

Annual Report of Activities Conducted under the Cooperative Aquatic Plant Control Program in Florida Public Waters for Fiscal Year 2009-2010

This report was prepared in accordance with §369.22 (7), Florida Statutes, to provide an annual summary of the control achieved and funding necessary to manage aquatic plants in public waters. The Cooperative Aquatic Plant Control Program administered by FWC in Florida's public waters involves complex operational and financial interactions between state, federal and local governments as well as private sector companies.

FWC's aquatic plant management program mission is to reduce negative impacts from invasive nonindigenous plants like water hyacinth, water lettuce and hydrilla to conserve the multiple uses and functions of public lakes and rivers. Invasive plants infest 96% of Florida's 450 public waters inventoried in 2010 that comprise 1.26 million acres of fresh water. Once established, eradicating invasive plants is difficult or impossible and very expensive; therefore, continuous maintenance is critical to keep invasive plants at low levels to sustain attributes like navigation, flood control and recreation while conserving native plant habitat for fish and wildlife on sovereignty state lands. A detailed description of the uses of Florida waters, how aquatic plants may impair these uses, aquatic plant control options, management plan development, and research and outreach efforts is presented in the following website: <http://plants.ifas.ufl.edu/manage/>.

A summary of plants controlled in sovereignty public waters and associated expenditures contracted or monitored by the FWC during Fiscal Year 2009-2010 is presented in the following pages. Management statistics are summarized in Tables 1-3 and presented graphically in Figures 1-4. FWC's highest management priorities are the control of floating plants (water hyacinth and water lettuce) and hydrilla. "Other plants" listed in the tables include both native and nonindigenous plants that may impair the uses of Florida public waters.

Table 1 presents the amount of control and associated funding for each plant type within the boundaries of the five water management districts to provide some geographical perspective on where plants are controlled in Florida. Table 2 breaks down aquatic plant management expenditures by federal and state funds. Twelve aquatic plant species found in Florida are considered to be invasive in that they are capable of causing environmental or economic harm if not managed on a routine basis. Some are widespread like floating plants or hydrilla and are under continuous maintenance. Others are present in only a few locations and are under eradication programs to prevent them from becoming established in Florida waters. Table 3 lists individual plant types found in Florida public waters summarizing acres controlled and associated control expenditures for Fiscal Year 2009-2010.

Figure 1 shows the ranges in size of the floating plant populations reported in Florida public lakes and rivers in 2010. Although these plants are widespread, found in 268 public waters, most populations are being suppressed to fewer than ten acres, keeping overall management costs and environmental impacts at low levels. Figure 2 shows water hyacinth cover in Florida public waters in ten-year intervals dating back to 1947 through 2010 to give an historical perspective of the presence of this prolific plant species through the decades. The Maintenance Control management philosophy was implemented in the early 1970s - control invasive plants on a statewide coordinated, routine and consistent basis - to reduce the overall population from about 125,000 acres in 1959 to a few thousand acres at any one time for the past 30 years. Floating plants were under maintenance control in 97% of Florida's public waters during 2010.

Figure 3 shows acreage ranges for the 197 hydrilla populations that were reported in public lakes and rivers in 2010. Nearly two thirds of all hydrilla populations observed in 2010 covered fewer than ten acres, and hydrilla was considered to be under maintenance control in 95% of Florida's public waters in 2010. Figure 4 compares funding for hydrilla control vs. acres of hydrilla reported in public waters from 1982-2010. When funding is adequate, hydrilla can be suppressed at low levels. When funding is insufficient, hydrilla expands and forms underground tubers that can persist for many years, representing the potential for immediate regrowth after control, and the need for prolonged higher levels of management funding until these tuber "banks" are depleted.

Year in Review - Fiscal Year 2009-2010

- **Invasive non-native plants** were reported in 96% of Florida's 450 public lakes and rivers that comprise 1.26 million acres of fresh water.
- Eradicating established invasive plant populations has proven nearly impossible; therefore, continuous maintenance of invasive aquatic plants is needed to suppress their populations at low levels in order to sustain water body attributes including navigation, flood control, and recreation while conserving native plant habitat.
- **Floating water hyacinth and water lettuce**, two of the world's fastest growing and most invasive plants, covered as much as 125,000 acres of Florida public waters as recently as the 1960s and therefore are the FWC's highest management priorities.
- Floating plants were present in 268 public lakes and rivers in 2010 covering about 5,140 acres and are under maintenance control in 97% of Florida's public waters. 85% of the floating plant populations reported in 2010 covered 10 acres or less. (Figure 1)
- Managers spent about \$6.22 million controlling 46,575 acres of floating plants in Florida public lakes and rivers during FY 09-10 to keep them under maintenance control. (Tables 1-3)
- Most of the control was on Lake Okeechobee as managers struggled to keep ahead of explosive growth triggered when floating plant seeds, that had been exposed from several years of exceptional drought and extremely low water, germinated throughout the 450,000-acre lake.
- **Submersed hydrilla**, imported during the 1950s as an aquarium plant, is capable of growing several inches per day filling the water column and covering the surface of water bodies that are not frequently and routinely managed.
- Insufficient funding and inadequate management technology allowed hydrilla to evolve into statewide water and habitat management crises by the middle 1990s infesting about 100,000 acres in 357 (78%) of Florida's public lakes and rivers. (Figure 4)
- Improved and recurring funding and improved technology aided by FWC-funded research beginning in 2000 has enabled managers to reduce the standing crop to about 32,308 acres reported in 2010. (Figure 4)
- Hydrilla is under maintenance control in 95% of the 197 public waters that it infested in 2010; however, tubers infest about 79,550 acres and represent the potential for immediate regrowth. 65% of the hydrilla populations reported in 2010 covered 10 acres or less. (Figure 3)
- Managers spent \$11.81 million treating nearly 25,611 acres of hydrilla in Florida public lakes and rivers during FY 09-10 to conserve the multiple uses of these resources. (Tables 1-3)
- The Florida Exotic Pest Plant Council lists 12 **Category I invasive plants**, capable of disrupting aquatic ecosystems and causing harm in Florida public waters.
- Seven Category I plant species in addition to hydrilla, water hyacinth, and water lettuce were detected covering about 16,830 acres in 89% of Florida's public waters in 2010.
- \$4.69 million were spent managing about 17,500 acres of aquatic plants other than hydrilla and floating plants during FY 09-10. (Tables 1-3) Most for the control of torpedograss in Lake Okeechobee and floating islands and tussocks in Tsala Apopka to conserve fish and wildlife habitat and navigation in the extensive marsh systems of these waters.

Fiscal Year 2009-2010 Management Statistics

Table 1: Acres of Aquatic Plants Treated and Treatment Expenditures in Florida Public Waters during Fiscal Year 2009 - 2010.

Acres	Northwest	Suwannee	St Johns	Southwest	S. Florida	TOTAL
Floating	367	402	14,774	4,175	26,857	46,575
Hydrilla	199	0	4,272	7,692	13,448	25,611
Other Plants	653	307	1,971	1,639	12,974	17,544
TOTAL	1,219	709	21,017	13,506	53,279	89,730
Expenditures	Northwest	Suwannee	St Johns	Southwest	S. Florida	TOTAL
Floating	40,435	57,195	2,064,761	657,185	3,403,494	6,223,070
Hydrilla	12,158	0	3,109,162	1,705,901	6,985,739	11,812,960
Other Plants	171,863	69,101	201,429	2,114,014	2,131,675	4,688,082
TOTAL	\$ 224,456	\$ 126,296	\$5,375,352	\$4,477,100	\$12,520,908	\$22,724,112

Table 2: Federal and State Funds Expended during Fiscal Year 2009 -2010 to Control Aquatic Plants in Florida Public Water Bodies.

Government /Plant	TOTAL
Federal	
Floating Plants	3,604,821
Hydrilla	0
Other Plants	298,269
Subtotal	\$ 3,903,269
State	
Floating Plants	2,618,249
Hydrilla	11,812,960
Other Plants	4,389,634
Subtotal	\$18,820,843
Federal + State	
Floating Plants	6,223,070
Hydrilla	11,812,960
Other Plants	4,688,082
Total	\$22,724,112

Table 3: Acres of Aquatic Plants Treated and Associated Expenditures in Florida Public Waters during Fiscal Year 2009-2010 Listed by Plant Type.

Plant	Acres Treated	Expenditures
Hydrilla	25,611	11,812,960
Floating Plants	46,575	6,223,070
Torpedograss	9,943	1,216,417
Wild taro	746	95,395
Paragrass	1,086	54,300
Hygrophila	0	0
W. Indian marsh grass	102	82,571
Napiergrass	0	0
Aquatic soda apple	0	0
Water spinach	0	0
Giant salvinia	1	3,241
Other plants	4,858	903,985
Floating islands	808	2,332,173
Total	89,730	\$ 22,724,112

Floating Plants

Figure 1: Number of Public Lakes and Rivers in which Floating Plants Were Reported in 2010; Reported by Range of Population Size.

For example: 161 of the 268 floating plant populations reported in 2010 covered less than one acre. This is significant in that few floating plant populations are not under maintenance control. Those waters with large floating plant levels reported in 2010 are high priorities to regain control in 2011.

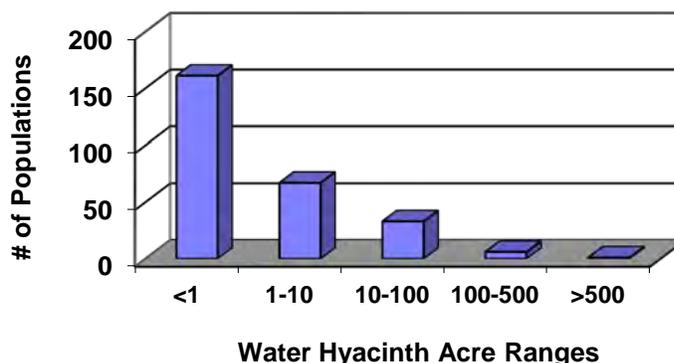
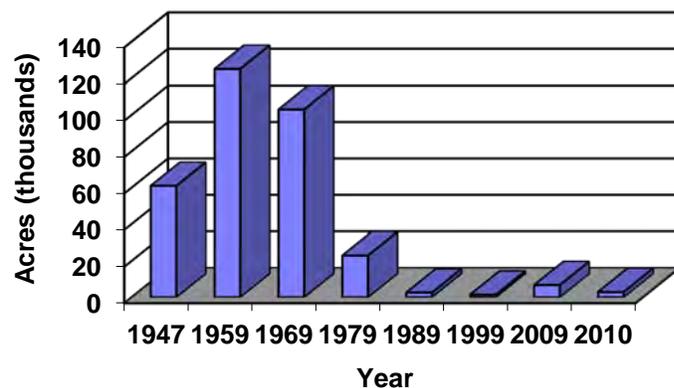


Figure 2: Acres of Water Hyacinth Reported in Florida Public Lakes and Rivers from 1947-2010.

Water hyacinth reached its apex, covering more than 125,000 acres in the early 1960s. Frequent and consistent management efforts coordinated on a statewide basis have allowed managers to reduce the standing crops of water hyacinth and water lettuce to low levels where they do not impair the multiple uses of Florida waters.



Hydrilla

Figure 3: Number of Public Lakes and Rivers in which Hydrilla Was Reported in 2010; Reported by Range of Population Size.

For example: 128 of the 197 hydrilla populations reported in 2010 covered less than ten acres signifying that most that are under maintenance control are at very low levels. Populations exceeding 100 acres are the higher management priorities for 2011.

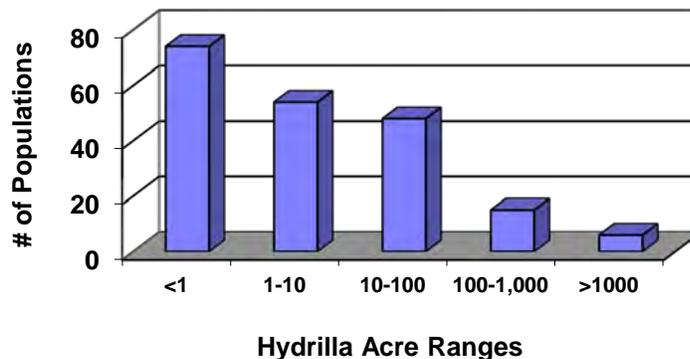
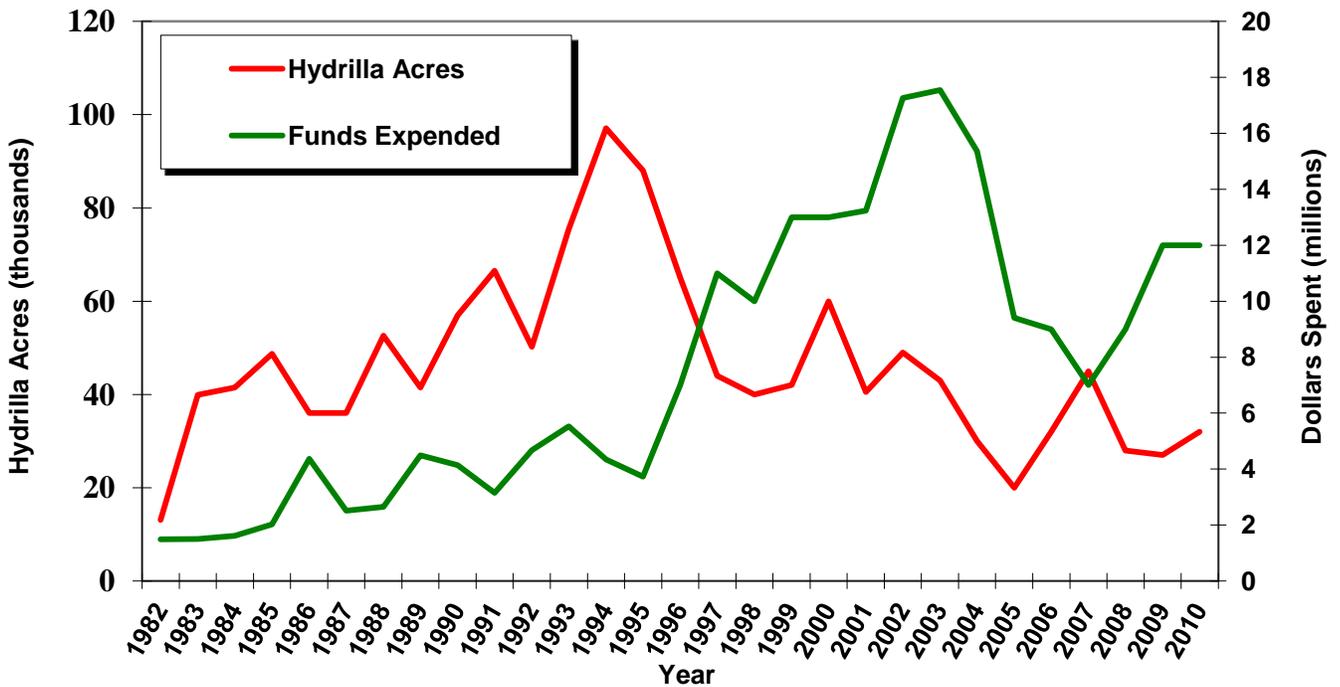


Figure 4: Acres Reported and Dollars Spent Managing Hydrilla in Florida Public Lakes and Rivers from 1982-2010.



When funds are sufficient, hydrilla can be managed at a low level. When funds decline, hydrilla expands to a higher level requiring additional recurring funding for control. Hydrilla reached its apex in Florida public waters in 1994, covering nearly 100,000 acres. Although the standing crop in the collective 197 waters in which hydrilla was reported in 2010 totaled about 32,300 acres, underground tubers, that represent hydrilla’s ability to immediately sprout and refill the water column, are estimated at about 79,550 acres.