

# LOUISIANA DEPARTMENT OF WILDLIFE & FISHERIES

OFFICE OF FISHERIES  
INLAND FISHERIES SECTION

AQUATIC VEGETATION CONTROL PLAN

## GRAND LAKE SYSTEM



Prepared by:  
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District 5  
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Grand Lake is a large natural lake within the Mermentau River basin that includes several smaller lakes with interconnecting bayous totaling over 60,000 acres of coastal marsh waterbodies. In combination with White Lake, Grand Lake comprises the lake sub-basin of the Mermentau River basin. The waters of the Grand Lake System are generally turbid year round due to rice cultivation and large, windswept expanses of shallow water. Submersed vegetation is seldom problematic. However, floating vegetation such as water hyacinth, common salvinia, and giant salvinia often choke smaller lakes and interconnecting bayous. There are miles of public and private interconnecting canals associated with this waterbody. LDWF personnel spend a significant amount of time controlling aquatic vegetation in these canals to facilitate public access.

## **Water body Information**

### ***Waterbody Type:***

Natural lake

### ***Parish/Location:***

Cameron Parish, LA

### ***Size (surface acres):***

Grand Lake: 44,000 acres Associated lakes: 11,800 acres

Canals and Bayous: ~5,000 acres

Grand Lake, White Lake, Lake Misere, Misere Bayou, Intracoastal Waterway (50702)

### ***Watershed:***

Watershed Ratio: Approximately 50:1

### ***Water Control Structures:***

#### Description:

Catfish Point Locks

This lock-gate structure was constructed in the 1950's by the U.S. Army Corps of Engineers (USACE) as a key component to creating the Mermentau Basin Project. The objectives of the Mermentau Basin Project program were to: 1) conserve fresh water in the lake sub-basin by maintaining normal to above normal lake stages in Grand and White Lakes for agricultural purposes; 2) prevent uncontrolled tidal inflow during the agriculture irrigation season (April through August); and 3) maintain minimum water levels for navigation.

#### Age and Condition:

Originally constructed in the 1950's

Condition – Good

#### Operation Procedures:

U.S. Army Corps of Engineers owned and operated for navigation and irrigation.

### **Lockmaster, CATFISH POINT CONTROL STRUCTURE**

Office: (337) 538-2266 - Mon-Fri, 0700 to 1530 except Calcasieu Saltwater 0600-1530 and

Catfish Point 0600-1800  
Lock Wall: (337) 538-2266 - After Hours & Weekends  
FAX Number: (337) 538-2288

***Ownership:***

State of Louisiana owns the water bottoms and the Louisiana Department of Wildlife & Fisheries manages the fish and wildlife resources.

***Pool stage:***

Approximately 1.2ft. NAVD 88  
Average Depth – 5ft.

***Stakeholders:***

While the lake itself is primarily used for commercial fishing, the Mermentau River upstream of the lake and associated canals are used for rice field irrigation and drainage. The connected canals and bayous are utilized for recreational fishing, frogging, and hunting as well as access to private hunting/fishing areas.

**Past Control Measures:**

***Biological:***

At this time no Department attempts have been made to control salvinia species with biological measures in this area. However, weevil stockings have been conducted upstream of this area in the Lake Arthur and lower Mermentau River, which are connected and flow into Grand Lake. Additionally, private landowners in the area have participated in the LSU AgCenter and LDWF weevil stocking program.

***Chemical:***

Typically, invasive aquatic vegetation is only problematic in the smaller bay-like areas on the lake, and in the canals and connected bayous. Herbicide applications are primarily used to control infested areas as needed.

Herbicide selection and application rates are in accordance with the approved LDWF Aquatic Herbicide Application Procedures. Historically, water hyacinth (*Eichhornia crassipes*), alligator weed (*Alternanthera philoxeroides*), and water primrose (*Ludwigia sp.*) were treated with 2,4-D (0.5 gal/acre), and common salvinia (*Salvinia minima*) was treated with glyphosate (0.75 gal/acre) or diquat (0.75 gal/acre). Currently, water hyacinth is still treated with 2,4-D (0.5 gal/acre) and a non-ionic surfactant (1 pint/acre), while salvinia spp. are treated with a mixture of glyphosate (0.75 gal/acre) and diquat (0.25 gal/acre) with Turbulence (or approved alternative, 0.25 gal/acre) surfactant. Alligator weed and water primrose areas treated with imazapyr (0.5 gal/acre) with Turbulence (or approved alternative, 0.25 gal/acre) surfactant.

Table 1. Grand Lake system herbicide treatment history 2005-2017.

Year	Number of Treatments*	Acres Treated	Primary Vegetation Treated
2005	33	562	Water Hyacinth, Alligator weed, Primrose
2006	71	1239	Water Hyacinth, Alligator weed, Primrose
2007	81	1179	Water Hyacinth, Alligator weed, Parrot's Feather, Pennywort
2008	135	3295	Water Hyacinth, Alligator weed, Parrot's Feather, Pennywort, Common Salvinia, Primrose
2009	101	2726	Water Hyacinth, Common Salvinia, Alligator weed, Parrot's Feather, Pennywort, Maidencane, Creeping River Grass
2010	99	2644	Alligator weed, Common Salvinia, Water Hyacinth, Parrot's Feather, Pennywort, Water Paspalum
2011	56	1340	Common Salvinia, Alligator weed, Water Hyacinth, Parrot's Feather, Giant Salvinia
2012	20	580	Giant Salvinia, Water Hyacinth, Common Salvinia, Alligator weed, Peruvian Watergrass
2013	26	774	Water Hyacinth, Alligator weed, Giant Salvinia, Peruvian Watergrass
2014	17	559	Giant Salvinia, Common Salvinia, Alligator weed, Water Hyacinth
2015	5	165.3	Alligator Weed, Parrot Feather, Pennywort, Common Salvinia, Giant Salvinia, Water Hyacinth
2016	41	1612.63	Alligator Weed, Primrose, Water Hyacinth, Common Salvinia, Giant Salvinia
2017	29	1039.3	Alligator Weed, Primrose, Water Hyacinth, Sedge, Cut Grass, Common Salvinia, Giant Salvinia

\*For reporting purposes, a treatment is defined as one crew for one 8-hr day.

\*\* 2017 data as of October 24, 2017

## Aquatic Vegetation Estimates:

### Fall 2017:

common salvinia (150 acres)  
 alligator weed (100 acres)  
 water hyacinth (350 acres)  
 giant salvinia (200 acres)

### Predicted for 2018:

common salvinia (200acres)  
 alligator weed (150 acres)  
 water hyacinth (900 acres)  
 giant salvinia (250 acres)

## Limitations:

- Drawdowns are not an option

- Vast expanses of open water
- Irrigation systems for local agriculture limit chemical selection and treatment areas in some canal locations (see labeling for specific water intake restrictions).

## **Recommendations:**

### ***Biological Control***

LDWF spraying operations keep main canals open, but there are thousands of acres of private canals that are not treated. Many are inaccessible. These areas provide continuous sources of infestation, and release plants into maintained areas through rainfall or irrigation practices (pump-off). LDWF will continue outreach efforts to make landowners aware of available giant salvinia weevils for stocking opportunities, so that these areas may be inoculated with weevils. LDWF will identify sites on public waters in the Grand Lake area that may benefit from weevil stockings and release weevils at these sites.

### ***Chemical Control***

LDWF will continue to control emergent and floating vegetation with herbicides in accordance with the approved LDWF Aquatic Herbicide Application Procedures as needed. Areas where infestations consist primarily of water hyacinth (> 75%), will be treated with 2,4-D (0.5 gal/acre) and a nonionic surfactant (1 pint/acre) will be used. Infestations consisting primarily of salvinia (> 75%), a mixture of glyphosate (0.75 gal/acre) and diquat (0.25 gal/acre) with Turbulence (or approved alternative, 0.25 gal/acre) surfactant will be applied. Infestations consisting of even mixtures of plants or primarily alligator weed will be treated with imazapyr (0.5 gal/acre) and Turbulence (or approved alternative, 0.25 gal/acre) surfactant.

### ***Physical Control***

Use of high salinity water as a physical control is not available due to rice irrigation.



Figure 1. Map of Grand Lake

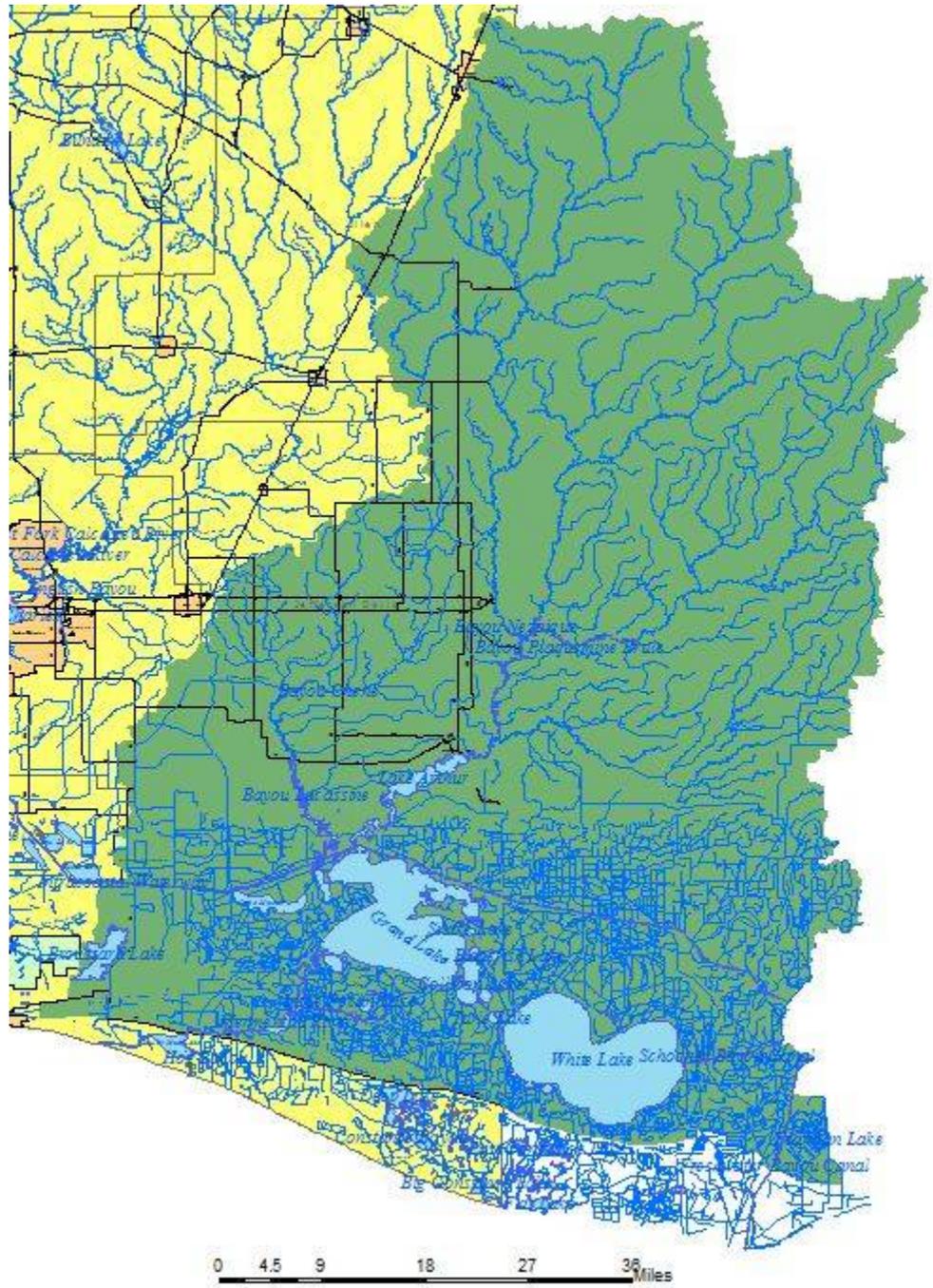


Figure 2. Map of Grand Lake/White Lake watershed