

Chapter 13: Marine Fisheries, Fisheries Management, and Florida Bay

South Florida waters have been attractive to fishermen for millennia. Some market fishing by boats from Cuba began in the eighteenth century. Commercial fishing became more viable after 1900 when sources of ice for preserving the catch became more reliable. Well-heeled sportfishermen, mostly from the North, began taking trips to the Everglades region in the 1870s, frequently hiring locals as guides. By the time Everglades National Park was authorized in 1934, both sport and commercial fishing were well established in Florida Bay and along the Gulf Coast. The dividing line between sport and commercial fishermen was not always sharp. Many individual fishermen and the captains who guided them were in the habit of selling excess fish to fish house operators. Although they would surely represent themselves as sportsmen, when they sold part of their catch, these individuals were entering the commercial market. Operations by commercial fishermen in park waters proved to be one of the most contentious issues in Everglades National Park's history. During the campaign for the park's authorization, NPS officials came to understand that Monroe County interests would adamantly oppose the park unless given adequate assurances that commercial fishing could continue. The Service provided public assurances to commercial fishermen while internally acknowledging that restrictions on fishing would very likely be necessary in the future. To further natural resource management goals, park managers gradually established limitations, culminating in a total ban on commercial fishing and bag limits for sportfishermen, which became effective January 1, 1986.⁶⁶⁷

Early NPS Assurances to Fishermen

Park Service officials in the 1930s were quick to assure South Floridians that sportfishing was a long-accepted recreational pastime in national parks and would be permitted in the proposed Everglades National Park. Sportfishermen mostly sought tarpon, snook, spotted sea trout, gray snapper (also known as mangrove snapper), red drum (also known as redfish or channel bass), and grouper. Commercial fishing was a sizable local business, supporting hundreds of local families. Fish houses processed fish caught in waters slated to become part of the park at Naples, Everglades City, Flamingo, and various places in the keys. Mullet, seatrout, pompano, and mackerel were the most important commercial species. In addition to fin fishes, crabs, spiny lobsters, clams, and sponges were commercially harvested in the area.

⁶⁶⁷ Paige, 83-94.

Commercial fishermen and their political representatives in Monroe and Collier Counties kept asking for reassurance from the NPS and the Everglades National Park Commission that they could continue to operate in the waters of the proposed park. Mrs. C. S. “Mamie” Smallwood of Chokoloskee in August 1936 presented the commission with a petition from Gulf Coast families asking that commercial fishing continue because the fish trade was the “only maintenance” for hundreds of families. Fishermen in Monroe County believed that Ernest Coe and the Everglades National Park Commission had wholly ignored their interests and livelihoods.⁶⁶⁸ Backing up the fishermen, the Monroe County Commission passed a resolution vowing to oppose the inclusion of any portion of Florida Bay or the keys in the proposed park. Director Cammerer and other NPS officials wrote a series of letters to Florida politicians and fishermen’s groups to keep the park project alive. A letter from Cammerer in April 1937 to the Monroe County Fishermen’s Association would be cited locally for decades as an ironclad promise on the part of the NPS. It included the following language:

The National Park Service has no intention of imposing regulations relating to commercial and sports fishing within the Everglades National Park area, other than those contained in Florida State laws, or county laws in the event the latter exist.⁶⁶⁹

These assurances ultimately persuaded Monroe County to acquiesce in the inclusion of most of Florida Bay within the park. During the final negotiations that led to the state’s commitment of \$2 million dollars for land acquisition in 1947, the NPS repeated its promises to assure the law’s passage. Director Drury wired Bernie Papy, who represented Monroe County in the state legislature, that “commercial fishing will not be prohibited in the proposed park.”⁶⁷⁰

NPS policy in the 1930s and 1940s was to manage fish resources on a sustained yield basis. This meant that restrictions on the taking of a given fish species would be imposed if managers judged that stocks threatened to fall below a level that would allow the species to thrive. Agency officials occasionally referred to this policy when reassuring commercial fishing interests, but did not emphasize it. Internally, NPS managers acknowledged that fish stocks were already under pressure in park waters and that future restrictions might well be needed. Director Cammerer in 1936 wrote Ernest Coe that “the taking of commercial marine species will be regulated only when it appears that the supply is threatened with depletion, and then only to the extent

668 Mrs. C. S. Smallwood to E. F. Coe, ENPC, Aug. 19, 1935, CP, EVER 20995c; Chester Thompson, Monroe County Fishermen’s Assn., to E. F. Coe, ENPC, Apr. 19, 1937, CP, EVER 22687.

669 Dir. Cammerer to Chester Thompson, Apr. 23, 1937, EVER 42242, ser. IV.

670 Dir. Drury to Bernie Papy, Apr. 11, 1947, NARA II, RG 79, NPS CCF, box 907.

necessary to conserve the supply.” Dan Beard in his 1938 *Wildlife Reconnaissance* noted that “continued commercial fishing is reducing the supply and quality of the catch,” and gave his opinion that some sort of regulation would prove necessary.⁶⁷¹

At park establishment in 1947, some state regulations on fishing existed, but they were rarely enforced in the park area. “Stop netting” was banned by state law but still widely practiced. This method involved stringing nets up to a mile wide across the mouths of bays and other inlets at high tide. When the tide went out, fish were trapped in the net. Fishermen harvested the commercial species, mostly mullet and spotted sea trout, and left the rest to die. Widely employed legal methods of taking fish for the market included gill nets and line fishing. During World War II, fishermen based outside the immediate area began to use seine nets in Florida Bay, and some locals adopted them. As much as three or four miles wide, these nets had a smaller mesh than gill nets. Small fish that would pass through mesh of a gill net and larger fish that could break through a gill net were caught in a seine net. The seine nets were dragged across the water, using floats at the top and weights at the bottom. The weights did considerable damage to the seabed. Dan Beard as refuge manager in 1946 wrote “commercial fishermen have just about ruined Florida Bay both by abiding by State law and by not doing so. . . . I do not think that the area will be able to stand the fishing pressure that will be exerted on it without considerable regulation.” Once Florida Bay became part of the park in February 1950, the NPS took the first steps to stop the most destructive aspects of commercial fishing.⁶⁷²

Fishing Regulations Following Establishment

Superintendent Beard had informal discussions with sport and commercial fishermen, and drew up a set of fishing regulations. Following publication of the proposed rules in the *Federal Register*, the Service held a public hearing on them in Homestead in November 1950. Minor changes to the rules on crab traps and bait traps were made, and the revised regulations became effective March 9, 1951, upon their second publication. The regulations banned nets and seines from rivers, bays, and other “inland” waters within the park. Drag seine nets were completely banned, but commercial fishermen were allowed to continue using any other nets approved under state law as well as hook and line in the open waters of Florida Bay and the Gulf of Mexico. Other provisions defined the maximum size of legal nets and crab traps, prohibited the taking of turtles and their eggs, and closed the Ingraham Highway within the park to hauling of commercial catches of any kind. Those taking shrimp and

⁶⁷¹ Dir. Cammerer to Ernest F. Coe, June 9, 1936, CP, EVER 20406; Beard, *Wildlife Reconnaissance*, 53-56.

⁶⁷² Daniel Beard to C. R. Vinten, June 6, 1946, NARA Ph, RG 79, 79-58A-360.

selling it for bait had to apply for a permit from the park. Local guide fishermen and sportsmen's clubs strongly supported the regulations as did conservation groups like Florida Audubon. Superintendent Beard later noted that these first regulations met with little opposition.⁶⁷³

Everglades superintendents made minor changes to the fishing regulations between 1951 and late 1964. Park permits had been required for stone crab traps and silver mullet nets since 1948 (figure 13-1, stone crab catch, 1965). As of January 1956, commercial shrimping permits were restricted to those who held them before that date. In 1958, the park amended the fishing regulations by applying them to the land acquired in the northwest extension of the park boundary. In 1960, commercial shrimping was prohibited in park waters.⁶⁷⁴

The state of the fish stocks in the park continued to be a major concern of park managers throughout the 1950s and early 1960s. It was becoming clear that the pressure of commercial and sportfishing was not the only factor in the apparent decline of some species in

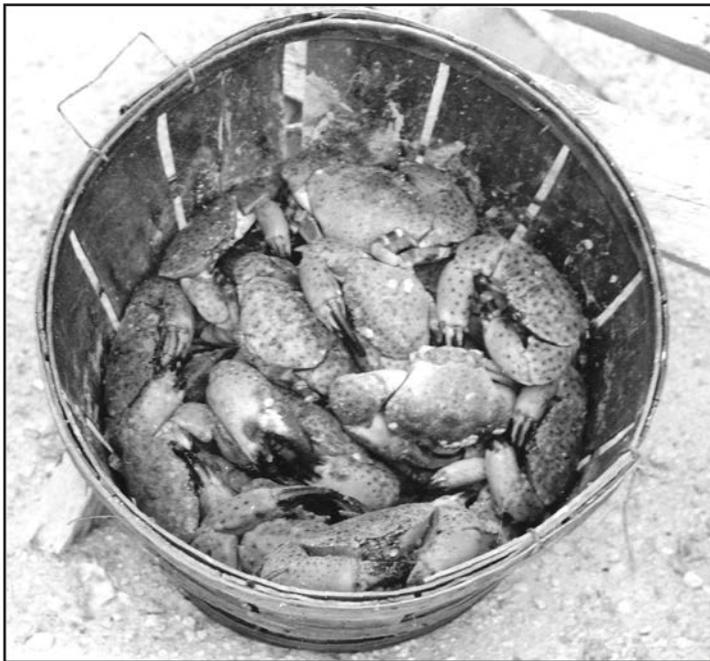


Figure 13-1. A stone crab catch, 1965

Florida Bay. There was a growing belief among scientists that the Central & Southern Florida Project had caused less freshwater to flow into the bay. A resulting increase in the bay's salinity seemed to be changing its ecology and affecting fish habitat. To get more data to inform future management decisions, the park in 1958 contracted with the Marine Laboratory of the University of Miami for a catch-and-effort survey. Led by Professor

⁶⁷³ "Notice of Hearing," 15 Fed. Reg. 7272-7273 (Oct. 28, 1950); 16 Fed. Reg. 2187-2188; Everglades National Park Fishing Regulations, Feb. 15, 1951, NARA Ph, RG 79, 79-67-A-1022; "Fishing Rule Changes for Glades Aired," *Miami Herald*, Nov. 17, 1950; Daniel B. Beard, "Return of the Gill Net to Florida Bay," *National Parks Magazine* 26/110 (July-Sep. 1952):110-111.

⁶⁷⁴ Acting Supt., ENP, to RDSE, Jan. 7, 1965, EVER 42242, ser. IV; Chronology of Special Regulations for Fishing and Boating in Everglades National Park, circa 1986, EVER 42242, ser. VI, sub. A, sub. 2.

James B. Higman, university students surveyed fishermen at Flamingo. Fishermen were asked how long they were out, where they fished, what species they sought, and how many of each species they caught. As many as 3,000 sportfishermen per year were interviewed between 1958 and 1967.⁶⁷⁵ Up to 1965, the park did not collect catch data from commercial fishermen in park waters. In May 1959, the Service said that it hoped to be able to expand its research to include study of the ecology of Florida Bay and the life cycles of important game fish species, once funding could be found.⁶⁷⁶

By late 1964, park managers had decided to require permits from all commercial and guide fishermen operating in the park and to possibly make other changes to fishing regulations (figure 13-2, commercial fishing permit). Park staff had informal discussions with fishermen on the Gulf Coast and the keys in November and December 1964. The meetings seem to have focused mainly on the proposed permit requirements. New regulations for fishing in Everglades National Park were then published in the *Register* on May 27, 1965. The agency received no comments or objections, and the regulations were published as a final rule on August 18, 1965, with an effective date of September 17. The regulations added new restrictions on the size and type of nets allowed, closed additional areas on the north shore of Florida Bay to commercial fishing, restricted the use of crab traps to the waters of southern Florida Bay, and reduced from 400 to 200 the number



Figure 13-2. Commercial. fishing permit

of crab traps a single operator could maintain. They also banned commercial harvest of spiny lobsters while allowing recreational harvesting by hand or bully net during the state's season. When park rangers attempted to enforce the new rules, there were loud objections to them and the way they had been adopted. Superintendent Stanley Joseph met with fishermen in Everglades City in November, but failed to quell the

⁶⁷⁵ A 1979 report indicates the interviews were conducted “for ten years, from 1958 to 1969.” Ten years of interviewing, beginning in 1958, would end in 1967, not 1969. The park’s computerized database, into which all of the paper reports on Florida Bay fisheries have been entered, supports the 1967 date.

⁶⁷⁶ Gary E. Davis and Edith B. Thue, “Fishery Data Management Handbook, Everglades National Park,” June 1979, <http://www.nps.gov/ever/naturescience/upload/SecureTRT-546.pdf>; SOI to Congressman Dante Fascell (draft), May 6, 1959, NARA II, RG 79, AF, box 2344.

opposition. On January 14, 1966, Joseph issued an administrative order suspending the enforcement of most of the new rules. Two weeks later, Joseph was replaced after just 28 months as superintendent by Roger Allin. This seems to have been a hastily arrived at decision designed to extricate Joseph from the controversy surrounding the fishing regulations. Evidence for this can be found in the fact that former superintendent Dan Beard came from the Southwest Regional Office in February to spend a week with the new superintendent to bring him up to speed on Everglades issues.⁶⁷⁷

Although the new provisions opposed by the commercial fishermen were suspended, the park maintained the requirement that commercial and guide fishermen obtain no-fee permits from the park. A condition of the permits was that the fishermen report their catches on a form supplied by the park. Park managers hoped that the data collected would help them formulate future fishery management decisions. Considerably later, in 1996, the park imposed a \$250 fee for guide fishermen permits (see chapter 21). In 1972, the park initiated an expanded program of catch-and-effort surveys of sportfishermen. Interviews were conducted at Everglades City, Chokoloskee, and Key Largo as well as Flamingo, and some 12,000 per year were conducted.⁶⁷⁸ It is very uncertain how much useful data the park ever got from any of these surveys. The reports from the commercial fishermen were voluntary. The park biologist in late 1971 observed that the most commercial fishermen never submitted any reports, while a few complied rigorously. The interviews with sportfishermen reached perhaps 10 percent or less of all those fishing in the park. Given that the skill level of recreational fishermen varied widely, the reliability of these surveys is questionable.⁶⁷⁹

Having the official fishing rules as published in the *Code of Federal Regulations* differ from the rules actually enforced was clearly not something that the NPS could tolerate indefinitely. Nonetheless, this was a complicated situation involving political, social, economic, and biological aspects. The Service continued to feel bound by the commitments previously made to commercial fishing interests, but the complaints from sportfishermen were growing. After considerable discussion with fishermen, state agencies, and the National Marine Fisheries Service, the park published a new set of regulations on May 8, 1971, revising some and leaving some unchanged. This time around, the Service made sure to include in the announcement that public hearings

⁶⁷⁷ Supt. to RDSE, Jan. 7, 1965, EVER 42242, SER. IV; Gary E. Davis, "Fishery Management Conflicts in Everglades National Park, n.d., EVER 42242, ser. VI, sub. A, sub. 2; SMR, Oct., Nov. 1965, Jan. 1966.

⁶⁷⁸ The figure of 12,000 interviews appears in Gary E. Davis, "Estuarine and Coastal Marine Fishery Management in Everglades National Park," *Proceedings of the First National Conference on Science in the National Parks*, Robert M. Linn, ed. (Washington, D.C.: NPS, 1979), 657-664. Park staff conducting the fishery program in the park in 2013 doubted that the number was that high. The discrepancy may in part hinge on whether the count measures fishing parties or individual fishermen, given that two or three fishermen often go out in a single boat.

⁶⁷⁹ Marine Biologist, ENP, to Resource Management Staff, Oct. 12, 1972, EVER 22970; Davis, "Fishery Management Conflicts."

would be held. After holding hearings in Homestead in December 1972 and analyzing written comments, the NPS published the final rules in July 1973. In the main, the new rules aimed to bring the official code in line with actual practice. The major changes from the rules published in 1965 were an enlargement of the area open to commercial fishing, a relaxation of the rules on gill and trammel nets, an extension from five to 14 days of the period nets and traps could be left unattended, and a return to the limit of 400 on crab traps. The NPS rejected suggestions made during the comment period for a commercial spiny lobster season and for a lengthening of the stone crab season. The Service also rejected requests that commercial fishing be banned entirely “as being inconsistent with prior commitments by the Federal Government.” A suggestion that the park expand its scientific investigations of park fisheries was accepted, subject to available funding.⁶⁸⁰

Mounting Concerns over Fish Stocks

The park continued its expanded catch-and-effort study mentioned above and began investigations of the salinity, bottom types, currents, and patterns of fish predation in Florida Bay. Not many years after the promulgation of the 1973 fishing regulations, sportfishermen and fishing guides, deeply concerned over declining catches, stepped up pressure on the park to take additional action to protect fish stocks. Captain Hank Brown of the Islamorada Fishing Guides Association was a leader in this effort. Fishing guides had suggested bag limits on some game fish as early as 1951, but their concerns had become more critical by the mid-1970s, and were shared by prominent national conservationists like Frank Masland (figure 13-3, Automated fish scaler at Flamingo). John Good, Everglades superintendent from October 1976 to February 1980, heard from the guide fishermen within two months of assuming his position. When asked about what could be done, Good advised the fishermen to get up a petition campaign. The fishermen took the advice, going so far as stopping motorists on U.S. 1 to get signatures; they also formed the Everglades Protection Association in February 1978. Shortly thereafter, the association presented the NPS with petitions carrying 4,700 signatures that asked for a moratorium on the use of nets in the bay, as well as bag limits on red drum and spotted sea trout.⁶⁸¹ In November 1978, the issue reached a national audience through an article in *Sports Illustrated* provocatively titled “Where Have All the Fishes Gone?” The article’s subtitle

680 Asst. Sec. for Fish, Wildlife and Parks to Sen. Lawton Chiles, Nov. 2, 1972, NARA II, RG 48, Office of SOI, CCF, box 180; 36 Fed. Reg. 8586-8587 (May 8, 1971); “New Fishing Rules Become Law in Park,” July 19, 1973, *South Dade News Leader*; 38 Fed. Reg. 16778-16780 (July 26, 1973).

681 In John Good’s recollection, the petitions were sent to Starker Leopold, science advisor to the NPS. Good received a call from Leopold, who said, “I’ve got these three scrolls. What the hell are you doing down there? I detect your fine hand in this.” Good interview.

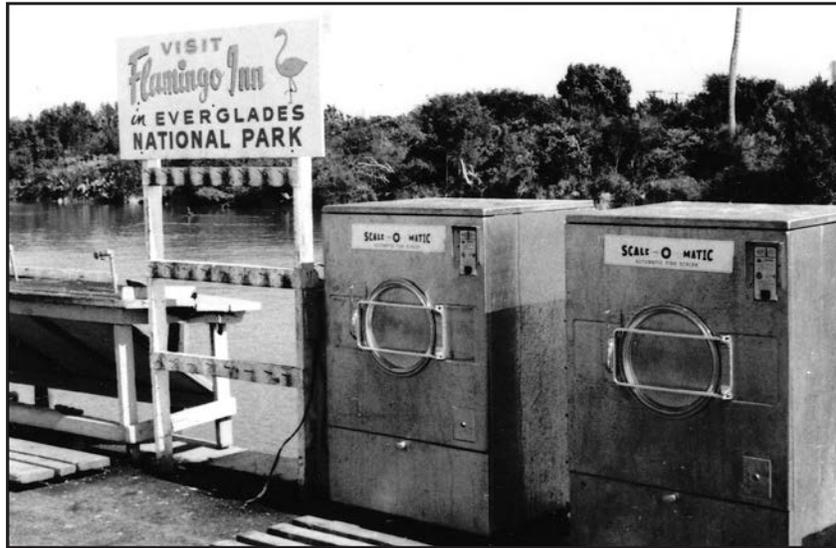


Figure 13-3. Automated fish scalers at the Flamingo dock, 1968

framed the issue starkly, “Once fertile, the shallow waters of Florida Bay are now nearly barren of game fish, which have been driven away by high salinity or throttled in commercial gill nets.” The park responded by promising to do an assessment of park aquatic resources and putting a moratorium on the issuance of new commercial fishing permits.⁶⁸²

This new assessment was complicated by a number of factors, notably the previous promises to the commercial fishermen. In addition, commercial fishermen and sportfishermen largely sought different species. The only species pursued by both were spotted sea trout and pompano. Sportfishermen argued that the commercial fishing harmed them in two ways: commercial nets snared and killed juvenile sport-fish species, and the mullet removed by the market fishermen deprived sport fish of prey. The commercial fishermen also interfered with traditional patterns of guide fishing (13-3, Automated fish scalers at Flamingo). At the start of a day, guide fishermen would net a few mullet to use as bait. The nets of the commercial fishermen stirred up the bottom, clouding the water and dispersing schools, making it impossible for guides to locate mullet. The park, however, lacked data indicating that commercial fishing had a more direct impact on sportfishing. Many scientists blamed the decline in sport catches on the sizable increase in recreational fishing, the increase in Florida Bay’s salinity, or other environmental factors. The commercial fishermen and the

⁶⁸² 1974 Research Accomplishments and Activities, Feb. 20, 1975, EVER 22965; Dir. Demaray to Miles Collier, July 26, 1951, WNRC, NPS, 79-85-8; Frank Masland Jr. to Dir. Hartzog, Mar. 9, 1972, WNRC, NPS, 79-85-8, box 10; Frederick F. Ruoff, Islamorada Fishing Guides Association, to Supt. Good, Feb. 6, 1978, EVER 38306; Good interview.

Florida Division of Marine Resources did not hesitate to cite the park's own scientists, who concluded that declining catches "were related to changes in environmental conditions" not commercial fishing.⁶⁸³

The park released its *Assessment of Fishery Management Options in Everglades National Park, Florida* in January 1979. The options were then presented and discussed at four public forums, which drew more than 600 participants. The options involved prohibiting net fishing in all or portions of the park's marine waters, limiting the number of commercial fishing permits, establishing bag limits on red drum, seatrout, and grey snapper, prohibiting the harvest of spiny lobsters, and prohibiting or limiting the harvest of stone crabs. At the hearings, it became apparent that all parties believed that the decrease in freshwater run-off to Florida Bay from the Everglades was the biggest factor in declining fish populations. Neither the park nor the fishermen had any control over that factor. There was considerable disagreement over what management measures that were within the park's purview would be appropriate. The commercial fishermen vehemently opposed limitations on their activities and accused the NPS of going back on its word. They threatened to sue if they believed the new regulations violated their rights. Sportfishermen were largely in favor of bag limits; many guides had already adopted self-imposed limits. While the great majority of sportfishermen favored a ban on all net fishing, they voiced few, if any, objections to the continuation of commercial hook and line fishing, commercial stone crabbing, and private lobstering in the park.⁶⁸⁴

After reviewing and analyzing the public comments, the park in April 1979 prepared a "Review of Fishery Management Options at Everglades National Park, Florida." By this point, the NPS was moving toward a position of banning commercial fishing in the park on the grounds that for-profit extractive activities were fundamentally inconsistent with national park purposes. The Service was in a difficult position. It had no scientific studies indicating that commercial fishing was responsible for the poor results experienced by sportfishermen, but the latter were increasingly vociferous in demanding an end to net fishing. Superintendent Good and his staff viewed the issue as a competition for the natural resources in Florida Bay and believed that wildlife and sportfishermen had the higher claims. Good observed: "because commercial exploitation of park resources is not a primary objective [of the NPS], we are not as concerned about commercial fishing as we are about preservation of the natural system and the recreational opportunities the system affords." In part, the park realized

683 Edwin A. Joyce Jr., Dir., Division of Marine Resources, to Supt. Good, Feb. 27, 1979, citing Gary E. Davis, "Changes in the Everglades National Park Red Drum and Spotted Seatrout Fisheries, 1958-1978.

684 SFRC, "An Assessment of Fishery Management Options in Everglades National Park, Florida" (Homestead, Fla.: SFRC, Jan. 1979); Supt. Good to RDSE, Mar. 5, 1979, EVER 38306; "Some Oil for Troubled Waters in Everglades National Park," *Florida Sportsman*, Apr. 1979.

that a complete ban would be far easier to enforce than banning netting in some parts of the park but allowing it in others. Park managers also understood that if they continued to allow commercial fishing in any form, the controversy would be prolonged indefinitely. Park managers pointed out that promises by former directors were not legally binding and that the NPS could not be expected to abide by promises made under conditions that no longer prevailed.⁶⁸⁵

The NPS published the proposed regulations and an explanation of how they had been developed in the *Federal Register* in September 1979. The major changes were:

1. The complete elimination of commercial fishing, including crabbing, in park waters by December 31, 1985.
2. A bag limit of 20 fish per person, with no more than 10 of a single species.
3. A complete ban on taking spiny lobsters.
4. Allowing recreational crabbing with a maximum of five attended traps only.
5. Establishment of a crocodile sanctuary closed to all public entry embracing Little Madeira Bay, Taylor River, East Creek, Mud Creek, Davis Creek and Joe Bay.

The Service noted:

These regulations have been designed to provide greater resource protection through regulated use and to provide for increased recreational use and enjoyment of park resources by resolving the competition between commercial and recreational fishermen. . . . Most of the public perceives the park's purpose as providing recreation and natural system preservation and not commercial harvest of resources.

The announcement acknowledged that the \$1.2 million that park commercial fishing contributed to the local economy would be lost. It observed, however, that park recreational fishing contributed \$2.5 million in economic benefits and was steadily increasing. The NPS set a 60-day comment period and held four public hearings on the proposed regulations in October 1979.⁶⁸⁶

As might have been expected, commercial fishermen adamantly opposed the regulations. They said that no crocodiles and very few game fish were caught in their nets, and pointed out that sportfishing was often better in areas of Florida Bay that were open to netting than in smaller bays that were closed to the commercial fishermen. Commercial fishermen believed it was fundamentally unfair to allow guide fishermen to profit from park fisheries via the fees they charged sportsmen, while denying commercial operators the chance to make a living. A complete commercial

⁶⁸⁵ Supt. Good to Edwin A. Joyce Jr., Florida DNR, Mar. 26, 1979, Supt. Good to RDSE, Jan. 15, 1980, EVER 38306; Good interview.

⁶⁸⁶ 44 Fed. Reg. 33541-33545 (Sep. 14, 1979).

ban would hit the community of Everglades City particularly hard. The mayor and city council pointed out that five commercial fish houses operated there and fully 277 of the one thousand residents of Everglades City and Chokoloskee were employed in the production and processing of seafood. Some market fishermen saw the forthcoming ban as evidence of a consistent NPS bias against them, pointing to the early 1950s eviction of the fishing community at Flamingo. The Collier County Commission and the Florida Division of Marine Resources supported the commercial fishermen in their efforts to keep using park waters. The Organized Fishermen of Florida (OFF), representing some 16,000 commercial fishermen across the state, continued to threaten legal action if the ban went into effect. The commercial fishermen tried to enlist Congressman Dante Fascell in their cause; he listened patiently to their pleas, but did not get involved.⁶⁸⁷

In favor of the regulations were the U.S. Fish and Wildlife Service (FWS) and many environmental organizations, including the National Audubon Society and several Florida affiliates, the Izaak Walton League of America, and the Wilderness Society. Some of these groups and the Everglades Protection Association felt the regulations did not go far enough, believing that the ban on commercial fishing should be immediately effective. Other sportfishermen were unhappy with the restrictions on crabbing and lobstering and the closing of the areas in northeast Florida Bay that formed the crocodile sanctuary.⁶⁸⁸

The final regulations, published on February 15, 1980, with an effective date of March 17, 1980, differed little from the first version. In all, the NPS heard from 2,800 individuals who opposed the phase-out of commercial fishing, against 400 who supported it. Many of those counted as opposed had merely signed a petition. The Service held to its decision on the phase-out, noting that it was a “definitive solution” to the competition between recreational and commercial fisherman and that the six-year delay in implementation would allow commercial operators to amortize their equipment and find new fishing grounds. Superintendent Good also noted that many conservation and recreational interests wanted a quicker phase-out and would not accept any weakening of the regulations without a fight. Starting in 1980 and continuing through the end of 1985, only commercial fishermen who had held park permits during 1980

687 Lawrence Marvin, “Truth About Fishing in the Park,” *South Dade News Leader*; Nov. 1979; Mayor and Council of Everglades City to Supt. Good, Oct. 29, 1979, EVER 38306; “Everglades Conflict Heating Up,” *Miami Herald*, Oct. 1, 1979; “County Supports Everglades City,” *Organized Fishermen of Florida Newsletter*, Mar. 30, 1979; Edwin A. Joyce Jr., Dir., Florida DNR, to Supt. Good, Mar. 30, 1979, EVER 22965; Good interview.

688 Acting RD, FWS, to Acting Supt, ENP, Sep. 19, 1979, EVER 302897; Ron Tipton, National Parks Specialist, TWS, to Supt., ENP, Oct. 11, 1979, TWS papers, ser. 4, box 26; Jack Lorenz, Exec. Dir, Izaak Walton League of America, to ENP, Nov. 13, 1979, IWL papers, box 37; “Chamber Unhappy with Plan,” *Florida Keys Angler*; Dec. 1979.

were allowed new permits. The park required guide fishermen to get permits, which were open to anyone.⁶⁸⁹

As they had threatened, the OFF, representing the commercial fishermen, filed suit in federal court in late March 1980 seeking to block the new regulations. The group attacked the regulations on a number of grounds, including that the park had violated the National Environmental Policy Act by failing to prepare an environmental impact statement as part of its rule making. The OFF's request for a preliminary injunction to suspend enforcement of the regulations was denied in late April, and the case began its progress toward a trial on the merits. With the inauguration of President Ronald Reagan in January 1981 and his appointment of James Watt as secretary of the interior, federal conservation policies changed. Secretary Watt favored increased commercial use of public lands, and he soon began looking for ways to keep commercial fishing going in Everglades National Park, perhaps by granting lifetime permits to those fishermen who had been operating there as of 1979. In April 1981, after meetings in Washington among Interior representatives and representatives of the commercial fishing industry, Interior officials directed the Department of Justice to begin settlement discussions with OFF. The political appointees in Interior told Everglades National Park to hold additional public hearings on the commercial fishing question, which took place in June 1981. They also had the FWS conduct additional research on Florida Bay fish stocks, the funding coming out of the NPS budget.⁶⁹⁰

Both sides in the OFF lawsuit agreed to put it on hold while NPS took another look at the issues. John Morehead, who became Everglades superintendent in May 1980, reported that in the new round of hearings and comments "overall public response remained overwhelmingly in favor of eliminating commercial fishing from the Park by 1985." He observed that a reversal of the regulations would be strongly opposed by sportfishermen and conservation groups and would reopen a contentious dispute. Morehead recommended that the 1980 regulations remain in force and was backed by the regional director. The new FWS studies confirmed previous work. Secretary Watt in December 1981 directed the NPS to prepare a scoping paper on the fisheries issues and develop a research program on the marine resources of the park. In February 1982, NPS Director Russell E. Dickenson forwarded an issue

⁶⁸⁹ 45 Fed. Reg. 10350-10355 (Feb. 15, 1980); "New Fishing Regs Become Law in Everglades National Park," NPS press release, Feb. 21, 1980; Supt. Good to RDSE, Jan. 15, 1980, EVER 38306; "New Fishing Regulations Start Monday in Everglades Areas, *Miami Herald*, Mar. 16, 1980.

⁶⁹⁰ *Organized Fishermen of Florida, et al., vs. Andrus, et al.*, Case No. 80-789-VIC-SMA, U.S. District Court, So. District of Florida, Mar. 28, 1980; Denial of Preliminary Injunction, 488 F. Supp. 1351, Apr. 29, 1981; J. R. Spradley, Assoc. Solicitor, DOI, to Anthony Liotta, DOJ, Apr. 6, 1981; 6-5-81, "National Park Service to Review Fishing Regulations at Everglades," Organized Fishermen of Florida press release, June 5, 1981, HFC; Hendrix interview. Ric Davidge, who was an assistant to Asst. SOI G. Ray Arnett, conducted some of the hearings; Davidge came to Florida convinced that the public would want commercial fishing, and was surprised when overwhelming majorities testified against it. Morehead interview.

analysis, research proposal, and other papers to the secretary, and stated that the position of the Service was that the regulations should remain in effect. This was not what the administration was looking for, and Interior fired back that the NPS “did not fulfill the charge” that it had been given. It seems clear that what Secretary Watt wanted was for the NPS to come up with a rationale for allowing fishing to continue beyond 1985. The NPS repeated that the decision had never rested on biological grounds, but rather on longstanding policy for national parks. At this point, Congressman Fascell wrote Secretary Watt urging him to keep the existing regulations.⁶⁹¹ Backed by Representative Fascell, Superintendent Morehead and his staff firmly and patiently held the line on the fishing ban. The Department of the Interior abandoned its push for a reversal in August 1982, directing the Department of Justice to resume defending the department in the OFF case. In July 1984, U.S. District Judge Sidney M. Aronovitz granted Interior’s motion for summary judgment and dismissed the action. OFF appealed the decision, which was affirmed by the 11th Circuit Court of Appeals in November 1985. OFF then asked the U.S. Supreme Court to hear an appeal, but this was denied in June 1986. By then, commercial fishing operations in the park had ended, on December 31, 1985, as the regulations provided. Everglades City residents were very bitter over the outcome. Their reactions are considered more fully in chapter 19.⁶⁹²

The Health of Florida Bay

Concerns about the abundance of sport fish and the future of commercial fishing preoccupied park staff from the mid-1970s through the mid-1980s. Soon after commercial fishing ended, broader concerns about the health of Florida Bay came to the fore. Some fishermen claimed to have noticed changes in the clarity of the bay’s water in the 1970s, but it was a large algae bloom and a massive die-off of sea grasses in the bay in 1987 that first caused widespread alarm.

Florida Bay, 80 percent of which lies within Everglades National Park, is one of the largest estuarine systems in the world. The bay is a shallow lagoon, with an average depth of less than five feet. It contains a mosaic of microenvironments, with relatively deeper basins (locally known as lakes) separated by mud banks. Deeper-water channels

⁶⁹¹ Supt. Morehead to RDSE, July 28, 1981, EVER 42242, ser. VI, sub. A, bus. 2; Charles Waterman, “Reconsidering Commercial Fishing Policy in Everglades Is Bad News,” *Florida Times-Union*, Apr. 28, 1981; Dir., NPS, to Asst. Sec., Mar. 25, 1982; Ray Hubley to Ric Davidge, Apr. 7, 1982, EVER 42242, ser. VI, sub. A, sub. 2; Congressman Dante Fascell to SOI, Apr. 9, 1982, EVER 302897.

⁶⁹² “U.S. to Fight Suit Over Glades Fishing,” *Miami Herald*, Aug. 8, 1982; “Commercial Fishing Ban in ‘Glades Upheld,’” *Miami Herald*, July 7, 1984; 590 F. Supp 805, Nov. 15, 1985; U.S. Supreme Court denial of certiorari in *Organized Fisherman of Florida vs. Hodel*, 85-1561; Morehead interview.



Figure 13-4. Fishing in the Ten Thousand Islands

from 3 to 15 feet deep connect the basins. The central areas of the bay tend to be isolated from currents and water exchanges that are typical of areas closer to the Gulf of Mexico. The salinity of the bay varies from place to place, from season to season, and from year to year. In the twentieth century, much of the seabed was covered by lush stands of sea grasses. Turtle grass (*Thalassia testudinum*) was the most common variety in the second half of the twentieth century, with shoal grass (*Halodule wrightii*) and manatee grass (*Syringodium filiforme*) also being present. The bay is an important nursery ground for pink shrimp and spiny lobsters, which migrate to other areas as adults. In addition, it provides habitat for sponges, stone crabs, sea turtles, the American crocodile, and a number of important sport fish. Sportfishing is a major driver of the economy of the Florida Keys, making the health of the bay an important issue

for the community. Finally, the bay is a significant feeding ground for wading birds, eagles, and osprey.⁶⁹³

Periodic fish kills in Florida Bay are a natural occurrence. Elevated temperatures and reduced freshwater run-off can increase salinity and depress dissolved oxygen levels, killing fish by the hundreds or thousands. Large algae blooms tend to exacerbate the kills because the algae draws oxygen from the water at night. Prolonged cold snaps in the winter are deadly to fish, manatees, and crocodiles. No fish kills have been tied to pollutants in the bay, although an unusually large fish die-off in September 1990 aroused some suspicion. Hundreds of thousands of dead fish were spotted in Garfield, Rankin, and Snake Bights. Some outside scientists criticized park staff for not testing any of the dead fish for toxins. The park responded that weather conditions were responsible for the event, so there was no point in conducting tests. In January 2010, the park experienced a two-week-long cold spell, something that had not occurred for decades. The chilly weather caused the largest fish die-off in the memory of many locals and killed at least 70 crocodiles and 60 manatees. Cold also is hard on introduced species, and the 2010 event rid the area of an untold number of iguanas and pythons.⁶⁹⁴

The Florida Bay algae blooms and sea grass die-offs continued into the early 1990s; in 1992, a 300-to-400-450-square-mile bloom dubbed the dead zone appeared. Both phenomena increased the murkiness—called turbidity by scientists—of the bay's waters. The algae turned the water green or brown, and when sea grasses died, the dead plant material and the increased stirring up of sediment clouded the waters. Fishermen seeking tarpon, bonefish, and other species often rely on being able to see their prey. The clarity and salinity of the water are also major determinants of what variety of sea grass is able to grow. Turtle grass, for example, is more salt tolerant than shoal grass and has replaced it in some areas in recent decades. The bay's problems began to attract attention in the press, including a 1995 piece in *Sports Illustrated* by Carl Hiassen. Hiassen wrote that bay waters once reverently described as “gin-clear” had been transformed into “a bilious rank-smelling broth” by algae.⁶⁹⁵

693 Florida Bay Program Management Committee, *The Strategic Science Plan for Florida Bay* (N.p.: Nov. 2004), 1; Thomas V. Armentano, Michael B. Robblee, P. Ortner, N. Thompson, David Rudnick, and J. Hunt, *Florida Bay Science Plan* (Homestead, Fla.: NPS, Apr. 1994), 16-17; Margaret D. Hall, Kenning Madley, Michael J. Durako, Joseph C. Zieman, and Michael B. Robblee, “Florida Bay,” in *Seagrass Status and Trends in the Northern Gulf of Mexico: 1940-2002*, Scientific Investigation Report 2006-5287, edited by L. Handley, D. Altsman, and R. DeMay (Washington, D.C.: USGS, 2006), 242, <http://pubs.usgs.gov/sir/2006/5287/pdf/CoverandContents.pdf>.

694 “Park Officials Criticized for Ignoring Fish Kill,” *Miami Herald*, Oct. 2, 1990; “Thousands of Game Fish Wash Ashore,” *Miami Herald*, Aug. 26, 1993; “Heat Stroke May Have Killed Fish,” *Miami Herald*, July 23, 2009; “Big Chill Kills Crocs, Pythons, Sea Cows,” *Miami Herald*, Feb. 7, 2010.

695 “Algae Bloom Threatens Largest Lobster Nursery,” *St. Petersburg Times*, Feb. 18, 1993; Carl Hiassen, “The Last Days of Florida Bay,” *Sports Illustrated*, Sep. 18, 1995, <http://sportsillustrated.cnn.com/vault/article/magazine/MAG1007122/1/index.htm>.

In response to declining conditions in the bay, managers from Everglades National Park and the National Oceanic and Atmospheric Administration's Looe Key National Marine Sanctuary in 1993 created an informal organization, the Florida Bay Working Group. The working group produced an evaluation of previous scientific studies of the bay and in 1994, a *Florida Bay Science Plan*, the first such interagency plan. The science plan synthesized the existing science plans of several state and federal agencies and set forth objectives for Florida Bay monitoring, research, and modeling. By this time, the Clinton administration had created the South Florida Ecosystem Restoration Task Force to coordinate the policies of the multiple federal agencies that managed land in the region (see chapter 28). The South Florida Management and Coordination Working Group of the task force approved the *Florida Bay Science Plan*. It also gave more formal status to the Florida Bay Working Group, which was renamed the Florida Bay Program Management Committee (PMC).⁶⁹⁶

In 1997, the Science Oversight Panel of the Florida Bay PMC recognized the need for a revision of the *Florida Bay Science Plan*. This resulted in the *Strategic Plan for the Interagency Florida Bay Science Program*. The 1994 science plan had focused on basic information needs and the development of program processes. The 1997 strategic plan identified five central questions related to ecosystem attributes, set out steps needed to address the questions, and where possible, assigned agency responsibilities. The five central questions focused on the following issues: 1) the effects of storms, changing freshwater flows, sea level rise, and local evaporation/precipitation; 2) nutrient exchange and cycling; 3) algae blooms; 4) changes in sea grass communities; and 5) the recruitment, growth, and survival of Florida Bay animal communities. Not long after the publication of the strategic plan, the PMC decided to expand the program's scope to include adjacent waters: Biscayne Bay and the Gulf and Atlantic waters that are part of the Florida Keys National Marine Sanctuary. The Florida Bay Interagency Science Center maintained by the NPS on Key Largo (described above in chapter 11) became the major field station for scientific work on Florida Bay.⁶⁹⁷

In 2004, the PMC produced a revised plan, *The Strategic Science Plan for Florida Bay*. A new plan was needed in large part in order to coordinate Florida Bay science activities with the larger goals of the Comprehensive Everglades Restoration Plan (CERP), authorized by Congress in 2000 (see chapter 28). Because the Restudy of the Central and Southern Florida Flood Control Project undertaken by the U.S. Army Corps of

⁶⁹⁶ Donald F. Boesch, Neal E. Armstrong, Christopher F. D'Elia, Nancy G. Maynard, Hans W. Paerl, and Susan L. Williams, *Deterioration of the Florida Bay Ecosystem: An Evaluation of the Scientific Evidence*, Sep. 15, 1993, <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.22.8350&rep=rep1&type=pdf>; Armentano, et al., *Florida Bay Science Plan*, 5.

⁶⁹⁷ Florida Bay Program Management Committee, 2; David Rudnick, personal communication, June 28, 2013. The Florida Bay Program Management Committee became the Florida Bay and Adjacent Waters Program Management Committee.

Engineers in the 1990s focused mainly on the Everglades, the Corps also began a Florida Bay and Florida Keys Feasibility Study. This study's goal was to evaluate Florida Bay and its connection to the Everglades, the Gulf of Mexico, and the Florida Keys marine ecosystem and make recommendations concerning projects under the CERP that would alter freshwater deliveries to the bay. Largely because of the expense and complexity of developing models for the functioning of Florida Bay, the Corps' study has not yet been completed. A major goal of the PMC's 2004 strategic science plan was to ensure that results from Florida Bay research and monitoring activities are integrated into ongoing Everglades restoration decisions. As mechanisms for implementing the CERP began to take shape in the 2000s, the Florida Bay PMC ceased meeting. The various subgroups under the working group of the South Florida Ecosystem Restoration Task Force have taken over some of the functions of the PMC. The scientific advisory panel for CERP, known as RECOVER (REstoration, COordination, and VERification) also makes recommendations for Florida Bay research efforts. Many of the measures of the success of CERP projects focus on the "River of Grass"; the monitoring of conditions in Florida Bay and the development and fine-tuning of metrics related to it are equally important.⁶⁹⁸

Much of the research done on the Florida Bay ecosystem is conducted from the Florida Bay Interagency Science Center, colocated with the Key Largo ranger station (see chapter 7). Partners in the operation of the center include the South Florida Water Management District, the National Oceanic and Atmospheric Administration, Florida International University, Florida Atlantic University, and the Florida Fish and Wildlife Conservation Commission.⁶⁹⁹

A great deal more is known today about the ecology of Florida Bay than was known in 1993, but many uncertainties remain. The volume and timing of freshwater flows from the mainland affect the salinity and turbidity of the bay. It is clear that the Central and Southern Florida Flood Control Project and previous drainage efforts reduced the amount of freshwater reaching the bay and altered the timing and sources of freshwater deliveries. The consensus view of scientists is that the bay is more saline now than before drainage. The composition of sea grass communities before drainage is not clearly understood. Because of the bay's shallowness, it is presumed that extensive sea grass beds have existed for centuries. Before widespread hunting, the grazing of the sea grasses by large populations of turtles and manatees likely made the water

⁶⁹⁸ Florida Bay Program Management Committee, 3-6; John Hunt and William Nuttle, eds., *Florida Bay Science Program: A Synthesis of Research on Florida Bay* (Tallahassee: FFWCC, 2007), http://research.myfwc.com/engine/download_redirection_process.asp?file=tr11_2211.pdf&objid=52697&dctype=publication; David Rudnick, personal communication, Aug. 20, 2013; U.S. Army Corps of Engineers, Overview of the Florida Bay and Florida Keys Feasibility Study, http://www.evergladesplan.org/images/fbfk_wunderlich_poster.pdf.

⁶⁹⁹ "New Digs for Everglades Park Science Center," *Key West Citizen*, Feb. 17, 2010.



Figure 13-5, Propeller scarring in Florida Bay

more turbid than it typically was in the mid-twentieth century. As agriculture expanded in South Florida in the second half of the twentieth century, freshwater reaching Florida Bay contained more phosphorous and other fertilizer components, which have the potential to promote algae growth in the bay and eventually cause eutrophication. It has also been demonstrated that the fill placed between keys during the construction of the railroad to Key West (1906-1912) reduced the exchange of water between Florida Bay and the Atlantic, which likely limited the outflow of excess biomass from the bay.⁷⁰⁰ The role of hurricanes and tropical storms in flushing excess biomass from the bay is not clearly understood. The scientific consensus is that if freshwater flows to the bay can be augmented by projects undertaken as part of the CERP, water quality will improve and the number and size of algae blooms will diminish.

An issue that has arisen in recent decades is the damage inflicted on sea grass stands by propeller blades. As motorboats have become more powerful and cheaper, their use in Florida Bay has increased dramatically. Many boaters are unfamiliar with the mosaic of channels, basins, and mudflats in the bay and sometimes end up

⁷⁰⁰ Boesch, et al., 2, 4, 7, 9; David Rudnick, personal communication, August 20, 2013.

inadvertently plowing furrows in sea grass stands. This stirs up sediment and chokes some plants; the furrows can take 10 years or more to fill in with vegetation (figure 13-5, Propeller scarring in Florida Bay). As the park moved forward with the preparation of its GMP in the 2000s, it proposed alternatives that included the establishment of pole/troll zones in Florida Bay to protect shallow areas from propeller scarring. In a pole/troll zone, the use of internal combustion engines is banned; propulsion must be by pole, paddle, or electric trolling motor only. When these alternatives were presented to the public in 2009, some stakeholders suggested establishing a pilot pole/troll zone in a defined area as a test. After studying possible areas and conducting consultations, the park established a 9,400-acre pole/troll zone in Snake Bight, effective January 1, 2011. The condition of the seabed within the pole/troll zone is being monitored and compared with the seabed in nonrestricted areas.⁷⁰¹

In 1995, the National Parks Conservation Association (NPCA) produced a resource assessment of Florida Bay. One recommendation of the assessment was that the park require boaters to take a course on boating safety. Some years later, in 2003, the NPCA received an anonymous \$3.3 million donation to be used over five years to address problems in Florida Bay. Some of the money received by the association was used for research on the number of boaters using the bay and to assess the extent of the damage already done to the seabed. The NPCA formed a coalition of scientists and local users of the bay to recommend how the remaining funds could best be expended. Educating boaters, better marking of channels, and expanded ranger patrols emerged as key recommendations for preventing future damage. Consequently, some of the funds were employed to purchase patrol boats for the park and place new navigational markers. The park also published a brochure that includes a map of the bay and a guide for its responsible use by boaters. The eight-page brochure has an article on the role of sea grasses in the ecology of the bay, detailed guidelines on safety, and instructions on how to pole one's way to deeper water after running aground. The brochure is available at local marinas and on-line.⁷⁰²

As a result of internal park discussions, public input, and the recommendations of the NPCA resource assessment, the preferred alternative in the park's GMP released in early 2013 called for the adoption of a mandatory boater education program, not just for Florida Bay, but for all park waters. All boaters would be required to take a course, geared to the type of boat and duration of usage in the park, and receive a

701 Atkins North America, Inc., *Snake Bight Pole and Troll Zone, Everglades National Park, Year 1 Monitoring Report* (Doral, Fla.: Atkins North America, Inc., Aug. 2011), 5-6.

702 Brian Lavendal, "Just Skimming the Surface," *National Parks*, Summer 2005, 36-41; NPCA, *Florida Bay: A Resource Assessment* (Washington, D.C.: NPCA, Dec. 2005); NPS, *Florida Bay Map and Guide*, http://www.nps.gov/ever/planyourvisit/upload/map_and_guide_2012_spread.pdf; NPCA, *Florida Bay: An Assessment* (Washington, D.C.: NPCA, 2007), <http://www.npca.org/about-us/center-for-park-research/stateoftheparks/florida-bay/FLBAreport.pdf>.

permit. The courses are to be available on-line, at visitor contact points and local marinas, and in gateway communities. Details of the education and permitting program will be worked out after the GMP is approved. Another aspect of the preferred alternative was the establishment of pole/troll zones aggregating approximately 131,302 acres in the shallowest and most vulnerable areas of Florida Bay. This represents about one-third of the total bay acreage within the park boundary. The NPCA unveiled a precursor to the new direction proposed for boating on the bay in the GMP with the unveiling of its voluntary Eco-Mariner program in April 2009. This involves a free online boater education course in English or Spanish. The Eco-Mariner website also provides summaries of fishing regulations and license requirements and updated information on fishing conditions.⁷⁰³

While the mandatory boater education proposal in the GMP gained widespread support in South Florida, the idea of banning the use of internal-combustion motors from about 33 percent of Florida Bay has been controversial. Conservation groups like Florida Audubon support the pole/troll zone while Upper Keys fisherman Sandy Moret branded it “way, way beyond reason.” Park management has pointed out that 96 percent of the pole/troll zone is within one mile of a marked channel or deeper water. Fishing guides countered that a mile is a long way to paddle and that the restrictions will make it harder for them to earn a living.⁷⁰⁴

⁷⁰³ NPS, *Draft GMP*; NPCA media release, “Eco-Mariner Boater Education Course Premieres at Earth Day Event to Help Boaters Protect Florida Bay,” Apr. 22, 2009, http://www.npca.org/news/media-center/press-releases/2009/eco_mariner_042209.html; Eco-Mariner website, <http://ecomariner.org>.

⁷⁰⁴ “Driver Education for Boaters?,” *Key West Citizen*, Aug. 21, 2011; “Poll, Troll Zones for Third of Bay,” *Key West Citizen*, Mar. 3, 2013.