supply benefits to the Park," and it pledged that it would make "a thorough review of the overall water needs of the area" to determine how this could be accomplished.[18]

In 1962, tensions continued to simmer. When the Corps proposed to enlarge the lower 17 miles of the West Palm Beach Canal to facilitate floodwater discharge to the Atlantic Ocean, the NPS objected, stating that the Corps should expand storage facilities and divert the floodwater into the park. The Corps responded that such a proposal was not feasible because of the expense.[19] Moreover, the NPS made good on its threat to turn to Congress, and in the summer of 1962, the Senate Committee on Public Works passed a resolution asking the Board of Engineers for Rivers and Harbors to make a comprehensive survey of existing water supplies to the park and to recommend how it could receive more water.[20]

Before anything could be accomplished, trouble developed over Levee 29. Even though the Corps had placed four spillways within the structure to ensure that water reached the park, no

water flowed through the levee between January and May 1962, causing, in the words of the USGS, "near-record low water levels" and saltwater encroachment in the southern portion of the park.[21] The Corps claimed that the situation resulted because it had to shut off water to complete additional construction in the area, but many questioned that position. Verne O. Williams, a reporter for the *Miami Daily News*, wrote that the only reason why Everglades National Park did not have enough water was because of a "man-made drouth," and he placed all of the blame on the Corps and its "costly drainage works," calling Levee 29 "a plug in the throat of a funnel."[22]



L-29 and its four spillway structures (S-12A, B, C, D). (Source: U.S. Army Corps of Engineers, Jacksonville District.)

The FCD did not help matters by refusing to open Levee 29's gates once the Corps had finished construction. From 1963 to 1965, the gates remained shut, even though drought continued to ravage the Everglades. Although the FCD had legitimate reasons for closing the gates, such as the necessity of filling the finally completed Conservation Area No. 3 and of maintaining it at the desired level, many believed that the FCD was trying only to preserve more water for agricultural and urban interests.[23] Paul Tilden, a contributor to *National Parks Magazine*, claimed that even though the park received more than 500,000 visitors annually, the FCD and the Corps regarded it as an "afterthought" and an "appendage" that could get water only "after the Florida east coast cities, industries, and agricultural areas have been served."[24] This disregard, Tilden believed, mobilized individuals concerned with Florida's environment, and they increasingly called for a halt to C&SF Project construction until Everglades National Park received a minimum guarantee of water.

Meanwhile, the Corps moved forward on its study of park water requirements. Yet its proposed plan of study focused on how engineering structures could bring more water to the area, rather than investigating how much water the park needed to survive.[25] Therefore, the NPS called on different government and private agencies to examine the park's water needs. Responding to these demands, the USGS, after correlating average monthly water stage data in

the park with flows from the Tamiami Trail from 1953 to 1962, determined that water flows for that period averaged around 260,000 acre-feet at Shark River Slough and 55,000 acre-feet at Taylor Slough. This was a landmark finding even though park officials had no ecological data to show that this amount was necessary or sufficient to keep plant and wildlife alive. After receiving this information from the USGS, NPS officials agitated for an annual delivery of 315,000 acre-feet to the park, a figure they would continue to cite throughout the 1960s and 1970s.[26] This figure, of course, was drastically different from the more than two million acre-feet that Superintendent Warren Hamilton said was the park's optimum requirement in 1958. However, an Interior Department position paper published in 1964 clarified that the 315,000 acre-feet was merely what the park desired for an interim supply; it was not based on what was needed to maintain the park ecologically and should not be construed as such. Further long-term studies were necessary to determine the ecological needs of the park and its estuaries.[27]

Shark River Slough. (Source: South Florida Water Management District.)

Indeed, inquiries into the requirements of the Shark River and Taylor sloughs were ongoing. These sloughs were deep, wide water channels that conveyed water across the Everglades. Shark River Slough, the larger channel, was located south of Conservation Area No. 3 and the Tamiami Trail, and flowed southwest into the Gulf of Mexico. Taylor Slough ran southwest from the park's eastern boundary, moving through the Royal Palm area into Florida Bay. If these sloughs did not receive enough water, the whole park suffered. In addition, a lack of water in Taylor Slough affected life in Florida Bay, an estuary that was a prime nursery for shrimp and coastal fishes. Shrimpers annually harvested $15 million worth of shrimp from Dry Tortugas, a cluster of seven islands located southwest from the bay, meaning that changes in water flow not only harmed the ecology of the bay, but a thriving South Florida industry as well.[28]

Aware of this situation, the Institute of Marine Science at the University of Miami conducted a study from 1963 to 1966 about the ecology of Everglades National Park's estuarine regions and the effects of water – or the lack of it – on these areas. Institute scientists especially wanted to see how salinity and temperature changes affected plant and animal communities between the upper Florida Keys and the Chatham River of the Ten Thousand Islands. They could then use these data to construct the freshwater requirements of the estuaries, allowing park officials to make a more informed recommendation as to how much water the park needed annually to protect not only the land-based ecology but the estuarine regions as well. The study concluded that variations in salinity had the greatest impacts on plant and animal life, and that ground water elevation in the Homestead well – designated as S-196A – had a direct relation to Florida Bay's salinity. Therefore, Everglades National Park had to have at least enough water to prevent high saline conditions in the bay.[29]

Meanwhile, the NPS received information that even though the Corps had not yet completed its restudy of water demands, Corps officials were planning works to supply water to Martin County. The NPS objected to such a program "until the project can and does supply the water needs of Everglades National Park."[30] In fact, between 1962 and 1965, the NPS consistently denounced Corps plans for any new construction on the C&SF Project because the Corps would not guarantee water for Everglades National Park. But the Corps insisted that it was giving every consideration to park needs and that it was trying to solve the problem within project parameters. It would support releases to the park as long as they did not, in the words of the Secretary of the Army, "override the basic purposes of the project or the higher priority needs of water supply based on the rapidly expanding population of Florida."[31] Indeed, primary project purposes, as defined by House Document 643, were flood control and water supply for agricultural and municipal uses; fish and wildlife preservation was only a secondary purpose. But the Interior Department had insisted from the beginning (and even in House Document 643 itself) that the Corps operate the project to benefit Everglades National Park, and the Corps had seemingly agreed to that arrangement.[32] Now, NPS officials charged, the Corps had reneged on those promises to the detriment of the park's ecology.

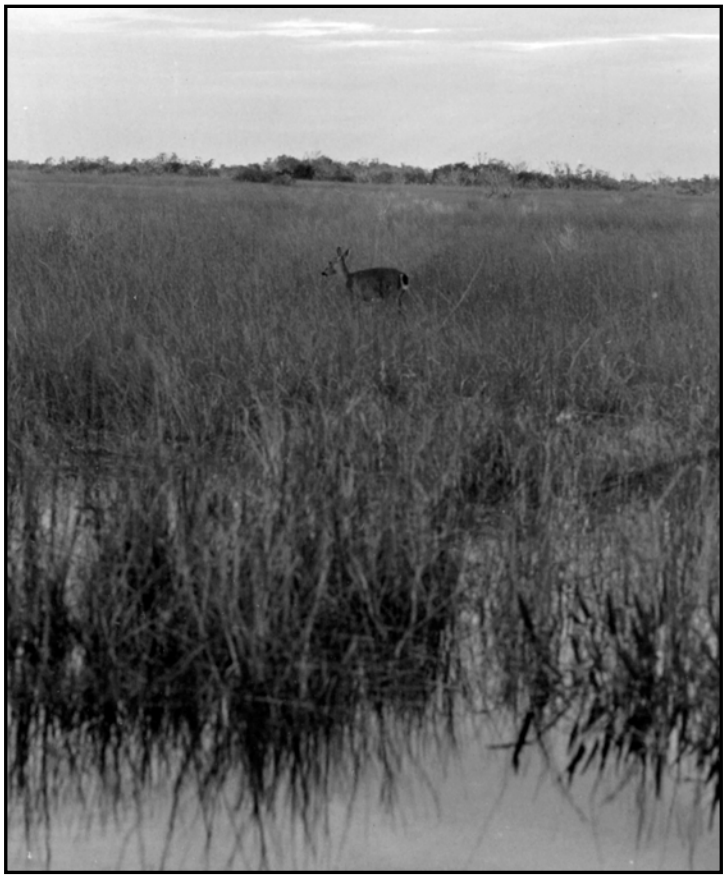
By 1965, the water situation in Everglades National Park had become critical. The Interior Department related that pools and marshes had evaporated, while saltwater intrusion along coastal areas had shrunk fish and wildlife habitat. At the same time, alligator holes dried up, forcing park officials to dynamite holes out of the limestone bedrock to provide adequate habitat for the animals. To alleviate the situation, the FCD worked on an emergency water release schedule for the park, whereby it would receive water from Conservation Area No. 3. This plan went into effect in 1965, but the NPS complained that it only provided at best one-tenth of the park's monthly requirements. Meanwhile, because Lake Okeechobee was experiencing high water levels in the spring of 1965, the Corps allowed 70,000 acre-feet of water to flow to the Atlantic Ocean and the Gulf of Mexico between April 7 and April 22.[33] The NPS loudly decried these releases because of the parched state of the Everglades, wondering why the Jacksonville District could not have sent the water directly to the park. The media picked up on these complaints, prominently displaying the park's dry condition and excoriating the Corps for the discharges. Based on these reports, outraged citizens began writing letters to the Corps demanding that water from the water conservation areas be released into the park.[34]

Facing these attacks, the Corps and the FCD explained that the discharge was necessary to relieve the high water situation quickly and that canals were not designed to divert large volumes of water southward to the park.[35] In addition, William Storch, the director of the FCD's engineering division, emphasized that the FCD had made "a reasonable effort" to provide more water for Everglades National Park in accordance with "the water needs of the area contributing taxes to the support of the District," namely the EAA and east coast urban areas. Storch cautioned people to remember that water supply questions had difficult "social, economic and political considerations," and he admonished participants to leave emotion out of the decision-making process.[36]

The situation became less severe in September 1965 when Hurricane Betsy flooded the Everglades with six to ten inches of rain, but the overall problem of water supply to the park remained.[37] Therefore, after receiving recommendations from the NPS based on past water

flows to the Everglades, the Corps and the FCD established an interim regulation schedule to supply water to the park until the Corps had completed its water study and constructed whatever works were necessary. According to the agreement, the FCD would pump water from Lake Okeechobee "in addition to or in conjunction with pumping for lake regulation as scheduled" and the Corps would reimburse the district's expenses for such pumping based on the amounts that actually flowed to the park at S-12. The pumping would occur "whenever it is necessary to lower the lake level for flood control and at such other times when water is available in the lake," and the water thus pumped would be supplied "to the lower East Coast Area and to the Park."[38] In order to allow for such conveyance, the Corps would enlarge and extend the North New River Canal, the Miami Canal, and the L-67 Borrow Canal. In times of imminent emergency, the Corps would still have to send floodwater to the Atlantic Ocean and the Gulf of Mexico through the St. Lucie Canal and the Caloosahatchee River, but on other occasions the FCD could pump water from Lake Okeechobee to the water conservation areas for park use.[39] After much discussion with the Corps, the NPS approved the interim plan, and it went into effect in March 1966.[40]

But a comprehensive water plan was still necessary; as Michael Straight wrote in *National Parks Magazine*, "little can be gained by viewing the needs of the park only in emergency and in isolation."[41] Besides, the drought's effects on wildlife in the park had been startling; NPS officials estimated that only 5 percent of the alligator population had survived, and bird numbers were drastically lower as well. In the words of Park Superintendent Roger W. Allin, the drought years had "caused extensive changes in habitat which may have far-reaching influence on biotic balances."[42]



Deer in Everglades National Park. (Source: The Florida Memory Project, State Library and Archives of Florida.)

Regardless of the damage that the drought had caused, Everglades National Park received more than 1.2 million acre-feet of water in 1966.[43] Yet the impoundment of water in Conservation Area No. 3, coupled with heavy rainfall in the spring and summer of 1966, caused severe problems for deer herds in the region and placed both the Corps and the FCD under fire for allowing too *much* water. But Florida Game and Fresh Water Fish Commission Director O. E. Frye, Jr., claimed that several factors

caused the high levels in Conservation Area No. 3. Because Everglades National Park demanded "a guaranteed amount of water introduced into the park on a daily basis," and because Lake Okeechobee's water levels exceeded its regulation stage, the Corps and the FCD had released "an unusual amount of water" from the lake and "conveyed [it] southward through various canals" to the water conservation areas. Frye continued that stands of sawgrass in the northern part of Conservation Area No. 3, coupled with the flat topography of the region, prevented water from flowing quickly to the park, making it "stack up in those parts of the conservation areas adjacent to the pumping stations."[44] Unfortunately, the region was the home of a large deer population which was fawning, and the high water had a devastating impact on those animals. As water levels increased, newspapers began publishing accounts of helpless and starving deer stranded in the area; environmentalists such as John "Johnny" Jones of the Florida Wildlife Federation characterized the situation as "a wildlife version of Auschwitz."[45]

To alleviate the problems, the state's cabinet issued an order to the FCD and the Board of Conservation on 12 April 1966 to halt pumping temporarily at pump station S-8, located in the northwestern corner of Conservation Area No. 3, so that water levels could decrease. When levels remained high, Florida Governor W. Haydon Burns ordered the pumping moratorium extended "until favorable conditions returned."[46]

Even though large-scale pumping ceased, the situation became grave in June when Hurricane Alma dumped large amounts of rain on South Florida, causing levels in Conservation Area No. 3 to rise another six inches and placing already-stressed deer in an emergency situation. In response, sportsmen organizations and other concerned citizens called on Governor Burns to take decisive action. Robert F. McDonald, a delegate of the Palm Beach County Airboat and Half Track Club, asked Burns to end "this senseless and shameful disregard of our precious remaining wildlife" by forcing the FCD to stop pumping, but both the FCD and the Corps insisted that it had to pump during heavy rainfall in order to prevent flooding in the EAA.[47]

With the deer herd facing catastrophe, Florida's cabinet created an interagency committee in July consisting of representatives from the Board of Conservation, the FCD, and the Game and Fresh Water Fish Commission "to develop a program to safeguard the Everglades deer herd and other wildlife from intermittent high waters."[48] The committee, known as the Everglades Natural Resources Coordinating Committee, consulted with state and federal management agencies to develop plans as to how the deer could be saved. These consisted of several temporary arrangements, including:

- Obtaining NPS approval to cut channels 200 feet wide and ½ mile long "immediately south of S-12," thereby increasing outflow to Everglades National Park (the NPS had previously refused to allow the construction of such structures);
- Increasing the flow of canals by sending water to coastal areas;
- Ceasing pumping at stations S-6, S-7, and S-8 and moving water from the EAA into Lake Okeechobee; and
- Moving some deer to higher ground.

Under the circumstances, Committee Chairman Randolph Hodges related, these were "the best solution[s] which could be evolved."[49]

Meanwhile, the Corps developed both immediate and long-term solutions to the problems. In the summer of 1966, the agency supplied mowers to cut sawgrass in the northwestern portion of Conservation Area No. 3; it also prohibited vehicles from traversing levee roadways so that deer would not experience "needless fright-induced activity," and it removed a plug at the intersection of the Tamiami Canal and Levee 67 Extension Canal so that more water could flow southward.[50] At the same time, the Corps proposed more long-standing answers, such as completing the construction of a canal running south from the Tamiami Canal on Everglades National Park's eastern boundary to increase water flow from the water conservation areas, and conducting studies into the feasibility of building another conveyance canal on the park's western border. The Corps also provided the Game and Fresh Water Fish Commission with a cost estimate for developing small islands in the conservation areas "above reasonable flood levels" so that deer could have "high-water grazing and refuge."[51] In addition, it proposed to build a conveyance canal through Conservation Area No. 3 so that water could more easily flow southward from the northern parts of that area. "All agencies concerned are cooperating fully and doing all possible to relieve the problem," the Corps concluded, insisting that it could not possibly be blamed for not foreseeing the "extremely wet season" that affected "an area which is primarily intended for water impoundment."[52]

But in the summer of 1966, the media continued to report that the C&SF Project was in large measure responsible for the deer situation, forcing the Corps to take a defensive stance. "The area in which these deer are located is a natural swamp," Acting Chief of Engineers Major General R. G. MacDonnell told one concerned citizen. If the Corps had not constructed the C&SF Project, MacDonnell stated, the water in Conservation Area No. 3 would have flooded cities on the east coast and "the major agricultural lands south of Lake Okeechobee."[53] Likewise, Joe J. Koperski, chief of the Jacksonville District's Engineering Division, informed a journalist that the C&SF Project had actually prevented $15 million in damages from the June rains. "If the large volumes of excess floodwater had not been pumped to the lake and conservation areas," he continued, "the deer situation would have been far overshadowed by headlines citing a disastrous flood in both urban and agricultural areas of south Florida." Koperski claimed that "conservation of natural resources" was a "primary function" of the C&SF Project, and he emphasized that using the water conservation areas for flood control did not necessarily make them incompatible with fish and wildlife propagation.[54] Ronald Wise, a commissioner with the Florida Game and Fresh Water Fish Commission, agreed, although he characterized the conservation areas' "primary purpose" as flood control and the storage of water to "guarantee" that Everglades National Park had a sufficient supply. Yet if the commission could construct "small islands at intervals throughout the conservation area," he concluded, wildlife did not have to suffer during times of high water.[55]

Accordingly, in 1967, the Game and Fresh Water Fish Commission began developing islands in Conservation Area No. 3, ensuring that they contained open sloughs on their sides so that water could continue to flow southward. In addition, the Corps started construction on the different canals and extensions that would facilitate water flow from and within the water conservation areas, including an extension of L-67 along the eastern boundary of Everglades National Park and a conveyance canal from L-67 to the park. It provided the spoil from these projects for the island development. According to Randolph Hodges, these measures were "the

maximum compr[o]mise of flood control facilities possible at this time for wildlife preservation without endangering the primary purpose of the flood control project."[56]

In the meantime, another controversy arose in 1966 over the opening of the Aerojet Canal, or Canal 111, in Southwest Dade County. As part of the Dade County Project explained above, the Corps constructed the canal in the 1960s, running from just below Homestead to Barnes Sound. The initial purpose of the canal was to drain lands east and south of Everglades National Park, but after Aerojet General, a space technology company, built a rocket engine testing center in the region, critics saw the canal as creating a barge-accessible waterway for Aerojet's testing facility. In addition, the drainage aspect threatened to allow saltwater to creep up the canal and contaminate fresh water in the park in times of drought. To prevent water from interfering with bridge construction, the Corps had placed an earthen plug in the canal where it intersected U.S Highway 1 (about two miles inland from Biscayne Bay), and this prevented the flow of seawater. Yet upon completion of the bridge, the Corps would remove the plug, allowing saltwater to mingle with freshwater during unusually high tides and strong winds. The NPS and environmental organizations petitioned the Corps to keep the plug in place, but Corps leaders proposed that it remove the plug and observe whether saltwater intrusion really occurred. Objecting to this plan, the National Audubon Society and other groups applied for a court injunction to maintain the plug. The Corps then informed the NPS that the plug would remain "indefinitely" while a plan was formulated to protect Everglades National Park, and by 1969, the Corps had constructed an earthen barrier with gated culverts downstream from the original plug.[57]

C-111. (Source: U.S. Army Corps of Engineers, Jacksonville District.)

While the controversy raged over C-111, drought returned to South Florida in 1967, renewing cries for more water to the park. The battle was becoming more polarized as the 1960s progressed; essentially, it was a question of whether enough water existed for both Everglades National Park and agricultural and municipal purposes, or whether the FCD and the Corps had to choose among the three. As this polarization occurred, environmental organizations began to wade into the fray with increasing frequency. The National Parks Association asked Americans to contemplate whether sugar and cattle industries should be developed in Florida at the expense of the Everglades, and whether urban centers in South Florida should continue to grow if it endangered park tourism and the shrimp industry in Florida Bay.[58]

But not all proponents of fish and wildlife viewed the supply of water to Everglades National Park in positive ways. O. E. Frye, Jr., director of the Florida Game and Fresh Water Fish Commission, for example, noted in 1968 that continual supplies of water to the park were creating critical situations for fish in the water conservation areas, and he requested, with the support of the governor's cabinet, that "if it became apparent that a fish kill was in the offing, releases to the Park . . . be discontinued."[59] Clearly, many factors were involved in water supply issues for the park, and as views became more hardened, the emotionalism decried by Storch became a larger component of water management.

Into this charged setting came the Corps' report on its restudy of water needs in South Florida. Although the Corps originally planned on releasing the report in the summer of 1967, delays, including efforts to address concerns expressed by the NPS, extended the completion date. In the fall of 1967, the Jacksonville District held public hearings in Belle Glade and Coral Gables on its preliminary findings. According to a notice of the hearing, the Corps recommended that in order to provide enough water for the needs of South Florida through 2000, it needed to modify the C&SF Project in the following ways:

- Raise Lake Okeechobee by four feet to a seasonal regulation range between 19.5 and 21.5 feet above mean sea level to provide for more water;
- Pump excess floodwater first to the water conservation areas before discharging it to the Atlantic Ocean and Gulf of Mexico;
- Backpump excess water from Martin and St. Lucie counties to Lake Okeechobee to increase available water;
- Allow several canals draining to the coast to backpump excess runoff to the conservation areas;
- Deliver 315,000 acre-feet to Everglades National Park annually; and
- Build conveyance canals to South Dade County and the Taylor Slough.[60]

The NPS offered its cautious approval to this plan, now believing that, according to available information, a minimum of 315,000 acre-feet a year would allow the park to "survive."[61] Others were not so sure; the Florida Game and Fresh Water Fish Commission, for example, supported the basic principles of the plan, but objected to several specific provisions, including the raising of Lake Okeechobee (which it claimed would have harmful effects on both vegetation and fish and wildlife) and the fact that the commission could find no evidence that the Corps had considered the ecological maintenance of the water conservation areas in its plan. Instead, it

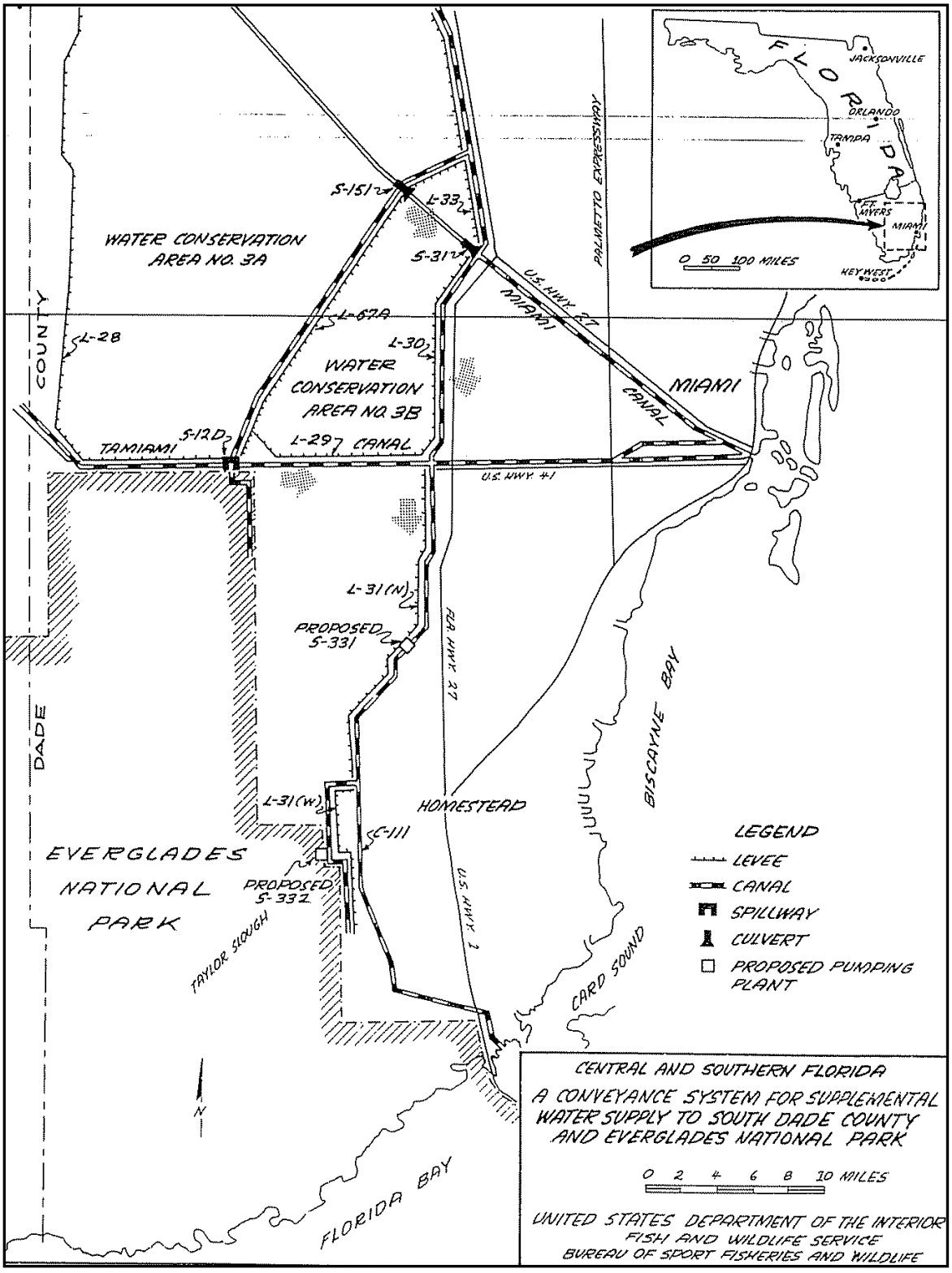
appeared to the commission, "the Conservation Areas will be drawn down and sacrificed for the benefit of the water demand areas."[62]

Still others were more concerned with the amount of water going to Everglades National Park. For instance, the National Parks Association objected strongly to the proposal, holding that Everglades National Park needed at least 400,000 acre feet of water and that this amount needed to be explicitly guaranteed. Representatives of the National Wildlife Federation agreed, claiming that the annual delivery needed to be "adjusted to account for the [park's] biological needs."[63] Therefore, the National Parks Association called on Congress to eliminate funding for more C&SF Project work in Florida "until the Nation as a whole has firm legal assurances, binding on the State of Florida and binding even on the Central Florida Flood Control District, guaranteeing the necessary water deliveries into Everglades National Park permanently."[64]

At the same time, agricultural and municipal interests were not pleased with the Corps' recommendations, believing that the Corps was providing too much water to Everglades National Park. Dade County Manager Porter Homer, for example, criticized the restudy, saying that "the 315,000 acre-feet per year used by the corps is not based on adequate research."[65] In the weeks following the public hearings, Corps officials seemed to pay more attention to agricultural and municipal complaints than to environmental criticisms. For one thing, the Corps rethought its proposal to deliver 315,000 acre-feet to the park. Even though NPS leaders insisted that this was a minimum amount that the park needed, South Atlantic Division Engineer Major General T. J. Hayes echoed Homer's complaints that no study existed showing that this was "the required amount to sustain the Everglades effectively" since the USGS had merely averaged the flow into the park from 1952 to 1961.[66] The Corps also refused to guarantee water to the park for several reasons, including its lack of jurisdiction and the fact that "parks do <u>not</u> have an established priority over other authorized project purposes."[67] In addition, members of the Jacksonville District did not want to upset Florida state officials who believed that an annual guarantee would completely halt any urban or agricultural development in South Florida. Finally, Corps representatives believed that they could provide "the basic water demands of the park" without making a guarantee.[68]

When the Corps issued its final report in May 1968, its suggestions – although no different in most ways from those outlined above – had no clear recommendation that Everglades National Park receive 315,000 acre-feet of water annually. Instead, the report merely suggested that the Corps improve the conveyance and distribution of water to the park through a system of canals, levees, pumping stations, and control structures to meet a "basic annual goal of 315,000 acre-feet, with intermittent years of higher flow."[69] Although no specific guarantee was provided, it was still significant that the Corps had admitted that the park needed at least 315,000 acre feet a year.

Given the outcry that agricultural and municipal interests had raised, the Corps' avoidance of an explicit assurance seemed a logical and middle ground position to take, although not one popular with environmental interests. But in the minds of Corps leaders, there was little else the agency could do. Because flood control and water supply were higher priorities under the C&SF Project, the Corps could not specifically guarantee water to the park without congressional direction, especially if the state of Florida, for whom the project was built, was unwilling to compromise on the issue.



South Dade County Project map. (Source: U.S. Fish and Wildlife Service, Vero Beach, Florida, administrative files.)

At the same time, however, the Corps' response was one that infuriated observers who noted that the Corps was not a passive agency, unable to do anything without congressional approval. Instead, critics charged, the Corps was a highly adaptable, fairly aggressive promoter of its own interests. It was especially difficult in the case of Everglades National Park to understand why the Corps could not merely direct the FCD to supply necessary water to the park, especially since benefiting fish and wildlife *was* a purpose of the C&SF Project, secondary or not. In the minds of many critics, the claim that the Corps just followed congressional instruction was disingenuous at best and historically inaccurate at worse. Arthur R. Morgan, a leading critic of the Corps who had formerly worked as Chief Engineer of the Miami Conservancy District and chairman of the Tennessee Valley Authority, for example, claimed that the real reason why the Corps did not guarantee sufficient water for the park was because it had not conducted "adequate engineering analysis" that focused on South Florida as "an environmental unit." "There is no reticence in the Corps about interfering with and changing legislation of public policy," Morgan argued. "It is only where the Corps wishes to prevent carrying through a program that it pleads its lack of power."[70]

Upset by the lack of an unambiguous guarantee, NPS Director George Hartzog, Jr., informed the Board of Engineers for Rivers and Harbors that unless the report stated "clearly and unequivocally" that Everglades National Park would receive a certain amount of water, the NPS would not concur with the report.[71] Unwilling to act on "national policy questions outside of the purview of the Board," the board emphasized to the Chief of Engineers the need for water in the park, suggesting that the chief should "clearly define the ecological objectives and the amounts of supplemental water needed to meet those objectives." But the board required no definite promise of water in the Corps' report.[72]

Receiving no help from the Board of Engineers, Assistant Secretary of the Interior Stanley A. Cain reiterated that the Interior Department could not approve the proposed project modifications unless it received "written assurance by the Secretary of the Army that he will provide the water supplies as set forth in the report, undiminished by new incursions."[73] Perhaps fearing that Congress would not approve the modifications unless the NPS gave its concurrence, or perhaps in agreement with the NPS's position, Major General F. J. Clarke, Acting Chief of Engineers, informed Secretary of the Interior Stewart L. Udall that "the Chief of Engineers will insure the project is regulated to deliver the water requirements of the Everglades National Park as so set forth in the report."[74] At a subsequent meeting between the Interior Department, the Department of the Army, and the Bureau of the Budget, the Corps assured Interior and the bureau verbally that it would provide 315,000 acre-feet of water to the park and that future demands would not reduce that figure, but it still would not place a specific guarantee in writing. Congress then published the Corps' report as House Document 369, and authorized the modifications, estimated to cost about $70 million, in the Flood Control Act of 1968.[75]

The state of Florida continued to resist any kind of water guarantee to the park. Accordingly, in the summer of 1968, the Corps tried to mediate between the state and the NPS to develop a memorandum of agreement that would assure 315,000 acre-feet of water to the park except in times of drought when it would share shortages with other users on a pro rata basis. The Florida Board of Conservation refused to approve the memorandum, believing that the agreement would

forfeit its water rights and insisting that no water user in Florida should have priority over another.[76]

Faced with these problems, the secretary of the interior requested that the department's solicitor issue an opinion as to whether or not the Corps could require the FCD to deliver a certain amount of water to Everglades National Park each year. The solicitor argued that because Congress approved modifications to the C&SF Project upon the recommendation of the Bureau of the Budget, and because the Corps assured the bureau and the Interior Department in its July meeting that the park could receive 315,000 acre-feet, the law required the Secretary of the Army to manage the project "for the purpose of meeting the water requirements of the Everglades National Park." The solicitor continued that the Secretary of the Army "not only has the statutory authority but also a Congressional mandate to issue, unilaterally, regulations for the delivery of project water to the park."[77]

Nevertheless, the Corps began to renege on its verbal assurances, as Robert Jordan, Special Assistant to the Secretary for Civil Functions, insisted that the modification authorized the Corps to provide the 315,000 acre-feet as an *objective*, not as a guarantee.[78] In an attempt to resolve the problem, the U.S. Senate Committee on Interior and Insular Affairs held hearings in June 1969 on water supply to Everglades National Park. At these hearings, Nathaniel Reed, special assistant to Florida Governor Claude R. Kirk, Jr., expressed the state's concern for the park, but stated that it was impossible to guarantee a certain amount of water each year because of Florida's erratic rainfall. Drought might decimate water supplies to the point where the FCD could not supply a required amount. Reed also told the committee that certain priorities existed

Everglades National Park in the 1960s. (Source: The Florida Memory Project, State Library and Archives of Florida.)

in Florida regarding water: man – meaning municipal supplies – was first, agriculture was second, and "somewhere along the line" was Everglades National Park. However, under a new interim schedule that the FCD was developing, the park would receive the necessary water and would only be short in times of drought when "everybody will be short." Robert Padrick, chairman of the FCD and a member of the Sierra Club, agreed with Reed, explaining that the interim schedule would deliver 260,000 acre-feet to Shark River Slough annually "in accordance with the park's monthly requirements."[79]

But Senator Gaylord Nelson, a Democrat from Wisconsin who had a strong interest in environmental matters, as evidenced by his support in this same time period for the National Environmental Policy Act, signed into law by President Richard Nixon on 1 January 1970, could not understand why the state would not agree to a guarantee. The federal government had expended $170 million on the project, he argued, so the state could not claim that the resulting water belonged to it. The intransigence of state officials on the matter infuriated Nelson, who called the situation "ridiculous," "preposterous," and a "disgrace."[80] Acceding to the wishes of the National Parks Association and other environmental groups (who also testified at the hearings), he threatened to halt a proposed $9 million appropriation for the C&SF Project if the state would not give the park a guarantee of 315,000 acre-feet regardless of future demands on water.

Only days after the conclusion of the hearings, Nelson executed his threat, asking the Senate Public Works Subcommittee of the Committee on Appropriations to halt the C&SF Project's $9 million appropriation for fiscal year 1970 until the state and park officials had reached a water supply agreement. Accordingly, the committee's appropriations report directed the state of Florida, the Interior Department, and the Department of the Army to develop an operating agreement to ensure water deliveries to Everglades National Park. But by 1970, the three parties had held no meetings to formulate a plan. Therefore, Senator Spessard Holland requested that the Subcommittee on Public Works Appropriations convene a conference with the interested state and federal agencies to discuss the problem.[81]

In February 1970, this meeting occurred, with representatives from the state of Florida, the NPS, and the Corps attending. To begin the discussion, NPS Director George Hartzog stated that he could not agree to any plan whereby the park had to share water in drought years with future users. Despite these declarations, the parties, aided by Holland and Senator Allen J. Ellender, chairman of the committee, made some progress and eventually agreed to several things. First, they concurred that an interim water supply delivery plan developed by the FCD in the summer of 1969 to simulate more accurately historical flow patterns would go into effect immediately, supplying 260,000 acre-feet of water to Shark River Slough (canal enlargement had to occur before the Taylor Slough and the eastern panhandle could receive 55,000 acre-feet). Second, when the Corps had enlarged the capacity of Lake Okeechobee to 17.5 acre-feet (which was supposed to occur in two years), the state, the NPS, and the Corps would review the plan to see if the park could receive more than 260,000 acre-feet. Third, once the Corps had completed the necessary construction to increase Lake Okeechobee's levels to 21.5 feet, the interim agreement would cease and the FCD would deliver 315,000 acre-feet annually. Fourth, in 1980, the Corps would conduct a restudy of the C&SF Project and of water demands to see what other action was necessary. The only issue that remained was whether or not the Corps could establish a priority

of use that would protect the park from future demands, and Holland and Ellender strongly suggested that a meeting to solve that difference occur quickly so that appropriations for the C&SF Project could resume.[82]

On 16 March 1970, the three parties held another conference to discuss the water supply problem, but although some conciliation was offered, no suitable agreement resulted.[83] Therefore, in April, the Senate Subcommittee on Flood Control of the Committee on Public Works held a hearing on the matter. During this meeting, Senator Nelson reiterated that unless the state, the NPS, and the Corps reached an accord, he would again try to stop any appropriation for the C&SF Project, and representatives from environmental organizations such as the National Wildlife Federation, the Florida Wildlife Federation, the National Parks Association, and the National Audubon Association concurred with this stance. Harkening back to the July 1968 meeting between the Interior Department, the Corps, and the Bureau of the Budget, Nelson accused the Corps of reneging on its verbal pledge to provide 315,000 acre-feet to the park unencumbered by future uses, and expressed his hope that "escalating public concern in America over all environmental matters" would force the Corps and the state to guarantee a water supply.[84] Upon Nelson's conclusion, Senator Edmund S. Muskie, a Democrat from Maine who was known for his support of environmental causes, proposed that the hearing investigate what protections Congress could provide to the park. Although no firm conclusions were reached, it was clear that some members of Congress would fight until Everglades National Park had its guaranteed water.

Everglades National Park. (Source: The Florida Memory Project, State Library and Archives of Florida.)

And, indeed, Nelson and Muskie did. Tired of the constant bickering between the state, the Corps, and the NPS, and resigned to the fact that no agreement was forthcoming, the two pushed a bill through Congress providing money for the conveyance canals and pumping stations proposed in the Corps' 1968 report. But the bill also contained a stipulation added by the Committee on Public Works, of which Muskie was a member, that as soon as practicable, and no later than when the Corps had completed the necessary works, Everglades National Park would receive either 315,000 acre-feet annually, prorated monthly according to an NPS schedule, or 16.5 percent of the total water deliveries from the project, whichever was less.[85] The committee's report explained that the proviso was added "to secure as promptly and regularly as possible delivery of water to the Everglades National Park" and to extinguish all questions of how much water the C&SF Project had to deliver to the park. Because the federal government had supplied so much money for the C&SF Project, and because the park was "a national asset to be preserved for our own and future generations," the committee believed it had the authority to make this stipulation.[86]

Although the NPS now seemed to have the guarantee of water that it desired, problems resulted almost immediately. Since language in the act required the stipulation to become effective as soon as practicable, the Corps and the FCD began implementing it in 1971, a year when little rain fell. Therefore, even though the park would have received more water under the FCD's interim plan, the FCD provided water throughout 1971 following Congress's requirement. This meant that the park received 20 to 25 percent less water than what it would have procured, while agricultural and urban interests continued to receive normal amounts, a situation that struck FCD Executive Director G. E. Dail, Jr., as unreasonable. "Since there is agreement that this formula is an extremely poor one," Dail told Jacksonville District Engineer Colonel A. S. Fullerton, "we do not believe that it should continue to be applied under current conditions," especially since projections showed that normal rainfall would allow "all essential demands" to be met "without the need to impose a curtailment of water use." Fullerton promised to investigate whether Congress intended the formula to apply immediately, but in the meantime, Everglades National Park faced a depleted water supply.[87]

Nevertheless, at least some strides had been made in providing necessary water to the park from the C&SF Project. Throughout the 1960s, the Corps, the FCD, and the NPS all had different viewpoints as to the water priority of Everglades National Park, and these disparities became glaringly apparent as drought ravaged the Everglades. When little water from the C&SF Project was forthcoming, NPS officials demanded that the Corps guarantee to the park a certain amount of water untouchable by future demands. In the words of NPS Director George Hartzog, it was time for the Corps to stop paying mere "lip service to the preservation of the Everglades."[88] Corps leaders, however, claimed that they could not provide such a promise, insisting that only the state of Florida could make that assurance. Because of the phenomenal growth of South Florida, and because supplying water to the park could have adverse effects on fish and wildlife in the water conservation areas (as evidenced by the problems with deer herds in 1966), state officials refused to provide a guarantee. Despite the opposition of the state and the reluctance of the Corps to provide a specific written guarantee, the Corps, in the 1968 restudy report, did, for one of the first times since the authorization of the C&SF Project, admit that the project needed to supply sufficient water to Everglades National Park. This reiteration of the

promise in the C&SF Project plan, although somewhat vague, showed that the drought of the 1960s and the work of park proponents was having some effect on the Corps' perception of how the project should be operated. It was a small step, but it set the stage for congressional leaders, such as Senators Gaylord Nelson and Edmund Muskie, to resolve the situation.

Despite the accomplishments, problems of water quality loomed on South Florida's horizon. The 1968 report's proposal to supplement Everglades National Park and Lake Okeechobee water by backpumping from east coast lands and agricultural areas, for example, produced new concerns about water quality, both in the lake and in the park, because the recycled water often contained pesticides, fertilizers, and other harmful chemicals. Even as the NPS fought for a guarantee of water, another danger threatened park ecology: a proposal to build a jetport in the Everglades region. In the 1970s, environmental forces first mobilized in the fight for a guaranteed water supply would need all of their resources to contend with these concerns.

Chapter Four Endnotes

[1] See S. D. Leach, Howard Klein, and E. R. Hampton, *Hydrologic Effects of Water Control and Management of Southeastern Florida*, Report of Investigations No. 60 (Tallahassee, Fla.: State of Florida, Bureau of Geology, 1972), 97.

[2] Wedgworth and Miedema interview. Wedgworth, one of the founders of the Sugar Cane Growers Cooperative of Florida in the 1960s, vehemently denies that Castro's revolution allowed Florida sugar production to increase. "Every pound of the quota that Cuba had," he claims, "was reallocated to 40-some odd foreign countries, and the domestic sugar producers . . . didn't get one pound of the Cuban quota."

[3] "Florida Acres in Sugarcane (1,000 acres)," document provided by George Wedgworth and Barbara Miedema, Sugar Cane Growers Cooperative of Florida, Belle Glade, Florida.

[4] Tebeau, *A History of Florida*, 434.

[5] "How the Florida Boom is Changing," *U.S. News & World Report* 46 (5 May 1969): 89; John G. Mitchell, "The Bitter Struggle for a National Park," *American Heritage* 21, No. 3 (1970): 99; Tabeau, *A History of Florida*, 431-434.

[6] Grunwald, *The Swamp*, 231-232.

[7] See Major General William F. Cassidy, Assistant Chief of Engineers for Civil Works, to Honorable Spessard L. Holland, United States Senate, 27 May 1960, File 1110-2-1150a (C&SF) Conservation Areas Jan 60-June 60, Box 15, Accession No. 077-96-0038, RG 77, FRC; Paul M. Tilden, "The Water Problem in Everglades National Park, Part II," *National Parks Magazine* 38 (March 1964): 9; Frank Nix, Hydraulic Engineer, Everglades, to Director, 21 June 1967, File L54 Levee L-31W, EVER 22965, CR-ENPA.

[8] "Conference on Conservation Area No. 3, Jacksonville, Florida, 14 April 1960," File 1110-2-1150a (C&SF) Conservation Areas Jan 60-June 60, Box 15, Accession No. 077-96-0038, RG 77, FRC.

[9] Cassidy to Holland, 27 May 1960.

[10] See Nix to Director, 21 June 1967; Stanley C. Joseph, Superintendent, to Mr. G. E. Dail, Executive Director, Central and Southern Florida Flood Control District, 13 December 1965, File L54 Levee L-31W, EVER 22965, CR-ENPA.

[11] Stewart L. Udall, Secretary of the Interior, to Mr. Secretary, 18 July 1961, File 1110-2-1150a (C&SF) Project Gen—Flood Control May 1961-Apr 62, Box 7, Accession No. 077-01-0023, RG 77, FRC; Tilden, "The Water Problem in Everglades National Park, Part II," 9.

[12] Elvis J. Stahr, Secretary of the Army, to The Honorable Steward L. Udall, The Secretary of the Interior, 7 September 1961, File 1110-2-1150a (C&SF) Project Gen—Flood Control May 1961-Apr 62, Box 7, Accession No. 077-01-0023, RG 77, FRC; see also Colonel J. V. Sollohub, District Engineer, to Chief of Engineers, 2 August 1961, ibid.

[13] Gale Koschmann Zimmer, "Unless the Rains Come Soon . . . " *National Parks Magazine* 36 (June 1962): 4-7.

[14] As quoted in Zimmer, "Unless the Rains Come Soon . . . " 4-7.

[15] Colonel H. J. Kelly, Acting Division Engineer, to Chief of Engineers, 4 August 1961, File 1110-2-1150a (C&SF) Project Gen—Flood Control May 1961-Apr 62, Box 7, Accession No. 077-01-0023, RG 77, FRC.

[16] Kelly to Chief of Engineers, 4 August 1961; Colonel J. V. Sollohub, District Engineer, to Chief of Engineers, 2 August 1961, File 1110-2-1150a (C&SF) Project Gen—Flood Control May 1961-Apr 62, Box 7, Accession No. 077-01-0023, RG 77, FRC.

[17] W. V. Storch to Files, 13 October 1961, File Conservation Area 1, 2, 3 1950-69 Deeds/General/Regulation/Petition for Change of Zoning, Box 02193, SFWMDAR.

[18] Storch to Files, 13 October 1961. The phrase "positive water supply benefits" was left undefined.

[19] See Assistant Secretary of the Interior to General Wilson, 11 May 1962, in U.S. Army Engineer District, Jacksonville, Corps of Engineers, *Central and Southern Florida Project, Plan of Survey: Everglades National Park Water Requirements* (Jacksonville, Fla.: U.S. Army Engineer District, Jacksonville, Corps of Engineers, 1964), A-1 – A-3 [hereafter referred to as *Plan of Survey*]; Lieutenant General W. K. Wilson, Jr., Chief of Engineers, to The Honorable Stewart L. Udall, The Secretary of the Interior, 19 June 1962, File CE SE Central and South Florida FCP Everglades NP Basic Data, FWSVBAR. The NPS had first proposed this idea in 1958 when Park Superintendent Warren F. Hamilton told District Engineer Colonel Paul D. Troxler that the NPS would prefer to have floodwater provided to the park through a floodway flowing south rather than going to the Atlantic Ocean through the Caloosahatchee River and St. Lucie Canal. See "Chronological Documentation of National Park Service Efforts and Corps of Engineers Responsibility to Assure Everglades National Park of Fresh Water Supply from Central and Southern Florida Flood Control Project," 5, File CE-SE Central and Southern Florida FCP Everglades National Park Basic Data, FWSVBAR.

[20] Lieutenant General W. K. Wilson, Jr., Chief of Engineers, to The Honorable Stewart L. Udall, The Secretary of the Interior, File 1517-08 (C&SF) So. Dade Co. Mult. Pur. Svy Reso. 11/15/54, Box 5, Accession No. 077-96-0017, RG 77, FRC.

[21] J. H. Hartwell, H. Klein, and B. F. Joyner, *Preliminary Evaluation of Hydrologic Situation in Everglades National Park, Florida* (Miami, Fla.: United States Department of the Interior, Geological Survey, Water Resources Division, 1963), 5, 8.

[22] Verne O. Williams, "Man-Made Drouth Threatens Everglades National Park," *Audubon Magazine* 65 (September-October 1963): 290-291.

[23] U.S. Geological Survey, "The Road to Flamingo: An Evaluation of Flow Pattern Alterations and Salinity Intrusion in the Lower Glades, Everglades National Park," available at <http://sofia.usgs.gov/publications/ofr/02-59/culverts.html > (10 January 2005); "Summary of Everglades National Park and Its Water Problems," 1 June 1965, 4, File Everglades Park Area—Review of Central and Southern Florida Vol. III, FWSVBAR.

[24] Tilden, "The Water Problem in Everglades National Park, Part II," 10.

[25] *Plan of Survey*, 2-3, 8-9, B-1.

[26] Hartwell, Klein, and Joyner, *Preliminary Evaluation of Hydrologic Situation in Everglades National Park, Florida*; "Supplemental Statement of Harthon L. Bill," in Senate Committee on Public Works, Subcommittee on Flood Control – Rivers and Harbors, *Central and Southern Florida Flood Control Project: Hearing Before the Subcommittee on Flood Control – Rivers and Harbors of the Committee on Public Works, United States Senate*, 91st Cong., 2d sess., 1970, 178; E. W. Reed, Chief, Branch of Water Resources, to Mr. Wallis, 7 July 1964, File L54 Water Resources USGS FY 65, EVER 22965, CR-ENPA.

[27] United States Department of the Interior, "Position Paper: Water Problem, Everglades National Park," 2-3, EVER 22965, CR-ENPA.

[28] See "Research Plan," 12 December 1963, File CE SE Central and South Florida FCP Everglades NP Conveyance Canals (Taylor Slough), FWSVBAR.

[29] D. C. Tabb and T. M. Thomas, "Prediction of Freshwater Requirements of Everglades National Park," 3, 4, 12, copy in South Florida Water Management District Reference Center, West Palm Beach, Florida.

[30] George B. Hartzog, Jr., Director, to Major General Jackson Graham, Director of Civil Works, Office of the Chief of Engineers, ca. 22 September 1965, File 1517-08 (C&SF—Martin County) Multiple Purpose Survey—SR 7/22/50 August 1965-April 1966, Box 4, Accession No. 077-96-0017, RG 77, FRC. South Atlantic Division Engineer Major General George H. Walker recommended against parts of the Martin County plan, stating that "our relations at this time with various groups interested in the Everglades National Park do not shine bright with mutual

trust and respect." To propose to divert water from Lake Okeechobee to Martin County before the water budget study was complete, Walker argued, was "prejudging our own findings." Walker to Chief of Engineers, 3 December 1965, ibid.

[31] See "Summary of Corps of Engineers' Reports on Central and Southern Florida Flood-Control Project," 7-8, File CE-SE Central and Southern Florida FCP Everglades National Park Basic Data, FWSVBAR; "Chronological Documentation of National Park Service Efforts and Corps of Engineers Responsibility to Assure Everglades National Park of Fresh Water Supply from Central and Southern Florida Flood Control Project," 13-14.

[32] See House, *Comprehensive Report on Central and Southern Florida for Flood Control and Other Purposes*.

[33] Senate Committee on Interior and Insular Affairs, *Everglades National Park: Hearings Before the Committee on Interior and Insular Affairs, United States Senate, Ninety-First Congress, First Session, on the Water Supply, the Environmental, and Jet Airport Problems of Everglades National Park*, 91st Cong., 1st sess., 1969, 24; "Summary of Everglades National Park and Its Water Problems," 5; U.S. Army Corps of Engineers, "Fact Sheet: The Water Situation in Southern Florida and the Everglades," 30 June 1965, 4, File Everglades Park Area—Review of Central & Southern Florida Vol. III, FWSVBAR; Luther J. Carter, *The Florida Experience: Land and Water Policy in A Growth State* (Baltimore, Md.: Johns Hopkins University Press, 1974), 120.

[34] See Marian Sorenson, "The Everglades 'Drought,'" undated *Christian Science Monitor* clipping, File CE SE Central and South Florida FCP Everglades NP Basic Data, FWSVBAR; Lloyd R. Wilson to Lt. Gen. W. S. Cassidy, Chief of Engineers, 18 October 1965, File Everglades Park Area—Review of Central & Southern Florida Vol. III, FWSVBAR.

[35] See U.S. Army Corps of Engineers, "Fact Sheet: The Water Situation in Southern Florida and the Everglades" (including marginalia), 8-9; Ed Buckow, "Unraveling the Everglades Furor," *Field & Stream* 71 (October 1966): 15. Critics asserted that pumping water southward through the canals would have lowered the ground water on cropland.

[36] William V. Storch, "South Florida Section, A.S.C.E., Fort Lauderdale, October 7, 1965," 5, 9, File CE SE Central and South Florida FCP Everglades NP Basic Data, FWSVBAR.

[37] For more information on Hurricane Betsy's effects on the Everglades, see Taylor R. Alexander, "Effect of Hurricane Betsy on the Southeastern Everglades," *Quarterly Journal of the Florida Academy of Science* 30 (1967): 10-24.

[38] "Agreement Between the Corps of Engineers and the Central and Southern Florida Flood Control District Establishing Basis of Payment for Pumping Water for Release to Everglades National Park," 26 August 1966 (emphasis in the original), File 1501-07 DACW17-72-A-0004 South Florida Water Management District (Lake Okeechobee Discharge into Everglades National Park), Box 19, JDAR.

[39] Department of the Interior—National Park Service, Department of the Army—Corps of Engineers, "Joint Fact Sheet on: Water Situation at Everglades National Park," 16 February 1966, File CE SE Central and South Florida FCP Everglades NP Basic Data, FWSVBAR; Wallace Stegner, "Last Chance for the Everglades," *Saturday Review* (6 May 1967): 72.

[40] Senate, Committee on Interior and Insular Affairs, *Everglades National Park*, 24.

[41] Michael Straight, "The Water Picture in Everglades National Park," *National Parks Magazine* 39 (August 1965): 7.

[42] Quotation in "Rains Fail to Wash Out Florida Worries," *The Evening Star* (Washington, D.C.), 24 June 1966; see also Stegner, "Last Chance for the Everglades," 72.

[43] U.S. Army Corps of Engineers, "Water Levels Fall in Conservation Area of Flood Control Project," File C&SF Flood Control Dist, Box 10, S1160, Florida State Board of Conservation Water Resources Subject Files, 1961-1968, FSA.

[44] O. E. Frye, Jr., Director, to Honorable Paul G. Rogers, Member, United States Congress, 31 May 1966, File Everglades High Water Correspondence: 1966, Box 1, S1719, Game & Fresh Water Fish Commission Everglades Conservation Files, 1958-1982, FSA.

[45] John C. Jones interview by Brian Gridley, 23 May 2001, 42, Everglades Interview No. 9, Samuel Proctor Oral History Program, University of Florida, Gainesville, Florida [hereafter referred to as Jones interview].

[46] Frye to Rogers, 31 May 1966.

[47] Quotation in Robert F. McDonald, Delegate of Palm Beach County Airboat and Half Track Club, to Hon. Haydon Burns, Governor of Florida, 11 July 1966, File Everglades Conservation Area: General Information Corr. 1964-1967, Box 1, S1719, Game & Fresh Water Fish Commission Everglades Conservation Files, 1958-1982, FSA; see also "Fact Sheet on the Deer Situation in Conservation Area 3," 8 August 1966, ibid.

[48] As quoted in Florida Cabinet Press Release, 12 July 1966, File Everglades Conservation Area: General Information Corr. 1964-1967, Box 1, S1719, Game & Fresh Water Fish Commission Everglades Conservation Files, 1958-1982, FSA.

[49] Randolph Hodges, Chairman, Everglades Natural Resources Coordinating Committee, to All Interested Persons, August 2, 1966, File Everglades Conservation Area: General Information Corr. 1964-1967, Box 1, S1719, Game & Fresh Water Fish Commission Everglades Conservation Files, 1958-1982, FSA.

[50] "Fact Sheet on the Deer Situation in Conservation Area 3," 8 August 1966, File Everglades Conservation Area: General Information Corr. 1964-1967, Box 1, S1719, Game & Fresh Water Fish Commission Everglades Conservation Files, 1958-1982, FSA.

[51] "Fact Sheet on the Deer Situation in Conservation Area 3," 8 August 1966.

[52] "Fact Sheet on the Deer Situation in Conservation Area 3," 8 August 1966.

[53] R. G. MacDonnell, Major General, USA, Acting Chief of Engineers, to Miss Linda K. Effler, 25 August 1966, File 1110-2-1150a (C&SF) Conservation Area, January 1966-August 1966, Box 15, Accession No. 077-96-0038, RG 77, FRC.

[54] Joe J. Koperski, Chief, Engineering Division, to Miss Vickie Smith, St. Paul Dispatch, St. Paul Pioneer Press, 11 August 1966, File 1110-2-1150a (C&SF) Conservation Area, January 1966-August 1966, Box 15, Accession No. 077-96-0038, RG 77, FRC.

[55] Ronald Wise, Commissioner, to Honorable Don Fuqua, Member of Congress, House of Representatives, 12 August 1966, File Everglades High Water Correspondence: 1966, Box 1, S1719, Game & Fresh Water Fish Commission Everglades Conservation Files, 1958-1982, FSA.

[56] Quotation in Randolph Hodges, Director, Board of Conservation, to Dr. O. E. Frye, Jr., Director, Game and Fresh Water Fish Commission, 9 February 1967, File Everglades Conservation Area: General Information Corr. 1964-1967, Box 1, S1719, Game & Fresh Water Fish Commission Everglades Conservation Files, 1958-1982, FSA; see also "Deer Island Project," File E.C.A. High Water & Deer Herds, 1959-1974, ibid.

[57] See "NPA Urges Protection from Everglades 'Salting,'" *National Parks Magazine* 40 (July 1966): 19; "Opening of Canal 111 Is Delayed for Study," *National Parks Magazine* 40 (August 1966): 24; Charles H. Callison, "National Outlook," *Audubon Magazine* 69 (May/June 1967): 56; Wallace Stegner, "Last Chance for the Everglades," *Saturday Review* (6 May 1967): 72; Blake, *Land Into Water*, 216; Light and Dineen, "Water Control in the Everglades," 70; "Aerojet Canal: No Barge Ever Came; Bridge Never Opened," *The South Dade News Leader*, 13 July 1971. Other canals proposed as part of the Dade County Project aroused similar controversy; in 1971, state

officials halted digging of C-109 and C-110, located south of C-111, because agricultural interests north of the canals feared that the waterways would drain water that they needed. Park officials also worried that the canals would convey polluted water into the Everglades. See "Plug to Remain in 2 SD Canals," *The South Dade News Leader*, 1 September 1971; Joe Brown, Superintendent, to Mr. Don Albright, State Planning and Development Clearinghouse, 6 July 1971, File L54 Canals 109-110 (106, 107, 108), EVER 22965, CR-ENPA.

[58] See "'Glades Vs. Florida' Issue Seen Brewing," *St. Petersburg Times*, 1 June 1967; "The Defense of the Everglades," *National Parks Magazine* 41 (August 1967): 2; "A Legal Ruling Needed on Everglades Water Rights," *Audubon* 69 (July/August 1967): 5.

[59] O. E. Frye, Jr., Director, to Mr. Randolph Hodges, Director, State Board of Conservation, 2 May 1968, File E.C.A. High Water & Deer Herds, 1959-1974, Box 1, S1719, Game & Fresh Water Fish Commission Everglades Conservation Files, 1958-1962, FSA.

[60] Department of the Army, Jacksonville District, Corps of Engineers, "Notice of Public Hearings on Improvements for Water Resources for Central and Southern Florida," 27 October 1967, 3, File Draft Reports: Water Resources 1967, 1968, Box II-13, Office of History, Headquarters, U.S. Army Corps of Engineers, Alexandria, Virginia [hereafter referred to as HQUSACE].

[61] Deputy Director to Brig. Gen. H. G. Woodbury, Jr., Director of Civil Works, Office of the Chief of Engineers, 20 October 1967, EVER 22965, CR-ENPA. Another factor in the NPS's willingness to accept the 315,000 acre-feet figure could have been the realization that, given the state of Florida's concerted opposition to even a 315,000 acre-feet guarantee, obtaining more than 315,000 acre-feet was unlikely.

[62] "Comments on the Survey Review Report on Water Resources for Central and Southern Florida Project by the Florida Game and Fresh Water Fish Commission," 5, File E.C.A. Control Water Study Plans & Reports, 1967-1970, Box 1, S1719, Game & Fresh Water Fish Commission Everglades Conservation Files, 1958-1982, FSA.

[63] Herbert L. Alley, Director Region 4, National Wildlife Federation, to Colonel R. B. Tabb, District Engineer, 20 October 1967, EVER 22965, CR-ENPA.

[64] "Water for Everglades National Park," *National Parks Magazine* 41 (December 1967): 2.

[65] As quoted in "Corps Water Proposal 'Failure,' Says Homer," *South Dade (Fla.) News Leader*, 16 November 1967.

[66] Bill to Brig. Gen. H. G. Woodbury, Jr., 20 October 1967, File Central Florida Water Supply, Central and Southern Florida 1967, Box II-13, Office of History, HQUSACE; Hayes to Brigadier General H. G. Woodbury, Jr., 10 January 1968, File Draft Reports: Water Resources 1967, 1968, Box II-13, Office of History, HQUSACE.

[67] "Draft, General Position on Everglades," 7 November 1967, File Central Florida Water Supply Central and Southern Florida 1967, Box II-13, Office of History, HQUSACE (emphasis in the original).

[68] Quotations in Chief, Engineering Division, to District Engineer, 4 January 1968, File Draft Reports: Water Resources 1967, 1968, Box II-13, Office of History HQUSACE; see also Hayes to Woodbury, 10 January 1968.

[69] Department of the Army, Jacksonville District, Corps of Engineers, *Survey-Review Report on Central and Southern Florida Project: Water Resources for Central and Southern Florida, Main Report* (Jacksonville, Fla.: Department of the Army, Jacksonville District, Corps of Engineers, 1968), 29, 46.

[70] Arthur E. Morgan, *Dams and Other Disasters: A Century of the Army Corps of Engineers in Civil Works* (Boston: Porter Sargent Publisher, 1971), 386.

[71] George B. Hartzog, Jr., Director, to Chairman, Board of Engineers for Rivers and Harbors, 11 April 1968, File BERH Public Notices 1968, Box II-13, Office of History, HQUSACE. For more information about Hartzog's role in the fight for Everglades water supply, see George B. Hartzog, Jr., *Battling for the National Parks* (Mt. Kisco, N.Y.: Moyer Bell Limited, 1988), 225-231.

[72] See Major General R. G. MacDonnell, Chairman, to Chief of Engineers, Department of the Army, 7 May 1968, File BERH Public Notices 1968, Box II-13, Office of History, HQUSACE.

[73] Stanley A. Cain, Assistant Secretary of the Interior, to General Cassidy, 12 June 1968, File 1517-08 (C&SF Martain [*sic*] County) Svy Multiple Purposed—SR 7/22/50 July 1967, Box 4, Accession No. 077-96-0017, RG 77, FRC.

[74] Major General F. J. Clarke, Acting Chief of Engineers, to The Honorable Stewart L. Udall, The Secretary of the Interior, 14 June 1968, File 1517-08 (C&SF Martain [*sic*] County) Svy Multiple Purposed—SR 7/22/50 July 1967, Box 4, Accession No. 077-96-0017, RG 77, FRC.

[75] Senate Committee on Appropriations Subcommittee on Public Works, *Water Supply for Central and Southern Florida and Everglades National Park: Meeting Arranged by Subcommittee of the Committee on Appropriations, United States Senate*, 91st Cong., 2d sess., 1970, 21-22, 25-26; Act of 13 August 1968 (82 Stat. 731).

[76] "Transcription of Information Given by Brigadier General Charles C. Noble, OCE, in Telephone Conversation with FBC for a Proposed Memorandum of Agreement Between OCE, BOB, and Dept. of Interior, to be Contained in a Letter from the National Park Service to the Chief of Engineers, 19 July 1968, File Everglades, Box 6, S949, Governor's Office, Jay Landers, Subject Files, FSA; Randolph Hodges, Director, to Brigadier General Charles C. Noble, 23 July 1968, ibid.

[77] Quotation in Solicitor to Secretary of the Interior, 8 October 1968; see also Senate Committee on Appropriations Subcommittee on Public Works, *Water Supply for Central and Southern Florida and Everglades National Park*, 21-22, 25-26.

[78] Senate Committee on Appropriations Subcommittee on Public Works, *Water Supply for Central and Southern Florida and Everglades National Park*, 26.

[79] Reed and Padrick quotations are both in Senate Committee on Interior and Insular Affairs, *Everglades National Park*, 50-59, 65.

[80] Senate Committee on Interior and Insular Affairs, *Everglades National Park*, 32-33, 44-46; see also "Nelson Asks Water for Everglades," *The Miami Herald*, 5 August 1969.

[81] Spessard L. Holland to Hon. Allen J. Ellender, Chairman, Public Works Subcommittee, 22 January 1970, in Senate Committee on Appropriations Subcommittee on Public Works, *Water Supply for Central and Southern Florida and Everglades National Park*, 1-2; Senate, *Public Works for Water, Pollution Control, and Power Development and Atomic Energy Commission Appropriation Bill, 1970*, 91st Cong., 1st sess., 1969, S. Rept. 91-528, Serial 12834-4, 24-25; "Battle Rages Over Everglades Park," *The Christian Science Monitor*, 14 June 1969.

[82] Senate Committee on Appropriations Subcommittee on Public Works, *Water Supply for Central and Southern Florida and Everglades National Park*, 20, 39-40.

[83] "Report of Meeting with Representatives of the Departments of Army and Interior and State of Florida on Water Supply to Everglades National Park, Miami, Fla., March 12, 1970," in Senate Committee on Public Works Subcommittee on Flood Control – Rivers and Harbors, *Central and Southern Florida Flood Control Project*, 98-100.

[84] Senate Committee on Public Works Subcommittee on Flood Control – Rivers and Harbors, *Central and Southern Florida Flood Control Project*, 106, 111, 151, 228-232, 236-240.

[85] Act of 19 June 1970 (84 Stat. 310); see also Blake, *Land Into Water*, 194; Carter, *The Florida Experience*, 124.

[86] Senate, *River Basin Monetary Authorizations and Miscellaneous Civil Works Amendments*, 91st Cong., 2d sess., 1970, S. Rept. 91-895, Serial 12881-3, 16-17. The report further explained how the committee reached the

16.5 percent formula. The Corps had estimated in its 1968 report that the C&SF Project could deliver 1,905,000 acre-feet of water. Three hundred fifteen thousand acre-feet was approximately 16.5 percent of that figure. Therefore, whenever the project supplied water at its normal capacity, the park would receive at least 315,000 acre-feet. In times of drought, "the park guarantee of 315,000 acre-feet will be proportionately reduced." This formula eliminated "priorities of use between present and future water users" and did not "rest on the reliability of Corps projections of future demand and water supply—concepts which have been the subject of continuing dispute and misunderstanding" (pp. 18-19).

[87] See Colonel A. S. Fullerton, District Engineer, to Division Engineer, South Atlantic, 25 June 1971, File 1110-2-1150a (C&SF) Water Resources—Proj. Gen 1968 Authn Jan 1971-Dec 1971, Box 16, Accession No. 077-02-0048, RG 77, FRC; G. E. Dail, Jr., Executive Director, to District Engineer, Jacksonville District, 18 October 1971, ibid.; James L. Garland, Chief, Engineering Division, to Superintendent, Everglades National Park, 28 October 1971, ibid.

[88] Hartzog, *Battling for the National Parks*, 228.